



CENTER FOR EXCELLENCE IN DISASTER MANAGEMENT & HUMANITARIAN ASSISTANCE
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USINDOPACOM
Foreign Disaster Response
in the Indo-Pacific
April 1991 – January 2024

USINDOPACOM Foreign Disaster Response in the Indo-Pacific April 1991 – January 2024

April 4, 2024

Cover Photos:

Philippine citizens gather around an MH-60S Seahawk as it delivers relief supplies to support Operation Damayan in Guiuan, Philippines, Nov. 17, 2013. Photo from U.S. Department of Defense. <https://www.defense.gov/Multimedia/Photos/igphoto/2001123061/>

NASA Satellites see Super-Typhoon Haiyan lashing the Philippines in this visible image of the storm taken from the MODIS instrument aboard NASA's Aqua satellite on Nov. 7, 2013. Photo by NASA via Instagram.

<https://www.instagram.com/p/gbStjFlaB4/>

Philippine citizens affected by Typhoon Haiyan board a U.S. Marine Corps KC-130J Super Hercules aircraft in Guiuan, Philippines, Nov. 21, 2013, during Operation Damayan. U.S. military forces were deployed to the Philippines to support humanitarian efforts in response to Typhoon Haiyan.

DoD photo by Lance Cpl. Caleb Hoover, U.S. Marine Corps/Released

<https://flic.kr/p/hQBkt8>

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About the Center for Excellence in Disaster Management & Humanitarian Assistance

Overview

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is a United States (U.S.) Department of Defense (DoD) organization comprised of nearly 30 subject matter experts that provide academic research, civil-military coordination training, and operational insights to support decision making before, during, and after crises. The Center is designed to bridge understanding between humanitarians, civilian, and military responders. CFE-DM partners with a diverse group of governmental and nongovernmental actors, as well as academic institutions to increase collaborations and capabilities in humanitarian assistance and disaster response. While maintaining a global mandate, the Indo-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice. The Center is a direct reporting unit to U.S. Indo-Pacific Command (USINDOPACOM) and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

Vision

Resilient Joint Forces, Allies, and Partners that are fully prepared to respond across the spectrum of humanitarian crises.

Mission

CFE-DM builds crisis response capacity in US and Partner militaries, enhances coordination and collaboration with civilian and foreign partners, and strengthens those relationships to save lives and alleviate human suffering before, during, and after humanitarian crises in a changing climate environment.

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Introduction

Worldwide, the Indo-Pacific is the region most prone to natural disasters. Between 1970 and 2020, Asia and the Pacific accounted for 87% of the total global population affected by natural hazards,¹ and the average number of people affected by disasters annually in the region stood at roughly 122 million.² Because of the frequency and widespread effects of disasters in the Indo-Pacific, regional and international responders have been called upon to support major disaster relief efforts. These responders include militaries from across the region, including United States (U.S.) armed forces.

Aside from the devastating loss of life and injuries from disasters, economic damages have also been severe in the region. Between 1970 and 2018, the region lost US\$1.5 trillion in economic damages, mostly because of floods, storms, droughts, earthquakes and tsunamis.³ The Indo-Pacific is home to the “Ring of Fire,” a path along the rim of the Pacific Ocean where 75% of the earth’s volcanoes lie and where 90% of earthquakes occur; this factor contributes significantly to the number of hazards and disasters in the region.⁴ Additionally, climate change is increasing the demand for military operations and is, therefore, impacting the readiness of forces and costs associated with meeting those demands.⁵

Climate change will continue to worsen the effects of natural hazards such as tropical cyclones and will increase the threat of other hazards such as sea level rise. According to the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), “The impact and magnitude of disasters, over the past decade, indicate that climate change is making natural hazards even more frequent and intense...”⁶ Furthermore, UNESCAP added, “Risks in existing disaster hotspots are forecasted to intensify, and new disaster hotspots will begin to appear. A riskscape of complex, compound and cascading disasters is emerging.”⁷ The Coronavirus Disease 2019 (COVID-19) pandemic has also challenged humanitarian and military responders and is precipitating a rethinking and revamping of how civil-military relief operations are prepared and executed.

With the significant number of natural disasters affecting the region, the United States Indo-Pacific Command (USINDOPACOM) was called upon to support at least 44 foreign disaster responses in the Indo-Pacific from April 1991 to the end of January 2024. These events range from small-scale responses, where sometimes U.S. military forces are the only foreign military assisting the affected nation, to supporting large-scale operations for major disasters alongside many other regional militaries and civilian responders. This number does not reflect every significant disaster that has impacted the Indo-Pacific. More often than not, civilian and military responders in the affected state can respond to disasters on their own without international help. Thus, it is less common for regional militaries, such as the U.S. military, to be called upon to support relief efforts.

Most U.S. Department of Defense (DOD) responses to natural disasters are in support of the U.S. Agency for International Development (USAID)/Bureau of Humanitarian Affairs (BHA) (formerly the Office of Foreign Disaster Assistance, or OFDA) as the lead U.S. federal coordinator, as part of a whole-of-government approach to providing international humanitarian assistance and disaster relief when there

1 UNESCAP. Resilience in a Riskier World: Managing Systemic Risks from Biological and Other Hazards. Asia-Pacific Disaster Report 2021. <https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf>

2 Ibid.

3 UNESCAP. The Disaster Riskscape Across Asia-Pacific: Pathways for Resilience, Inclusion and Empowerment. 2019. https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202019_full%20version.pdf

4 National Geographic. Ring of Fire. <https://www.nationalgeographic.org/encyclopedia/ring-fire/>

5 Vergun, David. U.S. Department of Defense. DOD Preparing for Climate Change Impacts, Official Says. June 15, 2022. <https://www.defense.gov/News/News-Stories/Article/Article/3064183/dod-preparing-for-climate-change-impacts-official-says/>

6 UNESCAP. Seizing the moment: targeting transformative disaster risk resilience. 2023. <https://www.unescap.org/kp/2023/seizing-moment-targeting-transformative-disaster-risk-resilience>

7 Ibid.

is a Declaration of Humanitarian Need (DHN). DOD generally will provide assistance only when unique DOD capabilities are required. This support most commonly includes logistics, transportation, delivery of relief supplies, reconnaissance, and search-and-rescue (SAR) operations.⁸

In the majority of cases, the U.S. Government (USG) is able to respond utilizing civilian response assets to foreign disasters declared as such by the U.S. Traditionally, the DOD only assists USAID/BHA in around 10% of U.S.-declared foreign disasters on average annually.⁹ However, that figure may vary year-to-year. Those events are usually major disasters where affected nations' resources are overwhelmed and civilian and military response capacity has been exceeded, thus the support of unique foreign military assets (FMA) such as logistical capabilities (e.g., heavy lift) is requested.

Most DOD relief operations have been for major natural disasters, and most of those have been in response to earthquakes, tsunami, major storms and flooding. Since 1970, natural hazards in Asia and the Pacific have affected 6.9 billion people and killed more than 2 million people, which accounts for almost 60% of the worldwide disaster death toll.^{10, 11} Most of the deaths were from storms and earthquakes, followed by tsunami and floods.¹²

However, in some cases DOD support to a foreign disaster originates from and is largely coordinated at a military-to-military level, such as when USINDOPACOM responded to a request directly from the Armed Forces of the Philippines (AFP) and provided support to their Typhoon Doksuri relief effort in July and August 2023. Additionally, there have been a few U.S. military operations in the region that were not in support of a typical large-scale international disaster response. These include the 2018 SAR operation of a youth soccer team stranded in a cave in Thailand, regional search and surveillance for Rohingya refugees leaving Myanmar on boats for parts of Southeast Asia in the early months of 2015, and supporting the international search for Malaysian Airlines Flight MH370 that went missing in March 2014.

This report looks at U.S. military operations in the Indo-Pacific region beginning in April 1991, when U.S. military forces assisted Bangladesh during Operation Sea Angel, which followed Cyclone Gorky. The main body of the report is made up of 35 discussions of foreign disasters in the region. The report provides a summary of each event and the accompanying response from the USG with an emphasis on the support provided by U.S. military forces. The report aims to give an overview of USINDOPACOM and overall DOD efforts, but some details may not be covered due to length constraints. As such, it is not possible to cover every aspect of every crisis in this document.

Of note, U.S. military forces were called upon to support disaster relief efforts in the USINDOPACOM Area of Responsibility (AOR) each year between 2004, when the devastating Indian Ocean tsunami struck the region, and 2018, when U.S. military forces supported the regional response to the earthquake and tsunami that hit Palu, Indonesia. The annual pace picked up again in April 2021, when U.S. Naval Construction Battalions, or "Navy Seabees," assisted Timor-Leste with flood relief operations. This was followed in January 2022 by support to the USG response and overall regional relief efforts following the eruption of Tonga's Hunga Tonga-Hunga Ha'apai volcano. In March 2022, the U.S. Navy assisted Australian Defence Forces with flood recovery in eastern Australia. In late July to early August 2023, U.S. Marines supported the AFP in the response to Typhoon Doksuri (locally known in the Philippines as Egay). Also in August 2023, U.S. military forces supported the USAID/BHA-led USG response to the Mount Bagana

8 DSCA. Foreign Disaster Relief (FDR), <https://www.dsca.mil/foreign-disaster-relief-fdr>

9 USAID. U.S. Government Agencies & Military. <https://www.usaid.gov/partner-with-us/us-government-and-military>

10 UNESCAP. Resilience in a Riskier World: Managing Systemic Risks from Biological and Other Hazards. Asia-Pacific Disaster Report 2021. <https://www.unescap.org/sites/default/d8files/knowledge-products/Asia-Pacific%20Disaster%20Report%202021-Full%20report.pdf>

11 UNESCAP. Seizing the moment: targeting transformative disaster risk resilience. 2023. <https://www.unescap.org/kp/2023/seizing-moment-targeting-transformative-disaster-risk-resilience>

12 Ibid.

eruption in the Autonomous Region of Bougainville, Papua New Guinea.

As of the beginning of February 2024, the last natural disaster response involving U.S. military forces in the Indo-Pacific occurred in January 2024, when U.S. Forces Japan (USFJ) assisted the Government of Japan and the Japan Self-Defense Forces (JSDF) with relief efforts following the Noto Peninsula earthquake and tsunami that occurred on New Year's Day, January 1, 2024.

Nearly all of the relief missions in this book occurred in the USINDOPACOM AOR. The exception is the response to the 2005 Pakistan earthquake. Although Pakistan falls within the U.S. Central Command (USCENTCOM) AOR, USINDOPACOM personnel from different services supported USCENTCOM forces in "Operation Lifeline" in response to the destructive earthquake; therefore, this response is included in this report.

The intent of this report is to not only chronicle U.S. military response and assistance to foreign disasters, but also hopefully provide examples of how military support is utilized for disaster relief in the region. The report aims to inform future U.S. military responders and planners about what assets were used for a particular relief effort and how they can prepare for planning and executing a similar humanitarian assistance or disaster response mission.

While every attempt was made to be inclusive of each foreign response operation in the region, it is possible some events were not captured. Additionally, while conducting an extensive literature review, CFE-DM has encountered references to U.S. military support in the region that unfortunately had little information available to warrant inclusion in the main body of this report. Because of the lack of details available, it was decided to capture these events in an appendix, located in the back of the report. For information on these U.S. military disaster relief efforts, please see the "Appendices: Other USINDOPACOM Foreign Disaster Response Support."

Although civil-military coordination and relief efforts in the region have improved over the years, the expansion of risks from climate change compounded by the possible threat of future pandemics will alter international response efforts. This shift will necessitate more thoughtful preparation and response efforts from civilian and military actors in the Indo-Pacific. Regional humanitarian and military responders expect to continue to be challenged by future disaster relief missions. As the DOD often has unique capabilities to support large-scale international disaster responses, especially with airlift and logistics, U.S. military forces will continue working alongside the region's military and civilian responders to support foreign disaster relief and humanitarian assistance operations in the Indo-Pacific region.

As part of its contribution to preserving the history of USINDOPACOM, particularly in regard to disaster response, CFE-DM presents this volume, which updates the 2019 edition, to cover the additional period from June 2019 through January 2024. This new edition aims to be a reference resource for U.S. military planners, personnel deploying to or in support of a humanitarian assistance mission in the Indo-Pacific region, and for historical background and reference.



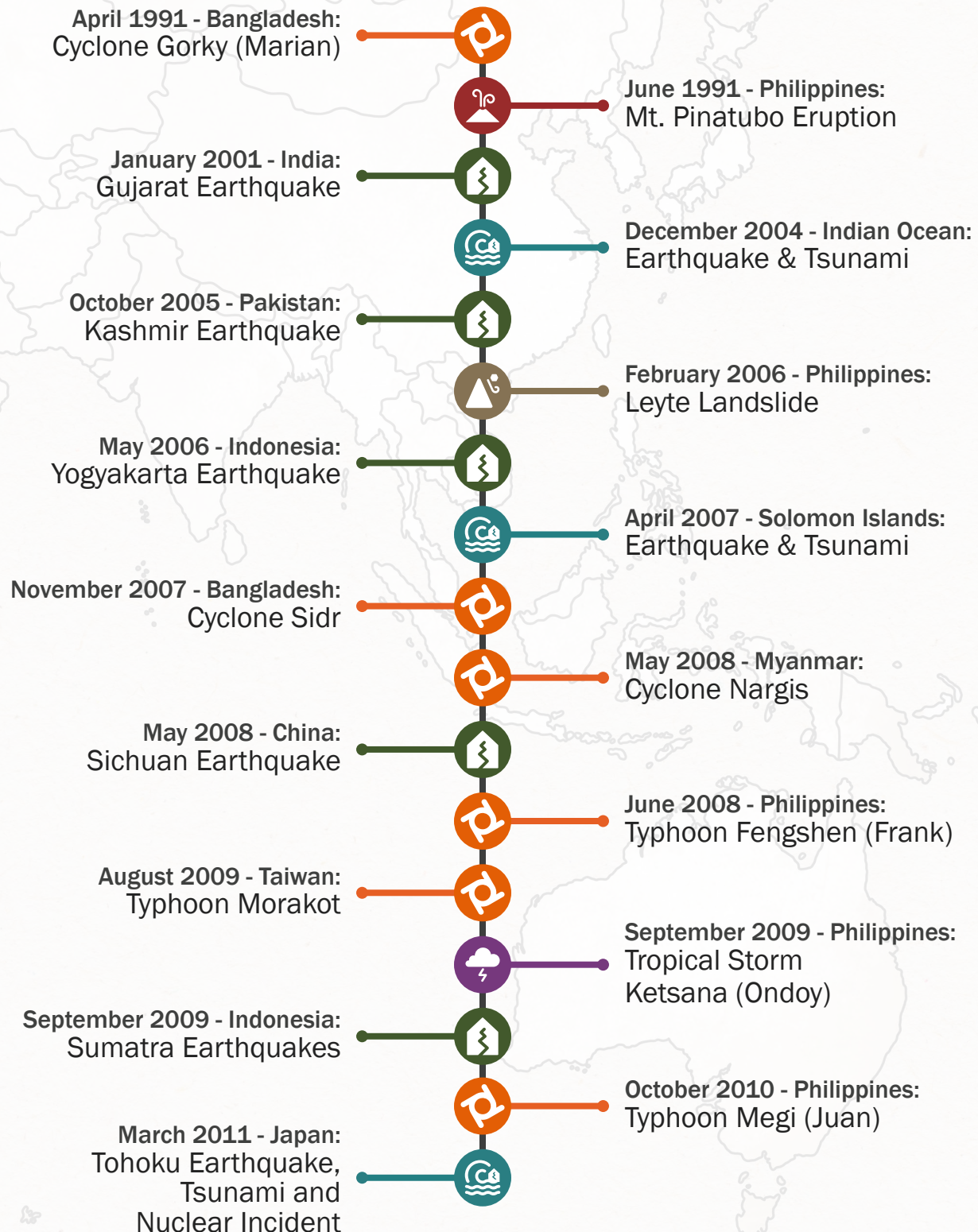
The Military Sealift Command hospital ship USNS Mercy navigates alongside USS Abraham Lincoln after arriving on station near Banda Aceh, Sumatra, Indonesia, Feb. 3, 2005.
U.S. Navy photo by Petty Officer 3rd Class Gabriel R. Piper
Source: <https://archive.defense.gov/home/photoessays/2005-02/p20050203b7.html>

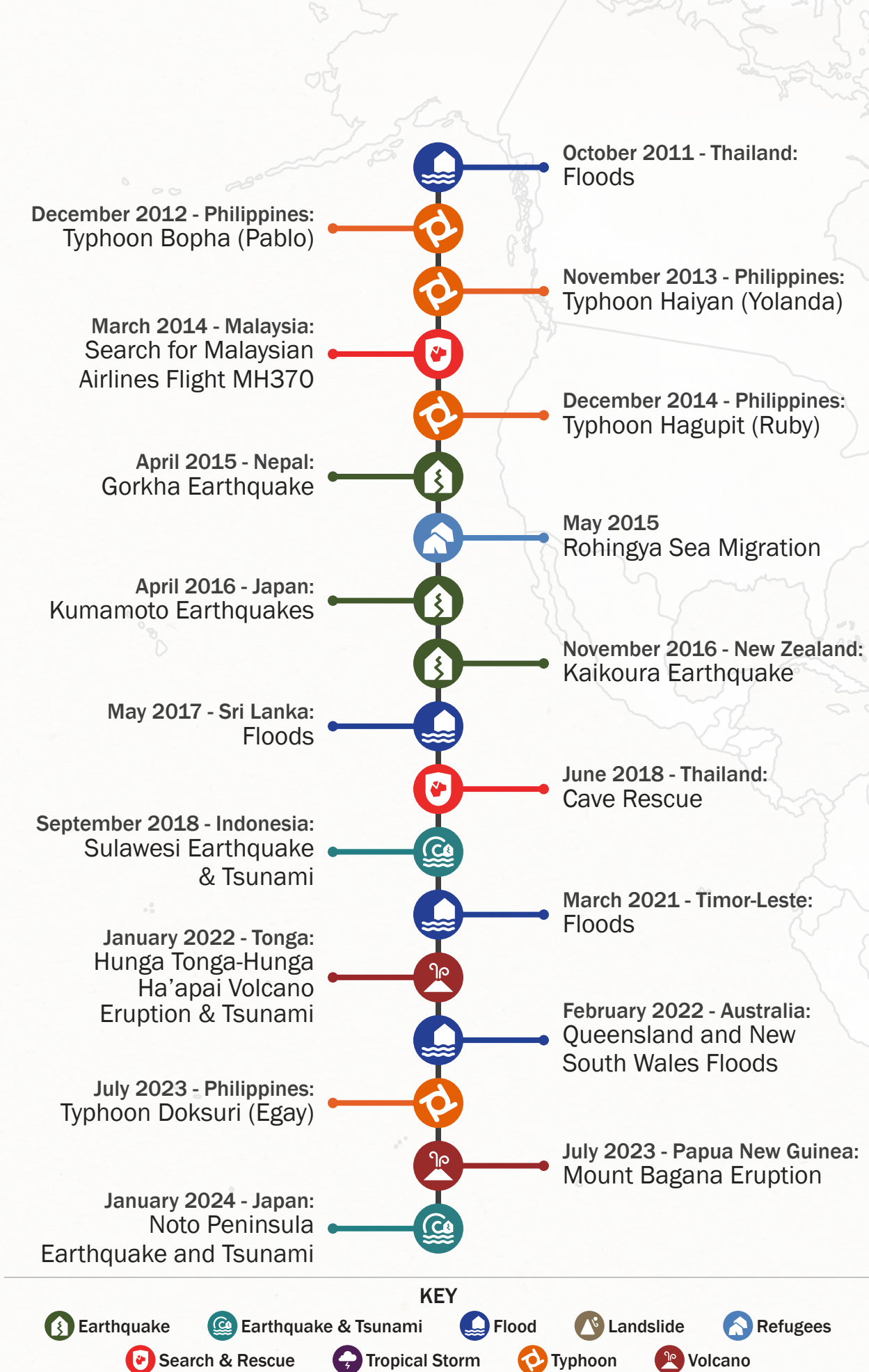


USINDOPACOM Foreign Disaster Response in the Indo-Pacific

Timeline: April 1991 – January 2024

Note: Operations discussed in the main body of the book are listed here. Additional missions can be found in the Appendices section: "Other USINDOPACOM Foreign Disaster Response Support"





April 1991

Bangladesh: Cyclone Gorky (also known as Cyclone Marian)

Background

On April 29-30, 1991, powerful Tropical Cyclone Gorky (also referred to as Cyclone Marian), struck the southeastern coastal lowlands and offshore islands of Bangladesh with 235 km/hr (140 mile-per-hour) winds accompanied by a 6-8 meter storm surge. The devastating storm left 139,000 people dead. Women and children reportedly made up more than 60 percent of those who perished. The lives of more than a million livestock were also lost as well, an important part of the livelihoods of many affected Bangladeshis. The cyclone destroyed infrastructure in affected areas and essentially wiped out the water supply. Thousands of people reportedly took refuge in cyclone shelters, however, thousands more remained outside due to lack of space. The estimated number of those left homeless was 2.5 – 3 million.^{13, 14}

Ten districts, home to some 11.2 million people were affected, with the four coastal districts of Bhola, Noakhali, Chittagong and Cox's Bazar being the worst-affected. The offshore islands of Kutbdia, Sandwip and Mahshkkali were submerged from flood waters. The port at Chittagong was badly flooded and damaged. Unfortunately, it was the only port in the region capable of receiving supplies, thereby greatly hampering the relief effort.^{15, 16}

Bangladesh had installed its first civilian government less than two months earlier led by Prime Minister Begum Khaleda Zia. Following the cyclone, Zia flew to affected areas to assess the destruction. Upon her return to the capital, Dhaka, she appealed for international assistance. Food, shelter, drinking water, medicine and clothing were among the immediate needs. It was also noted that one of the key problems for the government would be the lack of capability to distribute relief goods to affected areas. Land routes were cut off and the government had only six functioning helicopters.^{17, 18}

The Armed Forces of Bangladesh were the initial key responders from the Government of Bangladesh and were mobilized to immediately restore clean drinking water, reestablish communications, and distribute relief supplies. The army soon began to establish camps and began feeding the affected, while the Air Force



Housing was destroyed in Khankanabad, Banskhali, south of Chittagong

Photo from USCinCPac

Source: Angels From the Sea: Relief Operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_2.pdf

13 Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

14 Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

15 Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

16 Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

17 Ibid.

18 Operation Sea Angel: A Case Study, https://www.rand.org/pubs/monograph_reports/MR374.html

utilized helicopters not damaged by the storm to begin food and medicine deliveries to isolated areas. The Bangladesh Rifles, a paramilitary force, was also sent to assist officials with maintaining order.¹⁹

U.S. Government Response and “Operation Productive Effort/Sea Angel”

United States Ambassador William B. Milam immediately declared a disaster and authorized the immediate release of US\$25,000 to Bangladesh for relief after a request by United States Agency for International Development (USAID) Mission Director Mary Kilgour. In addition, some US\$2 million worth of medical supplies donated through the Department of Defense’s (DOD) Humanitarian Assistance program was given to the Ministry of Health. On May 3, Kilgour, accompanied by Defense Attaché Lt. Col. James Dunn and First Lt. David Silverman, commanding officer of the U.S. Army’s 2d Platoon, Company B, 84th Engineer Battalion (Combat) (Heavy) flew to affected areas to assess the damage.²⁰

It was determined from the assessments that a supply of water purification tablets and oral rehydration salts were the number one priority. Some of the earliest assistance came in the form of 13 pallets of relief and medical supplies from Pacific Command’s Humanitarian Assistance Office to be prepared in Okinawa and delivered by C-141 Starlifter plane on May 10. In addition, an Air Force C-5A transport plane from Southwest Asia arrived and the DOD donated relief items totaling some US\$25 million. After receiving approval from the Bangladesh Army, the U.S. embassy deployed 15 soldiers from the U.S. Army’s 84th Engineer Battalion to Chittagong to assist with repair of the airport.²¹

On or about May 10, USCINCPAC activated Joint Task Force Productive Effort and designated Major General Henry Stackpole III, as its Commander. Adm Charles R. Larson, USN, was US Commander in Chief Pacific (USCINCPAC) at the time. According to “Requirements for Humanitarian Assistance and Peace Operations: Insights From Seven Case Studies,” based on news reports that Bangladeshi’s were calling U.S. military personnel “angels from the sea,” the operations name was later changed to “Sea Angel,” or Joint Task Force Sea Angel (JTF-SA).²² A Presidential order came on May 11 from President George Bush directing the U.S. military to assist with relief efforts. A 28-person advance party was formed to provide assessments, led by General Stackpole.^{23, 24}

Upon landing in Bangladesh, General Stackpole assumed operational control of the 84th Engineer Battalion detachment, combat camera, public affairs and maintenance personnel from the Cobra Gold exercise in



MajGen Henry C. Stackpole III, commanding the III Marine Expeditionary Force headquartered on Okinawa, was given command of the joint American effort to provide disaster relief to the victims of the Bangladesh cyclone.

Department of Defense Photo (USAF) DF-ST-92-06107

Source: https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_2.pdf

¹⁹ Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

²⁰ Ibid.

²¹ Ibid.

²² Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

²³ Ibid.

²⁴ Ibid.

Thailand who had been assigned to the JTF. A military Disaster Assessment and Relief Team (DART) from the 1st Battalion, 1st Special Forces Group A (Airborne) also joined the JTF.²⁵

Stackpole and staff members met with Bangladeshi Lt. Gen. Muhammad Noor Uddin Khan and some of his staff and toured affected areas. An Air Force C-5A Galaxy transport carrying 5 U.S. Army Blackhawk helicopters, support equipment and a 56-person augmentation team arrived from Hawaii, including the JTF deputy commander USAF Colonel Edward G. Hoffman. Lt. Colonel Thomas F. Elzey was named JTF Army component commander.²⁶

Stackpole decided to split the JTF staff between Dhaka and Chittagong. Dhaka would primarily function as a planning and liaison headquarters, headed by Col. Stephen Lindblom, III MEF Operations officer as the JTF's chief of staff. The Chittagong center would schedule helicopter flights and landing craft operations to move relief supplies within affected areas.²⁷

IIMEF activated Contingency Marine Air-Ground Task Force 2-91 (CMAGTF 2-91) to support the deployment and assist the response. CMAGTF 2-91 was drawn from 26 different MEF units. Within 96 hours of activation, 44 Marines and Navy corpsmen were airlifted to Bangladesh, and with the assistance of eight reverse osmosis water purification units (ROWPUs) began producing potable water. On the 19th, another 190 Marines boarded the USS St. Louis and left Okinawa for Bangladesh.^{28, 29}

According to a report by the Center for Naval Analyses, a three phase

concept (concept of operations) for the relief operation was developed:

1. Humanitarian relief operations to reduce mortality and stabilize the situation, with a focus on the distribution of immediate needs (such as food and medical supplies). CJTF estimated this phase would last 14 days. (Actual: 27-29 May.)
2. Humanitarian relief operations focused on the delivery of supplies and equipment to allow self-help recovery projects to begin. Phase to last ten days. (Actual: 29 May-7 June.)
3. Conversion to long-term support and reconstruction operations. U.S. military to provide some technical support but most U.S. forces to phase out of relief operations. Phase to last five days. (Actual: 7-13 June 1991.)³⁰



An air-cushion landing craft being loaded with relief supplies for transport to one of the offshore islands.

Photo from 5th MEB

Source: https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_2.pdf

²⁵ Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

²⁶ Ibid.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

³⁰ Ibid.

On May 11, an amphibious task force comprised of the Amphibious Group 3 (PhibGru3) and the 5th Marine Expeditionary Brigade (5th MEB), commanded by Rear Admiral Stephen S. Clarey, were ordered to the Bay of Bengal to provide disaster relief. The group ended up providing the bulk of support for Operation Sea Angel. The group had just left deployment to the Persian Gulf, following Operation Desert Storm. The eight ship, 3,000 person group consisted of seven amphibious ships and one support ship. These were: the amphibious assault ship Tarawa; the amphibious docks Vancouver and Juneau; the dock landing ships Anchorage and Mount Vernon; the tank landing ships Frederick and Barbour County; and the fleet oiler Passumpsic. Landing craft included four air cushioned landing craft, utility and mechanized landing craft, and inflatable and rigid craft. The 4,000 person 5th MEB, as an all air-ground task force, was comprised of a command element, ground combat element, aviation combat element and a combat service support element and also had 28 helicopters at its disposal. The group reached Bangladesh on May 15. After arrival, Gen. Stackpole assumed operational control and the role of the group was deemed to provide delivery of food, medicine and expertise. Despite the large number of available personnel, no more than 500 U.S. military personnel were allowed ashore at any time.^{31, 32, 33}

On May 14, the vanguard of JTF Forward headquarters deployed to Chittagong, including Special Operations Force troops who formed Mobile Area Assessment Teams which conducted assessments at key relief sites on the mainland and offshore islands. In addition, Air Force specialists from the 1723rd Special Tactics Squadron provided assessments at airfields at Chittagong, Cox's



One of five U.S. Army Blackhawk helicopters from the 4th Battalion, 25th Aviation Regiment, based in Hawaii, is unloaded at Zia International Airport. The helicopters were part of the Joint Task Force augmentation cell. Photo from USCinCPac
Source: https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_2.pdf



When the first U.S. Army Blackhawk helicopters arrive at landing zones on Sandwip island they are rapidly unloaded and the relief supplies quickly distributed. Department of Defense Photo (USAF) DO-307-SPT-91-7071
Source: https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_2.pdf

31 Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

32 Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

33 Operation Sea Angel: A Case Study, https://www.rand.org/pubs/monograph_reports/MR374.html

Bazar, and Dhaka. The remaining elements of the CinCPac augmentation team arrived, which included Army Blackhawk aviators and support staff, a reserve civil affairs team from the 351st CA Command, a Corps of Engineers harbor assessment team, communications, public affairs and medical staff including Captain John R. Downs, MC, USNR who was designated the JTF surgeon. The IIIMEF command element was augmented by PACOM's deployable joint task force augmentation cell, or DJTFAC.^{34, 35}

Since the amphibious task force had more than 90 percent of available helicopter transport, Gen. Stackpole assigned the group the largest area of the disaster zone. The area encompassed 23,000 square kilometers and more than 240 kilometers of coast from Chittagong in the north to Cox's Bazar in the south, as well as offshore islands.³⁶

As of May 18, the JTF included more than 7,000 military personnel comprised of 179 staff in the JTF HQ; 3,000 from PhibGru3; 4,000 from 5th MEB; 54 Air Force personnel from 374th Tactical Air Wing (with four C-130s); 89 Army personnel (a five-helicopter detachment from the 25th ID); and 78 personnel in the JSOTF. As one of the main tasks was to transport relief, through two weeks of operations, U.S. Forces delivered some 2,430 tons of aid. The JTF-SA also helped transport Bangladeshi government officials, relief workers, the media, and VIP's. U.S. military operations lasted until June 13, 1991, when Operation Sea Angel concluded.^{37, 38}

In total in support of the operation, the Air Force flew 194 missions, delivering 2,430 tons of cargo; Army Blackhawk helicopters flew 805 sorties, delivering 891.5 tons of relief supplies; Navy/Marine assets flew 969 sorties, delivering 700 tons of relief supplies; 266,000 gallons of potable water were produced from ROWPUs, and around 15,000 patients were treated by U.S. forces.³⁹



A Marine CH-46 Sea Knight helicopter is surrounded by villagers as it delivers food and medical supplies to an outlying village.

Photo from 5th MEB

Source: https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_2.pdf



A damaged village surrounded by flooded fields, nearly three weeks after the 1991 Bangladesh cyclone hit the country.

Photo by: Airman 1st Class Cheryl Sanzi (USAF). Image from the Defense Visual Information Center, ID number DFST9202642.

https://commons.wikimedia.org/wiki/File:Flooded_village_after_1991_cyclone.jpg

³⁴ Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

³⁵ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

³⁶ Angels from the sea: Relief operations in Bangladesh, 1991, https://www.marines.mil/Portals/59/Publications/ANGELS%20FROM%20THE%20SEA%20-%20RELIEF%20OPERATIONS%20IN%20BANGLADESH%201991%20PCN%2019000316400_1.pdf?ver=2012-10-11-163159-377

³⁷ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

³⁸ Operation Sea Angel: A Case Study, https://www.rand.org/pubs/monograph_reports/MR374.html

³⁹ Ibid.

The Troop list for the operation included:

Command element: Commanding General III MEF, Maj Gen Stackpole

- Detachment (Det) III MEF
- Deployable JTF Augmentation cell
- C-12 Det MCAS Iwakuni and MCAS Futenma
- 4th Combat Communications Group
- Public Affairs Office
- Det 834th Air Logistics Division
- Det 364th Civil Affairs Brigade
- Det 322d Civil Affairs Group
- Det 358th Civil Affairs Command

Marines:

- 5th Marine Expeditionary Brigade
- Marine Air Ground task force 2-91

Navy:

- Amphibious Group 3
- USS St. Louis
- Environmental Preventative Medicine Unit-6

Air Force:

- Det 374th Tactical Airlift Wing
- Det 603d Airlift Control Squadron
- Det 8 Mobile Aerial Port Squadron (MAPS)

Army:

- 4-25 Aviation Battalion
- Det 84th Engineer Battalion (Combat) (Heavy)

Special Operations Forces:

- Joint Special Operations Task Force⁴⁰

⁴⁰ Ibid.



June 1991

Philippines: Mount Pinatubo Eruption

Background

On June 15, 1991, after some two months of unrest, Mount Pinatubo, located on the main island of Luzon in the Philippines, erupted explosively, and sent a massive cloud of ash into the sky. Deadly pyroclastic flows (avalanches of hot ash) raced down its flanks along with lahars (giant mudflows of ash), which traveled more than 30 miles down valleys. Towns and cities near the volcano were destroyed. Pinatubo first showed signs of activity on April 2, 1991 after being dormant for some 500 years. The eruption forced the Government of the Philippines and U.S. military authorities to call for the evacuation of populations near the danger zone of the volcano, including U.S. military service members and their dependents at the two largest U.S. military bases in the Philippines, Clark Air Force Base and U.S. Naval Station at Subic Bay. In total, around 75,000 people, including the local population, as well as the U.S. military personnel and dependents, were safely evacuated.⁴¹

According to the United States Geological Survey (USGS), more than 840 people were reported killed from the eruption. Around 942,764 people (192,641 families) in total were affected, according to the United Nations. The most severely affected area was Central Luzon and the number of houses damaged or destroyed was reported at 3,388.⁴² Relief efforts for the eruption were complicated because of the arrival of Typhoon Yunya (locally known as Diding) which struck southern Luzon, also on June 15. At least 4 people were killed directly from the storm, but Yunya was also blamed for triggering Lahar flows, causing more casualties.⁴³ The typhoon also helped spread ash from the volcano to as far away as the Indian Ocean.⁴⁴

The eruption affected three U.S. military bases in the area, Clark Air Force Base, Subic Bay Naval Base and Cubi Point NAS. The eruption led to the evacuation of thousands of U.S. military personnel and their dependents at Clark and Subic Bay. Over 21,000 American military personnel and dependents in total were evacuated from the bases and away from the Philippines.⁴⁵



The cataclysmic lateral eruption of Mount Pinatubo, June 15, 1991. Photo taken moments after the eruption commenced.

Photo from U.S. Coast Guard

Source: <https://seabeemagazine.navylive.dodlive.mil/2018/06/15/kicking-ash-the-seabees-of-operation-fiery-vigil/>

U.S. Government Response and “Operation Fiery Vigil”

Shortly after Pinatubo first awakened in April, U.S. Geological Survey (USGS) scientists with the Volcano Disaster Assistance Program’s (VDAP) crisis response team arrived at Clark Air Base and joined scientists from the Philippine Institute of Volcanology and Seismology (PHIVOLCS). The joint team worked to evaluate the threat from Pinatubo, installing instruments and mapping volcanic deposits

41 MobileResponse Team Saves Lives in Volcano Crises, <https://pubs.usgs.gov/fs/1997/fs064-97/>

42 Philippines Mt Pinatubo Volcanic Eruption Aug 1992 UN DHA Situation Reports 1-8, <https://reliefweb.int/report/philippines/philippines-mt-pinatubo-volcanic-eruption-aug-1992-un-dha-situation-reports-1-8>

43 Typhoon hits Philippines, kills four, <https://www.upi.com/Archives/1991/06/15/Typhoon-hits-Philippines-kills-four/2021676958400/>

44 Remembering Mount Pinatubo 25 Years Ago: Mitigating a Crisis, <https://www.usgs.gov/news/remembering-mount-pinatubo-25-years-ago-mitigating-crisis>

45 MobileResponse Team Saves Lives in Volcano Crises, <https://pubs.usgs.gov/fs/1997/fs064-97/>

in order to better understand the volcano. Their evaluation enabled them to alert people in areas at risk and provide advice to the Government of the Philippines and to the U.S. military at Clark and Subic. The U.S. military provided air assistance to the PHIVOLCS-VDAP team. Clark air base was home to more than 15,000 American service members and their dependents.⁴⁶

The VDAP-USGS team developed an alert system for civil defense and U.S. military officials to communicate the risk from the volcano. Base officials put together a plan to evacuate people to Subic and Naval Air Station Cubi Point and began procedures for an evacuation on June 8. Aircraft also began to be evacuated and a 374th Tactical Air Wing C-9A aircraft evacuated premature babies, their mothers and medical staff to Kadena Air Base in Japan.^{47, 48, 49}

Following the first low-level eruption on June 9, the U.S. Secretary of Defense authorized evacuation of all non-essential military and DOD civilian personnel and their dependents at Clark Air Base. On early June 10, 15,000 non-essential personnel were evacuated by road from Clark to Subic Bay, around 30 miles to the southwest. By that time period, local residents had already evacuated and almost all aircraft had been removed. Several smaller Lahars damaged Clark.^{50, 51, 52}

On June 12, 29 fixed wing aircraft departed naval air station Cubi point, of the remaining 66 aircraft, which were mainly helicopters, only nine were not in hangars. On June 13, ash forced the closure of Cubi Point and Manila International airport. On June 15, the main eruption sent debris over 100,000 feet into the air and Clark Air Base was buried under 1-2 feet of ash.^{53, 54}

The situation also worsened at Subic Bay due to the eruption, and on June 16, Navy ships began moving non-essential personnel and dependents from Subic Bay to Cebu island, 350 miles from Pinatubo. In total around 17,000 evacuees were carried by ship to Cebu. From Mactan airfield on Cebu, the evacuees were airlifted to Andersen Air Force Base in Guam and then most went to the continental United States by the Military Airlift Command (or MAC, the predecessor of the Air Mobility Command, or AMC) and commercial aircraft. In total around 21,635 people arrived at Andersen in less than one week.⁵⁵ The evacuation operation was called “Operation Fiery Vigil.” Commanding General, 13th USAF, commanded the JTF.^{56, 57}



Mount Pinatubo, Philippines, June 1991. First major eruption of Mount Pinatubo, viewed from Clark Air Force Base. Photo by: R.S. Culbreth/U.S. Air Force <https://www.stripes.com/recounting-us-military-s-last-days-in-the-philippines-1.228182#gallery>

⁴⁶ MobileResponse Team Saves Lives in Volcano Crises, <https://pubs.usgs.gov/fs/1997/fs064-97/>

⁴⁷ Ibid.

⁴⁸ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

⁴⁹ Fiery Vigil, <https://amcmuseum.org/history/fiery-vigil/>

⁵⁰ MobileResponse Team Saves Lives in Volcano Crises, <https://pubs.usgs.gov/fs/1997/fs064-97/>

⁵¹ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

⁵² Fiery Vigil, <https://amcmuseum.org/history/fiery-vigil/>

⁵³ Operation Fiery Vigil, https://www.globalsecurity.org/military/ops/fiery_vigil.htm

⁵⁴ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

⁵⁵ Operation Fiery Vigil brought 21,000 refugees to Andersen, <https://www.andersen.af.mil/News/Article-Display/Article/415796/operation-fiery-vigil-brought-21000-refugees-to-andersen/>

⁵⁶ Fiery Vigil, <https://amcmuseum.org/history/fiery-vigil/>

⁵⁷ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>



According to a report by the Center for Naval Analyses, the concept of operations called for a three step process:

1. Movement of non-essential personnel and dependents from Clark AFB to Subic Bay;
2. Movement of evacuees from Subic to Cebu Island; and,
3. Evacuation from Cebu to CONUS (or other appropriate sites) via aircraft.

The USAF kept a security force at Clark, which was downsized following the eruption.⁵⁸

Ash fall covered Clark air base, located some 9 miles away from Pinatubo, and Subic Bay naval base. On Clark, many buildings collapsed under the weight of rain-saturated ash. Facilities at Subic Bay, located some 25 miles from Pinatubo, were also severely damaged.⁵⁹

The Military Airlift Command alone airlifted 15,000 passengers on 246 missions, 191 of which were C-141 flights, while the others came in on chartered aircraft. About 21,635 people would arrive at Andersen in the space of less than one week. Others instrumental in making the operation succeed were Guam Air National Guard's 254th Air Base Group and sailors from Naval Air Station Agana. Additionally, over 2,000 tons of cargo was also moved.^{60, 61}

Aircraft used were C-5s which flew 12 missions, C-141s which flew 195 missions, C-130s which flew 38 missions and a C-9 which flew one mission.⁶²

An on scene U.S. Marine Corps (USMC) force (then MAGTF 4-90) assisted with the response. When augmented by elements of the 15th Marine Expeditionary Unit (MEU), who were offloaded to provide room for evacuees, the MAGTF 4-90 consisted of 3,000 Marines.⁶³

Fiery Vigil involved support from all four services. The Air Force provided airlift for the evacuees. MAGTF 4-90 consisted mainly of USMCR units (BLT 1/24 and HMLA-76). Augmenting Marine forces included elements of the 15th MEU; Contingency MAGTF 2-91 (which completed operations in Bangladesh in Operation Sea Angel and then headed to the Philippines with 32 ROWPUs and engineering



With a force of 62.7 pounds per square foot, the wet volcanic ash collapsed the roofs of countless buildings at Cubi Point and Subic Bay, including this one at the naval station, July 8, 1991. With torches, hand tools and front-end loaders, Seabees dismantled and demolished some structures and repaired the roofs of others.

Photo from U.S. Navy

Source: <https://seabeemagazine.navylive.dodlive.mil/2018/06/15/kicking-ash-the-seabees-of-operation-fiery-vigil/>



World Airways DC-10, Naval Air Station Cubi Point, on the flight line weighed down by thick, water-soaked ash, June 17, 1991.

Photo from U.S. Navy

Source: <https://seabeemagazine.navylive.dodlive.mil/2018/06/15/kicking-ash-the-seabees-of-operation-fiery-vigil/>

⁵⁸ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

⁵⁹ MobileResponse Team Saves Lives in Volcano Crises, <https://pubs.usgs.gov/fs/1997/fs064-97/>

⁶⁰ Fiery Vigil by Daniel L. Haulman, <https://amcmuseum.org/history/fiery-vigil/>

⁶¹ Operation Fiery Vigil brought 21,000 refugees to Andersen, <https://www.andersen.af.mil/News/Article-Display/Article/415796/operation-fiery-vigil-brought-21000-refugees-to-andersen/>

⁶² Fiery Vigil by Daniel L. Haulman, <https://amcmuseum.org/history/fiery-vigil/>

⁶³ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

equipment aboard the USS St. Louis); a survey-liaison reconnaissance party (SLRP), offload preparation party (OPP), and six CH-53Ds, which deployed from Okinawa to the Philippines aboard the USS Midway; and two OV-10Ds which deployed from Okinawa. For the Navy, 28 ships directly supported the evacuation, and Seabees did engineering and clean up work.⁶⁴

When conditions improved, two MAC C-5 Galaxies flew 34 pallets of food to the Philippines to help feed local people displaced by the eruption.⁶⁵

On June 22, a team of 11 engineers and utility specialists from PACAF headquarters and the 554th Red Horse arrived at Clark Air Base to assess damages and determine the fate of the base. Clark was the oldest and largest overseas U.S. base. On July 17, the U.S. announced Clark AB would not re-open. The American flag was lowered on November 26, 1991 and Clark Air Force Base was turned back to the Philippines, after over 90 years of U.S. presence. Operation Fiery Vigil started on June 8 and the operation wrapped up on July 2, 1991. The operation was the largest evacuation operation to the U.S. since the fall of South Vietnam in 1975.^{66, 67, 68}



CLARK AIR BASE, Philippines -- In 1991 U.S. Air Force and Marine personnel evacuated a truck full of munitions aboard a helicopter at the height of the Mount Pinatubo volcanic eruption at here. The lahar, (hot mudflow) and ash fall from the volcano resulted in extensive damages to major facilities on base. Clark AB closed down in November of 1991 ending almost a century of American military presence in the Philippines.

U.S. Air Force photo by Master Sgt. Val Gempis

Source: <https://www.af.mil/News/Photos/igphoto/2000030105/>



Seabees at Subic Bay and Cubi Point used a combination of a front loader and bulldozer to create berms of ash slurry before pushing it off to collection points for disposal. Photo taken October 19, 1991, Naval Station Subic Bay.

Photo from U.S. Navy

Source: <https://seabeemagazine.navylive.dodlive.mil/2018/06/15/kicking-ash-the-seabees-of-operation-fiery-vigil/>

⁶⁴ Requirements for Humanitarian Assistance and Peace Operations: Insights from Seven Case Studies, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a533209.pdf>

⁶⁵ Fiery Vigil by Daniel L. Haulman, <https://amcmuseum.org/history/fiery-vigil/>

⁶⁶ Operation Fiery Vigil, https://www.globalsecurity.org/military/ops/fiery_vigil.htm

⁶⁷ Fiery Vigil by Daniel L. Haulman, <https://amcmuseum.org/history/fiery-vigil/>

⁶⁸ Ibid.



January 2001

India: Gujarat Earthquake (also known as the Bhuj Earthquake)

Background

On January 26, 2001 an earthquake measuring 7.9 magnitude on the Richter scale hit the Kutch region of eastern Gujarat state as the nation celebrated its 52nd Republic Day. At least 14,000 lives were lost, around 160,000 people were injured, and over 1 million homes were destroyed or damaged. The ancient city of Bhuj was devastated. The earthquake was felt across the state and caused damages as far away as Ahmedabad, located around 250 km from the epicenter.⁶⁹ Twenty-one out of 25 districts were affected. The most affected districts were Kutch-Bhuj, Ahmedabad, Jamnagar and Rajkot. According to the UN, within those districts, 37.8 million people out of a total state population of 41 million people were affected.

Gujarat is located on the west coast of India. In addition to its coastline on the Arabian Sea, it is bordered by Pakistan, and the Indian states of Rajasthan, Madhya Pradesh and Maharashtra.⁷⁰ The earthquake was the most powerful to strike India since August 15, 1950 when an 8.5- magnitude earthquake killed 1,538 people in northeastern Assam state.

The Indian military operation was called: “Operation Sahayata.” Immediately following the quake, the Indian Army initially performed most of the rescues and flew in heavy equipment. The Army also set up relief camps, distributed food, and provided medical aid. Military hospitals were set up in Kachchh region, Pune and Ahmedabad. The army also provided security.⁷¹

The Indian military moved some 30,000 troops by air across the country to the earthquake affected area in around 72 hours to help with relief efforts.⁷²

The Indian Union Home Ministry also sent 47 companies of the central paramilitary forces for rescue and relief work, such as the Rapid Action Force (RAF), Central Reserve Police Force (CRPF) and Border Security Force (BSF).⁷³ Additionally, military staff at Bhuj military airport supported international aid flying into the airport.⁷⁴



India Earthquake - February 8, 2001

Source: USAID, <https://reliefweb.int/map/india/india-earthquake-february-8-2001>

69 Rising up from the Ashes, Gujarat ramps up Disaster Preparedness, <https://reliefweb.int/report/india/rising-ashes-gujarat-ramps-disaster-preparedness>

70 UN System Response to the Gujarat Earthquake Immediate Needs and Action Plan, <https://reliefweb.int/report/india/un-system-response-gujarat-earthquake-immediate-needs-and-action-plan>

71 Learning from earthquakes: Preliminary observations on the origin and effects of the January 26, 2001, Bhuj (Gujarat, India) earthquake, http://www.iitk.ac.in/nicee/skj/Research_Papers/INL_005.pdf

72 Indo-U.S. Military Relationship: Expectations and Perceptions, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a500476.pdf>

73 The Kutch Earthquake 2001 Recollections, Lessons and Insights, <https://nidm.gov.in/PDF/pubs/KUTCH%202001.pdf>

74 IFRC*Choreographer of Disaster Management the Gujarat Earthquake, <http://www.fritzinstitute.org/PDFs/Case-Studies/Gujarat%20Earthquake.pdf>



U.S. Government Response

On January 26, USAID/OFDA activated a 24-hour USAID/OFDA Response Management Team (RMT) to coordinate the U.S. Government response to the disaster, including U.S. military support. On January 28, an eleven-member USAID/Disaster Assistance Response Team (DART), comprised of a team leader and logistics, information, program, and communications personnel, a water technical specialist, as well as a military liaison officer, was sent to the affected areas and New Delhi.⁷⁵

On February 3, four U.S. Department of Defense (DOD) C-17 aircraft carrying 92 large tents, 10,000 blankets, 1,500 sleeping bags, two rough terrain forklifts, two water trailers, and a 2.5 ton truck arrived in Ahmedabad on February 3. A six-person DOD Humanitarian Assistance Survey Team (HAST) arrived to coordinate with USAID/DART.^{76, 77}

USAID/OFDA-funded airlifts arrived in India with relief commodities on January 30, February 3, and February 4, which included technical equipment, shelter materials, blankets, sleeping bags, equipment for water/sanitation, and other supplies. The commodities were consigned to USAID/OFDA's implementing partners and the Indian military.⁷⁸

In general, the DOD provided personnel, relief supplies, equipment, and transport assistance. USAID/OFDA provided funds to assist with the storage and transport of DOD commodities. The HAST conducted an assessment of ongoing support requirements in coordination with USAID/DART on February 14.⁷⁹

Two C-5s, which were refueled by KC-135s from the Hawaii National Guard, carried 115 tons of relief from California to Guam. From Guam, four C-17s refueled by KC-135s from Japan, delivered the supplies to Ahmedabad, India.⁸⁰

As relief efforts concluded, on February 15, the USAID/DART demobilized and the RMT in Washington, D.C. deactivated.⁸¹



A 2.5 ton truck intended for Indian earthquake relief is unloaded from a Dover AFB, Delaware, based C-5 Galaxy before being loaded aboard a C-17 Globemaster for its delivery to Ahmedabad, India, February 2, 2001. Delivery of tents, blankets and sleeping bags with the heavy equipment were delivered to the international airport at Ahmedabad, India, by C-17s from McCord AFB, WA, and intercepted by personnel deployed from the 633rd Air Mobility Support Squadron, Kadena AFB, Japan.

US Air Force photo by Staff Sgt. Stan Parker

Source: https://commons.wikimedia.org/wiki/File:A_2.5_ton_truck_intended_for_Indian_earthquake_relief_is_unloaded_from_a_Dover_AFB,_Delaware,_based_C-5_%22Galaxy%22_before_being_loaded_ aboard_a_C-17_Globemaster_for_its_delivery_to_Ahmedabad.JPG



U.S. Air Force personnel unload relief supplies destined for earthquake victims in India from a C-5A Galaxy at Andersen Air Force Base, Guam, on Feb. 3, 2001.

U.S. Air Force photo by Senior Airman Levi Collins

Source: https://commons.wikimedia.org/wiki/File:U.S._Air_Force_personnel_unload_relief_supplies_destined_for_earthquake_victims_in_India_from_a_C-5A_Galaxy_at_Andersen_Air_Force_Base,_Guam.JPG

⁷⁵ India - Earthquake Summary Fact Sheet, Fiscal Year (FY) 2001, <https://reliefweb.int/report/india/india-earthquake-summary-fact-sheet-fiscal-year-fy-2001>

⁷⁶ India - Earthquake Fact Sheet #16, Fiscal Year (FY) 2001, <https://reliefweb.int/report/india/india-earthquake-fact-sheet-16-fiscal-year-fy-2001>

⁷⁷ India - Earthquake Summary Fact Sheet, Fiscal Year (FY) 2001, <https://reliefweb.int/report/india/india-earthquake-summary-fact-sheet-fiscal-year-fy-2001>

⁷⁸ Ibid.

⁷⁹ India - Earthquake Summary Fact Sheet, Fiscal Year (FY) 2001, <https://reliefweb.int/report/india/india-earthquake-summary-fact-sheet-fiscal-year-fy-2001>

⁸⁰ Wings of Hope, <https://www.amc.af.mil/Portals/12/documents/AFD-131018-056.pdf>

⁸¹ India - Earthquake Summary Fact Sheet, Fiscal Year (FY) 2001, <https://reliefweb.int/report/india/india-earthquake-summary-fact-sheet-fiscal-year-fy-2001>

December 2004

Indian Ocean Earthquake and Tsunami

Background

On December 26, 2004, a massive 9.0-magnitude earthquake occurred off Indonesia's westernmost Aceh province, located on Sumatra Island, creating tsunami waves that affected 14 countries, mainly in Southeast Asia and South Asia, but reaching as far away as Africa. The tsunami waves reportedly travelled at speeds up to 600-800 km per hour in the ocean and were up to 30 meters high when they struck coastal areas at speeds of up to 60 km per hour. More than 228,000 people were killed in the disaster and nearly 2.5 million in total were affected across the region. Economic damages totaled nearly US\$10 billion. The countries most affected by the tsunami were Indonesia, Thailand, Sri Lanka, India and the Maldives. In response to the disaster, thirty-five nations contributed 75 helicopters, 41 ships, 43 fixed-wing aircraft, and more than 30,000 personnel to assist in relief efforts. Of these, around 16,000 military personnel were from the United States.^{82, 83}

Indonesia

The largest tsunami waves hit the west coast of Sumatra along a 500 km stretch and inundated areas nearly 5 km inland. Nearly 170,000 people reportedly lost their lives in Indonesia alone. The tsunami waves were said to have arrived as quickly as 15 minutes after the earthquake started. More than 200,000 homes in Aceh were destroyed or damaged by the tsunami waves. Economic damages were estimated at US\$4.45 billion in Indonesia. In the aftermath of the disaster, Indonesian President Susilo Bambang Yudhoyono declared a three-month state of emergency. On December 27, 2004, the Government of Indonesia asked the UN to coordinate incoming international assistance. The next day, President Yudhoyono said Aceh was open to the international community for emergency response efforts.^{84, 85}



The aftermath, Jan. 14, 2005, of the Dec. 26 tsunami which destroyed Banda Aceh, Sumatra, Indonesia.

U.S. Navy photo by Petty Officer 3rd Class Tyler J. Clements
Source: <https://archive.defense.gov/home/photoessays/2005-01/p20050118d2.html>

To complicate matters in the most affected areas, the response effort had to deal with a potential security situation. An armed independence movement by the Free Aceh Movement (Gerakan Aceh Merdeka, or GAM) had led to a long-running conflict in the province with Indonesian security forces. Due to the security concerns, the Indonesian military (Tentara Nasional Indonesia, or TNI) was concerned about the situation, particularly if humanitarian agencies were allowed unrestricted access to affected areas. The TNI ended up providing escorts for foreign militaries, UN agencies, and NGOs moving into certain areas. However, following the disaster, GAM leadership declared an immediate cessation

⁸² The tsunami legacy - Innovation, breakthroughs and change, <https://reliefweb.int/report/indonesia/tsunami-legacy-innovation-breakthroughs-and-change>

⁸³ The Effectiveness of foreign military assets in natural disaster response, <https://www.sipri.org/sites/default/files/files/misc/FMA/SIPRI08FMAAnC.pdf>

⁸⁴ Ibid.

⁸⁵ Tsunami 2004: A comprehensive Analysis, Volume-1, <https://apps.who.int/iris/handle/10665/206047>

of hostilities, while the TNI was instructed to adopt a more defensive posture.⁸⁶ Fortunately, no security incidents were reported.

A massive response by the international community resulted with dozens of foreign governments, the international humanitarian community, and foreign militaries mobilizing to help those affected by the disaster. An estimated US\$13.5 Billion in aid was given to affected countries.⁸⁷ Around 195 foreign and international humanitarian organizations, 38 local humanitarian groups and 14 United Nations agencies assisted in the three-month emergency relief effort in Indonesia.⁸⁸

Sri Lanka

On the morning of December 24, 2004, around two hours after the earthquake struck, tsunami waves hit the eastern, southern and western coasts of Sri Lanka, or more than half the island nation's coastline. The tsunami waves swept away thousands of people, destroyed infrastructure and flooded large areas of the coast. More than 35,000 people lost their lives due to the tsunami and thousands of others were displaced. Over two million Sri Lankans in total were affected by the disaster. Twelve districts out of the 25 districts in the country were severely affected. The tsunami particularly affected the coastal districts of Jaffna, Mullaitivu, Trincomalee, Batticaloa, Ampara, Hambantota, Matara and Galle. A couple of weeks after the disaster struck, in January 2005, the UN reported that the number of families displaced by the disaster was 97,953, or 578,224 people in total. The number of houses destroyed was reported at 93,054. Following the disaster, the Government of Sri Lanka declared a state of emergency and requested international assistance. To coordinate relief operations, the Government established a Centre for National Operations under the direct authority of the Prime Minister. The Centre provided links to the government ministries and provided an interface between the Government, NGOs and the UN. The Centre was directly supported by the Office of the Resident Coordinator and the UN Disaster Assessment and Coordination (UNDAC) team.^{89, 90, 91, 92, 93}



U.S. Navy air crewmen assigned to the "Providers" of Helicopter Combat Support Squadron 5, hand out supplies to tsunami victims at a small village on the island of Sumatra, Indonesia, Jan. 15, 2005.

U.S. Navy photo by Seaman Nicholas B. Morton
Source: <https://archive.defense.gov/home/photoessays/2005-01/p20050118c2.html>

Thailand

After the earthquake struck off Aceh, Thailand was one of the first countries in the region outside of Indonesia to be affected by massive tsunami waves. Waves rushed in about an hour or so after hitting Banda Aceh, the capital of Aceh province. Tsunami waves impacted Thailand's Andaman coast roughly two hours after the quake struck. A total of 8,221 people were killed in Thailand and another 8,457 people

⁸⁶ Ibid.

⁸⁷ Ibid.

⁸⁸ The Effectiveness of foreign military assets in natural disaster response, <https://www.sipri.org/sites/default/files/files/misc/FMA/SIPRI08FMAAnC.pdf>

⁸⁹ The United Nations Post-Tsunami Assistance in Sri Lanka, <https://lk.one.un.org/un-post-tsunami-assistance/>

⁹⁰ Commemorating the lives we lost from the 2004 Indian Ocean Tsunami, <https://reliefweb.int/report/sri-lanka/commemorating-lives-we-lost-2004-indian-ocean-tsunami>

⁹¹ Tsunami disaster -- Sri Lanka Summary situation report 26 - 31 Dec 2004, <https://reliefweb.int/report/sri-lanka/tsunami-disaster-sri-lanka-summary-situation-report-26-31-dec-2004>

⁹² Humanitarian Situation Report - Sri Lanka 07 Jan 2005, <https://reliefweb.int/report/sri-lanka/humanitarian-situation-report-sri-lanka-07-jan-2005>

⁹³ Tsunami relief, April 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/7DE384EA71C8479085257012006221D2-usaid-tsunami-30apr.pdf>

were injured. Around 58,550 people were directly affected by the disaster. Tsunami waves were reportedly as high as 10 meters. The tsunami hit the coast of the Andaman Sea coastal provinces of Krabi, Trang, Phang Nga, Phuket, Ranong and Satun. Phang Nga was the most severely affected. Most of the fatalities occurred along the coast of just three provinces, Phang Nga, Phuket, and Krabi. Additionally, 3,302 houses were destroyed, while another 1,504 were damaged.^{94, 95, 96}

Maldives

Tsunami waves left an estimated 82 people dead and 26 missing in the Maldives. Around 12,558 persons were displaced. About half of the island of Male was covered by two feet of water, forcing the closure of the airport. Reports stated that a 10-15 foot wave washed over parts of the Maldives, destroying infrastructure. The disaster sparked the creation of a new National Disaster Management Centre (NDMC) in the Maldives the day the tsunami struck.^{97, 98}

Although foreign militaries from all over the globe assisted in the response operations, regional militaries played a major role in the response. Regional militaries contributed ships, helicopters, fixed and rotary wing aircraft, as well as provided engineering, medical and logistics support. Military personnel from Bangladesh, Brunei, India, Malaysia, Pakistan and Singapore assisted their affected neighbors, while elsewhere from the region, Australia, New Zealand, Japan, South Korea and the United States contributed military forces and assets to provide relief assistance for the mega-disaster.⁹⁹

U.S. Government Response and “Operation Unified Assistance”

US Pacific Command (USPACOM) dubbed its relief operations in support of affected nations in the region, “Operation Unified Assistance.” The U.S. military provided assistance to Indonesia, Sri Lanka, Thailand and the Maldives, with badly affected Aceh province in Indonesia receiving the bulk of the U.S. military’s relief aid.

Combined Support Force 536 (CSF 536), led by Marine Lt. Gen. Robert R. Blackman Jr., commander of the III Marine Expeditionary Force in Japan, was formed to support relief operations. CSF 536 was set up at the Thai air base in U-Tapao, Thailand.^{100, 101}

Less than a day after the tsunami struck, U.S. Secretary of State Colin Powell announced that the U.S. would deploy a Navy P-3 aircraft to help assess damages.¹⁰² The Department of Defense supported relief operations in Thailand, Indonesia, Sri Lanka, and the Maldives beginning December 30, 2004.

Within 36 hours of the disaster, Air Force aircraft were taking off from Yokota AB, Japan, carrying relief supplies to U-tapao and less than a day-and-a-half later, C-130s and helicopters were delivering supplies to survivors.¹⁰³

At the height of the relief operation, there were nearly 16,000 U.S. military personnel in the region supporting disaster relief efforts. There were 26 ships, 58 helicopters, and 43 fixed wing aircraft in total. DOD delivered over 18 million pounds of relief supplies and equipment and provided well over 400,000

94 The Economic Impact of the 26 December 2004 Earthquake and Indian Ocean Tsunami in Thailand, <https://reliefweb.int/report/thailand/economic-impact-26-december-2004-earthquake-and-indian-ocean-tsunami-thailand>

95 Tsunami 2004: A comprehensive Analysis, Volume-1, <https://apps.who.int/iris/handle/10665/206047>

96 Tsunami relief, April 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/7DE384EA71C8479085257012006221D2-usaid-tsunami-30apr.pdf>

97 Indian Ocean Earthquake and Tsunami: Humanitarian Assistance and Relief Operations, <https://fas.org/sgp/crs/row/RL32715.pdf>

98 Tsunami Legacy: Innovation, Breakthroughs and Change, https://reliefweb.int/sites/reliefweb.int/files/resources/TGLLP_2009_TS_legacy.pdf

99 The 2004 tsunami: civil military aspects of the international response, https://www.alnap.org/system/files/content/resource/files/main/coordination_civil_military.pdf

100 Operation Unified Assistance, <http://www.airforcemag.com/MagazineArchive/Pages/2005/April%202005/0405tsunami.aspx>

101 Tsunami relief, April 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/7DE384EA71C8479085257012006221D2-usaid-tsunami-30apr.pdf>

102 Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

103 Operation Unified Assistance, <http://www.airforcemag.com/MagazineArchive/Pages/2005/April%202005/0405tsunami.aspx>

gallons of fresh water and ferried almost 8,000 passengers. DOD also treated almost 2,500 patients.^{104, 105} In the first few weeks after the disaster, helicopters were the only means of delivering relief supplies to small pockets of survivors along the coast in Indonesia.

The US military airlift effort averaged 522,000 pounds of food, water, and other supplies per day over the 47 days of operations. Some relief supplies and support equipment had to come by C-5 Galaxy's and C-17 Globemaster IIIs all the way from the continental United States to the central distribution point at U-Tapao. C-130 Hercules aircraft then distributed the supplies to smaller airfields throughout the affected area. From there, U.S. helicopters and other nations moved them to affected populations. The airlift operated mainly from U-Tapao in a "hub and spoke" system.¹⁰⁶

More than 2,000 airmen from 100 Air Force units and 14 bases, as far away as Charleston AFB, were involved. They supported or flew 30 Air Force aircraft that conducted more than 1,400 sorties in the region and scores of long-haul missions into the theater by Air Mobility Command (AMC) C-17s and C-5s. Maj. Gen. David A. Deptula, director of air and space operations for Pacific Air Forces served as the joint force air component commander (JFACC) for Combined Support Force 536.¹⁰⁷

By February 23, 2005, AMC aircraft flew 106 missions, airlifting 2,768 passengers and 3,370 tons of cargo to Colombo, Sri Lanka, U-Tapao, Banda Aceh and Jakarta, Indonesia. The 353d Special Operations Group flew MC-130s to deliver some 800,000 pounds of relief, evacuate 32 casualties, and transported 591 aid workers to parts of Indonesia and Thailand.¹⁰⁸

On December 29, US Transportation Command (TRANSCOM), headquartered at Scott AFB, Ill., dispatched a C-17 from McChord AFB, Wash., to carry a maintenance package from Yokota to U-Tapao, to support the Yokota-based C-130s. In the next few days, C-5 and C-17 airlifters carried helicopters, relief supplies, support personnel, and emergency responders.¹⁰⁹

The theater airlift control center at TRANSCOM responded to requests from the air mobility division of the Pacific Air Operations Center at Hickam AFB, Hawaii. The Pacific Air Ops Center then provided command and control and integration capability for all US fixed-wing missions within the Pacific theater. Air Force aircraft involved in the relief effort included 35 C-17s, 24 C-5s, 21 C-130s, six HH-60s, two KC-135s, and one C-21. Nine Navy P-3C patrol aircraft conducted surveillance.¹¹⁰

U.S. Military Response in Indonesia

The leader of the Indonesian Armed Forces, General Endriartono Sutarto, directly requested assistance through his military counterparts in Australia, Malaysia, New Zealand, Singapore and the U.S., based on previous relationships. Militaries from these countries arrived in Banda Aceh and Medan, capital of North Sumatra province, soon after the request was made. The government set a limit of 90 days for the emergency relief phase with the understanding that all foreign military assets would withdraw from Aceh by that deadline. TNI had the responsibility for coordinating with foreign militaries and provided force protection for foreign troops. Daily coordination meetings were chaired by the TNI.¹¹¹

Foreign military assets were sent by 16 different countries and all foreign military assets were sent bilaterally. Negotiations occurred for all force deployments, particularly on rules of engagement and

¹⁰⁴ Continuing support for tsunami relief, <https://georgewbush-whitehouse.archives.gov/infocus/tsunami/>

¹⁰⁵ Operation Unified Assistance, <http://www.airforcemag.com/MagazineArchive/Pages/2005/April%202005/0405tsunami.aspx>

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Wings of Hope, <https://www.amc.af.mil/Portals/12/documents/AFD-131018-056.pdf>

¹⁰⁹ Operation Unified Assistance, <http://www.airforcemag.com/MagazineArchive/Pages/2005/April%202005/0405tsunami.aspx>

¹¹⁰ Ibid.

¹¹¹ The Effectiveness of foreign military assets in natural disaster response, <https://www.sipri.org/sites/default/files/files/misc/FMA/SIPRI08FMAanC.pdf>

status-of-force agreements. The foreign militaries were initially asked to support the effort with search and rescue, evacuation and stabilization efforts. The militaries specifically provided naval assets, fixed-wing aircraft and helicopters. Other top priorities included medical evacuations, distribution of relief, shelter, land clearance and prevention of diseases.¹¹²

The U.S. military established its command and control center and operating base for tsunami relief at the U-tapao airbase in Thailand. For relief efforts in Aceh, The US Combined Support Group–Indonesia (CSG-I) was created with its headquarters based in Medan.

List of U.S. Military assets used for the response:

- Aircraft carrier USS Abraham Lincoln
- Landing helicopter dock USS Essex
- Dock landing ship USS Fort McHenry
- Hospital ship USNS Mercy
- Landing helicopter dock USS Bonhomme Richard
- Helicopter CH-46 Sea Knight (8)
- Helicopter MH-53 Sea Stallion (4)
- Helicopter MH-60 Knighthawk (4)
- Helicopter SH60 Seahawk (14)
- Fixed-wing aircraft C-130 Hercules (4)
- Fixed-wing aircraft C-17 Globemaster III (2)
- Hovercraft (2)¹¹³

On December 28, the U.S. military's operation's forward command element, Combined Support

Force (CSF) 536, arrived in Thailand to begin coordinating the military assistance part of the US disaster relief effort. The next day, the United States announced the deployment of the Abraham Lincoln Carrier Strike Group (ALCSG), which contained five ships, and the Bonhomme Richard Expeditionary Strike Group (BHRESG), which contained seven ships. Additionally, a Special Purpose Marine Air Ground Task Force (SPMAGTF) consisting of two ships was also deployed.^{114, 115}

The first elements of the ALCSG arrived off the coast of Banda Aceh on December 31 and sent out its first helicopter relief flight and began ferrying food and water to survivors on the severely affected western coast of Aceh where roads had been destroyed. The first elements of the BHRESG arrived near Medan and began to transfer supplies on January 3. A few days later, the BHRESG began operations in Meulaboh, in Aceh province. The USS Bonhomme Richard, the USS Essex and the USS Fort McHenry supported



An MH-60S Knighthawk from Helicopter Combat Support Squadron 11 embarked aboard USS Bonhomme Richard Expeditionary Strike Group 5, delivers much needed materials and supplies, Jan. 16, 2005, to the inhabitants of Meulaboh, Sumatra, Indonesia.

U.S. Navy photo by Petty Officer 1st Class Felix Garza Jr.

Source: <https://archive.defense.gov/home/photoessays/2005-01/p20050118f01.html>



A quarter starboard stern view showing the US Navy (USN) Military Sealift Command (MSC) Hospital Ship, USNS Mercy (T-AH 19), underway in the Indian Ocean, arriving on station near Banda Aceh, Sumatra, Indonesia, to support Operation Unified Assistance.

Photo by: James R. McGury, USN. National Museum of the United States Navy

Source: Flickr. <https://flic.kr/p/yxAsBA>

¹¹² Ibid.

¹¹³ Ibid.

¹¹⁴ Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

¹¹⁵ Tsunami relief, April 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/7DE384EA71C8479085257012006221D2-usaid-tsunami-30apr.pdf>

the operation for a month. Twenty-eight helicopters from the ships flew more than 100 missions daily, dropping off relief and performing medical evacuations on the west coast of Aceh. The TNI would often manage the distribution of the relief supplies to survivors. Two US hovercrafts were also utilized to gain access to stranded populations. The ALCSG also provided helicopters to the World Health Organization (WHO), to transport members of military and civilian organizations for assessments.^{116, 117}

U.S. planes and helicopters from the Abraham Lincoln and Bonhomme Richard flew some 600 sorties and delivered 4.8 million pounds of food, water, and medicine. U.S. forces also evacuated 3,000 injured to shelters and hospitals. For coordination efforts, at Banda Aceh airport each morning, around 20 Indonesian, U.S., German, Australian and other military officers met with UN personnel to coordinate efforts.¹¹⁸

TRANSCOM also provided a seven-person tanker airlift control element (TALCE) out of Travis AFB for on-site management of airfield operations, command, control and communications, aerial port services, maintenance, security, weather, and intelligence. The TALCE team flew into the damaged airfield at Banda Aceh, and helped turn the small military facility into a major hub for distribution.¹¹⁹

The hospital ship USNS Mercy joined the operation on February 2, 2005, relieving the USS Abraham Lincoln, which left the area on February 4. The Mercy provided medical and surgical capabilities to assist during the early stages of the recovery phase. Personnel on the Mercy also provided sanitation, water quality surveillance and disease prevention measures in temporary camps. Additionally, personnel also helped repair equipment and facilities in Indonesian hospitals and provided training to healthcare workers. In total, the Mercy treated some 20,000 patients affected by the tsunami. The Mercy and the last US military assets left Indonesia on March 16, 2005.^{120, 121, 122}

U.S. Military Response in Sri Lanka, Thailand and the Maldives

The original plan was for the Bonhomme Richard Expeditionary Strike Group (BHRESG) to support the response in Sri Lanka, but the group was redirected to Indonesia, as Aceh was the most severely affected area and in need of more assistance. The U.S. Navy ship, the USS Duluth, headed to Sri Lanka to support operations there. U.S. Marine helicopters lifted supplies from the port at Sri Lanka's capital city of Colombo, to coastal villages in the south, east and north and U.S. forces provided fresh water in the initial stages of the response. In Thailand, the U.S. military mostly aided in search and rescue operations, as the damage was generally less and the national government was more capable of responding to the disaster. A team of U.S. military forensic experts were deployed to Thailand to assist the government.^{123, 124}

The New York Air National Guard's 105th Airlift Wing flew C-5s to airlift helicopters, water purification equipment and emergency supplies from Kadena Air Base, Japan to Thailand and Sri Lanka.¹²⁵

An U.S. civil-military team was in the Maldives on January 3, 2005 to assess damages in preparation for U.S. assistance. An initial estimate called for 1,000 military personnel to be in the Sri Lanka/Maldives area. On January 17th, two military supply ships were sent to assist the Maldives.¹²⁶

116 Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

117 The Effectiveness of foreign military assets in natural disaster response, <https://www.sipri.org/sites/default/files/files/misc/FMA/SIPRI08FMAanC.pdf>

118 Tsunami relief, April 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/7DE384EA71C8479085257012006221D2-usaid-tsunami-30apr.pdf>

119 Operation Unified Assistance, <http://www.airforcemag.com/MagazineArchive/Pages/2005/April%202005/0405tsunami.aspx>

120 The Effectiveness of foreign military assets in natural disaster response, <https://www.sipri.org/sites/default/files/files/misc/FMA/SIPRI08FMAanC.pdf>

121 Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

122 Tsunami relief, April 2005, <https://reliefweb.int/sites/reliefweb.int/files/resources/7DE384EA71C8479085257012006221D2-usaid-tsunami-30apr.pdf>

123 Ibid.

124 Ibid.

125 Wings of Hope, <https://www.amc.af.mil/Portals/12/documents/AFD-131018-056.pdf>

126 Indian Ocean Earthquake and Tsunami: Humanitarian Assistance and Relief Operations, <https://fas.org/sgp/crs/row/RL32715.pdf>



October 2005

Pakistan: Kashmir Earthquake

Background

On October 8, 2005, a magnitude 7.6 earthquake struck northern Pakistan, India and Afghanistan. Pakistan was the worst affected country. An estimated over 75,000 people were killed, 70,000 injured and 3.5 million left homeless. The epicenter of the earthquake was near Muzaffarabad, the capital of Pakistan-administered Kashmir, and 60 miles north northeast of Pakistan's capital, Islamabad. The most affected areas were the North West Frontier Province (NWFP), Northern Punjab, Pakistan-administered Kashmir in Pakistan and Indian-administered Kashmir in India.^{127, 128}



The city of Balakot, Pakistan, was devastated by an earthquake Oct. 8, 2005. U.S. Air Force photo by Tech. Sgt. Mike Buytas
Source: <https://archive.defense.gov/home/photoessays/2005-10/p20051018a8.html>

Following the quake, the Pakistan Ministry of Foreign Affairs welcomed international assistance in the form of rescue teams and relief items, in particular tents, blankets, food and medicines.¹²⁹

The Pakistan Army launched a large-scale relief and rescue operation, dubbed “Operation Imdad.”¹³⁰ The army took the lead in the international relief effort and used more than 150,000 troops for the response. The Pakistani military also provided security for the U.S. military, including for the U.S. military’s mobile hospital set up in Muzaffarabad. Additionally, Pakistani army troops accompanied U.S. military troops in Chinook helicopters during operations.¹³¹

U.S. Military Response: “Operation Lifeline”

General John Abizaid, the U.S. Central Command commander, arranged for the U.S. Ambassador to coordinate with the American commander in Afghanistan, Lieutenant General Karl Eikenberry, to get immediate military support; and recommended the Expeditionary Strike Group-1 (ESG-1) commander, Admiral Michael LeFever, to command the military’s portion of the relief effort. The disaster relief operation was dubbed “Operation Lifeline.”¹³²

On October 9, Admiral LeFever and a small staff from ESG – 1 arrived to create Combined Disaster Assistance Center–Pakistan (CDAC–PAK).¹³³ CDAC–PAK eventually consisted of approximately 1,200 personnel and included the staffs of two surgical field hospitals, 25 helicopters to include 21 Chinooks, a company of 125 Navy Seabees who arrived by sea at Karachi, and a small detachment of “Pararescuemen”

¹²⁷ South Asia - Earthquake Fact Sheet #21, Fiscal Year (FY) 2006, <https://reliefweb.int/sites/reliefweb.int/files/resources/318B59ABEA04FF63492570AF0004A991-usaid-sas-3nov.pdf>

¹²⁸ Perceptions of the Pakistan earthquake response, <https://reliefweb.int/report/world/perceptions-pakistan-earthquake-response>

¹²⁹ Pakistan, India, Afghanistan - Earthquake: OCHA Situation Report No. 3, <https://reliefweb.int/report/pakistan/pakistan-india-afghanistan-earthquake-ocha-situation-report-no-3>

¹³⁰ Pakistan, India - Earthquake: OCHA Situation Report No. 5, <https://reliefweb.int/report/india/pakistan-india-earthquake-ocha-situation-report-no-5>

¹³¹ Pakistan earthquake relief operations: Leveraging humanitarian missions for strategic success, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1042822.pdf>

¹³² Ibid.

¹³³ Ibid.



from the U.S. Air Force. Australia also contributed a detachment of 140 soldiers and four Blackhawk helicopters, organized as Task Force 632. U.S. helicopters flew more than 5,900 missions over six months.¹³⁴

The U.S. military began relief operations on October 10. A U.S. Air Force C-17 with a 7th airlift squadron crew, based in McChord Air Force Base, flew from Bagram Air Base in Afghanistan and landed in Pakistan with 12 pallets of relief supplies, totaling some 90,000 pounds. Three weeks after the earthquake struck, 993 U.S. military personnel and 24 helicopters supported operations with nine CH-47s positioned at Bagram for potential deployment. As operations increased, as of November 28, almost 2,000 helicopter sorties had been flown and over 4,500 tons of relief supplies were delivered. Additionally, around 15,000 evacuees and relief workers were transported. The U.S. military also set up a Mobile Army Surgical Hospital (MASH) in Muzaffarabad on Oct. 29, which had 96 beds and two operating rooms. The MASH had performed at least 276 surgeries and treated 4,937 patients.^{135, 136, 137} Additionally, the U.S. military delivered 1,913 general purpose tents.¹³⁸

A “Joint Operations Centre” was established to task the UN Humanitarian Air Service (UNHAS), Pakistan Military, NATO and US Military Air Assets.¹³⁹ In the operation’s early days, Navy Seabees with Naval Mobile Construction Battalion 74, deployed from Gulfport, Missouri, worked to clear roads of rubble and repair culverts.¹⁴⁰ At least nine military and civilian ships, including the USS Cleveland, the USS Tarawa and the USS Pearl Harbor, delivered equipment and supplies through Pakistan’s port of Karachi.¹⁴¹

On October 16, USPACOM sent three C-5 Galaxies with four Army Ch-47 helicopters, equipment and 60 soldiers from Company B, 214th Aviation Regiment of the 2nd Battalion, 25th Aviation Regiment at Wheeler Army Airfield, Hawaii.¹⁴²



Pakistani earthquake victims crowd around a U.S. Army CH-47 Chinook helicopter delivering disaster relief supplies to the earthquake devastated area surrounding the town of Ogghi, Pakistan, on Oct. 17, 2005.

Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2002023004/>



HICKAM AIR FORCE BASE, Hawaii -- Airmen and Soldiers load a CH-47 Chinook heavy lift helicopter onto a C-5 Galaxy. Company B, 214th Aviation Regiment of the 2nd Battalion, 25th Aviation Regiment at Wheeler Army Air Field, received orders to deploy to Pakistan to support earthquake relief operations. A total force team helped load the aircraft. U.S. Air Force photo by Tech. Sgt. Shane A. Cuomo
Source: <https://www.af.mil/News/Article-Display/Article/133053/pacific-command-joins-pakistan-earthquake-relief-effort/>

134 Pakistan earthquake relief operations: Leveraging humanitarian missions for strategic success, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1042822.pdf>

135 The earthquake in South Asia: Humanitarian Assistance and Relief Operations, December 12, 2005, <https://digital.library.unt.edu/ark:/67531/metacrs8257/>

136 When the earth shook: U.S. Responds to Magnitude 7.6 Earthquake in Pakistan, <https://archive.defense.gov/home/features/2006/2005yearinreview/article4.html>

137 Ibid.

138 South Asia - Earthquake Fact Sheet #15, Fiscal Year (FY) 2006, <https://reliefweb.int/sites/reliefweb.int/files/resources/4D30C086715D52F2492570A600077EA4-usaid-sasia-25oct.pdf>

139 The South Asia Earthquake: Pakistan - Eight weeks on, <https://reliefweb.int/report/pakistan/south-asia-earthquake-pakistan-eight-weeks>

140 When the earth shook: U.S. Responds to Magnitude 7.6 Earthquake in Pakistan, <https://archive.defense.gov/home/features/2006/2005yearinreview/article4.html>

141 Pakistan earthquake relief operations: Leveraging humanitarian missions for strategic success <https://apps.dtic.mil/dtic/tr/fulltext/u2/1042822.pdf>

142 Pacific Command joins Pakistan earthquake relief effort, <https://www.af.mil/News/Article-Display/Article/133053/pacific-command-joins-pakistan-earthquake-relief-effort/>



U.S. Air Force C-17s, C-130s, KC-10s, as well as contracted planes, delivered relief supplies to Chaklala Air Base, in Rawalpindi, Punjab province. From Chaklala, U.S. Army helicopters flew emergency relief to survivors in affected areas.¹⁴³

Okinawa-based III MEF Combined Medical Relief Team-3 (CMRT-3) comprised of Marine corpsmen, doctors and nurses treated more than 10,000 patients at their field hospital in Shinkiari, Pakistan. They began providing assistance on November 15 and became fully operational in Shinkiari by November 17.¹⁴⁴

Five Marine landing support specialists attached to CMRT-3, formed a Marine helicopter support team, at the Muzaffarabad airport and assisted by manually connecting sling loads underneath Army CH-47 Chinook cargo helicopters. Pakistani army troops were to retrieve the cargo in areas that were too dangerous to land in.¹⁴⁵ The Marines, from Okinawa's 3rd Transportation Support Battalion, 3rd Marine Logistics Group, helped deliver more than 6.5 million pounds of relief supplies.¹⁴⁶

As operations began to slow down in late February, the U.S. transferred approximately US\$8 million in medical, engineering, and flight-refueling assets to the Government of Pakistan to assist with reconstruction efforts.¹⁴⁷

CDAC-PAK held a ceremony for its official departure on March 31, 2006. In total, American military forces delivered more than 1,000 tons of relief supplies and 107 pieces of engineering equipment, and flew more than 5,900 relief missions. At the peak of initial relief efforts, more than 1,200 personnel and 25 helicopters provided vital transport, logistics, and medical and engineering support in the affected areas. Helicopter crews delivered more than 175 tons of relief each day and transported over 18,000 people in total. U.S. crews offloaded more than 18 million pounds of humanitarian aid and supplies at Chaklala Air Base, which helped facilitate delivery of international aid.^{148, 149}

Engineers cleared debris from more than a dozen schools, built a camp for displaced citizens, completed sanitation projects, and adopted a village that included building five schools and 50 homes. On Feb. 13, the U.S. donated approximately 25 pieces of equipment, valued at \$2.5 million, including bulldozers, backhoes, dump trucks and generators, to the Pakistan government.¹⁵⁰

U.S. medical teams in Muzaffarabad and Shinkiari treated approximately 35,000 patients. On Feb. 16



Marine landing support specialists attach external loads, or sling-loads, to the bottom of an Army CH-47 Chinook helicopter in Muzaffarabad, Pakistan. The Okinawa-based Marines served in Pakistan with Combined Medical Relief Team-3. Photo by Scott Biscuiti/USMC
Source: <https://www.stripes.com/news/okinawa-marines-work-to-get-drop-on-pakistan-quake-relief-1.44356#gallery>

¹⁴³ Wings of Hope, <https://www.amc.af.mil/Portals/12/documents/AFD-131018-056.pdf>

¹⁴⁴ Pakistan earthquake relief operations: Leveraging humanitarian missions for strategic success <https://apps.dtic.mil/dtic/tr/fulltext/u2/1042822.pdf>

¹⁴⁵ Ibid.

¹⁴⁶ Okinawa Marines work to get drop on Pakistan quake relief, <https://www.stripes.com/news/okinawa-marines-work-to-get-drop-on-pakistan-quake-relief-1.44356>

¹⁴⁷ Feb. 21, 2006 - Fact Sheet – DOD Assistance to Pakistan, https://archive.defense.gov/home/features/2005/Pakistan/Fact_sheets/20062702a.html?storyID=123013273

¹⁴⁸ Pakistan earthquake relief operations: Leveraging humanitarian missions for strategic success, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1042822.pdf>

¹⁴⁹ Feb. 21, 2006 - Fact Sheet – DOD Assistance to Pakistan, https://archive.defense.gov/home/features/2005/Pakistan/Fact_sheets/20062702a.html?storyID=123013273

¹⁵⁰ Ibid.



the U.S. donated its 84-bed Mobile Army Surgical Hospital (MASH) used in the relief operation to the Government of Pakistan. Valued at more than \$4.5 million, the mobile hospital included intensive-care units, a pharmacy lab, radiology units, and a power-generation system.¹⁵¹

Additionally, U.S. airplanes and crews flew 10 strategic airlift sorties as part of the North Atlantic Treaty Organization (NATO) relief efforts, and the NATO mission delivered more than 2,700 tons of relief supplies.¹⁵²



Pakistani soldiers load humanitarian relief supplies onto a CH-47D Chinook helicopter at Muzaffarabad, Pakistan, on Nov. 19, 2005.

U.S. Air Force photo by Airman 1st Class Barry Loo

Source: <https://archive.defense.gov/home/photoessays/2005-11/p20051121b1.html>

¹⁵¹ Ibid.

¹⁵² When the earth shook: U.S. Responds to Magnitude 7.6 Earthquake in Pakistan, <https://archive.defense.gov/home/features/2006/2005yearinreview/article4.html>



February 2006

Philippines: Leyte Landslide

Background

On the morning of February 17, 2006, a rain-triggered landslide from Mount Canabag occurred at the village of Guinsaugon in Southern Leyte, in the Philippines, leaving 1,126 people dead and displacing around 19,000 others. Around 45 hectares were buried under 25-40 meters of mud. The provincial disaster coordinating council had earlier declared a state of calamity in the province due to rainy weather conditions and residents of 26 villages in the province were evacuated, including those from Guinsaugon. However, the day before the landslide, residents returned to the village after seeing signs of better weather conditions. The Government of the Philippines reported that Southern Leyte had received four times the normal rainfall before the landslide, some 478 mm vs. 137 mm, caused by continuous rains for a week-long period. Because of fears of another landslide, some 10,000 people from nearby barangays (villages) were later evacuated. It was estimated that the landslide caused economic damages of some US\$25 million.^{153, 154}

Philippine President Gloria Macapagal Arroyo ordered rescue and relief operations and the entire naval force in the Visayas to serve as hospitals and command centers. In general, the Armed Forces of the Philippines (AFP) carried out search, rescue, retrieval, relief and recovery operations. Three navy ships



U.S. Marines aboard a CH-46E Sea Knight helicopter make an aerial assessment Feb. 19, 2006, of the Feb. 17, 2006, landslide in Leyte, Philippines. The Sea Knight is from the “Flying Tigers” of Marine Medium Helicopter Squadron 262.

U.S. Navy photo by Petty Officer 1st Class Michael D. Kennedy

Source: <https://archive.defense.gov/home/features/Leyte/landslide/index.html>

¹⁵³ Recovery status report: The Southern Leyte Landslide 2006, https://reliefweb.int/sites/reliefweb.int/files/resources/26098_26098recoverystatusreportleytemarch.pdf

¹⁵⁴ Philippines: Landslides in Southern Leyte - Preliminary report, <https://reliefweb.int/report/philippines/philippines-landslides-southern-leyte-preliminary-report>



headed immediately to the area to provide relief and to serve as “floating hospitals.” Rescue teams from the 505th squadron of the Philippine Air Force (PAF) aided with search and rescue efforts, utilizing three helicopters. The PAF also delivered relief supplies via C-130s. The 43rd Infantry Battalion of the Philippine Army conducted initial search and rescue operations.^{155, 156, 157}

The Government of the Philippines (GoP) and the AFP also provided disaster response coordination, air transport and logistics, medical and health monitoring in evacuation centers, health education, water, environmental health, case management of orphaned children, identification of the deceased, and identification of resettlement sites.¹⁵⁸ Additionally, the Philippine Army built a 1,000 square meter warehouse at Fort Bonifacio to house foreign donations.

The GoP requested relief aid following the disaster. The international community responded with relief supplies and monetary donations, while several countries sent military personnel, search and rescue personnel and medical teams to assist. A week after the disaster, the number of national and international personnel supporting the disaster was reported at 1,998. The UN sent a UN Disaster Assessment and Coordination (UNDAC) team to support coordination efforts, while the United Nations Country Team also supported the operations. The Governor of Southern Leyte declared search and rescue operations completed on February 24 as rescuers were not able to find any survivors. By the next day most of the foreign militaries and the UN Disaster Assessment and Coordination (UNDAC) team left the operation.^{159, 160, 161}



Republic of Philippines army soldiers offload blankets from a U.S. Marine Corps CH-46E Sea Knight helicopter in Leyte, Philippines, Feb. 19, 2006. The helicopter is from Marine Medium Helicopter Squadron 262 (Reinforced), 31st Marine Expeditionary Unit. Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001967531/>



U.S. Marines from the 31st Marine Expeditionary Unit board a Marine CH-46E Sea Knight helicopter on the flight deck of the amphibious assault ship USS Essex (LHD 2) off the coast of Leyte, Philippines, Feb. 20, 2006. Source: U.S. Department of Defense, <https://www.defense.gov/observe/photo-gallery/igphoto/2002023497/>

¹⁵⁵ Recovery status report: The Southern Leyte Landslide 2006, https://reliefweb.int/sites/reliefweb.int/files/resources/26098_26098recoverystatusreportleytemarch.pdf

¹⁵⁶ Philippines: Landslides in Southern Leyte - Preliminary report, <https://reliefweb.int/report/philippines/philippines-landslides-southern-leyte-preliminary-report>

¹⁵⁷ Philippines: Update No 11. re landslide at Brgy Guinsaugon, Saint Bernard, Southern Leyte, <https://reliefweb.int/report/philippines/philippines-update-no-11-re-landslide-brgy-guinsaugon-saint-bernard-southern>

¹⁵⁸ Ibid.

¹⁵⁹ Recovery status report: The Southern Leyte Landslide 2006, https://reliefweb.int/sites/reliefweb.int/files/resources/26098_26098recoverystatusreportleytemarch.pdf

¹⁶⁰ United Nations continues assistance in Philippines, <https://reliefweb.int/report/philippines/united-nations-continues-assistance-philippines-0>

¹⁶¹ Philippines: Update No 11. re landslide at Brgy Guinsaugon, Saint Bernard, Southern Leyte, <https://reliefweb.int/report/philippines/philippines-update-no-11-re-landslide-brgy-guinsaugon-saint-bernard-southern>



Foreign military assistance included:

- Indonesia: 2 C-130 aircraft brought 40 responders and relief goods
- Turkey: Provided a 9- man rescue and medical team.¹⁶²

U.S. Military Response

U.S. Marines, sailors and airmen who were in the region for a joint multinational training exercise, Balikatan, which began on the day the landslide hit, assisted the AFP and GoP with relief efforts at the request of the Philippine government.

Balikatan is an annual Philippines-U.S. bilateral combined exercise. The Forward Deployed Amphibious Ready Group (ARG) and elements of the 3rd

Marine Expeditionary Brigade (3d MEB) had arrived in the Philippines on February 17 in Subic Bay for the exercise but were diverted to provide relief assistance. Airmen from the 36th Contingency Response Group (36th CRG) were also deployed for the Balikatan '06 exercise and were also diverted to help respond. The U.S. Military personnel formed Joint Task Force Balikatan 2006 (JTF Balikatan 2006) to aid the response. More than 2,500 U.S. personnel in total were diverted from the exercise to assist with relief efforts. U.S. military forces arrived off the southern Leyte coast on February 19 to help provide disaster relief.^{163, 164, 165}

The JTF Balikatan 2006 commander was Marine Brigadier General Mastin Robeson.

The U.S. military provided air transport, search and rescue and body retrieval, and temporary shelter for evacuees. The Philippine Red Cross also asked the U.S. for helicopter support to assist with operations. Sailors and Marines from the Forward Deployed Amphibious Ready Group (ARG), which was comprised of the USS Essex, USS Harpers Ferry and USS Juneau also provided assistance along with the USNS Yukon and USS Curtis Wilbur. The Essex, Harpers Ferry and elements of the 3rd Marine Expeditionary Brigade, the 31st Marine Expeditionary Unit, left port Subic Bay soon after receiving the call for assistance. The Forward Deployed ARG is part of Task Force 76, with headquarters at White Beach Naval Facility, Okinawa and with an operating detachment in Sasebo, Japan. Captain Mark E. Donahue, commodore, Amphibious Squadron 11, the task group commander of the ARG, flew over the area after arriving and met with the AFP.^{166, 167, 168, 169, 170}



U.S. Marines with Company Golf, 2nd Battalion, 5th Marine Regiment, 31st Marine Expeditionary Unit, help in search and rescue efforts.

Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001967526/>

¹⁶² Ibid.

¹⁶³ Search and Rescue Ops End, Relief Ops Continue in Philippines, <https://archive.defense.gov/news/newsarticle.aspx?id=14761>

¹⁶⁴ Forward Deployed ARG Responds to Landslide in Philippines, https://www.navy.mil/submit/display.asp?story_id=22381

¹⁶⁵ Joint military response to mudslide continues in Philippines 20 Feb 2006, <https://reliefweb.int/report/philippines/joint-military-response-mudslide-continues-philippines-20-feb-2006>

¹⁶⁶ Amphibious Ready Group Responds to Philippines Landslide, <https://archive.defense.gov/news/newsarticle.aspx?id=14815>

¹⁶⁷ USS Essex, USS Harpers Ferry and USS Curtis Wilbur Arrive on Station to Help Philippine Mudslide Victims, https://www.navy.mil/submit/display.asp?story_id=22388

¹⁶⁸ U.S. Forces Help Victims of Leyte Island Landslide, <https://archive.defense.gov/home/features/Leyte/landslide/index.html>

¹⁶⁹ Joint military response to mudslide continues in Philippines, <https://archive.defense.gov/news/newsarticle.aspx?id=14804>

¹⁷⁰ Ibid.



An initial delivery of relief supplies contained five generators, 10 light sets on tripods, 100 shovels, 2,100 five-gallon water cans, 900 1.5-gallon water cans, 400 four-quart kettles, 2,000 blankets, Meals, Ready to Eat (MREs) and bottled water. Additional relief supplies sent into Tacloban for further distribution to the Leyte disaster area included a pallet of water, a pallet of MRE's, a pallet of shovels and miscellaneous supplies, five generators and a reverse-osmosis water purification (ROWPU) system capable of purifying 800 gallons per hour.¹⁷¹

An initial group of 96 Marines from the 31st MEU went ashore by CH-53E Super Stallion Helicopters to assist with rescue efforts. Landing craft air cushions, 22 helicopters and more than 4,000 Marines and Sailors participated in the relief effort. U.S. Marine Corps CH-46E Sea Knight helicopters were used to ferry supplies. Additionally, the airmen from the 36th Contingency Response Group (36th CRG) from Guam assisted the GoP in assessing requirements. A Pacific Air Force C-17 from Hickam helped bring in additional relief supplies and support personnel.^{172, 173}

U.S. military personnel also contracted and transported a 2-ton rotary drill rig to aid in the search. U.S. and Philippine troops coordinated with public health officials to monitor public health in the area. U.S. troops also provided air and ground transportation.¹⁷⁴

In total, JTF Balikatan provided more than 3,100 five-gallon water cans, 900 1.5-gallon water cans, three pallets of bottled water, 2,500 blankets, two pallets of military rations, 1,500 sleeping mats, 150 pick axes, 500 shovels, three pallets of rice, a pallet of medications, 12 55-gallon diesel fuel drums, 40 chainsaws and five generators.¹⁷⁵

Philippine and U.S. aircraft flew more than 400 hours to ferry in supplies and people. Fixed wing aircraft utilized included KC-130 Hercules and C-17 Globemaster III aircraft. Helicopters utilized included the CH-46E, CH-53E Super Stallion, UH-1N Huey and the H-60 Blackhawk.¹⁷⁶

On February 25, the AFP and U.S. military personnel with Joint Task Force Balikatan ended their week-long search and rescue efforts at the direction of the Leyte Island governor.¹⁷⁷



A U.S. Marine from the 31st Marine Expeditionary Unit waits for transport to the site of a landslide in Guinsaugon, Philippines, Feb. 21, 2006.

Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001967528/>

171 Navy Ships Arrive in Philippines to Provide Disaster Relief, <https://archive.defense.gov/news/newsarticle.aspx?id=14811>

172 U.S. Forces Help Victims of Leyte Island Landslide, <https://archive.defense.gov/home/features/Leyte/landslide/index.html>

173 Joint military response to mudslide continues in Philippines, <https://archive.defense.gov/news/newsarticle.aspx?id=14804>

174 Mudslide Relief Efforts Continue Despite Damaged Equipment, <https://archive.defense.gov/news/newsarticle.aspx?id=14793>

175 Search and Rescue Ops End, Relief Ops Continue in Philippines, <https://archive.defense.gov/news/newsarticle.aspx?id=14761>

176 Ibid.

177 Ibid.



May 2006

Indonesia: Yogyakarta earthquake

Background

On May 27, 2006 a 6.3-magnitude earthquake struck Yogyakarta and surrounding areas in Central Java, on the Indonesian island of Java, leaving 5,778 people killed, and 37,883 injured. Additionally, 139,859 houses were destroyed and another 468,149 were damaged. In total 2.7 million people were affected and some 1.5 million people were left homeless from the earthquake.^{178, 179} Villages in remote areas south of Yogyakarta and in and around Bantul were the most severely affected. The epicenter was located around 20 km south-southeast of Yogyakarta at a depth of 10 kilometers.¹⁸⁰

To complicate matters, Mount Merapi, also located in Central Java, began erupting on June 14, displacing more than 6,300 people from Klaten and Sleman districts.¹⁸¹ Officials put the alert status for the volcano eruption at the highest level due to the danger of pyroclastic flows.¹⁸² Fortunately, volcanic activity began to decline by the end of June, however, the alert status remained high for a while.¹⁸³ The Government of Indonesia (GoI) requested international assistance to deal with the disaster.

U.S. Government Response and “Operation Aftershock”

The Government of Indonesia (GoI) requested military support within hours of the earthquake on May 27, 2006. That same day, U.S. Ambassador to Indonesia B. Lynn Pascoe declared a disaster due to the impact of the quake. In response, USAID/OFDA provided almost US\$6 million for earthquake response activities, including airlifts and distribution of relief; health, shelter, and water and sanitation activities; support for humanitarian coordination efforts and the dissemination of information. USAID/OFDA concentrated on serving the most affected communities in Bantul and Klaten districts. At the time of the Yogyakarta earthquake, the United States and Indonesia had a Memorandum of Understanding that allowed the U.S. military to provide aid when requested by the



SEWON, Indonesia (May, 31, 2006): Indonesian Soldiers and Okinawa-based Marines and sailors work together to set up surgical and acute care medical facilities. About 100 service members from III Marine Expeditionary Force began deploying to the area at the Indonesian government’s request only days after the disaster struck.

U.S. Marine Corps photo by 1st Lt. Eric C. Tausch
Source: <https://www.marforpac.marines.mil/News/News-Article-Display/Article/530151/okinawa-based-marines-sailors-respond-to-indonesian-earthquake/>

178 Indonesia: Snapshot on Earthquakes (Dec 2004 - Oct 2009), <https://reliefweb.int/map/indonesia/indonesia-snapshot-earthquakes-dec-2004-oct-2009>

179 Indonesia: Earthquake and Mt. Merapi Volcano OCHA Situation Report No. 18, <https://reliefweb.int/report/indonesia/indonesia-earthquake-and-mt-merapi-volcano-ocha-situation-report-no-18>

180 Indonesia Yogyakarta Earthquake: Appeal no. MDRID001, Operations Update No. 6, <https://reliefweb.int/sites/reliefweb.int/files/resources/0C9DE75AB7F13D6B492571A0000ABA9D-ifrc-idn-01jul.pdf>

181 Ibid.

182 Indonesia: Earthquake and Mt. Merapi Volcano OCHA Situation Report No. 15, <https://reliefweb.int/report/indonesia/indonesia-earthquake-and-mt-merapi-volcano-ocha-situation-report-no-15>

183 Indonesia: Earthquake and Mt. Merapi Volcano OCHA Situation Report No. 16, <https://reliefweb.int/report/indonesia/indonesia-earthquake-and-mt-merapi-volcano-ocha-situation-report-no-16>



Airmen from the 36th Airlift Squadron and Combat Mobility Element at Yokota Air Base, Japan, unload supplies and equipment at Yogyakarta, Indonesia, on Thursday, June 1, 2006. The C-130 Hercules mission brought humanitarian relief aid to Indonesia. U.S. Air Force photo/Airman 1st Class Javier Cruz Jr.

Source: <https://www.af.mil/News/Article-Display/Article/130824/airmen-provide-support-to-indonesian-earthquake-victims/>

Indonesian government. U.S. military participants dubbed the mission as: “Operation Aftershock.”^{184, 185}

Through three airlifts, USAID/OFDA provided eight emergency medical kits (each serving the medical needs of 10,000 people for three months), 150 rolls of plastic sheeting, 10,200 ten-liter water containers, and 5,004 hygiene kits. Two of the medical kits supplied the U.S. military field hospital in Bantul District.¹⁸⁶

A USAID/DART team deployed on May 28. The USAID/DART comprised twelve members, including specialists in health, shelter, and water and sanitation and a U.S. Geological Survey (USGS) volcanologist. The USAID/DART worked closely with USAID/Indonesia and the Department of Defense (DOD) 3rd Marine Expeditionary Force to coordinate relief efforts.¹⁸⁷

The U.S. Embassy in Jakarta sent a regional medical officer, four doctors from the Naval Medical Research Unit, two nurses and other staff to Yogyakarta.¹⁸⁸

To assist the GoI with the response, U.S. Pacific Command sent military personnel, including medical staff, supplies, equipment and other military resources for the relief operation. Military personnel were deployed from the Third Marine Expeditionary Force (III MEF), U.S. Pacific Air Force units in Guam, and the USNS Mercy. The Mercy had been on a medical deployment to assist Southeast Asia and Western Pacific countries as part of Pacific Partnership.¹⁸⁹

¹⁸⁴ Operation aftershock: The U.S. military disaster response to the Yogyakarta earthquake May through June 2006, <https://academic.oup.com/milmed/article/173/3/236/4557690>

¹⁸⁵ Indonesia - Earthquake Fact Sheet #16, Fiscal Year (FY) 2006 <https://reliefweb.int/sites/reliefweb.int/files/resources/0DFF78DD9367F427852571D50069BD12-usaid-idn-25aug.pdf>

¹⁸⁶ Indonesia - Earthquake Fact Sheet #16, Fiscal Year (FY) 2006, <https://reliefweb.int/sites/reliefweb.int/files/resources/0DFF78DD9367F427852571D50069BD12-usaid-idn-25aug.pdf>

¹⁸⁷ Ibid.

¹⁸⁸ U.S. aid continues to flow to Indonesia earthquake victims. <https://reliefweb.int/report/indonesia/us-aid-continues-flow-indonesia-earthquake-victims>

¹⁸⁹ U.S. pacific command responds to Indonesian earthquake, <https://reliefweb.int/report/indonesia/us-pacific-command-responds-indonesian-earthquake>



The first military personnel arrived to the severely affected Bantul district within 72 hours of the quake. A team of around 100 U.S. troops arrived on May 31 and set up a field hospital in Sewon soccer stadium in Bantul District, located 12 kilometers southeast of Mount Merapi, which became fully operational on June 1. The unit consisted of personnel from the 3rd Marine Expeditionary Brigade (3rd MEB), U.S. Marine Corps Fleet 3rd Surgical Company, the U.S. hospital ship USNS Mercy and the USS Essex. The Mercy sent a medical team to help augment the medical team from the 3rd MEB, while the Essex supported the operation with a shock trauma platoon (a complete surgical team). The group began treating patients a little over 24 hours later.^{190, 191, 192, 193, 194}

Medical personnel initially helped in existing medical facilities in Yogyakarta while the surgery suite was being assembled. The 3rd MEB fielded a one-bed operating room and a four person recovery room. They were supported by 178 members of a Marine headquarters battalion. The 3rd MEB brought in much needed medical equipment or the response, including a digital x-ray machine.¹⁹⁵

“Doctors, nurses, medical technicians, and supplies are rapidly deploying to Indonesia to support the humanitarian efforts near

Yogyakarta. The goal is to reduce further loss of life and help alleviate human suffering. We offer our sincere condolences to the people of Indonesia affected by this tragedy, and will do our best to ease their suffering with available medical assets. The U.S. has strong regional ties to Indonesia, and we are a longstanding friend of the Indonesian people,” said Brigadier General Dana Atkins, U.S. Pacific Command Director of Operations.¹⁹⁶

The team also deployed mobile medical teams with the help of Indonesian nurses and physicians. The mobile teams assisted patients in villages that were unable to make it to the stadium.¹⁹⁷



Sewon, Indonesia (June 3, 2006) - Hospitalman Taylor Simpkins treats a patient at Global Rescue Network's Mobile Hospital in Jetis, Indonesia. U.S. and Indonesian military members visited the hospital to assist in the overflow of patients caused by the earthquake. U.S. Marine Corps photo by Lance Cpl. Warren Peace (RELEASED) Source: <https://www.flickr.com/photos/trackpads/7718648220/in/photolist-KqLWG-2bWymjv-28jnfP9-uZtaS-cL56cJ/>

190 Indonesia - Earthquake Fact Sheet #16, Fiscal Year (FY) 2006, <https://reliefweb.int/sites/reliefweb.int/files/resources/0DFF78DD9367F427852571D50069BD12-usaid-idn-25aug.pdf>

191 U.S. aid continues to flow to Indonesia earthquake victims, <https://reliefweb.int/report/indonesia/us-aid-continues-flow-indonesia-earthquake-victims>

192 U.S. Military Responds to Indonesia Earthquake, https://www.navy.mil/submit/display.asp?story_id=23910

193 Operation aftershock: The U.S. military disaster response to the Yogyakarta earthquake May through June 2006, <https://academic.oup.com/milmed/article/173/3/236/4557690>

194 Indonesia - Earthquake Fact Sheet #16, Fiscal Year (FY) 2006, <https://reliefweb.int/sites/reliefweb.int/files/resources/0DFF78DD9367F427852571D50069BD12-usaid-idn-25aug.pdf>

195 Operation aftershock: The U.S. military disaster response to the Yogyakarta earthquake May through June 2006, <https://academic.oup.com/milmed/article/173/3/236/4557690>

196 U.S. Military Responds to Indonesia Earthquake, https://www.navy.mil/submit/display.asp?story_id=23910

197 Operation aftershock: The U.S. military disaster response to the Yogyakarta earthquake May through June 2006, <https://academic.oup.com/milmed/article/173/3/236/4557690>



The medical team provided assistance for 16 days and then redeployed to their component commands when they were no longer seeing earthquake-related injuries. In total, U.S. military medical teams treated over 4,627 patients in mobile medical teams and at the field hospital.¹⁹⁸

U.S. Military personnel also brought in tents, tarps, water, and medical supplies, as well as forklifts and pallet movers that could get on and off aircraft. The material movers aided greatly in the response as reports stated responders were previously loading and off-loading by hand.¹⁹⁹

On June 1, two C-130 Hercules aircraft deployed to Paya Lebar Air Base with some 85 airmen from the 374th Air Expeditionary Group from Yokota and Misawa Air Bases in Japan to deliver relief.²⁰⁰

Additionally, more than 400 aircrew members completed over 42 missions, carrying over 277 short tons of relief supplies. Air sorties included over five C-17 transport missions, six C-130 transport missions, and 31 KC-130 tanker/transport missions. Eight C-130s were utilized for the mission. In total, the U.S. military delivered 310 metric tons of medical and relief supplies, including 10,000 jerry cans for purified water delivery and 5,000 hygiene kits.^{201, 202, 203}



SEWON, Indonesia (May, 31, 2006) - U.S. Ambassador to Indonesia Lynn Pascoe visits Indonesian soldiers and Okinawa-based Marines and sailors as they establish mobile surgical and acute care facilities here for victims of the May 27 earthquake that struck Java Island. Official U.S. Marine Corps photo by 1st Lt. Eric C. Tausch
Source: <https://www.marforpac.marines.mil/News/News-Article-Display/Article/530151/okinawa-based-marines-sailors-respond-to-indonesian-earthquake/>

¹⁹⁸ Ibid.

¹⁹⁹ Rumsfeld in Indonesia, Offers Condolences to Earthquake Victims, <https://archive.defense.gov/news/newsarticle.aspx?id=16116>

²⁰⁰ Airmen provide support to Indonesian earthquake victims, <https://www.af.mil/News/Article-Display/Article/130824/airmen-provide-support-to-indonesian-earthquake-victims/>

²⁰¹ Indonesia - Earthquake Fact Sheet #16, Fiscal Year (FY) 2006, <https://reliefweb.int/sites/reliefweb.int/files/resources/0DFF78DD9367F427852571D50069BD12-usaid-idn-25aug.pdf>

²⁰² Rumsfeld in Indonesia, Offers Condolences to Earthquake Victims, <https://archive.defense.gov/news/newsarticle.aspx?id=16116>

²⁰³ U.S. aid continues to flow to Indonesia earthquake victims, <https://reliefweb.int/report/indonesia/us-aid-continues-flow-indonesia-earthquake-victims>

April 2007

Solomon Islands: Earthquake and Tsunami

Background

A magnitude 8.1 earthquake struck 50 km off the New Georgia islands in the Solomon Sea on April 1, 2007, off the coast of Gizo Province, generating a local tsunami which struck more than 300 communities along the coast in the Solomon Islands. The town of Gizo was one of the hardest-hit areas. The tsunami reportedly struck within just minutes after the earthquake hit. Fifty-two people were killed and an additional 36,000 were affected by the disaster. It was reportedly the worst disaster to affect the Solomon Islands since World War II. The earthquake had triggered tsunami warnings across the region, but were called off later.²⁰⁴



Houses destroyed by an earthquake and resulting tsunami on the Solomon Islands in April 2007.
U.S. Navy photo by Andrew Meyers
Source: <https://www.australiangeographic.com.au/topics/science-environment/2016/09/explainer-how-to-prepare-for-a-tsunami/>

Affected areas included Gizo, Simbo, Ranogga, Shortland Islands, Munda, Noro, Vella la Vella, Kolombangarra and parts of the southern coast of Choiseul. Gizo, Simbo Island, western coast of Ranogga and the central southern coast of Choiseul between Moli, Posarae and Sasamunga were the worst-affected areas.^{205, 206}

The Solomon Islands government appealed for international assistance and declared a state of emergency for the Western and Choiseul Provinces and the northern part of Isabel Island. A self-sufficient International Tsunami Survey Team was dispatched to aid in the response. Regional militaries from Papua New Guinea, Australia, New Zealand and France aided in the response.

Foreign military support:

- **France:** A military aircraft was used to transport medical supplies to Gizo as well as ferrying a Taiwan medical team.²⁰⁷
- **Papua New Guinea:** An air force plane helped Ferry UNICEF staff.
- **Australia:** Australian peacekeepers assisted in relief efforts and Australian helicopters were also utilized. An Australian military team was dispatched to assist at the Munda Health Center. Australian peacekeepers had led a Regional Assistance Mission to the Solomons (RAMSI) since 2003 and RAMSI personnel provided helicopter support. The ADF set up a medical center in Sassamunga and conducted an environmental assessment.²⁰⁸
- **New Zealand:** New Zealand C-130 military transport plane delivered tarps, water and food rations in the town of Munda. Additionally, New Zealand provided helicopters for relief efforts.²⁰⁹ Two air load teams assisted in loading at Henderson Airport in Honiara.²¹⁰

204 Ancestral heritage saves tribes during 1 April 2007 Solomon Islands tsunami, <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2007GL031654>

205 South Pacific Tsunami - OCHA Situation Report No. 14, <https://reliefweb.int/report/solomon-islands/south-pacific-tsunami-ocha-situation-report-no-14>

206 Ancestral heritage saves tribes during 1 April 2007 Solomon Islands tsunami, <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2007GL031654>

207 Situation Report: Solomon Island Earthquake/Tsunami, 08 April 2007, https://www.who.int/hac/crises/slb/sitreps/solomon_sitrep_08avril2007.pdf

208 South Pacific Tsunami - OCHA Situation Report No. 11, <https://reliefweb.int/report/solomon-islands/south-pacific-tsunami-ocha-situation-report-no-11>

209 Aid Filters Through to Tsunami Survivors in Solomon Islands, <https://www.voanews.com/a/a-13-2007-04-04-voa4/347841.html>

210 South Pacific Tsunami - OCHA Situation Report No. 8, <https://reliefweb.int/report/solomon-islands/south-pacific-tsunami-ocha-situation-report-no-8>

U.S. Military Response

The United States Military provided a U.S. Navy Seahawk HH-60 helicopter to assist the International Tsunami Survey Team with damage assessments.^{211, 212} The U.S. military also provided air transport via two helicopters.²¹³

The USNS Stockham, an afloat prepositioning ship from Military Sealift Command, also arrived with a supply of relief items and was sent to the Solomons to be ready to conduct HADR operations on the ground. The Stockham was later called upon to assist with a transport accident. Utilizing its helicopter, the Stockham rescued 20 people from a Taiwanese 200-ft flagged freighter, the Yun Fa Zoi, which ran aground on a coral reef near the Gizo harbor in the Solomon Islands in the late hours of April 12. Most of those rescued were New Zealand Red Cross and aid workers who were in the area to provide assistance to victims of the tsunami.^{214, 215}

The USNS Stockham is a U.S. Navy Maritime Pre-Positioning Ship and is part of Military Sealift Command's Pre-Positioning Program. It has a mixed crew of U.S. Navy personnel and Merchant Marine seamen. The Stockham is operated by a crew of 38 civilian mariners along with 102 military personnel embarked and the ship is one of 35 ships that preposition military cargo in strategic locations around the world.²¹⁶

The ship's surgeon left on the ship's HH-60 helicopter within an hour of the distress call and treated passengers with injuries from the Yun Fa Zoi. Twenty people were brought aboard the helicopter which then flew to Gizo, where the passengers were met by local police and medical personnel to receive further medical treatment.



GIZO, Solomon Islands (April 16, 2007) - Lt. Cmdr. Karlwin Matthews, assigned to Navy Medical Corps, stops to talk with a villager about a plan to build a fresh water rain catcher in Gizo. Matthews is an individual augmentee from Balboa Naval Hospital in San Diego embarked aboard USNS Stockham (T-AK 3017).

U.S. Navy photo by Mass Communication Specialist Second Class Andrew Meyers (Released)

Source: https://commons.wikimedia.org/wiki/Category:2007_Solomon_Islands_earthquake_relief_efforts#/media/File:US_Navy_070416-N-4790M-254_Lt._Cmdr._Karlwin_Matthews,_assigned_to_Navy_Medical_Corps_stops_to_talk_with_a_villager_about_a_plan_to_build_a_fresh_water_rain_catcher_in_Gizo.jpg



TITIANA, Solomon Islands (April 16, 2007) - U.S., New Zealand and Australian service members board Helicopter Anti-Submarine Squadron 10's SH 60F Sea Hawk helicopter to administer medical aid in outlying areas of the Solomon Islands. The helicopter and crew was deployed aboard USNS Stockham (T-AK 3017).

Photo by Mass Communication Specialist 2nd Class (SW/AW) Andrew Meyers.

Source: https://commons.wikimedia.org/wiki/File:SH_60F_Sea_Hawk_helicopter_in_the_Solomon_Islands.jpg

211 Months after an earthquake and tsunami, Solomon Islands struggle to recover, https://www.unicef.org/infobycountry/solomonislands_40050.html

212 Ancestral heritage saves tribes during 1 April 2007 Solomon Islands tsunami, <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2007GL031654>

213 South Pacific Tsunami - OCHA Situation Report No. 11, <https://reliefweb.int/report/solomon-islands/south-pacific-tsunami-ocha-situation-report-no-11>

214 Rescue at sea: Stockham rescues 20 off Solomon Islands, <https://www.msc.navy.mil/sealift/2007/June/rescue.htm>

215 South Pacific Tsunami - OCHA Situation Report No. 9, <https://reliefweb.int/report/solomon-islands/south-pacific-tsunami-ocha-situation-report-no-9>

216 Rescue at sea: Stockham rescues 20 off Solomon Islands, <https://www.msc.navy.mil/sealift/2007/June/rescue.htm>

November 2007

Bangladesh: Cyclone Sidr

Background

Tropical Cyclone Sidr, a Category 4 storm, hit the southwest coast of Bangladesh on November 15, 2007, with winds up to 240 kilometers per hour and heavy rains, killing 4,234 people and affecting around 8.9 million others. The cyclone was accompanied by storm surge up to 6 meters in some areas, which flooded low-lying coastal areas. The worst affected areas were the southwest coast of the country with four out of the country's 30 districts "severely affected" and another eight categorized as "moderately affected." Cyclone Sidr was the strongest cyclone to hit the country since Cyclone Gorky (Marian) in 1991. Sidr took a similar path to Cyclone Bhola in 1970 and Cyclone Gorky in 1991, and severely damaged similar areas of the country.^{217, 218}

Sidr was the second major disaster to affect the country within a year. Earlier, devastating monsoon floods had caused extensive damage totaling almost US\$1.7. Billion.²¹⁹

Approximately 600,000 Bangladeshis were evacuated ahead of Cyclone Sidr, and were housed in 1,800 cyclone shelters. Emergency disaster kits were distributed to those evacuated. Civilian agencies provided assistance, and the Bangladesh military set up medical camps.²²⁰

The Bangladesh Armed Forces Division deployed five navy ships and 18 helicopters to deliver relief supplies. The Armed Forces also assisted with the transportation of relief goods from Dhaka via Air Force assets; Transportation of relief goods using Army, Navy and Civil assets; Assisted civilian health care services with military medical teams; Cleared roads; and, assisted with the restoration of telecommunication.²²¹

Despite the strength of the storm, there were lower casualty rates than expected. The government of Bangladesh, utilizing years of experience and lessons learned from previous cyclones, had implemented improved disaster mitigation measures, including cyclone shelters and embankments which were credited with helping to lower casualty



Aerial view of the destruction left behind by Tropical Cyclone Sidr in Bangladesh, Nov. 27, 2007. The USS Kearsarge and the embarked 22nd Marine Expeditionary Unit conducted humanitarian assistance and disaster relief missions.

Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001181980/>

217 Humanitarian Civil-Military Coordination in Emergencies: Towards a predictable model, https://reliefweb.int/sites/reliefweb.int/files/resources/RCG_05042017_Final_electronic.pdf

218 Cyclone Sidr in Bangladesh Damage, Loss and Needs Assessment For Disaster Recovery and Reconstruction, https://reliefweb.int/sites/reliefweb.int/files/resources/F2FDF067EF49C8DC12574DC00455142-Full_Report.pdf

219 Ibid.

220 Humanitarian Civil-Military Coordination in Emergencies: Towards a predictable model, https://reliefweb.int/sites/reliefweb.int/files/resources/RCG_05042017_Final_electronic.pdf

221 Ibid.

rates.²²² Additionally, the Government's recent investment in an early warning system served to limit these damages and led to timely evacuation of the affected populations.²²³

U.S. Government Response and “Operation Sea Angel II”

A U.S. military medical team was already in Bangladesh and stood by prepared to provide medical aid. At the request of the U.S. Embassy in Bangladesh, on November 19, U.S. Pacific Command also sent a 23-man Humanitarian Assistance Survey Team (HAST) comprised of U.S. Marines, to the southern coast of Bangladesh to determine how the U.S. military could provide assistance.^{224, 225}

A U.S. Army Pacific (USARPAC) team from USPACOM provided medical assistance. The team was participating in Exercise Tendon Bengal with the Bangladesh military. The exercise involved medical teams from the U.S. as well as Bangladeshi Army and civilians and involved training on disaster response and humanitarian assistance. The team worked closely with their Bangladeshi counterparts and other U.S. service members to aid cyclone victims.²²⁶

The U.S. Navy ships, USS Essex and USS Kearsarge, and USS Tarawa, were also ordered to head towards Bangladesh in the event that the Government of Bangladesh would request assistance. The ships carried 20 or more helicopters that could be utilized in the response.²²⁷

The Government of Bangladesh officially requested U.S. military support on November 22. The U.S. military's initial response efforts included providing water purification along with medical aid, but shifted to providing transportation of food to remote areas and the deployment of mobile medical teams. Military tasks were determined in conjunction with the government and USAID. The operation was named “Sea Angel II” on December 2, 2007.²²⁸

Marine Lt. Gen. John F. Goodman, commander of U.S. Marine Corps Forces, Pacific, led overall efforts.²²⁹ Marine Brigadier General Ronald Bailey arrived in Bangladesh to lead U.S. military response efforts on the ground.

In response to the cyclone, the U.S. Navy redirected the USS Kearsarge and the USS Tarawa Expeditionary Strike Group 3 to Bangladesh. The Kearsarge arrived first off the coast of Bangladesh on



BANGLADESH (Nov. 26, 2007) - Local citizens wave goodbye to the crew of a CH-46E Sea Knight helicopter assigned to Marine Medium Helicopter Squadron (HMM) 261 after they delivered water to help aid the victims of Tropical Cyclone Sidr. U.S. Navy photo by Mass Communication Specialist Seaman Ash Severe Source: https://www.navy.mil/view_image.asp?id=53116&t=1

²²² Cyclone Sidr in Bangladesh Damage, Loss and Needs Assessment For Disaster Recovery and Reconstruction, https://reliefweb.int/sites/reliefweb.int/files/resources/F2FDF067EF49C8DC12574DC00455142-Full_Report.pdf

²²³ Ibid.

²²⁴ Bangladesh: U.S. Government Disaster Relief Support Following Cyclone Sidr, <https://2001-2009.state.gov/secretary/rm/2007/11/95320.htm>

²²⁵ Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

²²⁶ Soldiers Aid Bangladesh Cyclone Victims, https://www.army.mil/article/6353/soldiers_aid_bangladesh_cyclone_victims

²²⁷ Bangladesh: U.S. Government Disaster Relief Support Following Cyclone Sidr, <https://2001-2009.state.gov/secretary/rm/2007/11/95320.htm>

²²⁸ Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

²²⁹ Marines Deliver Water to Cyclone-Stricken Bangladesh, <https://archive.defense.gov/news/newsarticle.aspx?id=48208>



BAWFAL, Bangladesh - Marines from HMM-166 (REIN), 11th Marine Expeditionary Unit fly into Bawfal, Bangladesh to deliver food to the Bangladeshi people on a CH-46E.

Photo by Sgt. Bryson K. Jones (Released)

Source: <https://www.11thmeu.marines.mil/News/News-Article-Display/Article/533488/sea-angel-ii-lands-in-bangladesh-with-more-aid/>

November 22. The 22nd Marine Expeditionary Unit (MEU) was embarked on the Kearsarge. The 22nd MEU (SOC) is composed of Aviation Combat Element, Marine Medium Helicopter Squadron (HMM) 261; Ground Combat Element, Battalion Landing Team, 3rd Battalion, 8th Marine Regiment; Logistics Combat Element, Combat Logistics Battalion 22; and its Command Element. Elements of Amphibious Squadron 8 also provided assistance.^{230, 231}

Overall, U.S. military assets included: Helicopter and fixed wing aircraft, water purification capability, medical services, and landing crafts for inland transportation. The Bangladeshi Armed Forces provided force protection during ground relief activities for the U.S. military. In general, the Bangladesh military focused on ground operations while the U.S. focused on airlift operations. Bangladeshi military Liaison officers also helped the U.S. to better determine key areas for relief operations.²³²

On November 23, Navy Adm. Timothy J. Keating, commander of U.S. Pacific Command, and Marine Brig. Gen. Ronald L. Bailey, commander of the 3rd Marine Expeditionary Brigade, met with representatives of the Bangladesh military, the U.S. Agency for International Development and the U.S. Embassy in the nation's capital city of Dhaka. A team from Kearsarge, led by

Navy Rear Adm. Carol M. Pottenger, commander of Task Force 76, also was present at the meeting.²³³

After the USS Kearsarge arrived off the coast of Bangladesh, members of the Bangladesh Armed Forces, Government of Bangladesh, U.S. Embassy and U.S. Agency for International Development (USAID) representatives met November 24 to discuss how the ship and the embarked 22nd Marine Expeditionary Unit could support relief efforts. After arriving, the Kearsarge's crew began to immediately deliver bottles of water (some 700 gallons) to the city of Barrisal in southern Bangladesh on November 23. The Kearsarge had travelled some 3,500 miles to assist with relief efforts in Bangladesh.^{234, 235}

On November 26, crews from the Kearsarge delivered some 12,000 pounds of medical supplies, food and water and an 18- person medical team comprised of U.S. Army and Air Force personnel, to a local hospital in Patuakhali. The delivery was made by a CH-53E Super Stallion helicopter which picked up the

230 Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

231 22nd MEU birds bring medical support to cyclone victims, <https://www.22ndmeu.marines.mil/News/Article-View/Article/510245/22nd-meu-birds-bring-medical-support-to-cyclone-victims/>

232 Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

233 Marines Deliver Water to Cyclone-Stricken Bangladesh, <https://archive.defense.gov/news/newsarticle.aspx?id=48208>

234 Kearsarge Assists Bangladesh in Relief Efforts, https://www.navy.mil/submit/display.asp?story_id=33485

235 U.S. military ends cyclone aid mission to Bangladesh, <https://www.reuters.com/article/us-bangladesh-us-idUSSP19947120071207>

personnel and supplies from Dhaka.²³⁶ The Kearsarge has the capability to produce 200,000 gallons of fresh water daily, and five gallon bags were filled with water by crew members for distribution.²³⁷

The 22nd MEU and Fleet Surgical Team 4 medical teams, comprised of 7-9 personnel each, visited the villages of Bamna, Rangabali, South Khali, and Dubla Char over a four day period and treated around 1,640 patients.²³⁸

Kearsarge redeployed on December 3, when it was relieved by the USS Tarawa (LHA 1) with the embarked 11th Marine Expeditionary Unit

(MEU) (Special Operations Capable). The Kearsarge had provided relief from November 23. The Tarawa arrived after being redirected from a regular scheduled deployment to the Western Pacific and the Middle East.^{239, 240}

As part of relief efforts, Marines and sailors from the 11th MEU delivered food in the village of Bawal via CH-46E Sea Knight helicopters from Marine Medium Helicopter Squadron 166 (Reinforced).²⁴¹ By the end of the operation, in total, the Tarawa Sailors and Marines delivered over 49,000 pounds of supplies, including blankets, food and water purification tablets. Medium and heavy-lift helicopters flew over 29 sorties and two medical teams provided care to some 727 patients over three days. The Tarawa continued relief efforts until December 6, and then redeployed out of Bangladesh on December 7.^{242, 243}



BAWFAL, Bangladesh - An overhead view of the landing zone for food rations being delivered by the 11th Marine Expeditionary Unit. The USS Tarawa and the embarked 11th MEU (SOC) conducted Humanitarian Assistance/Disaster Relief efforts in response to the Government of Bangladesh's request for assistance. Photo by Sgt. Bryson K. Jones (Released)
Source: <https://www.11thmeu.marines.mil/News/News-Article-Display/Article/533488/sea-angel-ii-lands-in-bangladesh-with-more-aid/>

²³⁶ 22nd MEU birds bring medical support to cyclone victims, <https://www.22ndmeu.marines.mil/News/Article-View/Article/510245/22nd-meu-birds-bring-medical-support-to-cyclone-victims/>

²³⁷ 22nd MEU SOC Ramps Up Relief Operations in Bangladesh, https://www.navy.mil/submit/display.asp?story_id=33554

²³⁸ 22nd MEU wraps up medical relief in Bangladesh, <https://www.22ndmeu.marines.mil/News/Article-View/Article/510249/22nd-meu-wraps-up-medical-relief-in-bangladesh/>

²³⁹ Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

²⁴⁰ Sea Angel II lands in Bangladesh with more aid, <https://www.11thmeu.marines.mil/News/News-Article-Display/Article/533488/sea-angel-ii-lands-in-bangladesh-with-more-aid/>

²⁴¹ Ibid.

²⁴² Tarawa Completes Military Element of Humanitarian Operations in Bangladesh, https://www.navy.mil/submit/display.asp?story_id=33813

²⁴³ Disaster Relief and Engagement Operations, 1990-2010: A Synthesis of CNA Analyses, https://www.cna.org/CNA_files/PDF/D0024934.A1.pdf

May 2008

Myanmar: Cyclone Nargis

Background

Powerful Cyclone Nargis made landfall in the Ayeyarwady (also spelled Irrawaddy) Delta region of Myanmar on the night of May 2, 2008, severely affecting the Delta areas, before hitting the Yangon (Rangoon) region, and then the former capital, Yangon, the next day. The worst affected area was the Delta region. Cyclone Nargis left 138,300 people dead and affected 2.4 million people. An additional 19,359 people were injured. The cyclone also displaced more than 800,000 people in the low-lying townships of the lower Delta. The tidal surge that hit along with the storm, was reportedly higher than 5 meters. Strong winds were recorded with speeds up to 200km/h and heavy rains caused widespread devastation, severely damaging infrastructure. Hundreds of thousands of homes were destroyed, and the main drinking water sources were severely affected. Livelihoods were also greatly affected as the storm destroyed agricultural lands, shrimp farms, and affected the fishing industry and local businesses. The Post-Nargis Joint Assessment carried out in June 2008 showed that the impact of Nargis on the country was similar in scale to that seen in Indonesia following the 2004 Indian Ocean earthquake and tsunami. Cyclone Nargis was the worst natural disaster in the recorded history of Myanmar, and worldwide the third deadliest storm ever recorded at a global level.^{244, 245, 246}

The Government of Myanmar declared a state of emergency in cyclone-affected areas. The national response to the cyclone was reportedly quick, but was not sufficient because of the scale of the disaster. Cyclone Nargis had overwhelmed the capacity of the national response.^{247, 248}

Access to the affected areas and populations was the first and primary obstacle to international response efforts. The Government of Myanmar was initially very reluctant to accept any foreigners in the country to respond to the disaster. When foreigners were allowed in, reportedly all foreign responders experienced major



Burmese service members unload food packages from a U.S. Air Force C-130 Hercules to a Burmese military vehicle at the Yangon International Airport, May 12, 2008. The plane carrying water, food and medical supplies was part of Joint Task Force Caring Response. U.S. Marine Corps photo by Sgt. Andres Alcaraz
Source: <https://archive.defense.gov/photoessays/PhotoEssaySS.aspx?ID=710>

244 Best practices and lessons learnt UNICEF Myanmar's response following cyclone Nargis, https://www.unicef.org/infobycountry/files/Myanmar_Nargis_Evaluation.pdf

245 Cyclone Nargis Emergency appeal final report, <https://reliefweb.int/report/myanmar/cyclone-nargis-emergency-appeal-final-report>

246 Inter-Agency Real Time Evaluation of the Response to Cyclone Nargis 17 December 2008, <https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/IA%20RTE%20Cyclone%20Nargis%20Final%20Report.pdf>

247 Best practices and lessons learnt UNICEF Myanmar's response following cyclone Nargis, https://www.unicef.org/infobycountry/files/Myanmar_Nargis_Evaluation.pdf

248 Office of U.S. Foreign Disaster Assistance annual report for fiscal year 2008, https://pdf.usaid.gov/pdf_docs/pdacm965.pdf

obstacles in obtaining visas to enter Myanmar, and additional obstacles were encountered in obtaining travel authorizations to reach the Delta region. For the U.S., responding to the cyclone was particularly challenging, because of tense diplomatic relations between it and the ruling Myanmar junta.²⁴⁹

Efforts by the international community, particularly a visit by UN Secretary General Ban Ki-Moon and by ASEAN Member States, finally helped convince the Myanmar government to formally accept relief with the condition that Myanmar authorities would be in charge of distribution. Non-Governmental Organizations (NGOs) were also thought to have played a vital role in convincing the government of Myanmar to allow foreign responders into the country.²⁵⁰

India and China sent in military medical teams to help with the response. Other foreign militaries aside from the U.S. to assist in the relief effort were Australia, Bangladesh, Cambodia, Canada, China, Greece, India, Indonesia, Laos, Malaysia, Pakistan, and Thailand, who all helped deliver aid to Myanmar. A French and British ship reportedly waited offshore with the USS Essex battle group but were not granted permission to assist.²⁵¹

U.S Government Response and “Operation Caring Response”

For the U.S, getting the government of Myanmar to accept assistance took several negotiations and a visit to Myanmar by the Director of Foreign Assistance and USAID Administrator Henrietta Fore, and PACOM Commander, ADM Timothy J. Keating, for the U.S. to be allowed to fly relief aid into the country.²⁵²

On May 5, Charge d’ Affaires Shari Villarosa declared a disaster in Myanmar due to Nargis and in response USAID/OFDA immediately provided US\$250,000 to UN agencies for assistance.²⁵³

When the cyclone hit Myanmar, the U.S. military already had assets in the area for the annual Exercise Cobra Gold in Thailand. The U.S. military operation in response to Cyclone Nargis was called “Caring Response.” Joint Task Force Caring Response (JTF-CR) was created out of the exercise on May 3 and Lt. Gen. John F. Goodman, Commander of the U.S. Marine Forces Pacific (MARFORPAC), who was leading the exercise, became commander of the JTF-CR. Operations, mainly comprised of a U.S. military operated “air bridge,” from U-tapao air base in Thailand to Rangoon, lasted from May 12, when C-130 sorties began until June 22, 2008. The JTF focused on logistics and the provision of emergency non-food relief.^{254, 255}

U.S. Navy ships, the USS Essex, USS Harpers Ferry, USS Mustin and USS Juneau, along with the embarked 31st Marine Expeditionary Unit (31st MEU), which comprised part of the USS Essex Amphibious Readiness Group (ARG), arrived in the Bay of Bengal from the Gulf of Thailand on May 13 where they had been for the Cobra Gold exercise. Additionally, the ARG deployed a dozen helicopters to a staging area in Thailand, where they could reach Myanmar in a few hours if needed. Equipment and supplies had been pre-positioned at Mae Sot, Thailand to serve as a forward operating base, but these were never used. Other assets were available, for instance, the Essex had on board 23 helicopters which could have been used to transport relief. Unfortunately, no ship-to-shore operations were allowed by Myanmar and the ships stayed off shore for 22 days before departing. The Pentagon said that additional ships, the

249 Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

250 Ibid.

251 Ibid.

252 Ibid.

253 Burma - Cyclone Fact Sheet #2, Fiscal Year (FY) 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/52032C009E89EE5085257442006403E4-Full_Report.pdf

254 Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

255 Burma - Cyclone Fact Sheet #24, Fiscal Year (FY) 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/C78891E58770488DC125748200389992-Full_Report.pdf

USS Blue Ridge, and the USS Kitty Hawk carrier strike group, as well as the USS Nimitz aircraft carrier were available if needed, according to the Pentagon at the time. Additional U.S. military assets were on standby throughout the region, including in U-tapao, Bangkok, and Korat, Thailand, as well as in Guam.^{256, 257, 258, 259, 260, 261, 262}

After the Government of Myanmar agreed to allow assistance, a first U.S. C-130 flight from U-tapao airfield in Thailand, located around 90 miles southeast of the capital Bangkok, delivered 28,000 pounds of relief, comprised of bottled water, mosquito nets and blankets, followed by two more flights which brought an additional 44,650 pounds of supplies, comprised of food and water.^{263,}



Burmese service members unload food packages from a U.S. Air Force C-130 Hercules to a Burmese military vehicle at the Yangon International Airport, May 12, 2008. U.S. Marine Corps photo by Sgt. Andres Alcaraz
Source: <https://archive.defense.gov/photoessays/PhotoEssaySS.aspx?ID=710>

²⁶⁴ USAID Administrator Henrietta Fore and ADM Timothy J. Keating, Commander of USPACOM, accompanied the first flight. As supplies were being off-loaded Keating met with Myanmar officials to offer more aid. The air crew that accompanied him were from the Marine Aerial Refueler Transport Squadron 152, based out of Okinawa. The crew had also been in the region for Cobra Gold 2008 when it was diverted to assist relief operations.^{265, 266}

Initially, relief efforts by the U.S. military operated under strict conditions laid out by the affected nation's rulers. U.S. personnel were not allowed to distribute relief supplies. At first, Myanmar officials off loaded supplies from aircraft and further distributed the items. However, after the delivery of five flights, Myanmar officials allowed the U.S. to consign supplies to NGOs who further distributed the relief items.²⁶⁷

The U.S. had also offered the use of heavy lift helicopters and landing crafts, but the offers were not accepted by Myanmar. Other foreign militaries, such as Thailand and Singapore, had also offered to send

²⁵⁶ Burma - Cyclone Fact Sheet #2, Fiscal Year (FY) 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/52032C009E89EE5085257442006403E4-Full_Report.pdf

²⁵⁷ PaCom Commander Accompanies Burmese Relief Mission, Appeals to Allow More Aid, <https://archive.defense.gov/news/newsarticle.aspx?id=49859>

²⁵⁸ Negotiating humanitarian access to cyclone-affected areas of Myanmar: a review, <https://odihpn.org/magazine/negotiating-humanitarian-access-to-cyclone-affected-areas-of-myanmar-a-review/>

²⁵⁹ First of Three Planned U.S. Relief Flights Brings Aid to Burma, <https://archive.defense.gov/news/newsarticle.aspx?id=49849>

²⁶⁰ U.S. Military Ready to Provide Aid for Stricken Burmese, Official Says, <https://archive.defense.gov/news/newsarticle.aspx?id=49808>

²⁶¹ Marines, Sailors Prepare for Possible Operations in Burma, <https://archive.defense.gov/news/newsarticle.aspx?id=49840>

²⁶² Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

²⁶³ Ibid.

²⁶⁴ First of Three Planned U.S. Relief Flights Brings Aid to Burma, <https://archive.defense.gov/news/newsarticle.aspx?id=49849>

²⁶⁵ USAID administrator delivers aid to Burma and announces an additional \$13 million in humanitarian assistance, <https://reliefweb.int/report/myanmar/usa-id-administrator-delivers-aid-burma-and-announces-additional-13-million>

²⁶⁶ PaCom Commander Accompanies Burmese Relief Mission, Appeals to Allow More Aid, <https://archive.defense.gov/news/newsarticle.aspx?id=49859>

²⁶⁷ Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

helicopters, but the offers were also turned down.²⁶⁸

Around June 7, operations began to wind down. From June 11-20, the Essex Expeditionary Strike Group left the Gulf of Burma. On June 22, C-130s carried out their last sorties of relief deliveries.²⁶⁹

When operations completed on June 22, 2008, the JTF-CR had completed 186 C-130 sorties, and transported 4 million pounds of relief supplies, including water, food and emergency shelter materials. The deliveries had also supported 32 international aid agencies in total, including UN agencies, and NGOs. Relief goods from Thailand were also delivered. The UN's World Food Program (WFP) took over the “air bridge” from the U.S. military when it reached full capacity.^{270, 271, 272}



Master Sgt. Todd Kneisly and Airman 1st Class Robert Gore load a C-130 Hercules with humanitarian relief supplies for Burmese victims of Cyclone Nargis at Utapao Air Base, Thailand, May 12, 2008.

U.S. Air Force photo/Senior Airman Sonya Croston

Source: <https://www.dvidshub.net/image/88395/humanitarian-relief-burmese-victims>

²⁶⁸ Ibid.

²⁶⁹ Ibid.

²⁷⁰ Burma - Cyclone Fact Sheet #24, Fiscal Year (FY) 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/C78891E58770488DC125748200389992-Full_Report.pdf

²⁷¹ Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

²⁷² UN and U.S. Agencies Assisted Cyclone Victims in Difficult Environment, but Improved U.S. Monitoring Needed, <https://www.gao.gov/products/GAO-11-700>



May 2008

China: Sichuan earthquake

Background

On May 12, 2008, an earthquake measuring 8.0 on the Richter scale struck Wenchuan County in China's southwestern Sichuan Province. The neighboring provinces of Gansu and Shaanxi were also badly affected. Almost 100,000 people were killed, more than 360,000 injured and more than 45.55 million people were affected by the disaster. The quake was reportedly the deadliest since the 1976 Tangshan earthquake which killed at least 240,000 people, and the strongest since the Chayu earthquake in 1950. In some areas, it was reported that more than 90 percent of homes had been destroyed by the 8.0-magnitude temblor.^{273, 274, 275, 276}



Earthquake relief supplies from the United States are unloaded at the Shuangliu International Airport in Chengdu, China. Two U.S. Air Force C-17 Globemaster III aircraft delivered food, water containers, blankets, generators, lanterns and various hand tools, which were taken immediately to earthquake areas. Secretary of Defense Robert Gates, in support of the U.S. Department of State, authorized U.S. Pacific Command to support earthquake relief efforts in the People's Republic of China. U.S. Air Force photo/Tech. Sgt. Chris Vadnais
Source: <https://www.dvidshub.net/image/89375/us-sends-relief-supplies-china>

U.S Government Response

Two C-17 Globemaster IIIs, one assigned to the 15th Airlift Wing at Hickam Air Force Base, Hawaii, and the other assigned to the 3rd Wing at Elmendorf Air Force Base, Alaska, delivered more than 175,000 lbs. of relief supplies to the Chinese military and government. The delivery included tents, food, blankets, lanterns, generators and other supplies which were sent directly to the Shuangliu International Airport at Chengdu, the largest city in Sichuan. Senior members of the People's Liberation Army met the aircrews when they arrived.²⁷⁷

The Department of Defense purchased the relief supplies from FEMA. Less than 24 hours after receiving the request from USPACOM, FEMA had delivered 17 pallets of relief supplies from its Pacific Distribution Center to the 15th Airlift Wing at Hickam Air Force Base for transport.²⁷⁸

"The members of U.S. Pacific Command offer our sincere condolences to the citizens of the People's Republic of China who have been affected by this recent earthquake," said Navy Adm. Timothy Keating, the commander of U.S. Pacific Command. "We will continue to provide any assistance we can to minimize their suffering and loss of life."²⁷⁹

273 Sichuan quake anniversary: China's "transformed approach" to disaster risk, <https://reliefweb.int/report/china/sichuan-quake-anniversary-china-s-transformed-approach-disaster-risk>

274 5.12 Sichuan Earthquake 10 Years On, <https://reliefweb.int/report/china/512-sichuan-earthquake-10-years>

275 10th Anniversary of Wenchuan Earthquake, <https://reliefweb.int/report/china/10th-anniversary-wenchuan-earthquake>

276 Transforming livelihoods five years after the Sichuan quake, <https://reliefweb.int/report/china/transforming-livelihoods-five-years-after-sichuan-quake>

277 U.S. Sends Relief Supplies to China, <https://archive.defense.gov/news/newsarticle.aspx?id=49920>

278 FEMA supports federal aid to China, <https://reliefweb.int/report/china/fema-supports-federal-aid-china>

279 U.S. Sends Relief Supplies to China, <https://archive.defense.gov/news/newsarticle.aspx?id=49920>



The relief missions took place as USPACOM was delivering humanitarian aid to Myanmar following Cyclone Nargis. (See “May 2008 - Myanmar: Cyclone Nargis” section for more information).



Senior Capt. Guan Youfei, deputy director of the Foreign Affairs Office of the Chinese Ministry of National Defense (center) and U.S. Army Brig. Gen. Charles W. Hooper, U.S. military attaché in Beijing, greet the first of two U.S. aircrews delivering earthquake relief supplies to China. The two C-17 U.S. Globemaster III aircraft carried food, water containers, blankets, generators, lanterns and various hand tools.

U.S. Air Force photo/Tech. Sgt. Chris Vadnais

Source: <https://www.dvidshub.net/image/89374/us-sends-relief-supplies-china>

June 2008

Philippines: Typhoon Fengshen (locally known as Typhoon Frank)

Background

On June 18, 2008, Typhoon Fengshen (locally known as Frank) entered the Philippine Area of Responsibility (PAR) first as a tropical depression and then intensified into a typhoon when it made landfall in the Eastern Visayas region. The typhoon left at least 557 dead, 87 missing and 826 injured. Heavy rains and powerful winds from Fengshen triggered flooding, landslides and storm surges. The most affected areas were the provinces of Iloilo, Capiz, Aklan, Antique, Leyte and Samar. More than 4 million people (900,000 families) were affected, and a total of 500,494 people (100,080 families) were evacuated to 1,525 evacuation centers. Some 3,492,286 people (738,110 families) chose to stay outside evacuation centers. A total of 81,510 houses were destroyed and an additional 326,321 were damaged. Economic costs to infrastructure and agriculture was estimated at P13.525B.²⁸⁰

In addition to the affected land areas, a deadly transport disaster occurred after the “MV Princess of the Stars” ferry boat, went aground on June 21 as Fengshen moved through the area. The ship capsized around 3 kilometers from Romblon on the shore of Sibuyan Island in the central Philippines, resulting in the deaths of more than 700 passengers. Less than 60 people survived. Rescue and recovery operations were suspended after it was discovered that the boat was transporting some 100,000 liters of fuel in the cargo as well as a large amount of highly toxic pesticides. The Government of the Philippines (GoP) requested international help from the UN and the Joint UNEP/OCHA Environment Unit (JEU), and the European



Flooding caused by Typhoon Fengshen is visible from the air above Roxas in the Republic of the Philippines, June 26, 2008. The northern part of the island was heaviest hit by the typhoon.

U.S. Navy photo by Senior Chief Spike Call

Source: <https://archive.defense.gov/photoessays/PhotoEssaySS.aspx?ID=826>

²⁸⁰ NDCC Update Situation Report No. 33 on the effects of Typhoon “Frank” (Fengshen), 31 July 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/AF08756A504E59A48525749700629D7A-Full_Report.pdf

Commission, through the Monitoring and Information Centre (MIC), assisted. The group provided a report of their findings before salvage operations began to the GoP, after completing their visit on July 20, 2008. The U.S. military was also asked to assist in rescue operations.^{281, 282}

U.S. Government Response

On June 25, 2008, the aircraft carrier USS Ronald Reagan (CVN 76) and its carrier group, which includes one cruiser, two destroyers, and one frigate, arrived west of Panay Island. The USS Ronald Reagan with the embarked Carrier Air Wing (CVW) 14 and other navy ships arrived to support the GoP on June 25. The other ships included the guided-missile cruiser USS Chancellorsville (CG 62); and three ships of Destroyer Squadron (DESRON) 7; the guided-missile destroyers USS Howard (DDG 83) and USS Gridley (DDG 101) and the guided-missile frigate USS Thach (FFG 43). Also providing assistance to the Armed Forces of the Philippines (AFP) in their efforts were the maritime prepositioning ship USNS Gunnery Sgt. Frank Stockham (T-AK 3017) and the rescue and salvage ship USNS Safeguard (T-ARS 50), which assisted in the recovery operations of the sunken ferry Princess of the Stars. Rear Adm. Phil Wisecup, commander of the Navy ships, arrived on shore to meet with Lt. Gen. Ike Inserto, commander of AFP's Central Command, and other senior Philippine officers. Inserto and his senior commanders assessed the capabilities of the USS Ronald Reagan and requested that the U.S. ships provide helicopter support to assist in delivering supplies to remote areas affected by the typhoon.^{283, 284, 285}

U.S. Navy sailors and Philippine Army soldiers work together unloading supplies



U.S. Navy sailors and Philippine Army soldiers work together unloading supplies for people suffering in the wake of Typhoon Fengshen at Kalibo Airport in the Philippines, June 26, 2008.

U.S. Navy photo by Senior Chief Spike Call

Source: <https://archive.defense.gov/photoessays/PhotoEssaySS.aspx?ID=826>



Philippine Army soldiers stage themselves to transport bottled water to U.S. Navy and Philippine Air Force aircraft conducting humanitarian missions in the wake of Typhoon Fengshen, Kakibo, Philippines, June 26, 2008.

Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001149442/>

281 OCHA Situation Report No. 1, The Philippines: 'Princess of the Stars' ferry disaster – toxic cargo, 15 July 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/F344606D0B08D05D4925748800036806-Full_Report.pdf

282 Environment: Capsized ferry in Philippines - joint EU and UN assessment report presented to Philippine authorities, <https://reliefweb.int/report/philippines/environment-capsized-ferry-philippines-joint-eu-and-un-assessment-report>

283 U.S. Navy Ships on Station to Support Armed Forces of the Philippines, https://www.navy.mil/submit/display.asp?story_id=38063

284 Ibid.

285 USAID Fact Sheet #1, Philippines Typhoon, June 27, 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/FB15485FC74E13A74925747600057E32-Full_Report.pdf

for people suffering in the wake of Typhoon Fengshen at Kalibo Airport in the Philippines, June 26, 2008.

On June 26, Sailors from the USS Ronald Reagan and other supporting ships worked with the AFP to deliver relief supplies to the victims of Typhoon Fengshen on the island of Panay.²⁸⁶

HH-60H Seahawk and SH-60F Seahawk helicopters from Helicopter Anti-Submarine Squadron (HS) 4, embarked aboard Ronald Reagan; SH-60B Seahawk helicopters from Helicopter Anti-Submarine Squadron (Light) 43, embarked aboard the guided-

missile destroyer USS Howard; and Helicopter Anti-Submarine Squadron (Light) 37; embarked aboard the guided-missile frigate USS Thach, made 19 relief sorties to deliver food and bottled water to the most affected areas. Two C-2A Greyhound cargo planes from the Ronald Reagan also arrived, delivering water and rice. Over the course of two days, the carrier provided 28,128 20-ounce bottles of water and 9,060 pounds of rice. U.S. and AFP personnel worked together, loading the supplies onto helicopters for delivery to storm victims.²⁸⁷

Inside the helicopters, U.S. Navy air crews paired with AFP officers and civilian government officials to make the deliveries. AFP officers embarked on the USS Ronald Reagan to help direct the effort.²⁸⁸ To assist with the storm response, Philippine Air Force (PAF) C-130 cargo planes delivered supplies to Iloilo's Santa Barbara airport.

Between June 25 and June 27, helicopters and fixed wing C-2 aircraft from the carrier group, flying fifty-one and nine sorties respectively, delivered relief commodities and transported U.S. Government and Armed Forces of the Philippines personnel to otherwise inaccessible areas on Panay and Sicogon islands.²⁸⁹

The DOD was also asked to assist with the Princess of the Stars ferry accident, a secondary disaster due to the storm. On June 24, 2008, the U.S. Navy Ship Stockham was deployed with small boats, two search and rescue helicopters, and an underwater scuba team, to find survivors and locate bodies from the Princess of the Stars.²⁹⁰



ILOILO, Philippines (June 25, 2008) - Rear Adm. James P. Wisecup, left, shakes hands with Angelo Reyes, Secretary of Energy for the Republic of the Philippines. Wisecup, commander of Carrier Strike Group (CSG) 7, arrived in Iloilo to assess damage caused by Typhoon Fengshen. Navy photo by Mass Communication Specialist 2nd Class Jennifer Kimball https://www.navy.mil/view_image.asp?id=60589&t=1

²⁸⁶ US Navy, Armed Forces of the Philippines Deliver Supplies to Typhoon-Ravaged Areas, https://www.navy.mil/submit/display.asp?story_id=38077

²⁸⁷ Ibid.

²⁸⁸ Ibid.

²⁸⁹ USAID Fact Sheet #1, Philippines Typhoon, June 27, 2008, https://reliefweb.int/sites/reliefweb.int/files/resources/FB15485FC74E13A74925747600057E32-Full_Report.pdf

²⁹⁰ Ibid.



PAN DE AZUCAR ISLAND, Philippines (June 27, 2008) - An MH-60R Seahawk helicopter assigned to the "Scorpions" of Helicopter Anti-Submarine Squadron Light (HSL) 49 lands in an open field to deliver supplies to residents at Pan de Azucar Island.
U.S. Navy photo by Mass Communication Specialist 2nd Class Jennifer S. Kimball. (Released)
Source: [https://commons.wikimedia.org/wiki/Category:Typhoon_Fengshen_\(2008\)#/media/File:US_Navy_080627-N-0640K-443_An_MH-60R_Seahawk_helicopter_assigned_to_the.jpg](https://commons.wikimedia.org/wiki/Category:Typhoon_Fengshen_(2008)#/media/File:US_Navy_080627-N-0640K-443_An_MH-60R_Seahawk_helicopter_assigned_to_the.jpg)

August 2009

Taiwan: Typhoon Morakot

Background

Typhoon Morakot made landfall in Taiwan on August 7, 2009, leaving at least 602 people dead and 92 reported as missing. From August 8 to 9, Typhoon Morakot passed over Taiwan with heavy rains and wind speeds of more than 100 mph, resulting in extensive flooding and mudslides. The storm affected much of the south-central part of the island and more than 24,000 people were evacuated from affected areas. Additionally, a total of 5,311 people were displaced and stayed in 53 temporary camps. The storm caused widespread damage throughout central and southern Taiwan, particularly in Kaohsiung, Pingtung, Taitung, Nantou, Chiayi, and Tainan counties, mainly affecting remote mountainous regions. Pingtung, Tainan and Kaohsiung were the three most affected counties. Morakot was reportedly one of the deadliest typhoons to have hit the island in the past 50 years. According to UNOCHA, between August 6 and 9, Morakot dumped more than 3 meters of water and caused estimated economic losses of US\$3.4 billion.²⁹¹

^{292, 293, 294, 295} More than 40,000 Taiwanese troops were involved in the search for survivors.²⁹⁶

U.S. Government Response

On August 11, American Institute in Taiwan (AIT) Acting Director Robert S. Wang issued a disaster declaration due to the effects of the typhoon. In response, USAID/OFDA provided \$250,000 through the AIT to support the relief efforts of Taiwan's National Red Cross organization.²⁹⁷

USAID/OFDA deployed two regional advisors to Taiwan, between August 14 and 24, to conduct assessments and coordinate U.S. Government efforts in coordination with the AIT, Taiwan Red Cross Organization (TRCO), local government officials, the Taiwan military and the U.S. Department of Defense (DOD).²⁹⁸

Taiwan requested heavy lift assistance from the U.S. and the U.S. Secretary of Defense directed U.S. Pacific Command (USPACOM) to assist. For the response effort, USPACOM was to provide support for logistics, transportation and relief supplies. From there, the Seventh Fleet assigned the task to Combined Task Force 76 (CTF 76). Given the limited scope of Taiwan's support request, CTF 76 redeployed Commander, Amphibious Squadron 11 (CPR11), along with elements of the commodore's staff, and 31st MEU aboard the USS Denver (LPD 9), which had two MH-53Es and two MH-60S helicopters and an LCAC hovercraft aboard. CPR 11's commodore assembled a Humanitarian Assistance Survey Team (HAST) and flew ashore. He met with USAID, the American Institute in Taiwan, the Taiwan government, and military personnel to review the status of relief operations. After discussing the host nation's priorities with USAID representatives, the commodore decided he could best assist the Taiwan government by using the helicopters to lift construction vehicles and equipment to outlying and mountainous areas cut off by

²⁹¹ Asia: Typhoon Morakot - Information Bulletin n° 1, <https://reliefweb.int/report/china/asia-typhoon-morakot-information-bulletin-n-1>

²⁹² Taiwan: Most recent disaster declaration - Typhoon, 11 Aug 2009, <https://reliefweb.int/report/china-taiwan-province/taiwan-most-recent-disaster-declaration-typhoon-11-aug-2009>

²⁹³ Taiwan - Typhoon Fact Sheet #1, Fiscal Year (FY) 2009, https://reliefweb.int/sites/reliefweb.int/files/resources/59D29B96DF1FEABB492576170005E1C8-Full_Report.pdf

²⁹⁴ Asia: Typhoon Morakot - Information Bulletin n° 2, https://reliefweb.int/sites/reliefweb.int/files/resources/D93C20ABC4604DF285257616005B74B5-Full_Report.pdf

²⁹⁵ Typhoon Morakot Situation Report #3, September 2, 2009, https://reliefweb.int/sites/reliefweb.int/files/resources/DCD352E370CA817585257625005B0267-Full_Report.pdf

²⁹⁶ Typhoon Morakot Situation Report #1, August 19, 2009, https://reliefweb.int/sites/reliefweb.int/files/resources/A9DAD7AA2E24B84F492576180001BA4F-Full_Report.pdf

²⁹⁷ Taiwan: Most recent disaster declaration - Typhoon, 11 Aug 2009, <https://reliefweb.int/report/china-taiwan-province/taiwan-most-recent-disaster-declaration-typhoon-11-aug-2009>

²⁹⁸ Taiwan - Typhoon Fact Sheet #2, Fiscal Year (FY) 2009, <https://reliefweb.int/report/china-taiwan-province/taiwan-typhoon-fact-sheet-2-fiscal-year-fy-2009>

floods and landslides.^{299, 300}

On August 15 and 16, the DoD delivered 517,420 water purification tablets and 120 rolls of plastic sheeting via two C-130 cargo planes from Marine Corps Air Station Futenma on Okinawa for distribution to affected populations. In addition, USPACOM provided air assets, including the two heavy-lift helicopters and two medium-lift helicopters from the U.S.S. Denver from Sasebo Naval Base, Japan, to transport excavation equipment.^{301, 302}

The commodore deployed 45 sailors and Marines to provide a tactical air control team, a helicopter rigging team, a helicopter logistics and maintenance team, and a public affairs team at Tainan Air Force Base, where they worked together with their Taiwanese counterparts. The MH-60S provided aerial damage surveys and verification of helicopter landing zones, while the MH-53E performed lift missions. In six days the team flew 55 sorties, lifting 20 construction vehicles and 20 boxes of relief supplies, for a total of 255,800 pounds.³⁰³

DOD assistance to Taiwan came out to roughly US\$700,000 through the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) account for logistics, transportation and relief commodities.³⁰⁴

DOD Personnel assisted the USAID/OFDA Principle Regional Advisor (PRA) in conducting field assessments in southern Taiwan between August 20 and 22. The team was accompanied by AIT officials and Taiwan authorities. U.S. military helicopters also assisted humanitarian assessments in mountainous Kaohsiung County and the Pingtung coastal delta region.³⁰⁵



An MH-60S Knighthawk lifts off from a temporary landing zone in Min Chuan, Taiwan, leaving behind a crew of Marines to manage inbound earthmovers Aug. 19, 2009. The MH-60S and other Navy helicopters embarked aboard USS Denver (LPD 9) conducted humanitarian operations in Taiwan to provide assistance to those suffering in the wake of typhoon Morakot.

U.S. Navy photo by Mass Communication Specialist 3rd Class Casey H. Kyhl)

Source: https://commons.wikimedia.org/wiki/File:US_Navy_photo_090819-N-WJ771-286_Morakot_relief.jpg

299 Foreign humanitarian assistance and disaster-relief operations: lessons learned and best practices, by Captain Cathal O'Connor, U.S. Navy, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>

300 U.S. sends troops, aid for victims of typhoon in Taiwan, <https://www.stripes.com/news/u-s-sends-troops-aid-for-victims-of-typhoon-in-taiwan-1.94026>

301 Taiwan - Typhoon Fact Sheet #2, Fiscal Year (FY) 2009, <https://reliefweb.int/report/china-taiwan-province/taiwan-typhoon-fact-sheet-2-fiscal-year-fy-2009>

302 U.S. sends troops, aid for victims of typhoon in Taiwan, <https://www.stripes.com/news/u-s-sends-troops-aid-for-victims-of-typhoon-in-taiwan-1.94026>

303 Foreign humanitarian assistance and disaster-relief operations: lessons learned and best practices, by Captain Cathal O'Connor, U.S. Navy, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>

304 Taiwan - Typhoon Fact Sheet #2, Fiscal Year (FY) 2009, <https://reliefweb.int/report/china-taiwan-province/taiwan-typhoon-fact-sheet-2-fiscal-year-fy-2009>

305 Ibid.

September 2009

Philippines: Tropical Storm Ketsana (Locally known as tropical storm Ondoy)

Background

Tropical storm Ketsana (locally known as Ondoy) made landfall in the Philippines on September 26, 2009, causing widespread flooding in Central Luzon as it passed through the central region of the country. The storm hit with maximum winds of up to 147 km per hour. According to the Philippines National Disaster Coordinating Council (NDCC), Ketsana made landfall near the border of Aurora and Quezon, crossed the central Luzon area for an approximate 12 hour period, and then moved off the coast of Zamabales. It then exited out of the Philippines into the South China Sea on September 27. During a 12-hour period on September 26, rainfall was recorded at approximately 450 mm at the Manila Observatory, which reportedly equaled a rainfall event that occurs once every 180 years. Weather officials estimated the volume of rain to be about one month's worth in just half a day. The rains also generated high levels in the Marikina River, exceeding its capacity. The storm caused widespread flooding in the Metro Manila area and neighboring Rizal province, including the cities of Antipolo, Makati, Malabon, Marikina, Muntinlupa, Pasig, Quezon, San Juan, Taguig, and Valenzuela.^{306, 307, 308}

The storm left 464 people dead, 529 injured and 37 others missing. A total of 993,227 families or 4,901,234 people were affected by Ketsana. Around 15,798 families or 70,124 people were evacuated in 244 evacuation centers. The total number of houses destroyed was 30,082, while another 154,922 were damaged by the storm. Estimated economic damages to infrastructure and agriculture amounted to some PhP 11 Billion. The government requested international assistance on September 28 and declared a National State of Calamity on October 2.^{309, 310}

Tropical storm Ketsana was followed by Typhoon Parma (locally known as Pepeng), a category 3 storm, which affected the Philippines during October 3-9, 2009. Parma first made landfall in the Philippines over the eastern coast of Cagayan. Parma brought sustained winds of 195 km/hr and gusts of up to 230 km/hr. Parma stalled in the northern part of Luzon, reversed its track and dumped heavy rainfall on agricultural areas that were already inundated. After nearly a week,



Members of the U.S. Armed Forces and the Armed Forces of the Philippines deliver family food packs donated by local businesses and private organizations to aid communities affected by Tropical Storm Ketsana, Manila, Oct. 4, 2009.

Source: <https://dod.defense.gov/Photos/Photo-Gallery/igphoto/2001155425/>

³⁰⁶ Typhoons Ondoy and Pepeng: Post-Disaster Needs Assessment Executive Summary, https://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_2419.pdf

³⁰⁷ Philippines: Typhoon Ketsana changed life forever, <https://reliefweb.int/report/philippines/philippines-typhoon-ketsana-changed-life-forever>

³⁰⁸ Philippines: NDCC UPDATE - Final Report on Tropical Storm "ONDOY" and Typhoon "PEPENG" <https://reliefweb.int/report/philippines/philippines-ndcc-update-final-report-tropical-storm-ondoy-and-typhoon-pepeng>

³⁰⁹ Typhoons Ondoy and Pepeng: Post-Disaster Needs Assessment Executive Summary, https://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_2419.pdf

³¹⁰ Philippines: NDCC UPDATE - Final Report on Tropical Storm "ONDOY" and Typhoon "PEPENG" <https://reliefweb.int/report/philippines/philippines-ndcc-update-final-report-tropical-storm-ondoy-and-typhoon-pepeng>



Parma exited the Philippines on October 10, exiting out into the South China Sea. Parma left 465 people dead, 207 injured and left another 47 people missing. Some 954,087 families, or 4,478,284 people were affected by Parma. There were also 3,258 families, or 14,892 people evacuated to 54 evacuation centers. Additionally, around 6,807 houses were destroyed and another 55,062 houses were damaged. Economic damages to agriculture and infrastructure amounted to an estimated PhP 27.297 Billion. Together, Ketsana and Parma caused total economic damages of

some US\$4,383,000,000. The two storms affected over 9.3 million people out of an estimated population of 43.2 million, and left nearly 1,000 people dead. The majority of deaths caused by Ketsana were reportedly due to drowning, while deaths during Parma were largely attributed to landslides.^{311, 312}

The Philippines government launched immediate search and rescue operations in flooded areas on September 26. The Armed Forces of the Philippines, the Philippine National Red Cross (PNRC), the Philippine National Police, the Bureau of Fire Protection, Department of Public Works and Highways, and the Philippine Coast Guard (PCG) were the first responders. Early warnings from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the U.S. Navy's Joint Typhoon Warning Center (JTWC) led to the evacuation of 45,500 from the path of Parma.³¹³

It should be noted here that the U.S. Department of Defense had just provided support for Typhoon Morakot in August (see above) when three disasters, Tropical Storm Ketsana in the Philippines, the Padang Earthquake in Indonesia (see next section), and a tsunami which affected both American Samoa and Western Samoa, occurred within a few days of each other in late September and early October 2009. News at the time had much of the region's response community stretched thin due to Typhoon Morakot and the subsequent "triple disaster." Additionally, on the heels of Ketsana--which went on to also affect Laos, Cambodia and Vietnam--the Philippines was hit by Typhoon Parma, which caused additional damages to the Philippines. Despite its assets being stretched thin, DOD assisted in all three relief efforts.



Crew members assigned to Utility Landing Craft 1631 unload U.S. Marines' equipment at Naval Base Subic Bay, Philippines, on Oct. 3, 2009. Landing craft 1631 is part of the USS Denver (LPD 9) Amphibious Task Group, which was asked by the government of the Philippines to support humanitarian assistance operations in the wake of Typhoon Ketsana.

DoD photo by Petty Officer Andrew Smith, U.S. Navy (Released)

Source: <https://archive.defense.gov/photos/newsphoto.aspx?newsphotoid=11801>

U.S. Government Response

U.S. military support began September 27 with assistance from Joint Special Operations Task Force – Philippines (JSOTF-P). The U.S. forces temporarily deployed in Zamboanga provided 20 personnel, a helicopter and four Zodiac inflatable boats to move food and medical supplies and conduct initial rescue operations in the Manila area. In the early stages of the response, PACOM also provided equipment,

311 Typhoons Ondoy and Pepeng: Post-Disaster Needs Assessment Executive Summary, https://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_2419.pdf

312 Philippines: NDCC UPDATE - Final Report on Tropical Storm "ONDOY" and Typhoon "PEPENG" <https://reliefweb.int/report/philippines/philippines-ndcc-update-final-report-tropical-storm-ondoy-and-typhoon-pepeng>

313 Ibid.



transport, and logistics support. “About 20 personnel with the Joint Special Operations Task Force went up to Manila to help the armed forces of the Philippines in any way they could,” Navy Adm. Timothy J. Keating, USPACOM Commander said.^{314, 315}

On September 29, around 100 3rd Marine Expeditionary Force (III MEF) Marines flew from Okinawa to assess the situation in the Philippines. On September 30, U.S. Navy ships USS Denver, USS Tortuga, and USS Harpers Ferry, with embarked Marines and sailors of the 31st Marine Expeditionary Unit (31st MEU), headed from Okinawa to the Philippines. The next day, Marine Corps Brig. Gen.

Mark A. Brilakis, commander of the 3rd Marine Expeditionary Brigade (3rd MEB), flew to the Philippines to lead efforts. C-130 transport aircraft from the 1st Marine Aircraft Wing delivered humanitarian aid and a III MEF humanitarian assistance support team also arrived to assess the operation.³¹⁶

U.S. military personnel also delivered relief supplies to remote areas in the Philippines, provided limited medical and dental care and established long-range communication capabilities for relief efforts.³¹⁷

Medical personnel from the MEU set up a medical civil affairs program at an elementary school in Marikina City that provided care for more than 760 medical and dental patients. Additionally, U.S. military personnel distributed food, providing more than 2,400 meals for Quezon City residents.³¹⁸

U.S. troops worked alongside Philippine forces to clear tons of debris, deliver food, and provided medical assistance to 9,000 patients in total.³¹⁹



U.S. service members and members of the Armed Forces of the Philippines deliver family food packs to aid communities affected by tropical storm Ketsana in Manila, Philippines, on Oct. 4, 2009. The food packs were donated by local businesses and other private organizations. Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001248454/>

314 Marines, Sailors Bring Aid to Philippines, <https://archive.defense.gov/news/newsarticle.aspx?id=56077>

315 Command Continues Aid Efforts in Pacific, <https://archive.defense.gov/news/newsarticle.aspx?id=56087>

316 Marines, Sailors Bring Aid to Philippines, <https://archive.defense.gov/news/newsarticle.aspx?id=56077>

317 Ibid.

318 Ibid.

319 Marines, sailors ready to assist Typhoon Megi victims, <https://www.stripes.com/news/pacific/philippines/marines-sailors-ready-to-assist-typhoon-megi-victims-1.122520>



September 2009

Indonesia: Sumatra Earthquakes

Background

In late September and early October 2009, Indonesia's Sumatra Island was hit by two powerful earthquakes that caused widespread destruction and triggered landslides that buried villages. The first earthquake was a 7.6-magnitude temblor that hit off the coast of Padang city, the capital of West Sumatra province, on September 30, 2009. Padang and Pariaman were the worst affected areas in the province. The second earthquake struck on October 1 and measured 7.0-magnitude. It struck 46 km southeast of Sungai Penuh in Jambi province at a depth of 10 km. An estimated 1,117 people died and another 1,214 people were injured from the quakes. The government estimated damages at US\$745 million. Around 2.5 million people in total were thought to have been affected by the earthquake.^{320, 321, 322, 323}

The most affected areas were: Padang City, Pariaman City, Padang Pariaman district; Mentawai district; Agam district and Pesisir Selatan district. The Indonesian government requested assistance from the U.S. government to respond to the disaster.³²⁴



Col. Dan Settergren (left) meets with Ted Osius, U.S. Deputy Charge de Affairs in Indonesia, and Rear Adm. Richard Landolt, Amphibious Force 7th Fleet commander, to explain the Air Force humanitarian assistance rapid response team mission and capabilities in front of the team's mobile field hospital Oct. 6, 2009, in Padang, Indonesia.

U.S. Air Force photo/Staff Sgt. Veronica Pierce

Source: <https://www.af.mil/News/Article-Display/Article/118909/air-force-harrr-arrives-in-indonesia/>

U.S. Government Response

U.S. special operations forces from the 353rd Special Operations Group (353rd SOG) were quickly able to set up communications with USPACOM headquarters and help Indonesian and American officials assess the damage. The group was in country for an exercise when the first earthquake hit on September 30. As part of initial relief efforts, an Air Force C-130 Hercules transport delivered supplies to the area around Padang.³²⁵

Navy Rear Adm. Richard Landolt, commander of the Amphibious Force 7th Fleet based in Okinawa, Japan, flew in with a Humanitarian Assistance Survey Team (HAST) on September 30, to lead U.S. military

320 Indonesia: Earthquake Situation Report No. 18, https://reliefweb.int/sites/reliefweb.int/files/resources/133D43113C6B86978525765C0068F0B9-Full_Report.pdf

321 Indonesia: Earthquake Situation Report No. 19, https://reliefweb.int/sites/reliefweb.int/files/resources/37D2C87DB6ECBFEA8525765F00669041-Full_Report.pdf

322 Indonesia: Earthquake Situation Report No. 3, https://reliefweb.int/sites/reliefweb.int/files/resources/E63E0026DA4BDC65C12576430062E4D6-Full_Report.pdf

323 Indonesia: Earthquake Situation Report No. 2, https://reliefweb.int/sites/reliefweb.int/files/resources/D0B6FF38FC9EB5E4852576420053A9C1-Full_Report.pdf

324 Indonesia: Earthquake Situation Report No. 4, https://reliefweb.int/sites/reliefweb.int/files/resources/9037A1B8CF8158F8852576440058FEAF-Full_Report.pdf

325 Command Continues Aid Efforts in Pacific, <https://archive.defense.gov/news/newsarticle.aspx?id=56087>



efforts.³²⁶ On October 2, Airmen of the 353rd SOG and members of a special operations branch of the Indonesian air force started moving emergency response teams, equipment and relief supplies to the Padang area aboard a MC-130P Combat Shadow assigned to the 17th Special Operations Squadron (SOS). The joint team surveyed the area around Padang and provided damage assessments as well as moved personnel and cargo to affected areas. The personnel from the 353rd SOG were members of the 320th SOS and 17th SOS from Kadena Air Base. Combat controllers from the teams also surveyed possible airfields and landing zones in case relief operations needed to be expanded. The 353rd SOG quickly set up communications on the ground. Combat controllers are trained special operations forces and certified air traffic controllers that have the ability to establish airfields while also conducting air traffic control, command and control, and humanitarian assistance in austere locations.³²⁷

As the Philippines had been hit by Tropical Storm Ketsana just four days earlier, the Seventh Fleet and III MEF agreed to split the ARG/MEU, with the 3rd Marine Expeditionary Brigade (3d MEB) leading the Philippines mission and Commander, Task Force 76's (CTF 76) leading the Indonesian mission. On October 3, USS Denver, with a command element from CPR 11, elements of 31st MEU, and Tactical Air Control Squadron 12 (TACRON 12), went to Indonesia with three CH-53E helicopters and a helicopter rigging team. Seventh Fleet sent USS McCampbell (DDG 85) and USNS Richard E. Byrd (T-AKE 4) with their helicopters to provide aerial surveys of the damage. On October 4, CTF 76 and a ten-member HAST/Forward Command Element (FCE) flew to Padang. The FCE established a command post in Jakarta, met with the ambassador and his staff, and coordinated efforts with USAID/OFDA and the TNI.³²⁸



Members of the 353rd Special Operations Group, Indonesian air force members and emergency response teams board a MC-130P Combat Shadow Oct. 2, 2009, at Bandung, Indonesia. The 353rd SOG Airmen are from Kadena Air Base, Japan. Courtesy photo

Source: <https://www.af.mil/News/Article-Display/Article/118921/kadena-airmen-aid-indonesian-recovery-operations/>



U.S. Air Force personnel and U.S. Marines unload a CH-53E Super Stallion helicopter carrying relief supplies for remote areas of Indonesia, following two earthquakes, Padang, Indonesia, Oct. 9, 2009. The helicopter crew is assigned to the Dragons of Marine Medium Helicopter Squadron 265.

Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001155435/>

³²⁶ Collaboration drove earthquake relief, commander says, <https://www.af.mil/News/Article-Display/Article/118747/collaboration-drove-earthquake-relief-commander-says/>

³²⁷ Kadena airmen aid Indonesian recovery operations, <https://www.af.mil/News/Article-Display/Article/118921/kadena-airmen-aid-indonesian-recovery-operations/>

³²⁸ Foreign Humanitarian Assistance and Disaster-Relief Operations: Lessons Learned and Best Practices, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>



When the USS Denver, with three heavy lift helicopters, arrived October 8, they immediately began airlifting tents, water and food to people in remote areas. Within four days, they delivered more than 100,000 pounds of cargo.³²⁹

By October 9, the Denver, McCampbell, and Richard E. Byrd were supporting operations. The ships helicopters were used to assist USAID staff in airborne surveys, while long range CH53 helicopters delivered relief supplies to remote communities.³³⁰

An air operations coordination cell was formed at Padang airport with elements of the 353rd SoG. The group, with their TNI counterparts, opened the airport for operations. Only around 165 U.S. military personnel stayed ashore for the operation.³³¹

On October 5, Airmen of the 36th Mobility Response Squadron, deployed from Andersen AFB, Guam, and serving as members of a newly operational Air Force humanitarian assistance rapid response team (HARRT) arrived with some 200,000 pounds of medical and contingency response equipment. The HARRT, comprised of 69 members, included members of 13th Air Force at Hickam AFB, Hawaii; the 3rd Wing at Elmendorf AFB, Alaska; the 374th Medical Group at Yokota Air Base, Japan; and the 36th Contingency Response Group and 36th Medical Group at Andersen AFB, provided medical support.^{332, 333, 334}

The 36th Contingency Response Group (36th CRG) from Andersen Air Force Base, Guam, provided operations support for the HARRT. The 36th CRG is made up of Airmen from the 736th Security Forces Squadron, 36th Mobility Response Squadron, 644th Combat Communications Squadron and 554th RED HORSE Squadron, from Andersen AFB.³³⁵

The HARRT was led by Colonel Dan Settergren, the 36th Contingency Response Group (36th CRG) commander at Andersen AFB. “This mission, the HARRT package, takes the communication control, base operations and rapid deployment capabilities that are an inherent part of the air base opening mission and allows us the ability to rapidly establish a medical capability anywhere in the theater,” Col. Settergren said.³³⁶

The HARRT set up a mobile field hospital and living quarters in an open field next to D. Jamil Hospital in Padang in an effort to maintain close partnerships with local hospitals. Local medical students assisted the response effort and also provided translation services. The HARRT team began seeing patients on



Capt. Steven Ellis collects medical history information from a patient with the help of Khairul, a local interpreter, Oct. 10, 2009, in Padang, Indonesia. Captain Ellis is a flight surgeon from the 36th Medical Group at Andersen Air Force Base, Guam.
U.S. Air Force photo/Staff Sgt. Veronica Pierce
Source: <https://media.defense.gov/2009/Oct/13/2000456820/-1/-1/0/091010-F-3177P-140.JPG>

329 Collaboration drove earthquake relief, commander says, <https://www.af.mil/News/Article-Display/Article/118747/collaboration-drove-earthquake-relief-commander-says/>

330 Foreign Humanitarian Assistance and Disaster-Relief Operations: Lessons Learned and Best Practices, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>

331 Ibid.

332 McChord Airmen provide humanitarian airlift to Indonesia, <https://www.af.mil/News/Article-Display/Article/118860/mcchord-airmen-provide-humanitarian-airlift-to-indonesia/>

333 Airmen treat hundreds of Indonesian earthquake victims, <https://www.af.mil/News/Article-Display/Article/118884/airmen-treat-hundreds-of-indonesian-earthquake-victims/>

334 Air Force HARRT arrives in Indonesia, <https://www.af.mil/DesktopModules/ArticleCS/Print.aspx?PortalId=1&ModuleId=850&Article=118909>

335 Andersen Airmen keep HARRT beating, <https://www.af.mil/News/Article-Display/Article/118875/anderson-airmen-keep-harrt-beating/>

336 Ibid.



October 7. U.S. military personnel at the field hospital treated more than 600 patients. Three of the four hospitals in Padang were severely damaged during the earthquake. The HARRT is reportedly capable of accommodating between 250 to 400 patients a day.^{337, 338, 339}

A C-17 crew from Elmendorf AFB transported the personnel and 13 pallets of equipment at Yokota AB, while a C-17 crew from Hickam AFB transported the personnel and equipment at Andersen AFB. Included in the team was a seven-person mobile field surgical team consisting of specialists in the fields of general surgery, orthopedic surgery, anesthesiology and emergency medicine from the 3rd Medical Group at Elmendorf AFB.³⁴⁰



PADANG, Indonesia -- Aerial view of the Humanitarian Assistance Rapid Response Team facility in Padang, Indonesia, Oct. 13, 2009. The facility provided medical care following two earthquakes in west Sumatra. U.S. Navy photo by Mass Communication Specialist 2nd Class Byron C. Linder
Source: <https://www.andersen.af.mil/News/Features/Article/415709/andersen-airmen-treat-hundreds-of-indonesian-earthquake-victims/>

The HARRT was developed by the 13th Air Force to provide a rapidly deployable team that can provide medical assistance in the event of a natural disaster in the Indo-Asia-Pacific region. The team combined the command and control and base operating support capability of the 36th CRG with the medical expertise of medical personnel to form a small, rapid-response unit to help affected nations during disaster relief operations. The HARRT is capable of deploying to an affected area within 24 hours of notification and can set up a fully operational medical facility within 6 hours of arriving.^{341, 342, 343}

McChord Air Force Base Airmen from the 7th Airlift Squadron completed their second humanitarian airlift mission in just over a week on October 9, delivering more than 87,000 pounds of cargo in support of relief operations. The cargo included a forklift and 10 pallets of fuel, food rations, water, and medicine and was received at Minangkabau International Airport by the 36th Mobility Response Squadron.³⁴⁴

By October 13, emergency relief operations began to wind down as roads were cleared and the demand for airlift decreased. By October 17, all U.S. forces had departed. In 13 days the U.S. military had provided medical treatment to 1,945 people, ferried 1,117 people, flew 150 sorties and lifted 640,000 pounds of supplies.³⁴⁵

³³⁷ Interpreters key to Air Force efforts in Indonesia, <https://www.af.mil/News/Article-Display/Article/118873/interpreters-key-to-air-force-efforts-in-indonesia/>

³³⁸ Andersen Airmen keep HARRT beating, <https://www.af.mil/News/Article-Display/Article/118875/andersen-airmen-keep-harrt-beating/>

³³⁹ Air Force HARRT arrives in Indonesia, <https://www.af.mil/News/Article-Display/Article/118909/air-force-harrt-arrives-in-indonesia/>

³⁴⁰ Airmen deploy to Indonesia to help quake victims, <https://www.af.mil/News/Article-Display/Article/118936/airmen-deploy-to-indonesia-to-help-quake-victims/>

³⁴¹ Ibid.

³⁴² Airmen treat hundreds of Indonesian earthquake victims, <https://www.af.mil/News/Article-Display/Article/118884/airmen-treat-hundreds-of-indonesian-earthquake-victims/>

³⁴³ Air Force humanitarian team set to depart for Indonesia, <https://www.af.mil/News/Article-Display/Article/118952/air-force-humanitarian-team-set-to-depart-for-indonesia/>

³⁴⁴ McChord Airmen provide humanitarian airlift to Indonesia, <https://www.af.mil/News/Article-Display/Article/118860/mcchord-airmen-provide-humanitarian-airlift-to-indonesia/>

³⁴⁵ Foreign Humanitarian Assistance and Disaster-Relief Operations: Lessons Learned and Best Practices, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>

October 2010

Philippines: Typhoon Megi (Locally known as Typhoon Juan)

Background

Around 2 million people in 17 cities and 23 provinces were affected when Super Typhoon Megi (locally known as Typhoon Juan) made landfall on October 18, 2010 in the Philippines with winds of more than 220 km/hr. Megi made landfall near Divilacan on the east coast of Isabela province. At least 31 people were killed and more than 148,000 houses were damaged, mostly in Isabela province. The provinces of Cagayan, Kalinga, Isabela, La Union and Pangasinan were also badly affected.³⁴⁶ Typhoon Megi was reportedly the strongest storm to hit the Philippines since Typhoon Durian in 2006.³⁴⁷

The Government of the Philippines appealed for assistance, and requested a need for fixed-wing aircraft and heavy-lift helicopters.³⁴⁸ Humanitarian organizations and foreign nations, including the U.S., immediately reached out to help.

U.S. Government Response

On October 19, U.S. Chargé d'Affaires Leslie A. Bassett declared a disaster. USAID/OFDA deployed a five-person assessment team to coordinate with other U.S. Government (USG) agencies, the GoP, and relief organizations to assess the impact and identify needs.³⁴⁹

In response to a Government request for aerial support, on October 20 USPACOM authorized U.S. Military action for 72 hours under “life and limb” provisions. The U.S. Department of Defense (DoD) provided four aircraft for aerial assessments and transport of personnel and supplies.³⁵⁰

The U.S. military was also holding a nine-day drill with Philippine counterparts and quickly offered seven helicopters for rescue and delivery of relief goods.³⁵¹

Additionally, the USS Essex, USS Harpers Ferry and USS Denver along with the Okinawa-based 31st Marine Expeditionary Unit (31st MEU) were participating in the amphibious landing exercise. The ships remained on standby off the coast of northeast Luzon in case they were called upon to provide additional support following damage assessments.³⁵²

USAID/OFDA sent a team to the Philippines to assist with coordination of U.S. government efforts, including the DOD assistance, and also began to conduct damage assessments.

Marines with the 31st MEU assisted the GoP with assessment of damage caused by Typhoon Megi. The DOD was also assisting Pakistan with massive floods in the country, so U.S. military assets were stretched.



Victims of Super Typhoon Megi unload humanitarian aid supplies from a U.S. Marine Corps CH-46 Sea Knight helicopter in Divilacan, Isabela province, Philippines, on Oct. 22, 2010. U.S. and Filipino military personnel conducted initial recovery assistance in the areas affected by the typhoon.
<https://dod.defense.gov/OIR/gallery/igphoto/2001249936/>

³⁴⁶ Emergency appeal final report Philippines: Typhoon Megi, https://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_2955.pdf

³⁴⁷ South East Asia: millions affected by six natural disasters, <https://reliefweb.int/report/indonesia/south-east-asia-millions-affected-six-natural-disasters>

³⁴⁸ Philippines Requests Aid in Killer Typhoon's Aftermath <https://archive.defense.gov/news/newsarticle.aspx?id=61330>

³⁴⁹ Philippines – Typhoon, Fact Sheet #1, Fiscal Year (FY) 2011, October 20, 2010, https://pdf.usaid.gov/pdf_docs/PA00J471.pdf

³⁵⁰ Ibid.

³⁵¹ Super typhoon hits Philippines, <https://www.reuters.com/article/us-philippines-typhoon/super-typhoon-hits-philippines-idUSTRE69H0E120101018>

³⁵² Marines, sailors ready to assist Typhoon Megi victims, <https://www.stripes.com/news/pacific/philippines/marines-sailors-ready-to-assist-typhoon-megi-victims-1.122520>

March 2011

Japan: Tohoku Earthquake, Tsunami and Nuclear Incident (also known as the Great East Japan Earthquake and Tsunami)

Background

On March 11, 2011 a massive 9.0 magnitude earthquake struck 130 kilometers off the coast of northeast Japan, triggering large tsunami waves, and causing widespread devastation. Tsunami waves reportedly reached up to 30 meters high and inundated some 433,000 square kilometers of land. Around 15,891 people were killed and 2,579 people went missing. Around 17,000 homes and buildings were destroyed and another 138,000 were damaged. The disaster forced the evacuation of some 492,000 people in total. According to UNOCHA, the earthquake was the 4th strongest earthquake worldwide since 1900. Economic damages from the disaster have been estimated at US\$228 billion.^{353, 354, 355}

The earthquake and tsunami also damaged three reactors in the Fukushima Daiichi Nuclear Plant, triggering a nuclear crisis, resulting in an unprecedented “triple disaster.” Damages to the nuclear plant and the subsequent leaking of radioactive material forced the evacuation on March 12 and 13 of more than 700,000 people living within the 20 km exclusion zone created by the Government of Japan. Another 136,000 people who lived within 20-30 km of the plant were encouraged by Japanese officials to evacuate or stay inside their homes. The nuclear accident was rated as level 7 on the International Nuclear Events Scale (INES), which was equivalent to that of the 1986 Chernobyl nuclear crisis.^{356, 357, 358}

Japan’s government and military forces worked quickly to respond to the disaster. By March 19, the Japan Self Defense Forces (JSDF) had deployed 106,200 personnel, 200 rotary aircraft, 322 fixed-wing aircraft, and 60 ships. Additionally, almost all of the Maritime JSDF (MJSDF) ships were deployed to affected areas. JSDF troops rescued nearly 20,000 individuals in the first week of relief operations and provided relief supplies to some 30,000 displaced by the disaster. JSDF personnel also supported activities at the nuclear reactors.^{359, 360}



NORTHERN JAPAN (March 15, 2011) - An aerial view of coastal damage in northern Japan after a 9.0 magnitude earthquake and subsequent tsunami devastated the area. Ships and aircraft from the Ronald Reagan Carrier Strike Group conducted search and rescue operations and re-supply missions in support of Operation Tomodachi throughout northern Japan. U.S. Navy photo by Mass Communication Specialist 3rd Class Alexander Tidd/Released
Source: <https://usnhistory.navylive.dodlive.mil/2016/03/10/operation-tomodachi-partnerships-presence-readiness-and-heritage/>

353 Japan: Earthquake & Tsunami - Situation Report No. 16, <https://reliefweb.int/report/japan/japan-earthquake-tsunami-situation-report-no-16>

354 Tsunamis account for \$280 billion in economic losses over last twenty years, <https://reliefweb.int/report/world/tsunamis-account-280-billion-economic-losses-over-last-twenty-years>

355 Earthquake and Tsunami Operations Update n° 10, https://reliefweb.int/sites/reliefweb.int/files/resources/Earthquake%20and%20Tsunami%20Operations%20Update%20No10_20120214.pdf

356 Japan: Earthquake & Tsunami - Situation Report No. 16, <https://reliefweb.int/report/japan/japan-earthquake-tsunami-situation-report-no-16>

357 FAQs: Fukushima Five Years On, <https://reliefweb.int/report/japan/faqs-fukushima-five-years>

358 Earthquake and Tsunami Operations Update n° 10, https://reliefweb.int/sites/reliefweb.int/files/resources/Earthquake%20and%20Tsunami%20Operations%20Update%20No10_20120214.pdf

359 Japan 2011 earthquake: U.S. Department of Defense (DOD) response, <https://fas.org/sgp/crs/row/R41690.pdf>

360 Operation Tomodachi, <https://amcmuseum.org/history/operation-tomodachi/>

The bulk of the foreign military response was provided by the U.S. military, however, Israel provided a medical team comprised of military personnel and China also sent a military search and rescue team to assist.³⁶¹

U.S. Government Response and “Operation Tomodachi (Friend)”

The Government of Japan (GoJ) initially requested assistance from the U.S. on the evening of March 11. The main assistance requested by the GoJ was for search and rescue teams, the use of military lift to transport supplies and personnel, and DOD, Nuclear Regulatory Commission and Department of Energy nuclear expertise to help with the Fukushima nuclear reactor crisis.³⁶²

In a March 11, 2011 task order, PACOM designated the Commander, U.S. Forces Japan (USFJ) as the supported operational commander of the operation, and 7th Fleet, Fifth Air Force, U.S. Army Forces Japan (USARJ) and Marine Forces Japan (MARFORJ), or each of the services, designated its own supporting commander for the operation. On March 19, elements of JTF-519 from Pearl Harbor, augmented the staff of USFJ and formed a Joint Support Force (JSF) to take command over the mission.^{363, 364}

The U.S. military effort was dubbed “Operation Tomodachi (“Friend”) and U.S. Forces were able to coordinate their efforts almost immediately to provide support for Japanese responders because of the large presence of U.S. military personnel in Japan. Nearly 40,000 U.S. troops from all four services were stationed in Japan and are located at some 85 facilities in Honshu, Kyushu and Okinawa. U.S. Forces began mobilizing and providing assistance to the Government of Japan the day the earthquake and tsunami hit. Military assets in the region were also redirected to the quake zone, including the aircraft carrier, the USS Ronald Reagan. The USS Ronald Reagan Carrier Strike Group included the USS Chancellorsville, USS Preble, USS Shiloh and USS Curtis Wilbur.^{365, 366}



Rear Adm. Robert Girrier, commander Carrier Strike Group Seven, explains operations supporting Japan's earthquake and tsunami relief efforts to Lt. Gen. Eiji Kimizuka, commanding general of Joint Task Force Tohoku, during a visit to the aircraft carrier USS Ronald Reagan.

U.S. Navy Photo by Petty Officer 3rd Class Dylan McCord
Source: https://archive.defense.gov/home/features/2011/0311_japan/



KAMAISHI, Japan (March 21, 2011) - Naval Air Crewman 2nd Class Justin Dowd, from Phoenix, surveys areas affected by the tsunami caused by a 9.0 magnitude earthquake.

U.S. Navy photo by Mass Communication Specialist 3rd Class Kevin B. Gray/Released
Source: <https://usnhistory.navylive.dodlive.mil/2016/03/10/operation-tomodachi-partnerships-presence-readiness-and-heritage/>

³⁶¹ Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

³⁶² Ibid.

³⁶³ Ibid.

³⁶⁴ Foreign humanitarian assistance and disaster relief operations: lessons learned and best practices, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>

³⁶⁵ Chronology of Operation Tomodachi, <https://www.nbr.org/publication/timeline-of-operation-tomodachi/>

³⁶⁶ Japan 2011 earthquake: U.S. Department of Defense (DOD) response, <https://fas.org/sgp/crs/row/R41690.pdf>

U.S. military personnel were deployed to the affected areas within 24 hours of the earthquake. All search and rescue assets from Okinawa, were first moved to Yokota Air base outside of Tokyo and then deployed to the north.^{367, 368}

U.S. military forces and the JSDF worked very closely together during relief operations. JSDF helicopters used U.S. aircraft carriers for the first time in responding to the disaster. The USS Ronald Reagan aircraft carrier provided a platform for air operations as well as a refueling base for JSDF and Coast Guard helicopters. Other U.S. vessels transported JSDF troops and equipment, such as the USS Tortuga, which transported 90 JSDF vehicles and nearly 300 JSDF soldiers. U.S. forces train regularly with the JSDF, including many humanitarian assistance and disaster relief exercises and the years of training as well as many interoperable military assets greatly assisted joint response efforts.³⁶⁹

Liaison officers helped with communication between the JSDF and U.S. military forces. For instance, three Marine JSDF officers served on board the USS Reagan, parallel to three U.S. Navy liaison officers on the Japanese ship, the JS Hyuga. In another example, a small group of Japanese soldiers coordinated relief efforts between the civilian Sendai airport authority and the U.S. marines helping to reopen the devastated runways.³⁷⁰ The U.S. airbase at Misawa, located in Aomori prefecture in northeastern Japan, was used as a forward operating base for both U.S. and JSDF forces.³⁷¹

On March 12, Commander, Task Force 76's (CTF 76) and 14 staff members deployed as 7th Fleet's maritime response cell (MRC) to USFJ. The MRC was the representative of the joint force maritime component commander (JFMCC). The MRC participated in daily coordination meetings, including the Joint Effects Coordination Board where the JSF, USAID and the components reviewed and validated MITAMS in order to task them to the appropriate component. As of March 16, 2011, the U.S. Seventh Fleet was operating 19 ships, 140 aircraft, and more than 18,000 personnel in support of the disaster response. A U.S. Navy P-3 Orion was also used to perform



An aerial view shows damage to Wakuya, Japan, March 15, 2011. U.S. Navy photo by Petty Officer 3rd Class Alexander Tidd
Source: https://archive.defense.gov/home/features/2011/0311_japan/



U.S. service members and Misawa residents pull a damaged vehicle from the woods near the port in Misawa, Japan, March 19, 2011. Service members, civilian employees and family members from Naval Air Facility Misawa helped residents clean up the port. U.S. Navy photo by Petty Officer 1st Class Matthew M. Bradley
Source: https://archive.defense.gov/home/features/2011/0311_japan/

³⁶⁷ Ibid.

³⁶⁸ Operation Tomodachi, <https://amcmuseum.org/history/operation-tomodachi/>

³⁶⁹ Japan 2011 earthquake: U.S. Department of Defense (DOD) response, <https://fas.org/sgp/crs/row/R41690.pdf>

³⁷⁰ Ibid.

³⁷¹ Ibid.

aerial search missions over the debris from the tsunami, off the northern coast of Japan.^{372, 373}

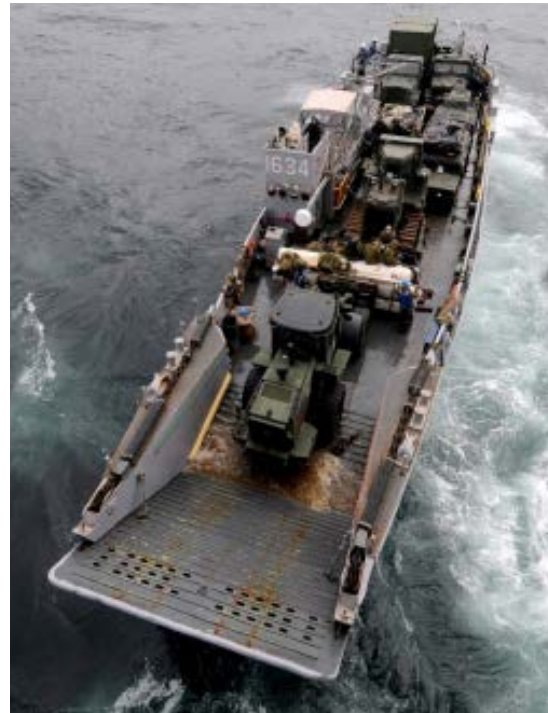
On March 18, U.S. and Japanese forces began to transition from a search and rescue effort to a relief mission.

As of April 1, Pacific Air Forces (PACAF) had conducted 444 sorties, delivering almost 6 million pounds of relief. The Air Force 33rd Rescue Squadron from Kadena Air Base also took part in search and rescue operations. The Air Force also launched an RQ-4 Global Hawk, a high-altitude unmanned aircraft from Andersen AFB in Guam, and a South Korea-based U-2, a high altitude manned aircraft, to assist with surveillance and assessments of damage. An Air Force special operations team conducted airfield surveys, including at Sendai International Airport, where they also assisted with runway clearing.^{374, 375}

The III Marine Expeditionary Force (III MEF) was involved in delivering supplies and clearing access. It also provided radiological surveillance and decontamination at the Fukushima Daiichi nuclear facility. U.S. Army Japan took part in the assessment effort in Sendai, and the U.S. Army Corps of Engineers Japan District helped with debris clearing.³⁷⁶

U.S. Army soldiers from the 35th Combat Support and Sustainment Battalion, along with the 10th Support Group, 83rd Ordnance, 505th Quartermaster Battalion, 1st Battalion, 1st Air Defense Artillery Regiment and the 1st Battalion, 1st Special Forces served in the operation. The task force, based out of Torii Station, Okinawa, served as a humanitarian logistics hub at Sendai International Airport and provided cargo transload, debris removal, sling-load rigging and also delivered toys to affected children.³⁷⁷

U.S. troops played a major role in the re-opening of airfields and ports. In the aftermath of the disaster, Sendai's airport appeared to be unusable and in complete ruins. The airport was under eight feet of water, a day after the disaster. An Okinawa-based U.S. Special Operations Group that specialized in establishing forward supply bases began the initial removing of debris, including some of over 5,000 cars that had washed onto the runways. They were later joined by Army soldiers and Marines. U.S. military personnel helped Japanese forces clear and operationalize Sendai International Airport within five days of the disaster so that it could serve as an important relief hub in the devastated region. As of March 29, troops had cleared more than 2,300 vehicles, delivered 140 drums of kerosene as well as clothing, shoes, blankets and hygiene kits to evacuees. Some 260 marines also worked side by side with the JSDF and the airport began receiving relief supplies on March 15 and was later opened to commercial flights on April 13. U.S.



SEA OF JAPAN (March 19, 2011) - A landing craft utility debarks the forward-deployed amphibious assault ship USS Essex (LHD 2) to survey landing sites near Akita, Japan.

U.S. Navy photo by Mass Communication Specialist 3rd Class Adam M. Bennett/Released

Source: <https://usnhistory.navylive.dodlive.mil/2016/03/10/operation-tomodachi-partnerships-presence-readiness-and-heritage/>

372 Foreign humanitarian assistance and disaster relief operations: lessons learned and best practices, <https://apps.dtic.mil/dtic/tr/fulltext/u2/1001888.pdf>

373 Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

374 Ibid.

375 Soldiers help open runways at Sendai International, https://www.army.mil/article/54024/soldiers_help_open_runways_at_sendai_international

376 Lessons from department of defense disaster relief efforts in the Asia-Pacific region, https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf

377 Soldiers help open runways at Sendai International, https://www.army.mil/article/54024/soldiers_help_open_runways_at_sendai_international

troops also helped clear the ports of Hachinohe, Miyako, and Oshima, which had been heavily damaged. The clearing of the runways and ports allowed for important distribution points for the relief effort.^{378, 379}

The operation began winding down in early April. On April 5, the USS Ronald Reagan Carrier strike group, concluded its support of the mission. The next day, Marines, sailors and soldiers with the Logistics Combat Element, 3rd Marine Expeditionary Brigade ended their participation. On April 7, the Essex Amphibious Ready Group concluded its mission after some three weeks of providing assistance and the 31st MEU departed Oshima Island after providing clean up services. By April 8, all U.S. Navy ships involved in the operation ended their mission and redeployed. The USS Tortuga, USS Safeguard, and USS Essex were the last to leave after the Tortuga and Safeguard presented underwater data on submerged navigational obstructions to local officials in Kessenuma and Oshima.³⁸⁰

At the peak of operations, around 24,000 personnel, 189 aircraft, and 24 Navy vessels were involved. U.S. efforts focused on transport of relief supplies, JSDF personnel, equipment, surveillance, and the restoration of critical infrastructure in order to sustain operations.³⁸¹ In addition to immediate relief assistance and support to Japanese self-defense forces, the U.S. military delivered more than two million gallons of water, 189 tons of food, 11,960 gallons of fuel and 100 tons of relief supplies as well as medical assistance, search-and-rescue support, and heavy lift assistance.³⁸² Operation Tomodachi lasted until May 1, 2011.

“Operation Pacific Passage”

Further complicating relief operations, aside from U.S. military personnel, there was a total of 43,000 U.S. military dependents and 5,000 DOD civilian employees stationed in Japan. Due to the nature of the disaster, the Air Force became involved with “Operation Pacific Passage,” a military-assisted voluntary evacuation operation, which led to the evacuation of some U.S. citizens and their dependents who wished to leave Japan. Initiated a week after the disaster struck, Operation Pacific Passage was a U.S. Northern Command (USNORTHCOM)-led operation, and the Air Mobility Command (AMC), 18th Air Force and the 618th Air Operations Center played major roles in the operation. Eligible dependents of U.S. service members and DOD civilians were authorized by the U.S. Department of State to voluntarily depart March 16. In total, 7,322 U.S. military families were evacuated. The families were flown back to AMC bases and airports in the U.S., with the final flight arriving at Travis Air Force Base in California on March 28, 2011.^{383, 384}



More than 100 U.S. Sailors, Marines and civilians throughout Navy Region Northwest work with their Army and Air Force counterparts, other agencies and volunteers from the USO and American Red Cross in Seattle, March 21, 2011. Teams provided assistance to the family members who arrived in Seattle from Japan.

U.S. Navy photo by Petty Officer 2nd Class Nathan Lockwood
Source: https://archive.defense.gov/home/features/2011/0311_japan/

378 Japan 2011 earthquake: U.S. Department of Defense (DOD) response, <https://fas.org/sgp/crs/row/R41690.pdf>

379 Soldiers help open runways at Sendai International, https://www.army.mil/article/54024/soldiers_help_open_runways_at_sendai_international

380 Chronology of Operation Tomodachi, <https://www.nbr.org/publication/timeline-of-operation-tomodachi/>

381 Japan 2011 earthquake: U.S. Department of Defense (DOD) response, <https://fas.org/sgp/crs/row/R41690.pdf>

382 Operation Tomodachi: Partnerships, Presence, Readiness and Heritage, <https://usnhistory.navylive.dodlive.mil/2016/03/10/operation-tomodachi-partnerships-presence-readiness-and-heritage/>

383 Five years later: Operations Tomodachi, Pacific Passage - Planning made all the difference, <https://www.amc.af.mil/News/Article-Display/Article/785870/five-years-later-operations-tomodachi-pacific-passage-planning-made-all-the-dif/>

384 Operation Pacific Passage Winds Down at Travis Air Force Base, https://www.navy.mil/submit/display.asp?story_id=59387

U.S. Government Support to the Nuclear Response

The DOD, along with the U.S. Nuclear Regulatory Commission, and Department of Energy, assisted Japan in dealing with the nuclear crisis. The U.S. military provided specially trained teams as well as airborne systems used to monitor radioactivity and teams on the ground who also monitored radioactivity. Efforts included on-the-ground expertise, decontamination of assets, monitoring of contamination of food and water, aerial detection capability, high-pressure water pumps, fire trucks, and protective gear. The U.S. Navy provided two water barges that provided 500,000 gallons of fresh water for cooling efforts for the damaged reactors. The Marines' Chemical and Biological Incident Response Force (C-BIRF) was deployed to provide training to the JSDF. Global Hawk's and U-2 surveillance planes from Okinawa and WC-135 Constant Phoenix aircraft from Offutt AFB in Nebraska were used to monitor radiation levels.^{385, 386}

The DOD's Defense Threat Reduction Agency (DTRA) also supported Operation Tomodachi by providing consequence management and advisory support. A team of 33 personnel from DTRA/SCC-WMD forward-deployed to Yokota Air Base Japan to provide support. This included support by a Consequence Management Advisory Team (CMAT) that was in South Korea for an exercise when the quake struck. The CMAT headed to Yokota Air Base after a request from U.S. Forces Japan. The CMAT team immediately began working with USFJ and the Japanese Ministry of Defense to develop plans to deal with the nuclear threat. The forward-deployed team was supported by 200 other DTRA/SCC-WMD team members at Fort Belvoir, Virginia who provided Technical Reachback support.^{387, 388}



EIELSON AIR FORCE BASE, Alaska -- Personnel from the 55th Aerospace Medicine Squadron and 55th Aircraft Maintenance Squadron report a "thumbs down," which indicates the WC-135 Constant Phoenix aircraft is above acceptable levels of contamination and needs be parked in an isolated location to be decontaminated. This initial radiation survey was done every time the WC-135 landed after collecting air samples in international airspace over the Pacific as part of Operation Tomodachi. Air Force photo by Staff Sgt. Christopher Boitz
Source: <https://www.afhistory.af.mil/FAQs/Fact-Sheets/Article/690225/operation-tomodachi/>

³⁸⁵ Japan 2011 earthquake: U.S. Department of Defense (DOD) response, <https://fas.org/sgp/crs/row/R41690.pdf>

³⁸⁶ Operation Tomodachi: Partnerships, Presence, Readiness and Heritage, <https://usnhistory.navylive.dodlive.mil/2016/03/10/operation-tomodachi-partnerships-presence-readiness-and-heritage/>

³⁸⁷ Defense Threat Reduction Agency, Our History, <https://www.dtra.mil/About/DTRA-History/>

³⁸⁸ The Shield: The Official Magazine of DTRA/SCC-WMD, Vol. 1, Issue 3, <https://www.hsdl.org/?view&did=721805>



October 2011

Thailand: Floods

Background

Major flooding in Thailand began at the end of July 2011 after Tropical Storm Nock-ten affected the country. Floodwaters inundated 90 billion square kilometers of land, or more than two-thirds of the country. It was reportedly the worst flooding to hit Thailand in 50 years.³⁸⁹ Floods inundated 66 out of the country's 77 provinces, mainly in the northeastern and central regions, including the Bangkok metropolitan area, affecting more than 13 million people from July to December 2011, and resulted in more than 680 deaths. Heavy rain combined with storms during the rainy season led to the historic flooding. Flash floods were first reported in the north in May, followed by tropical depression Haima in June and Nock-Ten in July. Additionally, the southwest monsoon in August and September and the northeast monsoon in October added to the floods. Flood waters drained from the north down to the central plains of the Chao Phraya River Basin, and reached Bangkok in early November. The floods were reportedly the worst in around 50 years in Thailand. At the peak of the flooding, more than 165,000 people sought shelter in some 2,600 shelters. Around 19,000 houses were destroyed and around 1.9 million were affected. Total economic losses amounted to THB 1.43 trillion (USD\$46.5 billion). Overall, 90 percent of the losses from the floods were from the private sector. Manufacturing took some 70 percent of the economic losses, mainly due to the flooding of six industrial estates in Ayuthaya and Pathum Thani in October and November.^{390, 391, 392}

The Royal Thai Armed Forces assigned some 56,000 army, navy, and air force personnel for flood relief efforts. The armed forces focused on water management, assisting the affected population, managing relief supplies and assisting other agencies. Additionally, troops also monitored flood defenses, water flow and performed water evacuation missions.³⁹³

U.S. Government Response

On October 7, a disaster declaration was announced by the U.S. Embassy. Later in October, the USS Mustin stopped in Thailand to conduct dozens of helicopter survey missions with the Thai military. Crew members of the ship also worked with communities and donated blood and relief funds. According to the Government of Thailand, two helicopters from the USS Mustin participated in over 69 survey trips of flooded areas with the Thai army. In November, the USS Lassen arrived in Thailand with personnel and equipment ready to assist with relief efforts.^{394, 395}

U.S. Marines, airmen and sailors worked jointly with their Thai military counterparts to provide flood relief on November 29 at the Don Mueang International Airport. The U.S. military and Royal Thai soldiers and airmen transported equipment from the Laem Chabang port to help fight the flooding at the airport. The Marines and sailors were assigned to Combat Logistics Regiment 3, part of the 3rd Marine

389 2011 Thailand Flood Executive Summary, <http://www.thaiwater.net/web/index.php/ourworks2554/379-2011flood-summary.html>

390 Thailand Flooding 2554 Rapid Assessment for Resilient Recovery and Reconstruction Planning by the Ministry of Finance, Royal Thai Government and The World Bank 18 January, https://www.undp.org/content/dam/thailand/docs/UNDP_RRR_THFloods.pdf

391 Thai Flood 2011: Rapid Assessment for Resilient Recovery and Reconstruction Planning, <https://reliefweb.int/report/thailand/thai-flood-2011-rapid-assessment-resilient-recovery-and-reconstruction-planning>

392 Thailand after the floods: When communities own their change, <https://reliefweb.int/report/thailand/thailand-after-floods-when-communities-own-their-change>

393 Thai Flood 2011: Rapid Assessment for Resilient Recovery and Reconstruction Planning, <https://reliefweb.int/report/thailand/thai-flood-2011-rapid-assessment-resilient-recovery-and-reconstruction-planning>

394 Special Report: USA lends Thai flood victims a helping hand, <https://reliefweb.int/report/thailand/special-report-usa-lends-thai-flood-victims-helping-hand>

395 United States Provides Aid and Expertise to Thai Flood Victims, <https://geneva.usmission.gov/2011/11/17/us-aid-thai-flood/>



Expeditionary Force's 3rd Marine Logistics Group.³⁹⁶

Employees of the U.S. Embassy also helped deliver food and gathered supplies for those affected by the floods. The U.S. also planned to train police and emergency personnel in disaster response and provided generators, survival kits and life vests. USAID/OFDA staff helped conduct assessments of flood affected areas, particularly in Bangkok and in Nonthaburi province. In response to the October 7 disaster declaration, USAID/OFDA provided more than US\$1.1 million for relief efforts. USAID/OFDA also supported the deployment of an Incident Command System (ICS) specialist to work with Thailand's emergency responders.^{397, 398}

U.S. military personnel provided equipment to assist, including hose-and-reel systems, 600-gallon-per-minute fuel pumps and vehicles for transportation. U.S. Marine Corps and Army engineers and civil engineers with the U.S. Air Force's 36th Contingency Response Group worked with the Thai armed forces to determine how to conduct the operations, including routing flood water, and determining the amount of water to be moved. Additionally, satellite images were forwarded to Thailand to assist with further assistance measures.³⁹⁹



Marines with the 3rd Marine Logistics Group prepare to pump flood water from affected areas at the Don Mueang International Airport in Bangkok, Nov. 29, 2011. U.S. Marine Corps photo by Lance Cpl. Matheus J. Hernandez Source: <https://archive.defense.gov/news/newsarticle.aspx?id=66414>

³⁹⁶ Face of Defense: U.S. Troops Combat Floods in Thailand, <https://archive.defense.gov/news/newsarticle.aspx?id=66414>

³⁹⁷ United States Provides Aid and Expertise to Thai Flood Victims, <https://geneva.usmission.gov/2011/11/17/us-aid-thai-flood/>

³⁹⁸ Fact sheet #3, Fiscal year (FY) 2012 Southeast Asia – Floods, November 8, 2011, https://pdf.usaid.gov/pdf_docs/PA00J4C6.pdf

³⁹⁹ Face of Defense: U.S. Troops Combat Floods in Thailand, <https://archive.defense.gov/news/newsarticle.aspx?id=66414>

December 2012

Philippines: Typhoon Bopha (locally known as Typhoon Pablo)

Background

Typhoon Bopha (locally known as Pablo) made landfall three times in the Philippines on December 4, 2012, passing over northern Mindanao, Central Visayas, and Palawan. Around 1,146 people were killed and 834 were reported missing. The typhoon affected over 6.2 million people and left over 230,000 houses damaged or destroyed. The four worst affected provinces were Compostela Valley, Davao Oriental, Agusan Del Sur, and Surigao del Sur. The number of displaced outside of evacuation centers was 925,412, with an additional 8,925 people sheltering in evacuation centers. Philippine President Benigno Aquino III accepted international offers of support and declared a state of emergency. In response, the international community and Government of the Philippines delivered relief aid to those affected by Bopha.^{400, 401, 402}



Philippine service members and U.S. Marines off-load relief supplies from a U.S. Marine Corps KC-130J Hercules aircraft Dec. 15 at Davao International Airport, Mindanao, Republic of the Philippines. The service members loaded the supplies onto trucks to be taken to a central distribution hub where Philippine Government and nongovernmental organizations transported them to displaced citizens. Photo by 1st Lt. Jean-Scott Dodd, III MEF Source: <https://www.dvidshub.net/image/802232/us-philippines-service-members-rapidly-off-load-supplies-davao>

The Armed Forces of the Philippines (AFP), along with government personnel, responded immediately by deploying personnel to affected areas. The AFP provided support to areas inaccessible by land and also provided radios and handheld communications. Previous to the response, the AFP conducted women's skills trainings with the MDRRMC which included disaster preparedness information in affected areas.⁴⁰³

U.S. Government Response

On December 5, U.S. Chargé d'Affaires Brian L. Goldbeck declared a disaster due to the effects of Typhoon Bopha. In response, USAID/OFDA focused assistance in the priority areas of logistics, emergency shelter, WASH, and provision of relief supplies to vulnerable affected populations. On December 16, the USAID/OFDA field team concluded its assessment activities in Davao Oriental and Compostela Valley provinces in southeastern Mindanao and returned to Manila to coordinate with staff from the U.S. Embassy, DOD and humanitarian partners.⁴⁰⁴

Members of III MEF and special operations personnel were in the Philippines when the typhoon hit.

400 Report: The After Action Review/Lessons Learned Workshops Typhoon Bopha Response, https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Bopha%20AAR-LLR%20Report%202013_FINAL_14%20June%202013.pdf

401 Philippines: Typhoon Bopha Situation Report No. 19 (as of 12 February 2013), <https://reliefweb.int/report/philippines/typhoon-bopha-situation-report-no-19-12-february-2013>

402 Ibid.

403 Report: The After Action Review/Lessons Learned Workshops Typhoon Bopha Response, https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Bopha%20AAR-LLR%20Report%202013_FINAL_14%20June%202013.pdf

404 Philippines – Typhoon Fact Sheet #3, Fiscal Year (FY) 2013, December 20, 2012 <https://reliefweb.int/sites/reliefweb.int/files/resources/12.20.12%20-%20USAID-DCHA%20Philippines%20Typhoon%20Fact%20Sheet%20%233.pdf>

In general, U.S. military forces provided planning, coordination, personnel, water purification teams, and aircraft assets. U.S. Marines began moving relief supplies from Marine Corps Air Station (MCAS) Futenma in Okinawa, Japan, to Villamor Air Base, which shares runways with the Ninoy Aquino International Airport in Manila, where they were distributed. U.S. Joint Special Operations Task Force – Philippines assisted in the southern Mindanao region. Three water purification systems and an expert were dispatched to Davao on December 7.⁴⁰⁵



Marines load a KC-130J Hercules aircraft at Marine Corps Air Station Futenma bound for the Republic of the Philippines on Dec. 8 to assist in humanitarian assistance and disaster relief efforts in the wake of Typhoon Bopha. The aircraft provides the lift capacity and capability to transport personnel and relief supplies to areas where they are needed. Personnel with 3rd Marine Expeditionary Brigade, already located in the Philippines and serving as the III Marine Expeditionary Force Forward Command Element, helped provide assistance. The aircraft and Marines are with Marine Aerial Refueler Transport Squadron 152, Marine Aircraft Group 36, 1st Marine Aircraft Wing, III MEF. Photo by Lance Cpl. Matthew Manning, III MEF
Source: <https://www.dvidshub.net/image/796972/marine-aircraft-heads-philippines-assist-relief-efforts>

Navy ADM. Samuel J. Locklear, commander of USPACOM, credited the close alliance between the U.S. and the Philippines for allowing U.S. forces to provide timely assistance. “The established partnership we have ensured swift coordination with U.S. Marine Forces Pacific, and allowed for the transportation of live-saving supplies from Manila to communities isolated by severe infrastructure damage... This type of coordination and response to such a calamity would not be possible if not for the robust relationships already in place between our two countries,” Locklear said.⁴⁰⁶

Members of IIIMEF were participating in the planning conference for Balikatan 13 and special operations forces were working with the AFP when Typhoon Bopha made landfall. Marines with the 3rd

Marine Expeditionary Brigade stood up the IIIMEF forward command element on December 8 and used it as a base to provide relief. Requests were coordinated through the US Embassy and OFDA. “The III MEF forward command element has established the bilateral coordination center, which is providing command and control for U.S. Marine relief efforts and coordinating requests for support with the government and Armed Forces of the Philippines, U.S. Embassy and Office of U.S. Foreign Disaster Assistance, part of the U.S. Agency for International Development. We have personnel with the Armed Forces of the Philippines, Pacific Air Forces, OFDA, Joint-U.S. Military Assistance Group-Philippines and Joint Special Operations Task Force-Philippines in the bilateral coordination center in order to prioritize and synchronize humanitarian assistance and relief efforts, which ultimately makes that coordination more efficient,” said Marine Corps Col. Mark J. Menotti, the officer in charge of the III MEF FCE.^{407, 408, 409}

Two KC-130J Hercules aircraft with Marine Aerial Refueler Transport Squadron 152 also arrived in Manila from MCAS Futenma, December 8 to transport relief supplies to affected areas. The two KC-130

⁴⁰⁵ Okinawa Marines helping with Philippines disaster relief, <https://www.stripes.com/news/marine-corps/okinawa-marines-helping-with-philippines-disaster-relief-1.200535>

⁴⁰⁶ Close U.S.-Philippine Ties Aid Typhoon Relief Efforts, <https://archive.defense.gov/news/newsarticle.aspx?id=118794>

⁴⁰⁷ Ibid.

⁴⁰⁸ Leathernecks on the Scene, Quickly Providing Disaster Relief, <https://mca-marines.org/leatherneck/leathernecks-on-the-scene-quickly-providing-disaster-relief/>

⁴⁰⁹ Marine Corps continues disaster efforts in Philippines, <https://www.dvidshub.net/news/99201/marine-corps-continues-disaster-efforts-philippines>

aircraft and around two dozen Marines made relief flights to the affected regions. Aside from relief supplies, they also transported four water purification specialists and personnel from USAID and personnel from the Philippine Department of Social Welfare and Development to Davao International Airport in Mindanao, the region most affected by the storm.^{410, 411, 412}

U.S. military forces transported relief supplies from Villamor Air Base in Manila to Davao International Airport. From Davao, the supplies were distributed by government personnel and NGOs to displaced families as directed by the Philippine Department of Social Welfare and Development and the National Disaster Risk Reduction and Management Council.⁴¹³

The U.S. Marine Corps Forces Pacific Experimentation Center (MEC) also provided relief to affected areas. The MEC provided



Philippine service members and U.S. Marines palletize relief supplies at Villamor Air Base in Manila during humanitarian assistance and disaster relief operations, Dec. 13, 2012. After palletizing the gear, the Marines transported the supplies via KC-130J Hercules aircraft to Davao International Airport for further distribution to citizens in need throughout Mindanao. The Marines are landing support specialists with 3rd Marine Logistics Group, III Marine Expeditionary Force and embarkation specialists with 3rd MLG and 1st Marine Aircraft Wing, III Marine Expeditionary Force.

U.S. Marine Corps photo by 1st Lt. Jean-Scott Dodd

Source: <https://archive.defense.gov/news/newsarticle.aspx?id=118794>



Members of the Armed Forces of the Philippines deploy an Aspen 2000 water purification system to Baganga Dec. 9 in order to provide relief to local communities affected by Typhoon Bopha.

Courtesy photo

Source: <https://media.defense.gov/2013/Jan/10/2000004463/-1/-1/0/121209-O-XX000-239.JPG>

410 Okinawa Marines helping with Philippines disaster relief, <https://www.stripes.com/news/marine-corps/okinawa-marines-helping-with-philippines-disaster-relief-1.200535>

411 Close U.S.-Philippine Ties Aid Typhoon Relief Efforts, <https://archive.defense.gov/news/newsarticle.aspx?id=118794>

412 Leathernecks on the Scene, Quickly Providing Disaster Relief, <https://mca-marines.org/leatherneck/leathernecks-on-the-scene-quickly-providing-disaster-relief/>

413 Marine Corps continues disaster efforts in Philippines, <https://www.dvidshub.net/news/99201/marine-corps-continues-disaster-efforts-philippines>

training to AFP soldiers on using water purification systems left in the country following Exercise Balikatan 2012. The systems were provided by the MEC by the Office of Naval research, Naval Facilities Engineering and Expeditionary Warfare Center and OSD. The AFP deployed the systems to Davao two days later and they were later transported to other areas affected by the typhoon.⁴¹⁴

Personnel from the U.S. Joint Special Operations Task Force – Philippines (JSOTF-P) assisted the Armed Forces of the Philippines in Mindanao. A coordination team supported the arrival, transfer, and onward movement of relief supplies to affected areas. From December 10-12, JSOTF-P provided aerial assessments over Davao Del Sur, across Compostela Valley and along the east coast of Mindanao from Davao Oriental to Boston. These observations from the air provided over 600 images to advisers on the ground, in an effort to assess damage and facilitate distribution of relief.⁴¹⁵

On December 16, the DOD completed its final airlift of emergency relief commodities from Manila to Davao City. Between December 9 and 16, DoD, in coordination with USAID/OFDA and the AFP, transported approximately 14,700 family food packs, 30 MT of rice, 94 MT of high-energy biscuits, 3,400 pieces of plastic sheeting, and 80 collapsible water containers, as well as various other relief supplies. In total, DOD delivered 756,800 pounds of humanitarian items which were primarily provided by the Government of the Philippines. Some relief items were able to reach affected coastal areas within one day of being airlifted from Manila to Davao City. Additionally, DOD flew 131 flight hours in support of search-and-rescue operations.⁴¹⁶



A Marine Corps KC-130J Hercules carrying relief goods from Manila arrives in Davao City.

Courtesy U.S. Embassy Manila

Source: <https://www.stripes.com/news/marine-corps/okinawa-marines-helping-with-philippines-disaster-relief-1.200535>

414 MEC conducts helpful experiment in Philippines, <https://www.marforpac.marines.mil/News/News-Article-Display/Article/530582/mec-conducts-helpful-experiment-in-philippines/>

415 Updated Fact Sheet – U.S. Government Assistance to the Philippines for Typhoon Pablo Relief (December 12, 2012), <https://reliefweb.int/report/philippines/updated-fact-sheet-%E2%80%93-us-government-assistance-philippines-typhoon-pablo-relief>

416 Philippines – Typhoon Fact Sheet #3, Fiscal Year (FY) 2013, December 20, 2012 <https://reliefweb.int/sites/reliefweb.int/files/resources/12.20.12%20-%20USAID-DCHA%20Philippines%20Typhoon%20Fact%20Sheet%20%20233.pdf>

November 2013

Philippines: Typhoon Haiyan (locally known as Typhoon Yolanda)

Background

Super Typhoon Haiyan (locally known as Yolanda) made landfall at 4:40 a.m. on November 8, 2013 in Guiuan municipality in Eastern Samar province. The storm made landfall six times on that day, with wind speeds up to 235 km/h, with gusts up to 275 km/h.⁴¹⁷ Initial reports estimated that 4.3 million people were affected across 36 provinces--that number rose to 14 million affected across nine regions, including 4 million who were displaced.^{418, 419} According to the United Nations Office for the Coordination of Humanitarian Assistance (UNOCHA), the storm was the deadliest natural disaster in 2013, claiming over 6,000 lives and leaving 28,689 injured. Around 1.1 million houses were damaged or destroyed.^{420, 421}

The storm affected nine out of seventeen regions. Leyte and Samar was the worst affected. Ninety percent of the infrastructure was destroyed in Leyte's largest city, Tacloban City. On November 11, 2013, Philippine President Benigno Aquino declared a state of national calamity.⁴²²

The typhoon hit at a time when the Philippines was recovering from civil conflict in Mindanao and a 7.2 magnitude earthquake in Bohol in the central Visayas region, which lay along the path of Haiyan.⁴²³

The Armed Forces of the Philippines (AFP) mobilized a total of 23,789 personnel to assist with relief efforts. To aid with land transport, the AFP utilized 408 trucks and 141 other vehicles. At sea, the AFP



Philippines Navy Capt. Vincent Trinidad, right, and U.S. Marine Corps Lt. Col. Travis T. Gaines discuss the situation at Tacloban, Republic of the Philippines, Nov. 18, 2013.

U.S. Marine Corps photo by Cpl. Adam B. Miller

Source: <https://archive.defense.gov/news/newsarticle.aspx?id=121196>

used seven ships, 25 boats, 10 auxiliary boats and 5 reservist boats. Nine fixed wing aircraft, including three C-130 aircraft were used for transport, while 24 helicopters were also utilized for the response.⁴²⁴

Around 21 other foreign militaries assisted the Government of the Philippines in responding to Typhoon Haiyan. Camp General Emilio Aguinaldo, the headquarters of the Armed Forces of the Philippines (AFP), located in Quezon City, Manila, was the site of the Multinational Coordination Center (MNCC). The MNCC, led by the AFP, was used as an information sharing and coordination mechanism between the AFP and assisting foreign militaries to ensure effective

417 Philippines Typhoon Haiyan (Yolanda) Action Plan (November 2013 – May 2014), https://reliefweb.int/sites/reliefweb.int/files/resources/Revised_Haiyan_GtG-final-12112013.pdf

418 Philippines: Typhoon Haiyan, Situation report No. 3 (as of 9 November 2013), <https://reliefweb.int/report/philippines/philippines-typhoon-haiyan-situation-report-no-3-9-november-2013>

419 Philippines: Typhoon Haiyan Situation Report No. 22 (as of 10 December 2013), <https://reliefweb.int/report/philippines/philippines-typhoon-haiyan-situation-report-no-22-10-december-2013>

420 Typhoon Haiyan (Yolanda) Strategic Response Plan The Philippines, 27 December 2013, https://reliefweb.int/sites/reliefweb.int/files/resources/SRP_2013-2014_Philippines_Typhoon_Haiyan.pdf,

421 An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtFnF5_iQ%3d&portalid=0

422 Advances in Civil-Military Coordination in Catastrophes: How the Philippines Turned Lessons Learned from Super Typhoon Haiyan (Yolanda) Into Best Practices for Disaster Preparedness and Response, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=QEDCMIMtTc4%3d&portalid=0>

423 An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtFnF5_iQ%3d&portalid=0

424 Philippines: Armed Forces of the Philippines' (AFP) Deployed Assets (as of 28 November 2013), <https://reliefweb.int/report/philippines/armed-forces-philippines-afp-deployed-assets-28-november-2013>

collaboration in relief operations.⁴²⁵

The 21 foreign militaries that provided military assets to aid the Philippines in the response to Typhoon Haiyan included: Australia, Belgium, Brunei, Canada, China, India, Indonesia, Israel, Italy, Japan, Malaysia, the Netherlands, New Zealand, Qatar, Republic of Korea, Russia, Singapore, Sweden, Thailand, United Kingdom, and the United States.

For oversight and coordination between the AFP and the foreign naval vessels, 17 Philippine Liaison Officers (LNO) served as links between the area commander and the foreign military ships.⁴²⁶

U.S. Government Response and “Operation Damayan”

The Philippine government issued a formal request for assistance to the United States government on November 9, 2013.

In immediate response, USPACOM directed Marine Corps Forces Pacific (MARFORPAC) to lead military relief operations in the Philippines, with 3d Marine Expeditionary Brigade (3d MEB) serving as the tactical mission commander on the ground, and ordered deployment of the aircraft carrier USS George Washington and elements of Carrier Strike Group 5 (CSG 5). In general, the U.S. military mostly focused on large – scale operations utilizing their unique capabilities in transport and logistics. The U.S. military relief operation was named: “Operation Damayan.” The U.S. military was able to respond quickly due to the pre-positioned assets throughout the region.⁴²⁷

United States Government (USG) relief efforts as a whole focused on aerial damage assessments, search and rescue, and the delivery of food water and emergency relief supplies of those displaced. The USG, through USAID, the DOD, and the U.S. Department of State, provided assistance worth more than PHP 6,425,217,370 or U.S. \$143 million to the Philippines for rebuilding.⁴²⁸

On November 10, a small group from 3d MEB established a Command Operations Center (COC) at Villamor Airbase, which is the headquarters of the Philippine Air Force located in the capital of the country, Manila. The air base shares runways with the Ninoy Aquino International Airport. The group immediately began to coordinate with the AFP, Joint U.S. Military Assistance Group (JUSMAG-P) and USAID/OFDA personnel who had arrived days earlier.

A USPACOM Deployable Joint Task Force Augmentation Cell (DJTFAC) also immediately deployed and played a major role in establishing an operational joint headquarters. The group provided joint expertise and detailed knowledge of PACOM organization and processes and helped pave the way for the



Survivors of Typhoon Haiyan prepare to board Australian and U.S. C-130 Super Hercules aircraft during Operation Damayan, Tacloban, Philippines, Nov. 18, 2013. The U.S. aircraft are assigned to the 3rd Marine Expeditionary Brigade, part of Joint Task Force 505.
Source: <https://dod.defense.gov/Photos/Photo-Gallery/igphoto/2001123124/>

⁴²⁵ An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtFnF5_iQ%3d&portalid=0

⁴²⁶ Advances in Civil-Military coordination in catastrophes: How the Philippines turned lessons learned from Super Typhoon Haiyan (Yolanda) into best practices for disaster preparedness and response, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=QEDCMIMtTc4%3d&portalid=0>

⁴²⁷ An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtFnF5_iQ%3d&portalid=0

⁴²⁸ Typhoon Yolanda, A Year Later: U.S. Embassy Manila Supports Filipino Resilience, <https://ph.usembassy.gov/typhoon-yolanda-a-year-later-u-s-embassy-manila-suports-filipino-resilience/>

establishment of the Joint Task Force (JTF).⁴²⁹

Also on November 10, the Joint Special Operations Task-Force Philippines (JSOTF-P) located in Mindanao, began conducting surveillance to assess airfields, ports, routes, distress signals, and obtaining information critical for search and rescue operations in the affected areas of Leyte, Samar, and the Western Visayas. JSOTF-P, performs an advisory role to Philippine Security Forces in the Southern Philippines. The group sent the first U.S. military personnel to respond to the disaster.⁴³⁰

Villamor airfield was used as the central hub to deliver relief supplies to the affected areas of Tacloban, Guiuan, Borongan and Ormoc in Leyte and Samar. The first shipment of U.S. relief supplies arrived on November 12 and U.S. forces began distribution on November 13. The USS George Washington and CSG5 began relief operations on November 14.

On November 16, PACOM ordered the activation of Joint Task Force-505 (JTF-505) to lead the tactical mission, replacing the team from the 3d MEB. LtGen. John E. Wissler, Commander, III MEF, assumed command of JTF-505, which established operations on November 18. The JTF-505 reached full operational capability on November 20.⁴³¹

Eight days after the storm made landfall, a joint DOD-USAID-UNICEF team helped rebuild Tacloban's municipal water system restoring water service and reaching some 250,000 people.⁴³² DOD aircraft also performed needs and damage assessments with USAID/OFDA staff. Missions were cleared in Manila by the USAID/OFDA Mission Tasking Matrix (MITAM).⁴³³

Assets from the U.S. military involved in relief efforts included: Aircraft Carrier George Washington, 2x Cruisers (Antietam, Cowpens) 2x Destroyers (Mustin, Lassen) 1x Supply Ship (Charles Drew) 2x LSD - Dock Landing Ship (Germantown and Ashland) 1x Submarine Tender (Emory Land) 1x Pathfinder (USN Bowditch) 1x LPD (Denver) 1x Dry Cargo Ship (Richard Byrd) and 1x Replenishment Oiler (Yukon). Aircraft included: 16 C130s, 14 V22 Ospreys, 3 P3s, 2 C2s, 1 C12, 8 Blackhawk helicopters, and 6 Tactical Water Purification Systems.⁴³⁴



U.S. Marine Capt. Joseph White, left, and Philippine Army Pfc. Vic D. Victorlano deliver U.S. Agency for International Development relief supplies in Pasay Luzon, Philippines, Nov. 19, 2013. U.S. Marine Corps photo by Capt. Caleb Eames
Source: <https://archive.defense.gov/news/newsarticle.aspx?id=121188>



A U.S. Navy MH-60S Seahawk helicopter, center, assigned to Helicopter Sea Combat Squadron 25, prepares to drop supplies over the airport in Tacloban, Philippines, Nov. 14, 2013. U.S. Navy photo by Petty Officer 3rd Class Ricardo R. Guzman
Source: <https://archive.defense.gov/news/newsarticle.aspx?id=121362>

429 An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtnF5_iQ%3d&portalid=0

430 Ibid.

431 Ibid.

432 Typhoon Yolanda, A Year Later: U.S. Embassy Manila Supports Filipino Resilience, <https://ph.usembassy.gov/typhoon-yolanda-a-year-later-u-s-embassy-manila-supports-filipino-resilience/>

433 An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtnF5_iQ%3d&portalid=0

434 Philippines: Foreign Military Deployed Assets (as of 30 December 2013), <https://reliefweb.int/report/philippines/philippines-foreign-military-deployed-assets-30-december-2013>



Philippine citizens gather around an MH-60S Seahawk as it delivers relief supplies to support Operation Damayan in Guiuan, Philippines, Nov. 17, 2013. The Seahawk is assigned to Helicopter Sea Combat Squadron 12.
Source: <https://www.defense.gov/observe/photo-gallery/igphoto/2001123061/>

Military efforts included more than 13,400 military troops, 66 aircraft, and 12 naval ships. In total, the U.S. delivered 2,495 tons of relief, and evacuated over 21,000 people. Additionally, the U.S. military helped ferry some 1,200 relief workers into Tacloban. More than 1,300 flights were completed to some 450 sites.⁴³⁵

After six days of full operations, JTF-505 presented a Transition Confirmation Briefing to the Commander of USPACOM on November 26, which stated: “unique DOD capabilities are no longer required” and recommended mission transition by 1) observing relief operations with U.S. Navy and Marine Corps amphibious forces in an “operational reserve” role, able to react to any sudden emergent requirements, and 2) disestablishing the JTF and releasing all major U.S. forces for redeployment by 1 December.⁴³⁶

JTF-505 and USAID/OFDA recognized that the emergency phase of relief operations for Haiyan terminated on or about November 26. So the U.S. military ceased major operations on November 26. The JTF-505 was disestablished on December 1.⁴³⁷

The U.S. Embassy in the Philippines noted that key to the fast bilateral teamwork between the AFP and the U.S. military was due to the Visiting Forces Agreement between the two countries.⁴³⁸ While other



U.S. sailors from the aircraft carrier USS George Washington and Philippine civilians unload relief supplies to support Operation Damayan in Guiuan, Philippines, Nov. 17, 2013. The George Washington Strike Group supported the 3rd Marine Expeditionary Brigade to assist the Philippine government in the aftermath of Typhoon Haiyan.
U.S. Navy photo by Seaman Beverly Lesonik
Source: <https://archive.defense.gov/news/newsarticle.aspx?id=121177>

435 Typhoon Yolanda, A Year Later: U.S. Embassy Manila Supports Filipino Resilience, <https://ph.usembassy.gov/typhoon-yolanda-a-year-later-u-s-embassy-manila-suports-filipino-resilience/>

436 An Inside Look into USPACOM Response to Super Typhoon Haiyan, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=eF0gtFnF5_iQ%3d&portalid=0

437 Ibid.

438 For more information on the Visiting Forces Agreement see: “Defense: Status of Forces”, <https://www.state.gov/documents/organization/107852.pdf>

countries wanted to respond quickly to the disaster, many had to wait for legal agreements to be worked out for their troops to work in the Philippines.⁴³⁹

“Many humanitarian and military leaders noted that civil-military coordination during the Haiyan response in November-December 2013 was some of the best they had seen. The United States Agency for International Development Office of Foreign Disaster Assistance (USAID/OFDA), the Department of Defense (DOD) United States Pacific Command (USPACOM) forces, and the US Embassy, Philippines demonstrated clear understanding of their roles and responsibilities as evidenced by their effective coordination. The United States Government (USG) response entities provided assistance reflecting their unique capabilities appropriately scaled throughout the response phase,” the report, “An Inside Look into USPACOM Response to Super Typhoon Haiyan,” states.⁴⁴⁰

CAPT Greg St. Pierre, USN, (Ret.) said that the inaugural use of the Multinational Coordination Center (MNCC) under the leadership of the AFP during the response to Typhoon Haiyan was instrumental towards improving response coordination efforts for Haiyan as well as for future disaster relief efforts in the region. “The Multinational Coordination Center (MNCC), conceived following the international response to the 2004 Indian Ocean Earthquake and Tsunami, was first utilized during the response to Typhoon Haiyan. The Armed Forces of the Philippines’ implementation of the MNCC not only validated that it could be instrumental in saving lives and alleviating suffering, but also provided a testbed to improve policies and procedures,” CAPT St. Pierre said. “Those results have been codified in both the Multinational Standard Operating Procedures (MNF SOP) and ASEAN’s Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operation (SASOP), thus greatly improving regional militaries’ effectiveness in responding to major natural disasters.” CAPT St. Pierre (pictured, lower right) was among the military responders who were instrumental in the planning and coordination of relief efforts for Typhoon Haiyan.

The MNCC concept was utilized again roughly a year and a half later in the multinational response to the earthquake in Nepal in April 2015 (referred to then as the MNMCC or Multinational Military Coordination Center). (Please see “April 2015 - Nepal: Earthquake” section for more information).

For more information on the USINDOPACOM response to Typhoon Haiyan please see CFE-DM’s publication: “An Inside Look Into USPACOM Response to Super Typhoon Haiyan.” The publication is available to view and download at: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=n-WdVPd7dQ0%3d&portalid=0>



Service members from Joint Task Force Yolanda; Joint Task Force 505 (JTF-505); and assisting nations attend a brief at the multinational coordination center, Camp Aguinaldo, Manila, Republic of the Philippines, Nov. 24, 2013, during Operation Damayan. JTF-505 coordinated efforts by all DOD services in the Pacific Command area of responsibility and worked with the Philippine government to rapidly deliver humanitarian assistance and disaster relief to the areas the Philippine government deemed most in need. MNCC Director, CDRE Rafael Mariano, Philippine Navy, is pictured front center, next to CAPT St. Pierre, USN, pictured bottom right corner. U.S. Marine Corps photo by CWO3 Jonathan C. Knauth/Released Source: <https://www.dvidshub.net/image/3382830/operation-damayan-multinational-coordination-center>

439 Typhoon Yolanda, A Year Later: U.S. Embassy Manila Supports Filipino Resilience, <https://ph.usembassy.gov/typhoon-yolanda-a-year-later-u-s-embassy-manila-supports-filipino-resilience/>

440 An Inside Look into USPACOM Response to Super Typhoon Haiyan, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=n-WdVPd7dQ0%3d&portalid=0>



March 2014

Malaysia: Search for Malaysian Airlines Flight MH370

Background

Flight MH370, a Boeing 777-200 aircraft, went missing the night of March 8, 2014. It departed Kuala Lumpur at 12:41 a.m. Saturday local time and was scheduled to land at Beijing International Airport at 6:30am Beijing time. The flight had aboard 227 passengers from 14 nations (including the U.S.). Most passengers were mainly from China, and 12 crew members were also aboard.⁴⁴¹

U.S. Military Response

The U.S. military contributed to international search efforts for the missing Malaysian airliner. On March 8, 2014, the USS Pinckney (DDG 91), an Arleigh Burke-class guided missile destroyer whose home port is in San Diego, was dispatched to the southern coast of Vietnam to join teams from Malaysia, Singapore and Vietnam in search and rescue efforts. The US military worked alongside other navies in the region sharing search tactics and exchanging information. The Pinckney was conducting training and maritime security operations in international waters of the South China Sea when it was called upon to assist. The ship carried two MH-60R helicopters that could be equipped for search and rescue. A P-3C Orion aircraft from Kadena Air Base in Okinawa, Japan, joined the Pinckney and brought long-range search, radar and communications capabilities to the effort.^{442, 443}

The USS Kidd (DDG 100), another Arleigh Burke-class guided missile destroyer, later joined the Pinckney in the Gulf of Thailand for search and rescue operations. The ships reportedly used a “creeping-line” search method, according to the Pentagon. Two MH-60R Seahawk helicopters aided the search, using forward-looking infrared pods to search at night. The Seahawks joined the P-3C. In addition, the USNS John Ericsson, a fleet replenishment oiler, began providing logistics support.⁴⁴⁴

On March 11, the USS Kidd began conducting helicopter searches in the southwest section of the Gulf of Thailand search area and the Pinckney began searches in the northeast portion of the search area. The Malaysian government, which led search efforts, assigned the search sectors. The Navy P-3C Orion continued to aid search efforts by flying over the Straits of Malacca and the Gulf of Thailand. A HM-60R Seahawk helicopter can search 400-600 square nautical mile area in a 3.5 hour sortie, while the Orion could cover about 1000-1500 square miles every hour.⁴⁴⁵

On March 14, the USS Kidd took over



Lt. j.g. Kyle Atakturk, left, and Lt. j.g. Nicholas Horton, naval aviators assigned to Patrol Squadron (VP) 16, pilot a P-8A Poseidon during a mission to assist in search and rescue operations for Malaysia Airlines flight MH370, March 19, 2014.

U.S. Navy photo by Mass Communication Specialist 2nd Class Eric A. Pastor/Released

Source: <https://navylive.dodlive.mil/2014/03/23/inside-the-u-s-navys-mh370-search/>

441 Navy Helps in Search for Missing Malaysia Airlines Jet, <https://archive.defense.gov/news/newsarticle.aspx?id=121802>

442 Ibid.

443 USS Kidd supports MH370 Search Mission, https://www.navy.mil/submit/display.asp?story_id=79592

444 U.S. Continues to Aid Search for Missing Malaysian Airliner, <https://archive.defense.gov/news/newsarticle.aspx?id=121807>

445 Seventh Fleet Continues Search for Malaysian Airlines MH370, https://www.navy.mil/submit/display.asp?story_id=79591



A U.S. Navy P-3C Orion patrol aircraft prepares to depart Subang, Indonesia, March 11, 2014, in search of the missing Malaysia Airlines flight in the Gulf of Thailand. U.S. Navy photo
Source: https://archive.defense.gov/home/features/2014/0314_flight370/

search efforts in the western search area, which included the Andaman Sea, Bay of Bengal and the northern Indian Ocean, while the Pinckney headed to Singapore for scheduled maintenance. A P-8A Poseidon arrived to replace the P-3C to assist in searching a larger search area, which included the southern portion of the Bay of Bengal and northern Indian Ocean.⁴⁴⁶ The USS Kidd was able to cover 300 square miles of water every four hours, and searched more than 1,500 square miles each day.⁴⁴⁷

On March 19, the P-8 Poseidon relocated to Perth, Australia to join the Australians in searching the southern search area, where Australia

directed search efforts. A P-8A has the capability to cover from 5,000 – 18,000 square nautical miles during one flight. A Navy P3 continued searching in the Bay of Bengal.^{448, 449}

On March 21, in a talk with U.S. Defense Secretary Chuck Hagel, Malaysian Defense Minister Hishamuddin bin Tun Hussein requested the use of some undersea surveillance equipment.⁴⁵⁰ On March 24, U.S. Pacific Command ordered U.S. Pacific Fleet to move the Navy's Towed Pinger Locator 25, a black box locator, to Perth. The specialized locator equipment has the capability to listen to a depth of 20,000 feet.⁴⁵¹

Additionally, a Bluefin-21 autonomous underwater vehicle was also sent to Perth. The vehicle has sonars that could be used to locate wreckage and can dive to depths of 14,700 feet. Search efforts at this stage were being focused off of Australia when evidence at the time seemed to point to the plane crashing in the Indian Ocean off the west coast of Australia.^{452, 453}

On March 27, the U.S. 7th Fleet announced that it would send a second P-8 Poseidon aircraft to Perth the next day from Okinawa, Japan. The plane would join an international team of search aircraft coordinated by the Australian Defence Force. At this point in time, 7th Fleet aircraft flew 16 missions, which flew more than 150 flight hours covering 220,000 square nautical miles. The P-3C Orion that was searching the northern Indian Ocean ceased its search mission and returned to its previously assigned missions.⁴⁵⁴

A Navy team began operating the Towed Pinger Locator (TPL) aboard the Australian defense vessel, Ocean Shield. The Bluefin-21 was also being operated off the ship during the round-the-clock operations.

446 USS Kidd Joins Search for Missing Malaysian Airliner, <https://archive.defense.gov/news/newsarticle.aspx?id=121839>

447 USS Kidd Expands Search for Malaysia Airlines Flight MH370 into Indian Ocean, <https://www.public.navy.mil/surfor/ddg100/Pages/USSKiddExpandsSearchforMalaysiaAirlinesFlightMH370intoIndianOcean.aspx>

448 Navy Continues Search for Missing Malaysian Airliner, <https://archive.defense.gov/news/newsarticle.aspx?id=121867>

449 Inside the U.S. Navy's MH370 Search, <https://navylive.dodlive.mil/2014/03/23/inside-the-u-s-navys-mh370-search/>

450 Hagel Discusses Airliner Search with Malaysian Official, <https://archive.defense.gov/news/newsarticle.aspx?id=121881>

451 Navy Prepares Black Box Locator for Flight 370 Search, <https://archive.defense.gov/news/newsarticle.aspx?id=121883>

452 USS Kidd Joins Search for Missing Malaysian Airliner, <https://archive.defense.gov/news/newsarticle.aspx?id=121839>

453 U.S. Sends Sea Search Equipment to Australia, <https://archive.defense.gov/news/newsarticle.aspx?id=121887>

454 US 7th Fleet Adds Second P-8 Poseidon to MH370 Search, https://www.navy.mil/submit/display.asp?story_id=79928



As of April 7, the two P-8s flew 24 missions with 220 hours of flight time, covering 336,000 square nautical miles.⁴⁵⁵

On April 10, the 7th Fleet USNS Caesar Chavez, a dry cargo/ ammunition ship joined international search efforts. The deployment was in response to a formal Joint Operations Command request to USPACOM for tanker support. The Chavez conducted replenishment operations with the Australian Navy ships HMAS Success, HMAS Perth and HMAS Toowoomba. The Chavez is

a combat logistics force ship and provides underway replenishment of dry cargo, fuel, ammunition to US and coalition navy ship and is operated by the U.S. Navy's Military Sealift Command. The Chavez is operated by a crew of 125 civil service mariners and 11 U.S. Navy sailors.⁴⁵⁶

Weather specialists from the U.S. 7th Fleet called aerographer's mates (AG), provided meteorological support to the P-3c Orion and P-8a Poseidon squadrons deployed from Command Task Force 72.⁴⁵⁷

Patrol Squadron (VP) 16 (War Eagles) provided support over around two months with multiple aircrews rotating through Perth and flew more than 37 missions with the two P-8's, for a total; of 313 flight hours and 365,118 square miles covered. It was the first time the P-8 was used in a search and rescue operation.⁴⁵⁸ The U.S. military ceased search and rescue operations roughly two months after first providing support.



A U.S. Navy MH-60R Seahawk helicopter from the USS Pinckney and the Malaysian Navy ship KD Terengganu conduct a coordinated air and sea search for the missing Malaysia Airlines jet in the Gulf of Thailand, March 12, 2014. The Seahawk is assigned to Helicopter Maritime Strike Squadron 78.

U.S. Navy photo by Petty Officer 1st Class Claudia Franco

Source: https://archive.defense.gov/home/features/2014/0314_flight370/

⁴⁵⁵ US 7th Fleet MH370 Update, https://www.navy.mil/submit/display.asp?story_id=80169

⁴⁵⁶ Navy Logistics Ship Joins Search for Airliner, <https://archive.defense.gov/news/newsarticle.aspx?id=122040>

⁴⁵⁷ US 7th Fleet Weather Specialists Contribute to Pacific Humanitarian Assistance Efforts, <https://www.pacom.mil/Media/News/Article/564117/us-7th-fleet-weather-specialists-contribute-to-pacific-humanitarian-assistance/>

⁴⁵⁸ VP-16 Departs 7th Fleet After Historic Deployment, <https://www.pacom.mil/Media/News/Article/564373/vp-16-departs-7th-fleet-after-historic-deployment/>

December 2014

Philippines: Typhoon Hagupit (locally known as Typhoon Ruby)

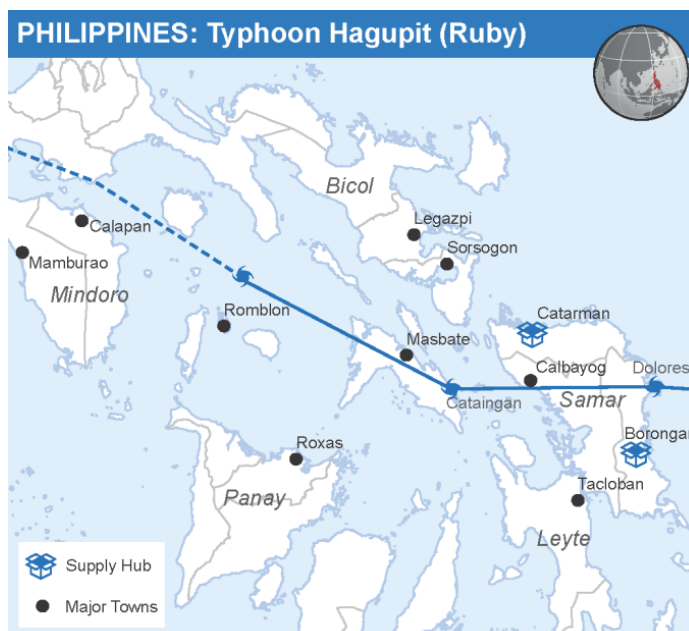
Background

Typhoon Hagupit (locally known as Typhoon Ruby) made its first landfall in the Philippines' Eastern Samar province as a category 2 storm on December 6, 2014 with maximum sustained winds of 175 km/h and gusts of up to 210 km/h. The storm made a second landfall in the morning of December 7, in Cataingan municipality, Masbate province. Over 700,000 people were evacuated ahead of the storm.⁴⁵⁹ Over the next few days, the storm made landfall over the Philippines several times. According to the United Nations Office for Disaster Risk Reduction (UNISDR) around 1.4 million people were evacuated during the typhoon in one of the largest peacetime evacuation in the country's history.⁴⁶⁰

The typhoon weakened into a tropical storm as it continued to slowly move towards Batangas province, south of Manila, with moderate to heavy rain. As of 8 Dec, an estimated 1 million people were in 687 evacuation centers across seven affected regions and Metro Manila.⁴⁶¹ A total of 18 deaths by the storm were reported.⁴⁶²

Hagupit made subsequent landfalls in the provinces of Masbate, Marinduque, Batangas and Lubang, as it weakened into a tropical depression. The storm exited the Philippine Area of Responsibility on December 10.⁴⁶³

Hagupit had intensified to a category 5 storm on December 4, 2014 before weakening in strength. Because the storm appeared to be headed towards the same area as destructive Typhoon Haiyan did a little over a year earlier, Philippine authorities and the international humanitarian community were on high alert. Additionally, the two typhoons were of considerable and comparable size before making landfall. Fortunately, damages were not as severe as Typhoon Haiyan in November 2013, when some 5,000 lives were lost. In response to Hagupit, the Philippines applied lessons learned from Typhoon Haiyan. Preparation activities of local governments and the national government for Hagupit were applauded by



Map Sources: GADM, NDRRMC

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Map created on 08 December 2013

Source: OCHA, Philippines: Typhoon Hagupit Situation Report No. 3 (as of 8 December 2014), <https://reliefweb.int/sites/reliefweb.int/files/resources/OCHAPhilippinesTyphoonHagupitSituationReportNo.3.8December2014.pdf>

⁴⁵⁹ Philippines: Typhoon Hagupit Situation Report No. 2 (as of 7 December 2014), <https://reliefweb.int/sites/reliefweb.int/files/resources/OCHAPhilippinesTyphoonHagupitSituationReportNo.2.7December2014.pdf>

⁴⁶⁰ Advances in Civil-Military coordination in catastrophes: How the Philippines turned lessons learned from Super Typhoon Haiyan (Yolanda) into best practices for disaster preparedness and response, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=QEDCMIMtTc4%3d&portalid=0>

⁴⁶¹ Philippines: Typhoon Hagupit Situation Report No. 3 (as of 8 December 2014), <https://reliefweb.int/sites/reliefweb.int/files/resources/OCHAPhilippinesTyphoonHagupitSituationReportNo.3.8December2014.pdf>

⁴⁶² NDRRMC Update SitRep No. 27 re effects of Typhoon "Ruby" (Hagupit), https://reliefweb.int/sites/reliefweb.int/files/resources/Sitrep_No_27_re_Effects_of_Typhoon_Ruby_as_of_19DEC2014_0600H.pdf

⁴⁶³ Philippines: Typhoon Hagupit Situation Report No. 5 (as of 11 December 2014), <https://reliefweb.int/sites/reliefweb.int/files/resources/OCHAPhilippinesTyphoonHagupitSitReportNo5%2011Dec2014.pdf>



Typhoon Hagupit approaching the Philippines on December 5, 2014. VIIRS imagery from the Suomi NPP satellite operated by the National Oceanic and Atmospheric Administration.
Source: https://commons.wikimedia.org/wiki/File:Hagupit_2014-12-05_0422Z.jpg

the international humanitarian community and were thought to lessen the overall impact of the typhoon.⁴⁶⁴

In general, the Armed Forces of the Philippines (AFP) provided transportation for evacuations, established evacuation centers, search and rescue, distributed relief goods, cleared roads, provided aerial surveillance, provided security for warehouses, and assisted with shelters in affected areas and supported the Department of Social Welfare and Development (DSWD). The prepositioning of AFP troops began around 120 hours ahead of landfall.⁴⁶⁵

The AFP established the Multinational Coordinating Center (MNCC) at Camp Aguinaldo in Quezon City to coordinate incoming foreign military assets. It became fully operational some 48 hours before Hagupit made landfall. Although the government of the Philippines did not make an official call for assistance, offers were received by many countries. Offers of assistance were received from Australia, Brunei, Canada, China, Indonesia, Japan, Malaysia, Singapore, Thailand, the United Kingdom and the United States. The AFP also cleared roads and airports in eastern Samar.^{466, 467}

The AFP secured the National Food Authority (NFA) warehouses and DSWD food outlets as well as provided water sanitation teams on standby. About 48 hours prior to landfall, the AFP deployed road clearing teams and safety patrol units to prevent looting and crime. It also alerted 476 sealift vessels from different parts of the country to deploy to the affected areas in close coordination with the MNCC.⁴⁶⁸ Military trucks and choppers assisted by delivering relief to affected areas.⁴⁶⁹ Two C-130 planes were ferrying relief supplies to affected areas.⁴⁷⁰ The AFP also provided transportation assistance for evacuations.

Should the need have arisen, the AFP Designated Clark Airbase as the basing facility for foreign military aircraft. In-country military assets from Australia were on standby if required.⁴⁷¹

⁴⁶⁴ The U.S. Pacific Command Response to Super Typhoon Haiyan, <https://ndupress.ndu.edu/JFQ/Joint-Force-Quarterly-82/Article/793262/the-us-pacific-command-response-to-super-typhoon-haiyan/>

⁴⁶⁵ Advances in Civil-Military Coordination in Catastrophes: How the Philippines turned lessons learned from super typhoon Haiyan (Yolanda) into best practices for disaster preparedness and response, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=QEDCMIMtTc4%3d&portalid=0>

⁴⁶⁶ Philippines: Typhoon Hagupit Situation Report No. 2 (as of 7 December 2014), <https://reliefweb.int/sites/reliefweb.int/files/resources/OCHAPhilippinesTyphoonHagupitSituationReportNo.2.7December2014.pdf>

⁴⁶⁷ Advances in Civil-Military Coordination in Catastrophes: How the Philippines turned lessons learned from super typhoon Haiyan (Yolanda) into best practices for disaster preparedness and response, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=QEDCMIMtTc4%3d&portalid=0>

⁴⁶⁸ Ibid.

⁴⁶⁹ CFE Disaster Information Report, Typhoon Hagupit (Ruby), Dec. 10, 2014, CDIR no. 7, <https://www.cfe-dmha.org/Admin/File-Management/LinkClick.aspx?fileticket=h8v-17a2bFU%3d&portalid=0>

⁴⁷⁰ CFE Disaster Information Report, Typhoon Hagupit (Ruby), Dec. 9, 2014, CDIR no. 6, <https://www.cfe-dmha.org/Admin/File-Management/LinkClick.aspx?fileticket=7f3Hu6QQXG%3d&portalid=0>

⁴⁷¹ CFE Disaster Information Report, Typhoon Hagupit (Ruby), Dec. 5, 2014 <https://www.cfe-dmha.org/Admin/File-Management/LinkClick.aspx?fileticket=9sdyAYPg0vA%3d&portalid=0>

U.S. Government Response

The U.S. Embassy in Manila helped track the typhoon before it made landfall, working with the Government of the Philippines (GoP) in monitoring, planning and preparing to respond to the storm. The U.S. Agency for International Development's Office for Foreign Disaster Assistance (OFDA) provided assistance of US\$750,000 (PHP 33,408,750). USAID assessment teams, along with U.S. Pacific Command teams, augmented the U.S. Embassy Manila in monitoring the storm. The assessment teams coordinated with government agencies and humanitarian organizations for a potential emergency response on the ground. U.S. Ambassador Philip Goldberg said that bilateral coordination between the two allies "clearly showed that the repeated humanitarian and disaster assistance training and exercises between our two countries is an important part of our relationship."⁴⁷²

A team from the 3rd Marine Expeditionary Brigade (3rd MEB) arrived on December 6, to evaluate the situation and conduct preliminary coordination. A MARFORPAC-led Joint Liaison Group (JLG) arrived in Manila and met with the US Ambassador and OFDA representatives to evaluate the situation and conduct preliminary coordination.⁴⁷³ A U.S. military team from USPACOM, in conjunction with USAID/OFDA, assisted the U.S. Embassy by working with the GoP and the Armed Forces of the Philippines (AFP) to conduct initial assessments of conditions and needs in the worst affected areas. The teams coordinated with government agencies and humanitarian organizations on the ground.^{474, 475}

3rd MEB provided surveillance flights from JSOTF-P U28s and a CTF-72 P8 for damage and needs assessment with the AFP and OFDA representatives.⁴⁷⁶

For more information on the response to Typhoon Hagupit please see CFE-DM's publication: "Advances in Civil-Military Coordination in Catastrophes: How the Philippines Turned Lessons Learned from Super Typhoon Haiyan (Yolanda) Into Best Practices for Disaster Preparedness and Response." The publication is available to view and download at: https://www.cfe-dmha.org/LinkClick.aspx?fileticket=VpvTSjDJ_Zw%3d&portalid=0

472 Close Bilateral Cooperation Before, During and After Typhoon Ruby/Hagupit Enables Faster U.S. Government Emergency Response, <https://www.pacom.mil/Media/News/News-Article-View/Article/564919/close-bilateral-cooperation-before-during-and-after-typhoon-rubyhagupit-enables/>

473 CFE Disaster Information Report, Typhoon Hagupit (Ruby), Dec. 6, 2014, <https://www.cfe-dmha.org/Admin/File-Management/LinkClick.aspx?fileticket=4CwZojYZgVg%3d&portalid=0>

474 Ibid.

475 Statement from USAID spokesperson on Typhoon Hagupit (Ruby) in the Philippines, <https://reliefweb.int/report/philippines/statement-usaid-spokesperson-typhoon-hagupit-ruby-philippines>

476 CFE Disaster Information Report, Typhoon Hagupit (Ruby), Dec. 8, 2014, CDIR no. 5, <https://www.cfe-dmha.org/Admin/File-Management/LinkClick.aspx?fileticket=0ujF0Z80sBc%3d&portalid=0>

April 2015

Nepal: Earthquake (also known as the Gorkha Earthquake)

Background

On April 25, 2015, a powerful 7.8 magnitude earthquake struck Nepal, leaving over 8,700 people dead, over 21,000 injured and destroying over 600,000 houses. The epicenter was located in Gorkha district, around 81 km (50 miles) northwest of the capital, Kathmandu with a depth of 15 km (9.3 miles). The quake affected 22 out of 75 districts in the country, as well as Kathmandu. On May 12, another strong 7.3 magnitude aftershock struck near Chilankha village in Dolakha District, causing additional damages and leaving at least another 150 people dead. Out of the country's 22 affected districts, the Government of Nepal (GoN) classified 14 districts as being severely affected and in need of urgent assistance.⁴⁷⁷

Because of the extent of the damage, the Government of Nepal requested international assistance, including foreign military assets (FMA). Along with the international humanitarian community, which included the United Nations (UN), International Non-Governmental Organizations (INGOs), and 34 assisting nations from across the globe, at least 18 foreign militaries helped respond to the earthquake.

The 18 foreign militaries included Algeria, Bangladesh, Bhutan, Canada, China, Israel, India, Indonesia, Japan, Malaysia, Pakistan, Poland, Singapore, Spain, Sri Lanka, Thailand, UK, and the US. The military forces added considerable response capabilities to the Nepalese-led response effort, particularly in the areas of search and rescue (SAR), medical assistance, airlift and engineering support.⁴⁷⁸

As part of Nepal's overall relief efforts, the Nepalese Army (NA) played a significant role in the disaster response. The NA's response operation was dubbed "Operation Sankat Mochan" ("Liberation from Crisis"). Immediately following the earthquake, the Nepalese Army (NA) became among the first to respond to the calamity in line with Nepal's National Disaster Response Framework (NDRF). Other government security forces, including Nepal's Armed Police Force and the Nepal Police, also served as primary responders. Initially, the operation order for "Operation Rahat" ("Operation Relief") was issued



A Nepalese soldier carries a young earthquake victim from a U.S. Marine Corps UH-1Y Venom helicopter assigned to Joint Task Force 505 to a medical triage area at Tribhuvan International Airport, Kathmandu, Nepal.

U.S. Marine Corps photo by Gunnery Sgt. Ricardo Morales/Released
Source: <https://www.marines.mil/Photos/igphoto/2001047652/>

and the NA was mobilized for search and rescue (SAR) and relief efforts. However, as further assessments of the damages from the earthquake were completed, Nepalese officials felt the need for a larger scale operation and the operation was replaced by "Operation Sankat Mochan". Although NA personnel were affected by the earthquake themselves, 66,069 members, or some 90 percent of troops, were quickly mobilized to assist with relief efforts. Of these, 52,870 personnel redeployed from less affected areas to 594 sites in 14 of the most affected

477 CFE-DM Disaster Information Reports – Nepal Earthquake 2015, <https://www.cfe-dmha.org/Publications/Reports-and-Studies/CDIR-Nepal-EQ-2015>

478 MNMCC daily update 0800 hrs 18 May 2015



districts.^{479, 480}

It should be noted that under Nepal's "National Disaster Response Framework – 2013," the NA is given prime responsibility for coordinating multinational and bilateral military humanitarian assistance. During the response, the NA primarily assisted with search and rescue operations and coordination of multinational military assistance, but also played a leading role in the treatment of the injured, the management and distribution of relief materials, coordination of non-military support from assisting nations, debris management and management of temporary shelters.⁴⁸¹



Humanitarian and military staff members use the Multi-national Military Operations and Coordination Center (MNMCC) and the Humanitarian-Military Operations Coordination Centre (HuMOCC) in Nepal to coordinate relief operations.

Source: Liaison-VII-2, Fall 2015, <https://www.cfe-dmha.org/Portals/0/liaison/Liaison-VII-2.pdf>

As part of rescue and relief efforts, the NA rescued a total of 23,594 people and provided initial medical assistance to 85,954 people. Additionally, the NA helped distribute 5,707 tons of relief supplies. The Nepalese Army officially concluded Operation Sankat Mochan on July 16, 2015.⁴⁸²

Rescue operations were assisted through support teams from 34 countries, which included the 18 military and 16 non-military teams. The Multi National Forces (MNF) in close coordination and co-operation with the NA via the Multi-National Military Coordination Centre (MNMCC) supported this operation. A total of 4,316 foreign military personnel from various teams (SAR, Engineering, Medical and Aviation) participated in the operation.⁴⁸³

In an effort to effectively communicate and coordinate with the various foreign military elements on the ground, the NA established the Multi-National Military Coordination Center (MNMCC) in NA headquarters soon after the earthquake struck. Most multinational military coordination occurred under the MNMCC.

While the MNMCC helped coordinate military response, the UNOCHA-led On-Site Operations Coordination Centre (OSOCC), helped coordinate civilian responders. As there was a delay in the establishment of the UNOCHA-led OSOCC, the MNMCC initially undertook the function of coordinating international civilian search and rescue teams as well as military teams until the OSOCC was stood up.

Another coordination center was also stood up, part of a relatively "new" coordination strategy by the UN. Shortly after the disaster struck, a United Nations Disaster Assessment and Coordination (UNDAC) team was deployed to Nepal with four United Nations Humanitarian Civil-Military Coordination (UN-CMCoord) officers. The team was invited by the NA to have a liaison function within the MNMCC to help facilitate coordination and information sharing. According to UNOCHA, the team developed a civil-military coordination strategy for Nepal that included the establishment of a Humanitarian-Military Operations Centre (HuMOCC) co-located with the MNMCC.

479 Nepal Army Experience and Lessons Learned, pgs. 34-35, <http://www.nepalarmy.mil.np/engsankatmochan.php>

480 Manish Thapa, "Out of Barracks: Civil-Military Relations in Disaster Management: A Case Study of Nepalese Army's Humanitarian Response during 2015 Earthquake in Nepal," <https://www.upeace.org/uploads/file/Ideas01.pdf> (June 2016).

481 National Disaster Response Framework, <http://un.org.np/reports/national-disaster-response-framework>

482 Operation Sankat Mochan' After Action Review (AAR), <http://www.nepalarmy.mil.np/view-news.php?newsid=160&type=news&year=http://>

483 Ibid.



According to the NA, international teams from 34 nations, which included the 18 military teams, provided rescue assistance, provided medical treatment to 27,390 people, evacuated 3,493 people and delivered 966 tons of relief under close coordination with the NA. Foreign military assets included a much needed 23 helicopters, including 13 from India, 3 from China and 7 from the U.S. A total 966 tons of relief materials were delivered by foreign aircraft. A total of 27,390 people were treated by the foreign military medical teams. The foreign SAR teams rescued a total of 19 survivors and extracted 135 dead bodies, according to the Nepalese Army. All the MNF personnel returned home by June 4, 2015.^{484, 485}

U.S Government Response and “Operation Sahayogi Haat (Helping Hands)”

The U.S. military operation under U.S. Pacific Command (USPACOM) was dubbed “Operation Sahayogi Haat (Helping Hands).” The U.S. Embassy in Nepal headed the U.S. effort, with U.S. Agency for International Development (USAID) as the lead federal agency for the response. USPACOM worked closely with both to determine how the Department of Defense (DOD) might best support the overall U.S. government response to this disaster.

With U.S. military assistance, the USAID Office of Foreign Disaster Assistance (OFDA) sent a Disaster Assistance Response Team (DART) and two Urban Search and Rescue (USAR) teams, which arrived via U.S. Air Force C-17 cargo aircraft on April 28. The DART had about 125 staff in total that arrived in Nepal to assist the GoN and response efforts. A DART is a forward-deployable team that coordinates and manages the U.S. government’s response in a disaster-affected country. The DART included the two USAR teams, one from Los Angeles County and the other from Fairfax County, Virginia. Throughout the disaster relief operation, in addition to working in close coordination with the GoN, the U.S. military continued to work closely with USAID/OFDA, the lead federal agency for the U.S. response, and in close coordination with the DART.^{486, 487}

A U.S military Special Forces team was on the ground in Nepal for a training exercise when the earthquake struck and quickly transitioned to begin supporting disaster relief, including medical assistance to the injured. The soldiers also provided logistical help and helped in search and rescue along popular trekking routes, including the Mount Everest Base Camp, an area that was also affected by the earthquake.⁴⁸⁸

Other forms of early support from USPACOM included the deployment of a Joint Humanitarian Assessment Survey Team (JHAST) with approximately 20 military personnel from Kadena Air Force



U.S. Marines and Nepalese soldiers unload tarps off of a UH-1Y Huey at Orang, Nepal, during Operation Sahayogi Haat, May 19, 2015.
U.S. Marine Corps photo by Cpl. Isaac Ibarra
Source: <https://dod.defense.gov/Photos/Photo-Gallery/igphoto/2001104761/>

⁴⁸⁴ Nepal Army Experience and Lessons Learned, <http://www.nepalarmy.mil.np/engsankatmochan.php>

⁴⁸⁵ Operation Sankat Mochan' After Action Review (AAR), <http://www.nepalarmy.mil.np/view-news.php?newsid=160&type=news&year=http://>

⁴⁸⁶ USAID Arrives in Nepal, Earthquake Response Efforts Begin, <https://blog.usaid.gov/2015/04/usaaid-arrives-in-nepal-earthquake-response-effortsbegin/>

⁴⁸⁷ USAID, U.S. Pacific Command Assist Earthquake Relief in Nepal, <http://www.pacom.mil/Media/News/Article/588508/usaaid-us-pacific-commandassist-earthquake-relief-in-nepal/>

⁴⁸⁸ U.S. Military Role in Assistance to Nepal, <http://www.pacom.mil/Media/News/Article/587121/us-military-role-in-assistance-to-nepal/>



Base Okinawa which reached ground on April 29 to work with the USAID DART team in Nepal to carry out coordinated assessments. In general, a JHAST team offers expertise in communications, intelligence, medical, logistics planning, public affairs, aviation, ordnance, contracting, operations, protection, engineering, military police, and chemical, biological, radiological and nuclear situations.⁴⁸⁹

During relief operations, the JTF 505 JHAST advised the DART on DOD capabilities and assets available to support the response and helped assess appropriate DOD missions. Additionally, both the JTF 505 JHAST and DART conducted joint assessments, including focusing on airport operations at Kathmandu's Tribhuvan International Airport (TIA). The team also helped coordinate the response to USAID/OFDA validated requests from the GoN in coordination with the U.S. Embassy. The JTF 505 JHAST was led by Marine Brig. Gen. Paul Kennedy, Commander of 3rd Marine Expeditionary Brigade (3rd MEB).⁴⁹⁰

On May 1, Marine Corps Forces, Pacific (MARFORPAC) was directed by USPACOM to activate JTF 505 and assume operational responsibilities as the U.S. supported commander in Nepal. U.S. Navy Adm. Samuel J. Locklear III, commander of USPACOM, designated Marine Corps Lt. Gen. John Wissler, commanding general of the 3rd Marine Expeditionary Force (III MEF), as the JTF commander. U.S. Air Force Brig. Gen. Michael Minihan, was the JTF 505 Joint Air Component Coordination Element commander.^{491, 492}

JTF 505 was stood up to provide unique capabilities to assist Nepal and activation of the JTF followed the initial U.S. military response to support Nepal's government, joining the efforts already underway by the JHAST, the special forces team, other U.S. government agencies such as the OFDA DART, and the U.S. USAR teams who traveled to Nepal via Air Force C-17's.

JTF 505's forward headquarters in Nepal coordinated U.S. military relief efforts. JTF 505 Forward consisted of approximately 300 U.S. military personnel on the ground in Nepal, while JTF 505 Main in Okinawa, Japan, and an Intermediate Staging Base (ISB) in Thailand consisted of approximately 590 U.S. military personnel. The JTF began to work closely with the U.S. State Department, USAID and other U.S. agencies to coordinate the U.S. response to requests by the GoN soon after it was activated. The JTF also began working with the MNMCC regarding prioritization of HA supplies and the process to deliver to affected areas.⁴⁹³

The JTF initially supported ongoing disaster relief operations with a U.S. Air Force contingency response group (CRG), three Marine Corps UH-1Y Huey helicopters, four Marine Corps MV-22 Osprey tilt-rotor aircraft, four Air Force C-17 Globemaster III transports and two Marine Corps KC-130 Hercules aircraft, as well as various ground and aviation command and control capabilities. Marine Corps KC-130 Hercules aircraft, as well as various ground and aviation command and control capabilities.⁴⁹⁴

The U.S. military deployed the 36th CRG, a rapid-deployment unit with the capability of securing, operating and managing an airfield, to Kathmandu, Nepal on May 5. The 42-person team, attached to JTF 505, was based out of Guam. The CRG was comprised of airmen along with security forces, anti-terrorism personnel and medics. As one of its first tasks, utilizing its unique capabilities and logistical expertise,

489 8th TSC Troops Prepare for Pacific Theater Humanitarian Assistance Survey Team Mission, Demonstrate Expeditionary Capability, <http://www.pacom.mil/Media/News/Article/564235/8th-tsc-troops-prepare-for-pacific-theater-humanitarian-assistance-survey-team/>

490 PACOM Joint Humanitarian Assistance Survey Team Deployed to Nepal, <https://www.pacom.mil/Media/News/Article/586969/pacom-joint-humanitarian-assistance-survey-team-deployed-to-nepal/>

491 Joint Task Force Activates for Nepal Earthquake Relief, <http://www.315aw.afrc.af.mil/News/Article-Display/Article/587898/joint-task-force-activatesfor-nepal-earthquake-relief/>

492 Joint U.S. Forces Support Nepal Earthquake Relief Efforts in Thailand, <http://www.pacom.mil/Media/News/Article/588317/joint-us-forces-supportnepal-earthquake-relief-efforts-in-thailand/>

493 Nepal Earthquake Relief Effort Named 'Operation Sahayogi Haat', <http://www.pacom.mil/Media/News/Article/588303/nepal-earthquake-relief-effortnamed-operation-sahayogi-haat/>

494 Joint Task Force Activates for Nepal Earthquake Relief, <http://www.315aw.afrc.af.mil/News/Article-Display/Article/587898/joint-task-force-activatesfor-nepal-earthquake-relief/>



the 36th CRG and members of the Civil Aviation Authority of Nepal teamed up to conduct an assessment and necessary repairs to TIA.⁴⁹⁵

In support of the operation, and to ensure the flow of relief and personnel to and from Nepal, the JTF helped set up an intermediate staging base (ISB) at U-tapao Royal Thai Navy Airfield in Thailand. At the ISB, JTF personnel monitored communications with other JTF 505 components throughout the region and supported air operations. The JTF mission in Thailand was able to successfully move tons of cargo and hundreds of support personnel into Nepal. Additionally, Royal Thai Armed Forces worked with the JTF at the ISB to coordinate relief support with the Government of Thailand.



U.S. Marine Corps Capt Mathew Phelps works in the Joint Task Force (JTF) 505 Joint Operations Command Center (FWD) on May 6, 2015.

Photo by Chief Warrant Officer Clint Runy

Source: <http://www.pacom.mil/Media/Photos/igphoto/2001046082/>

Tragically, on May 12, six Marines and two Nepalese soldiers lost their lives during a helicopter accident during ongoing relief operations to isolated villages in the Himalayas. Four of the U.S. service members were part of Marine Light Attack Helicopter Squadron 469 and the other two were members of Marine Corps Installations Pacific Combat Camera.⁴⁹⁶

Over time, requirements for foreign militaries' unique capabilities diminish as more civilian air and ground capabilities become available for relief operations. As part of its redeployment, JTF 505 began drawing down its relief operations as the Nepalese government and international aid agencies began pivoting towards long-term recovery and reconstruction efforts. Other foreign militaries began redeploying home starting around May 9.

As part of redeployment efforts, the JTF 505 transitioned CRG tasks to the Nepalese civil aviation authority and other international organizations, including training Nepal Airlines employees and Nepal Army personnel. JTF 505 participated in a press conference on May 20 with U.S. Ambassador Peter Bodde, USAID's DART team leader, Bill Berger, and Nepal Chief of Army Staff, General Rana, to formally announce the completion of JTF 505 operations and subsequent redeployment. Nepal announced its transition from relief operations to the recovery phase of disaster response on May 21, 2015.⁴⁹⁷

JTF 505 deactivated on May 26 after redeploying from Nepal to U-tapao Royal Air Field in Thailand in support of Operation Sahayogi Haat. About 900 U.S. military and civilian personnel from the Army, Navy, Air Force and Marine Corps contributed to the relief efforts under JTF 505. About 300 of the JTF 505 personnel worked in Nepal, 320 at the main headquarters in Japan, and 280 at the intermediate staging base in U-tapao, Thailand. By the end of its mission, as part of the JTF, the 36th CRG helped unload more than 200 aircraft in Nepal and helped reduce the backlog of aid stockpiles accumulated during the early stages of the response. Additionally, the 36th CRG helped train members of the NA and airport personnel during their ongoing operations.

⁴⁹⁵ 36th Contingency Response Group Expands US Military Support to Nepal, <http://www.pacom.mil/Media/News/Article/587959/36th-contingencyresponse-group-expands-us-military-support-to-nepal/>

⁴⁹⁶ Remembering the Marines of Vengeance 01, <https://www.dvidshub.net/feature/vengeance01>

⁴⁹⁷ Joint Task Force 505 begins drawdown in Nepal, <http://www.af.mil/News/Article-Display/Article/589300/joint-task-force-505-begins-drawdown-innepal/>



During its deployment, the JTF 505 worked with 24 different countries to provide relief. In coordination with the GoN and USAID, the JTF delivered about 120 tons of relief supplies. The task force also transported 553 personnel and conducted 69 casualty evacuations. JTF 505 unique capabilities included the contribution of three Marine Corps UH-1Y Huey helicopters and four Marine Corps MV-22B Osprey tilt rotor aircraft to the relief effort. Additionally, four Air Force C-17 Globemaster IIIs, four Air Force C-130 Hercules and four Marine Corps KC-130J Hercules aircraft, as well as various ground and aviation command and control assets were utilized.^{498, 499, 500}



Nepalese service members gather earthquake relief supplies delivered by members of Joint Task Force 505 at an outlying village near Kathmandu, Nepal, May 7, 2015.
U.S. Marine Corps photo by Staff Sgt. Jeffrey D. Anderson
Source: <https://dod.defense.gov/News/Article/Article/604621/usaaid-pacom-assist-earthquake-relief-in-nepal/>

For more information on the response to the 2015 Nepal Earthquake please see: “CFE-DM Case Study No. 1: A Brief Review of Military Response to the 2015 Nepal Earthquake: A Nepalese Army and U.S. Pacific Command Perspective.” The publication is available to view and download at: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=OfQJIRVn-80%3d&portalid=0>

⁴⁹⁸ Ibid.

⁴⁹⁹ Guam Contingency Response Group Assists in Typhoon Recovery, <http://www.pacom.mil/Media/News/Article/613516/guam-contingency-responsegroup-assists-in-typhoon-recovery/>

⁵⁰⁰ Nepal Earthquake Response Task Force Deactivates, <http://www.pacom.mil/Media/News/News-Article-View/Article/589705/nepal-earthquakeresponse-task-force>

May 2015

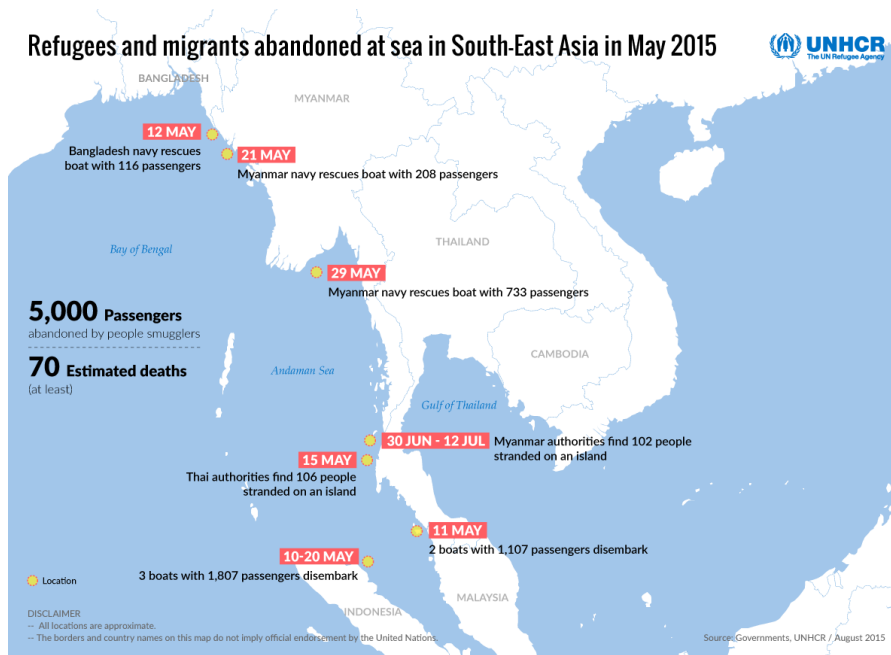
Rohingya Sea Migration

Background

In early 2015, thousands of Bangladeshi and Rohingya migrants departed irregularly by sea in the Bangladesh-Myanmar-border area in the Bay of Bengal, resulting in a humanitarian crisis as neighboring countries tightened border security and smugglers refused to bring ships ashore, leaving thousands of migrants stranded at sea without basic necessities. Around 25,000 migrants departed the border area by sea from January to March 2015, almost double the number over the same time period in 2014, according to UNHCR. Many of the migrants were reportedly adrift at sea for months in need of water, food and other basic supplies. Most of the migrants eventually ended up in Indonesia, Thailand and Malaysia via the Strait of Malacca and the Andaman Sea after being rescued or making their way to shore. The UN High Commissioner for Refugees (UNHCR) reported that since the beginning of 2014, around 88,000 people journeyed across the Bay of Bengal, tripling the scale of movement since 2012. UNHCR estimated that at least 1,050 people had perished at sea or went missing during that time period. UNHCR estimated that around 300 people died at sea in the first quarter of 2015 as a result of starvation, dehydration or abuse by boat crews.^{501, 502, 503}

Amidst mounting international concern and pressure, in late May 2015, Bangladesh, Indonesia, Malaysia, Myanmar and Thailand intensified search and rescues operations. Additionally, On May 29, representatives from 17 countries, as well as the UNHCR, the United Nations Office on Drugs and Crime (UNODC), the International Organization for Migration (IOM), and the United Nations Resident Coordinator for Thailand, attended the “Special Meeting on Irregular Migration in the Indian Ocean,” organized by the Royal Thai Government in Bangkok. Representatives of Japan, Switzerland, and the U.S. attended as observers.⁵⁰⁴

Representatives of the most affected countries (Bangladesh, Indonesia, Malaysia, Myanmar, and Thailand) briefed the meeting on the efforts and measures each country was undertaking. Indonesia and Malaysia agreed to continue to provide humanitarian assistance and temporary shelter to some 7,000 irregular



Source: UNHCR, <http://tracks.unhcr.org/2015/08/abandoned-at-sea/>

501 Some 25,000 risk sea crossings in Bay of Bengal over first quarter, almost double from year earlier, <https://reliefweb.int/report/thailand/some-25000-risk-sea-crossings-bay-bengal-over-first-quarter-almost-double-year>

502 Rohingya crisis, 22 May 2015, CFE-DM Humanitarian Information Paper, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=L8t18OQTJt4%3d&portalid=0>

503 Rohingya Migrant Update, 22 June 2015, CFE-DM Humanitarian Information Paper, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=8SVon1EDyUU%3d&portalid=0>

504 Ibid.



migrants still at sea provided that the resettlement and repatriation process will be done in one year by the international community.

The meeting identified intensifying search and rescue operations, and an agreed, predictable disembarkation plan as being among the priorities for the immediate response. Longer term needs included facilitating solutions for people in need of international protection.^{505, 506}

U.S. Military Assistance

The U.S. deployed military aircraft to assist in surveillance efforts in close collaboration with Malaysia and Thailand. USPACOM conducted surveillance and reconnaissance operations to locate vessels and pass on information to regional governments and militaries.⁵⁰⁷

With the support of the Malaysian government, the U.S. Navy conducted daily maritime surveillance flights out of Subang, Malaysia, to locate boats at sea carrying migrants. The information was shared with regional partners to share sea routes used by smugglers and to help locate boats at sea.⁵⁰⁸



Boat off the coast of Myanmar's Rakhine province
(file) Photo: OCHA

Source: <https://refugeesmigrants.un.org/myanmar-displaced-rohingya-risk-%E2%80%98re-victimization%E2%80%99-warns-un-refugee-agency>

505 Rohingya crisis, 22 May 2015, CFE-DM Humanitarian Information Paper, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=L8t18OQTJt4%3d&portalid=0>

506 Rohingya Migrant Update, 22 June 2015, CFE-DM Humanitarian Information Paper, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=8SVon1EDyUU%3d&portalid=0>

507 Ibid.

508 Assistant Secretary Anne C. Richard Travel to Thailand, Malaysia, and Indonesia to Highlight U.S. Assistance to Vulnerable Migrants and Asylum Seekers in South East Asia, <https://reliefweb.int/report/myanmar/assistant-secretary-anne-c-richard-travel-thailand-malaysia-and-indonesia-highlight>

April 2016

Japan: Kumamoto Earthquakes

Background

In April 2016, a series of earthquakes struck the Kumamoto region of Kyushu, the southernmost of Japan's major islands. The first, a magnitude 6.5, occurred at 9:26 pm on April 14, followed by hundreds of smaller aftershocks. Two days later, a second magnitude 7.3 earthquake, 16 times more powerful than the first, struck the same area at 1:30 am, leading authorities to classify the 6.5 temblor a foreshock. Both quakes were within six miles of the surface, resulting in severe shaking and infrastructure damage, in particular to roads, bridges and tunnels. Major landslides also cut off remote villages.^{509, 510}

Seventy-two persons were killed and over 2,000 injured. Nearly 200,000 persons were evacuated and housed in temporary shelters. Over 160,000 structures sustained serious damage. While over 100,000 homes lost power, nuclear power plants were thankfully unaffected. Complicating the response, damage at Kumamoto Airport temporarily halted flights. Moreover, heavy rains in the days after both impeded relief efforts and led to fears of additional landslides and dam ruptures.⁵¹¹

The Government of Japan estimated that damage could ultimately top U.S.\$40 billion. The quake was the most powerful and damaging natural disaster since the March 2011 Tohoku earthquake, tsunami and radiological (Fukushima) disaster. Additionally, the second, more powerful earthquake's magnitude of 7.3 matched the Great Hanshin-Awaji (Kobe) earthquake of January 1995.⁵¹²



Yokota Air Base, Japan (April 18, 2016) - Master Sgt. Christopher Bergstrom, 374th Logistics Readiness Squadron air transportation specialist, speaks to a Japan Ground Self-Defense Force member at Chitose, Hokkaido. The 374th Airlift Wing airlifted vehicles and personnel to the island of Kyushu after it was struck by a devastating earthquake.

Photo credit: Michael Washburn

Source: <https://www.pacom.mil/Media/News/Article/723642/yokota-aidsgovernment-of-japan-with-earthquake-relief/>

One hour after the first quake, the Governor of Kumamoto requested assistance from the Japanese Ground Self-Defense Forces (GSDF) stationed in North Kumamoto. Across the next six weeks, over 20,000 personnel, composed of elements from the Japanese ground, maritime and air forces, delivered lifesaving support to the relief operation. Over one hundred aircraft were ultimately called upon to support the effort. Owing to the quick restoration of electricity, water, gas, etc., the Joint Task Force formed to support the response was disbanded three weeks later.⁵¹³

Though the Japanese government did not formally request assistance, its overseas missions accepted donations in support of earthquake relief.⁵¹⁴

509 The Guardian. "Japan hit by second powerful earthquake," April 16, 2016, <https://www.theguardian.com/world/2016/apr/16/japan-hit-by-second-powerful-earthquake-with-fears-of-more-to-come>

510 Case Study No. 5: "Exceptions to the Rule;" A review of U.S. military response to the Kumamoto earthquakes in Japan in April 2016, the Kaikoura, New Zealand earthquake in November 2016, and the Sri Lankan floods and landslides in May 2017, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=w7AlsXIEhOY%3d&portalid=0>

511 The Japan Times. "Caught off guard by deadly quakes, Kumamoto still learning lessons one year on," April 13, 2017, <https://www.japantimes.co.jp/news/2017/04/13/national/caught-off-guard-deadly-quakes-kumamoto-still-learning-lessons-one-year/#.XHRN3uhKh7g>

512 The Japan Times. "More powerful magnitude-7.3 quake rocks Kumamoto, kills dozens," April 16, 2016, <https://www.japantimes.co.jp/news/2016/04/16/national/more-powerful-magnitude-7-3-quake-rocks-kumamoto-kills-dozens-more/#.XHbwTYhKh7j>

513 "2016 Kumamoto Earthquake." Japan Ministry of Defense, 2016, https://www.mofa.go.jp/a_o/na/kr/page4e_000423.html

514 "Messages of Sympathy and Assistance from Foreign Countries, Regions, and International Organizations." Ministry of Foreign Affairs of Japan, July 8, 2016, https://www.mofa.go.jp/ms/m_c/page24e_000146.html



U.S. Military Response

No disaster was declared by the U.S. Embassy in Tokyo and the response was not led by USAID/OFDA, however, U.S. Forces Japan (USFJ) forces stationed in the country were called upon to complement the Japanese relief effort. From April 18-23, U.S. C-130, MV-22 and UC-35 transport aircraft delivered 36 tons of food, water and relief supplies to Minamiaso Village, its overland connections cut off by massive landslides generated by the earthquakes. Military assets from Sasebo Naval Base, Yokota Air Base, and Marine Corps Air Station Futenma participated in the response. Marine Corps Air Station Iwakuni, the closest U.S. base, served as a joint hub for operations. Approximately 130 military personnel in total contributed directly to the relief effort.^{515, 516, 517}

USFJ support to the Japan Self-Defense Forces was enabled via an Acquisition and Cross-Servicing Agreement (ACSA). ACSAs, negotiated on a bilateral basis with U.S. allies or coalition partners, allow U.S. forces to exchange the most common types of support, including food, fuel, transportation, and equipment.

In addition to the United States, two military transport aircraft from the Republic of Korea provided rice, water and other relief aid to those impacted by the earthquake.⁵¹⁸

Note: This section has been excerpted from and based on “CFE-DM Case Study No. 5: ‘Exceptions to the Rule’: A review of U.S. military response to the Kumamoto earthquakes in Japan in April 2016, the Kaikoura, New Zealand earthquake in November 2016, and the Sri Lankan floods and landslides in May 2017.” Please see this case study for additional information on the response to the 2016 Kumamoto earthquakes. The publication is available to view and download at: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=Yk1cWcvna0k%3d&portalid=0>



Hakusui Sports Park, Aichi, Japan (April 20, 2016) - Japan Ground Self Defense Force (JGSDF) personnel carry supplies from a U.S. Marine Corps MV-22B Osprey tiltrotor aircraft from Marine Medium Tiltrotor Squadron (VMM) 265, 31st Marine Expeditionary Unit (MEU), in Hakusui Sports Park, Kyushu island. The supplies are in support of the relief effort after a series of earthquakes struck the island of Kyushu.

Photo by: Cpl. Darien Bjorndal

Source: <https://www.pacom.mil/Media/News/Article/739022/marines-step-up-relief-support-for-kyushu-earthquake-victims/>



Yatsuhiro Bay, Japan (April 22, 2016) - An MV-22B Osprey from Marine Medium Tiltrotor Squadron (VMM) 265 (Reinforced) attached to the 31st Marine Expeditionary Unit is loaded with relief supplies as an SH-60K Sea Hawk helicopter from the Japan Maritime Self-Defense Force takes off from the destroyer helicopter ship JS Hyuga (DDH) 181.

Photo by Mass Communication Specialist 1st Class James Mitchell

Source: <https://www.pacom.mil/Media/News/Article/742387/ospreys-conclude-earthquake-airlift-support/>

⁵¹⁵ “Assistance for the 2016 Kumamoto Earthquake Provided by the U.S. Forces in Japan.” Ministry of Foreign Affairs of Japan, April 27, 2016, https://www.mofa.go.jp/a_o/na/kr/page4e_000423.html

⁵¹⁶ The Guardian. “Japan hit by second powerful earthquake,” April 16, 2016, <https://www.theguardian.com/world/2016/apr/16/japan-hit-by-second-powerful-earthquake-with-fears-of-more-to-come>

⁵¹⁷ U.S. Department of Defense. “U.S. Military Delivers 30 Tons of Supplies for Japan Earthquake Relief,” April 21, 2016, <https://dod.defense.gov/News/Article/Article/739952/us-military-delivers-30-tons-of-supplies-for-japan-earthquake-relief/>

⁵¹⁸ “Messages of Sympathy and Assistance from Foreign Countries, Regions, and International Organizations.” Ministry of Foreign Affairs of Japan, July 8, 2016, https://www.mofa.go.jp/ms/m_c/page24e_000146.html



November 2016

New Zealand: Kaikoura Earthquake

Background

On November 14, 2016, just after midnight, the Kaikoura area on New Zealand's South Island, was hit by a magnitude-7.8 earthquake at a depth of 23km (14.2 miles). The area is located some 55 miles (93 km) northeast from Christchurch, on the east coast of South Island. Christchurch was hit by an earthquake on February 22, 2011 in which some 185 people were killed and thousands of buildings destroyed or damaged. In Kaikoura, two people were killed and 58 others reported injured. Around 41 buildings were reported destroyed. Over a thousand tourists and hundreds of local residents were stranded in Kaikoura because a highway (State Highway One) that linked the area to other parts of the country was cut off by landslides. Early economic damage estimates ranged from NZ\$2 billion (U.S.\$1.40 billion) - NZ\$12 billion (U.S.\$8.4 billion) according to analysts.⁵¹⁹

The quake triggered tsunami waves of 2.49 meters (8 feet) above usual tide levels, according to Weather Watch New Zealand. The Ministry of Civil Defence and Emergency Management (CDEM) immediately issued a tsunami land warning for the East Cape to Southland, including Wellington and the Chatham Islands, but it was ultimately cancelled. A state of emergency was declared in Kaikoura and evacuations were conducted along the coastal areas with local authorities leading the response. The National Crisis Management Centre was activated to provide support as required. The damage was exacerbated by heavy rains in Wellington, which brought flooding to affected areas.^{520, 521}

A local state of emergency was declared for the region of Canterbury.²¹ The capital, Wellington, was also reportedly affected by the quake. The tourist town of Kaikoura was home to around 2,000 residents and was a popular destination for whale-watching expeditions.²² Residents and tourists had to be airlifted out after landslides cut off the town. Air Commodore Darryn Webb, acting commander of the New



Map Source: CFE-DM

⁵¹⁹ New Zealand: Dozens of aftershocks follow deadly earthquake," <https://www.cnn.com/2016/11/13/asia/new-zealand-earthquake/>

⁵²⁰ Ibid.

⁵²¹ Asia and the Pacific: Weekly Regional Humanitarian Snapshot (8-14 November 2016)," <https://reliefweb.int/report/philippines/asia-and-pacific-weekly-regional-humanitarian-snapshot-8-14-november-2016>



North Canterbury Earthquake Disaster Recovery assistance.
Photo credit: U.S. Department of State.
Source: <https://nz.usembassy.gov/commanding-officer-of-the-uss-sampson/>

Zealand joint forces, told TVNZ that some 200 people were the first to be airlifted out. There were an estimated 1,200 tourists in Kaikoura at the time.^{522, 523, 524}

In response, the New Zealand Defence Force (NZDF) immediately mobilized four RNZN ships and over 400 sailors, 30 Army personnel, and 11 helicopters and aircraft, plus 50 aircrew and some 200 ground support personnel from the Royal New Zealand Air Force (RNZAF). Defence Minister Gerry Brownlee said the New Zealand Navy had immediately sent the HMNZS Canterbury and HMNZS Wellington to Kaikoura and would later send the HMNZS Te Kaha and tanker ship,

HMNZS Endeavour. Eventually, four air force helicopters airlifted people out of Kaikoura. A convoy of 27 army trucks carrying supplies were the first land forces to arrive in Kaikoura. The HMNZS Canterbury began evacuation efforts to Lyttelton starting with 192 evacuees. Two RNZAF A109 helicopters were used to transport police to conduct checks in remote areas of North Canterbury.^{525, 526, 527}

Towards the end of the response, the NZDF had mobilized up to 615 people, 11 aircraft and four vessels to support the Government's earthquake response. It delivered about 250 tons of vital supplies to Kaikoura by land, sea and air, and had rescued nearly 1000 people from the seaside town.⁵²⁸

The USS Sampson was steaming off the coast of New Zealand with a flotilla of partner nation ships, including the HMAS Darwin (Australia), HMCS Vancouver (Canada), and New Zealand's frigate HMNZS Te Kaha and tanker HMNZS Endeavour. The Sampson was headed along with the other ships to participate in the 75th anniversary of the Royal New Zealand Navy in Auckland, called the New Zealand International Naval Review.

Following the quake, New Zealand Defence Minister Brownlee said that New Zealand had received offers of help from five nations attending the International Naval Review - the United States, Australia, Canada, Japan and Singapore.⁵²⁹

Foreign military assets used:

- United States: USS Sampson, P3-C Orion
- Australia: HMAS Darwin
- Canada: HMCS Vancouver
- Japan: P-1 Surveillance Aircraft

522 Thousands stranded in New Zealand after earthquakes, <https://www.cnn.com/2016/11/14/asia/new-zealand-earthquake/>

523 HMCS Vancouver to provide supplies, transport equipment in area hit by earthquake, New Zealand officer says, <https://ottawacitizen.com/news/national/defence-watch/hmcs-vancouver-to-provide-supplies-transport-equipment-in-area-hit-by-earthquake-new-zealand-officer-says>

524 New Zealand earthquake: Kaikoura evacuations under way, <https://www.bbc.com/news/world-asia-37982395>

525 International navies respond to provide New Zealand earthquake relief, <http://www.janes.com/article/65590/international-navies-respond-to-provide-new-zealand-earthquake-relief>

526 Ships heading south to aid earthquake response, <http://www.voxy.co.nz/politics/5/268387>

527 The aftermath of the 7.8 earthquake so far, <https://www.radionz.co.nz/news/national/318002/the-aftermath-of-the-7-point-8-earthquake-so-far>

528 Kaikoura helicopter pilot takes supplies to earthquake victims, http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11752338

529 Ships heading south to aid earthquake response, <http://www.voxy.co.nz/politics/5/268387>



In total, the foreign ships contributed about 660 sailors and four helicopters, while the NZDF had mobilized around 560 personnel, 11 aircraft and 4 vessels.⁵³⁰

U.S. Military Response

Following the earthquake, the U.S. immediately offered assistance to New Zealand, including the use of military assets. “American presence matters, as shown yet again today,” said Adm. Harry Harris, commander of U.S. Pacific Command. “Our prayers go out to our friends in New Zealand as they deal with another devastating earthquake on the South Island. But more than that, our help also goes out. At the request of the New Zealand government, the USS Sampson and her two embarked MH-60R Seahawk helicopters will join the U.S. P-3 (maritime patrol aircraft) that’s already on station there in support of the disaster relief effort in New Zealand.”⁵³¹

U.S. Sailors assigned to the USS Sampson (DDG 102) flew ashore November 18, 2016 to support the NZDF in providing assistance to rural areas of Kaikoura. Eighteen members of the Sampson crew, with backgrounds in mechanical engineering, electrical engineering, damage control, and medical treatment provided assistance. U.S. Sailors set up a food distribution center in an elementary school, others delivered toilets with self-contained sewage systems to homes without plumbing. Sailors also went door-to-door with informational pamphlets to help residents understand what services were available. Additionally, one of the Sampson’s embarked MH-60R Seahawk helicopters took the Kaikoura Mayor for an aerial survey of the damage. The Sampson, originally scheduled to pull into Auckland’s Waitemata Harbor, diverted course at the request of the New Zealand government to render assistance to those affected by the earthquake. The Sampson had a total of 2 Seahawk helicopters embarked.⁵³²

The helicopters completed 14 flights lifting 11,000 lbs. of equipment and supplies to the shore from the HMAS Canberra. The crew of Sampson also supported transporting New Zealand citizens from Kaikoura to HMNZS Canterbury and 26 Sailors went ashore and assisted in cleanup efforts, and brought food, and care packages into Kaikoura.⁵³³

At the request of the New Zealand Ministry of Defence the U.S Navy provided maritime patrol and reconnaissance aircraft to assist. A P-3C Orion assigned to Patrol Squadron (VP) 47 was participating in Exercise Mahi Tangaroa as part of the New Zealand International Naval Review when the earthquake occurred and was tasked with assessing the area surrounding Kaikoura. The P-3C operated from Royal New Zealand Air Force Base Auckland located in Whenuapai. The VP-47 aircrew, accompanied by two Royal New Zealand Air Force airmen, identified



The commanding Officer of HMAS Darwin Commander Phillip Henry (second from left) together with personnel from Canada and the United States, receives a briefing from New Zealand Defence Force member Colonel Glenn King, about support to the New Zealand earthquake recovery efforts at Kaikoura, New Zealand, November 17, 2016. New Zealand Defence Force photo by Cpl. Amanda McErlich
Source: <https://www.dvidshub.net/image/2997637/new-zealandearthquake-relief>

530 International warships arrive to help with Kaikoura disaster relief after earthquakes, http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11750203

531 USS Sampson to support New Zealand-led forces responding to earthquake, <https://www.c7f.navy.mil/Media/News/Display/Article/1005264/uss-sampson-to-support-new-zealand-led-forces-responding-to-earthquake/>

532 USS Sampson Sailors Assist New Zealand Residents Affected by earthquake, http://www.navy.mil/submit/display.asp?story_id=97761

533 USS Sampson concludes relief effort support to NZ, <https://www.maritimeprofessional.com/news/sampson-concludes-relief-effort-support-298501>



impassable roads and assessed bridges that were damaged by the earthquake.⁵³⁴ The P-3C is based at Marine Corps Base Hawaii.^{534, 535}

While the U.S. Ambassador to New Zealand, Mark Gilbert, did not issue a disaster declaration, he did send out a statement of support to the people and Government of New Zealand. Because a formal disaster declaration was not issued, the U.S. Department of Defense funded the Kaikoura response from the Asia Pacific Regional Initiative (APRI), vice the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) Budget. U.S. military support was provided to New Zealand from Nov. 17–19.⁵³⁶

Note: This section has been excerpted from and based on “CFE-DM Case Study No. 5: ‘Exceptions to the Rule’: A review of U.S. military response to the Kumamoto earthquakes in Japan in April 2016, the Kaikoura, New Zealand earthquake in November 2016, and the Sri Lankan floods and landslides in May 2017.” Please see this case study for additional information on the response to the Kaikoura earthquake. The publication is available to view and download at: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=Yk1cWcvna0k%3d&portalid=0>



Kaikoura, New Zealand (Nov. 18, 2016) - Cmdr. Timothy LaBenz (right), commanding officer of Arleigh Burke-class guided-missile destroyer USS Sampson (DDG 102), and Kaikoura Mayor Winston Gray survey the damage to local infrastructure in a MH-60R Sea Hawk from the Battle Cats of Helicopter Maritime Strike (HSM) Squadron 73, attached to USS Sampson (DDG 102).
U.S. Navy photo by Petty Officer 2nd Class Bryan Jackson/Released
Source: “U.S. Navy Joins New Zealand Earthquake Relief,” <http://navylive.dodlive.mil/2016/11/17/u-s-navy-joins-new-zealandearthquake-relief/>

⁵³⁴ USS Sampson CO: Crew fully prepared for New Zealand earthquake response, <http://navylive.dodlive.mil/2016/11/15/uss-sampson-co-crew-fully-prepared-for-new-zealand-earthquake-response/>

⁵³⁵ U.S. Navy joins New Zealand earthquake relief, <http://navylive.dodlive.mil/2016/11/17/u-s-navy-joins-new-zealand-earthquake-relief/>

⁵³⁶ USS Sampson concludes relief effort support to NZ, <https://www.maritimeprofessional.com/news/sampson-concludes-relief-effort-support-298501>

May 2017

Sri Lanka: Floods

Background

Starting on May 25, 2017, heavier than usual southwestern monsoon rains resulted in flooding and landslides across Sri Lanka, affecting more than 630,000 people in 15 of the 25 districts in the country. As of May 31, 2017, the Government of Sri Lanka (GoSL) said that there were more than 200 deaths, nearly 100 missing persons, and significant damage to agriculture and property due to the floods and landslides. The rains were reportedly the worst since 2003 and came after two months of drought. The wettest time of the year in the country's south is usually from May to September.^{537, 538}

According to the United Nations in Sri Lanka seven districts were the most affected by floods and landslides, including Gampaha, Galle, Hambantota, Kalutara, Kegalle, Matara and Ratnapura districts. Galle, Kalutara, Matara and Ratnapura were the worst affected districts. The most severely impacted district was southern Galle district, where some 142,149 people (36,314 families) were initially affected. On May 26, the GoSL made an initial request for international support, particularly for search and rescue (SAR) operations. The UN Humanitarian Country Team (HCT) responded to the request and mobilized relief supplies for distribution. The situation in the country worsened over the next few weeks. On June 21, the UN Resident Coordinator's (UNRC) Office estimated that 415,600 people were affected in 12 districts. Over 3,000 houses were reported destroyed and 21,000 were damaged.⁵³⁹

Military spokesperson Brigadier Roshan Senevirathne said that, in total, more than 2,000 military personnel, including members of the Army, Navy and Air Force, had been deployed to help police and civilian agencies in relief efforts. The troops belong to 16 battalions and utilized 45 troop transport vehicles for rescue and relief operations in coordination with the Disaster Management Centre (DMC) and district and divisional secretariats. Army troops cleared roadways, including the 26km stretch of the Ratnapura – Kalawana road, and strengthened the flood retaining wall of the Nilwala River in the Thihagoda area.^{540, 541}

The Sri Lankan Army deployed a total of 1,600 personnel belonging to Security Force Headquarters – West (SFHQ-West). Army personnel deployed with troop carriers and army boats. Additionally, Army Health Services dispatched five army medical teams to affected areas. Army personnel had rescued more than 2,600 flood victims within the first 24 hours of relief efforts.⁵⁴²

Starting May 26, the Sri Lanka Air Force (SLAF) deployed its Mi-17, Bell-212 and Bell-412 Helicopters for emergency rescue operations, medical evacuation, cargo and troop transport, and B200 Beachcraft for airborne reconnaissance in Colombo, Galle, Rathnapura and Kalutara. The SLAF supplied rations to the affected populations, from SLAF Base Ratmalana and SLAF Koggala. SLAF personnel also setup a special relief supply collection center at the Air Movement Section of SLAF Base Ratmalana to assist flood victims.⁵⁴³

Sri Lankan Navy personnel helped remove debris blocking Wakwella Bridge at Baddegama, Galle

537 Sri Lanka: Floods and Landslides Emergency Response Plan (June – October 2018), <https://reliefweb.int/report/sri-lanka/sri-lanka-floods-and-landslides-emergency-response-plan-june-october-2017>

538 Sri Lankan landslides, flooding kills 122, as nation appeals for international help, <https://www.abc.net.au/news/2017-05-28/sri-lanka-flooding-death-toll-climbs-un-appeal-for-help/8566538>

539 Sri Lanka: Floods and Landslides Emergency Response Plan (June – October 2018), <https://reliefweb.int/report/sri-lanka/sri-lanka-floods-and-landslides-emergency-response-plan-june-october-2017>

540 Sri Lanka seeks international help after deadly flooding, landslides, <https://www.reuters.com/article/us-sri-lanka-disaster-idUSKBN18N0LT>

541 Sri Lanka Army continues with rescue and relief operations, May 29, 2017, http://www.defence.lk/new.asp?fname=Sri_Lanka_Army_continues_with_rescue_and_relief_operations_20170529_01

542 Army continues with relief work, May 28, 2017, http://www.defence.lk/new.asp?fname=Army_continues_with_relief_work_20170528_03

543 SLAF assists flood victims, May 28, 2017, http://www.defence.lk/new.asp?fname=SLAF_assists_flood_victims_20170528_04



district. Additionally, naval personnel also refurbished an embankment in Baddegama town due to water leakage. In total, the navy deployed over 109 relief, search and rescue teams comprised of 643 personnel and 109 boats in affected Southern and Western provinces. Aside from the distribution of food rations, Navy members rescued thousands affected by the floods.⁵⁴⁴

Foreign military support was provided by the Indian and U.S. militaries. India sent three navy ships with medical teams and relief supplies: These included the INS

Shardul, INS Kirch and the INS Jalashwa. The INS Kirch arrived first (May 27) with a crew of 120 and relief supplies and began helping the Sri Lankan navy in relief operations at Udugama and Galapatha in Kalutara district. The INS Shardul arrived in the port of Colombo on May 28 carrying 4 small boats, 127 crew members, a medical team and divers and rescue teams, along with relief supplies.^{545, 546, 547, 548, 549}



Fire Controlman 2nd Class Jason McEntire from the Ticonderoga-class guided-missile cruiser USS Lake Erie (CG 70) works with Sri Lankan Marines to repair levees in Matara, Sri Lanka, June 12, 2017 during humanitarian assistance operations in the wake of severe flooding and landslides that devastated many regions of the country. U.S. Navy photo by Mass Communication Specialist 2nd Class Joshua Fulton Source: <https://www.pacom.mil/Media/News/News-Article-View/Article/1211414/uss-lake-erie-us-servicemembers-render-assistance-in-sri-lanka-after-devastati/>

U.S. Government Response

On May 27, 2017, U.S. Ambassador to Sri Lanka, Atul Keshap, declared a disaster. In June 2017, U.S. military personnel assisted the Sri Lankan government and military in the response to the floods and landslides. The USS Lake Erie (CG 70) arrived in Sri Lanka on June 11, 2017 to assist with disaster relief operations. More than 400 U.S. Sailors from the ship participated in the mission. The sailors spent a week working alongside local government agencies and the Sri Lanka Red Cross (SLRC) to assist communities with cleanup, food distribution, and dewatering of wells. Major projects included a three day irrigation repair in Matara Province and a groundwater well rehabilitation in Kalutara. A total of 125 wells were repaired in Colombo and Galle.⁵⁵⁰

The United States Agency for International Development (USAID) and its Office of Foreign Disaster Assessment (OFDA) and the Civil-Military Support Element (CMSE) attached to the U.S Embassy helped organize U.S. response efforts and conducted assessments.⁵⁵¹

The sailors worked alongside the newly established Sri Lankan Marine Corps, and Sri Lankan Navy liaison elements coordinated efforts with local officials. The sailors from the Lake Erie completed their

⁵⁴⁴ Navy assists to remove debris clogged in Wakwella bridge, May 28, 2017, http://www.defence.lk/new.asp?fname=Navy_assists_to_remove_debris_clogged_in_Wakwella_Bridg_20170528_06

⁵⁴⁵ Sri Lanka floods: Nearly 500,000 displaced as death toll rises, <https://www.bbc.com/news/world-asia-40070660>

⁵⁴⁶ Sri Lanka seeks international help after deadly flooding, landslides, <https://www.reuters.com/article/us-sri-lanka-disaster-idUSKBN18N0LT>

⁵⁴⁷ Sri Lanka floods: Battle to rescue stranded as death toll tops 180, <https://www.cnn.com/2017/05/29/asia/sri-lanka-floods/index.html>

⁵⁴⁸ Second Indian ship, INS 'Shardul' arrives for flood relief operations, May 28, 2017, http://www.defence.lk/new.asp?fname=Second_Indian_ship_INS_Shardul_arrives_for_flood_relief_operations_20170528_05

⁵⁴⁹ Indian naval ship 'Kirch' arrives with relief assistance, May 27, 2017, http://www.defence.lk/new.asp?fname=Indian_Naval_Ship_Kirch_arrives_with_relief_assistance_20170528_01

⁵⁵⁰ U.S. Service Members Aid Sri Lanka after devastating floods, <https://dod.defense.gov/News/Article/Article/1211928/us-service-members-aid-sri-lanka-after-devastating-floods/>

⁵⁵¹ American People Contribute LKR 350 million for Sri Lanka Flood Relief, <https://lk.usembassy.gov/american-people-contribute-lkr-350-million-srilanka-flood-relief/>

disaster response mission on June 17, 2017. A small group of military specialists remained in Sri Lanka for a while to assist the U.S. Embassy and government agencies with the final phases of relief operations.⁵⁵²

The USPACOM Augmentation Team (PAT) helped coordinate and provide support to the GoSL. The PAT is comprised of six U.S. military personnel. The Civil-Military Support Element (CMSE), comprised of the CA soldiers, took the lead of the PAT. The CMSE leveraged their network of military leaders, government officials, and UN and NGOs in Sri Lanka for the response. The PAT began assessing where they could best assist Sri Lankan military forces and eventually decided to focus on

local schools because it was decided that it was the best way to locate families and to see who was missing. Additionally, the PAT linked up with Sri Lankan military forces, in particular, the Sri Lankan Marines.⁵⁵³

Meanwhile, the CMSE coordinated with the Sri Lankan Disaster Management Centre and de-conflicted relief efforts with the UN Humanitarian Country Team. Additionally, team members reached out to other DOD assets visiting in the country and found an annual multi-lateral Joint Combined Exchange Training (JCET) ongoing. This enabled the PAT team to link up with Special Forces Soldiers who were involved as well as ROTC candidates. The team began making their way through the local community and cleaned more than 1,000 wells and refurbished five major irrigation systems. Additionally, the PAT, along with the Special Forces team, conducted assessments. The PAT also worked with Sri Lankan Emergency management officials to begin a project on improving emergency communications.⁵⁵⁴

A unique part of the response occurred when U.S. Army Reserve Officer Training Corps (ROTC) cadets teamed up with the U.S. Embassy's Pacific Command (PACOM) Augmentation Team and cleaned and repaired flood damage at schools in the Kalutara district in coordination with CMSE and local officials.⁵⁵⁵

Special Forces Operational Detachments-Alpha (ODA) was in Sri Lanka, participating in the JCET when heavy rains triggered the widespread flooding. Major Joseph Quinn, Special Operations Command Pacific (SOCPAC), coordinated with the 1st SFG (A) Command Team, SOCPAC, and the U.S. Embassy for ODA. The ODA partnered with the CAT and the MIST, and split into two elements and assisted in restoring essential services such as re-opening a school and refurbishing drinking wells with the Sri Lankan Red Cross. The team began addressing areas away from population centers and beyond the operational reach of many aid agencies due to the team's ability to operate with minimal external support.



Matara, Sri Lanka (June 13, 2017)- Quartermaster 2nd Class Andrew Bowers assigned to the Ticonderoga-class guided missile cruiser USS Lake Erie (CG 70) displaces dirt to rebuild roads with the Sri Lankan Marine Corps to support humanitarian assistance operations in the wake of severe flooding and landslides that devastated many regions of the country. U.S. Navy photo by Mass Communication Specialist 3rd Class Lucas T. Hans/Released
Source: <https://www.dvidshub.net/image/3479553/uss-lake-erie-cg-70-rebuild-sri-lank>

552 USS Lake Erie Sailors, Personnel Complete Relief Mission in Sri Lanka, <https://www.pacom.mil/Media/News/News-Article-View/Article/1218907/uss-lake-erie-sailors-personnel-complete-relief-mission-insri-lanka/>

553 Crisis Response in Sri Lanka, October –December 2017, Special Warfare, pgs. 54-55, https://www.soc.mil/SWCS/SWmag/archive/SW3004/30-4_Oct_Dec_2017_vWeb.pdf

554 Ibid.

555 American People Contribute LKR 350 million for Sri Lanka Flood Relief, <https://lk.usembassy.gov/american-people-contribute-lkr-350-million-srilanka-flood-relief/>



The teams conducted assessments, and surveyed local medical facilities, and potential helicopter landing zones.⁵⁵⁶

Just a few months earlier, in March, U.S. Navy doctors and civil engineers aboard USNS Fall River (T-EPF 4) visited Hambantota, Sri Lanka for “Pacific Partnership,” a two week humanitarian and disaster relief preparedness mission. This served to establish key relationships with the Sri Lankan Navy and civil service agencies in the country. Officials say the established relationships helped U.S. military personnel integrate into the disaster response mission.⁵⁵⁷

Note: This section has been excerpted from and based on “CFE-DM Case Study No. 5: ‘Exceptions to the Rule’: A review of U.S. military response to the Kumamoto earthquakes in Japan in April 2016, the Kaikoura, New Zealand earthquake in November 2016, and the Sri Lankan floods and landslides in May 2017.” Please see this case study for additional information on the response to the Sri Lanka floods. The publication is available to view and download at: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=Yk1cWcvna0k%3d&portalid=0>



Colombo, Sri Lanka (June 12, 2017) - Sailors assigned to the Ticonderoga-class guided missile cruiser USS Lake Erie (CG 70) work in conjunction with Sri Lankan citizens to pump water wells to support humanitarian assistance operations.

U.S. Navy photo by Mass Communication Specialist 3rd Class Lucas T. Hans/Released

Source: <https://www.dvidshub.net/image/3474418/uss-lakeerie-cg-70-pumps-well-sri-lanka>

⁵⁵⁶ Flood Response, October-December 2017, Special Warfare, pgs. 56-57, www.soc.mil/swcs/specialwarfare

⁵⁵⁷ U.S. service members aid Sri Lanka after devastating floods, <https://dod.defense.gov/News/Article/Article/1211928/us-service-members-aid-sri-lanka-after-devastating-floods/>



June 2018

Thailand: Cave Rescue

Background

In mid-2018, the world's attention was drawn to the mountainous region of northern Thailand where a boys' soccer team went missing deep inside a flooded cave complex. On June 23, 2018, 12 members of the Wild Boar soccer team (aged 11-16) went missing, along with their coach, in Chiang Rai Province after a flash flood. Based on past adventures of the team, rescuers wound up at a cave complex in a mountain shaped like a reclining woman. Named after the mountain, the cave's full name is Tham Luang Khun Nam Nang Non - "the great cave and water source of the sleeping lady mountain." The event would eventually be known simply as the Tham Luang cave rescue. On July 2, it was reported that a United Kingdom dive team successfully found all 13 members of the soccer team. By July 10, all members of the soccer team had been rescued.⁵⁵⁸

On June 25, Royal Thai Navy (RTN) SEAL divers began to search the cave after rescuers found evidence of the team in the cave the day before. On June 26, the Royal Thai Government asked the US Government for assistance, by way of the embassy in Bangkok. That same day, US Embassy Bangkok Deputy Chief of Mission (DCM) Mr. Peter Haymond, contacted the Senior Defense Official (SDO) COL Wayne Turnbull for initial, informal Department of Defense - Department of State coordination. Following that, COL Turnbull coordinated with the PACOM Augmentation Team (PAT) in country to facilitate communications with Special Operations Command (SOPAC) in Hawaii for a possible response effort. The SDO also contacted the INDOPACOM J3 Joint Operations Center (JOC) and INDOPACOM Deputy Director J3 for official notification procedures. Other notifications from US Embassy Bangkok went out to the DOS Bureau of East Asian and Pacific Affairs (EAP) and Office of the Secretary of Defense (OSD) to request Overseas Humanitarian, Disaster Assistance and Civic Aid (OHDACA) funding.⁵⁵⁹



Airmen from the U.S. Indo-Pacific Command meet with Royal Thai military officials and a Thai engineering company to advise and assist in the rescue operation June 30, 2018, at Chiang Rai, Thailand. A search and rescue team was sent to Tham Luang cave in Northern Thailand at the request of the Royal Thai government to assist in the rescue of the missing Thai soccer players and their coach.

U.S. Air Force photo by Capt. Jessica Tait

Source: <https://www.stripes.com/okinawa-based-special-operations-airmen-involved-in-thai-cave-rescue-1.536912#gallery>



Airmen visit Tham Luang Cave in northern Thailand to meet with Royal Thai military officials and authorities to assess conditions June 28, 2018. Air Force photo by Capt. Jessica Tait

Source: <http://www.dodlive.mil/2018/08/23/no-room-for-error-thats-how-these-pjs-remember-the-thai-cave-rescue/>

⁵⁵⁸ Case Study No. 4: A Review of the U.S. Military's response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

⁵⁵⁹ Ibid.

As the search continued, roughly 1,000 Thai army and navy personnel, along with volunteers, joined the effort while international interest and involvement expanded. On June 26, then-US Ambassador to Thailand, Glyn Davies, declared a disaster. The Department of State issued an Executive Secretary (EXECSEC) Memo to the Department of Defense asking for assistance. DOD responded to DOS, approving assistance. USINDOPACOM then directed Special Operations Command Pacific (SOCPAC) to assist. SOCPAC issued a TASKORD to USAF 353rd Special Operations Group (SOG) in Okinawa, Japan, to prepare to respond.⁵⁶⁰

U.S. Government Response

In addition to cave rescue experts from around the world traveling to Thailand to assist, US military personnel from Indo-Pacific Command deployed at the request of the Thai government to support rescue efforts. The U.S. Embassy Bangkok and US DoD personnel were critical to mission planning, international coordination, logistics, strategic communication, public affairs, advise and assist, and civil-military liaison at the cave site. It must be acknowledged, however, that this was a Thai-led rescue and it was the cave rescue divers from the UK and Australia who brought the technical cave diving expertise and equipment necessary to ultimately rescue the Wild Boars soccer team.^{561, 562}

On June 27, the 353rd SOG designated the Mission Commander as Major Charles Hodges and the Non-Commissioned Officer in Charge (NCOIC) was MSG Derek Anderson. A rescue team was put together and included communications, a Public Affairs Officer (PAO), and logistics support. An MC-130 aircraft with the team on board departed Kadena Air Base, Okinawa, Japan, for Thailand.⁵⁶³ The 353rd includes more than 800 airmen stationed at Kadena Air Base, Okinawa, Japan and is the only Air Force Special Operations unit in the Pacific.⁵⁶⁴

On June 28, the 353rd SOG team arrived at the rescue site – approximately 28 hours after receiving the RTG's request for assistance – and conducted an initial assessment of the situation. The team establish a Mission Support Site (MSS) at Wat Ban Chong, a local Buddhist Temple in Mae Sai vacated by local monks in support of the rescue operation. The team began working closely with and under the leadership of the Thai military, and also began working with other international teams on site.⁵⁶⁵

Locals and military personnel began searching for alternate “chimney” systems into the cave complex,



At the request of the Royal Thai government, the U.S. sent a search and rescue team to assist Thai rescue authorities in finding 12 young soccer players and their coach.
Air Force photo by Capt. Jessica Tait
Source: <http://www.dodlive.mil/2018/08/23/no-room-for-error-thats-how-these-pjs-remember-the-thai-cave-rescue/>

⁵⁶⁰ Case Study No. 4: A Review of the U.S. Military's response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

⁵⁶¹ Ibid.

⁵⁶² Statement on cooperation with Thai authorities at Tham Luang Cave, <https://th.usembassy.gov/statement-on-cooperation-with-thai-authorities-at-tham-luang-cave/>

⁵⁶³ Case Study No. 4: A Review of the U.S. Military's response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

⁵⁶⁴ Okinawa-based Special Operations airmen involved in Thai cave rescue, <https://www.stripes.com/news/pacific/okinawa-based-special-operations-airmen-involved-in-thai-cave-rescue-1.536912>

⁵⁶⁵ Case Study No. 4: A Review of the U.S. Military's response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

and also considered drilling into the cave. An aerial assessment was conducted of the mountain range/external cave system utilizing Thai helicopters with the combined Thai/U.S. Rescue team. The Royal Thai navy established an Operations Center near the entrance of the cave. The British Cave Rescue Council (BCRC), a United Kingdom-based private group of highly experienced divers/cavers with previous knowledge of the cave, assessed conditions at the cave. Members of the 353d SOG Team met with the Thai Military, BCRC, and various other NGOs/commercial organizations who were aiding in the search efforts in an effort to establish an organized and integrated approach.⁵⁶⁶

On June 30, SDO Col Turnbull contacted Five Eye (FVEY) partner Attache Offices in Bangkok to coordinate support efforts. An Australian C-17A with military personnel and equipment arrived in Chiang Mai. On July 1, Thailand requested help from the 353rd SOG in staging SCUBA cylinders in the cave chambers. Australian Federal Police also arrived on site to join the effort and began conducting dive operations to assess conditions in the cave.⁵⁶⁷

On July 2, RTN SEALs, U.S., Australian and Chinese teams collaborate on staging SCUBA tanks, food and water and medical supplies in the cave. At around roughly 2230L reports indicate that the U.K. dive team was successful in finding all 13 members of the Wild Boars soccer team.⁵⁶⁸

On July 3, five additional INDOPACOM personnel (Civil Military Support Element (CMSE) and Regional Information Support Team (RIST) from SOCPAC Headquarters) arrived at site. Five hundred pounds of Meals Ready-to-Eat (MREs) from INDOPACOM are delivered to the rescue site by the U.S. Defense Attache Service's C-12 aircraft. Additionally, a second 353rd SOG MC-130 arrived in Chiang Rai with additional gear, then continued to U-tapao where it switched out with the original MC-130A.⁵⁶⁹⁵⁷⁰

On July 4, the U.K. dive team and a team of divers from the 353rd SOG rescue team traveled to chamber three of the cave with equipment for the children (100 x field dressed MREs, a camera, and an atmospheric monitor). The U.K. divers then continued on with gear to reassess the route and provide an accurate assessment of what a dive rescue operation will require.⁵⁷¹

On July 6, the RTN SEAL team, the U.S. military team and the UK Cave Rescue Council come up with a joint rescue plan that is presented to Thai Prime Minister Prayut who sees and approves the rescue plan on July 7. On July 8, dive teams rescue the first four children from the cave. The rescued children are transported via ambulance to a Helicopter Landing Zone (HLZ) near the Mission Support Site (MSS), then via Royal Thai Army and Royal Thai Police (RTA and RTP) medevac helicopters to a civilian hospital in Chiang Rai. On July 9, another four children are rescued. On July 10, the remaining four children and coach of the team were rescued.⁵⁷²

The U.S. military team consolidated personnel and equipment and prepared for redeployment over the next few days. On July 14, the 353d SOG team departed Thailand for Okinawa. Rescue operations for the team lasted from June 26 to July 14, 2018.⁵⁷³

566 Case Study No. 4: A Review of the U.S. Military's response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

567 Ibid.

568 Ibid.

569 Ibid.

570 DIA's Bangkok Defense Attaché Office Aids Thai Soccer Team Rescue, <https://www.dia.mil/News/Articles/Article-View/Article/1574178/dias-bangkok-defense-attach-office-aids-thai-soccer-team-rescue/>

571 Case Study No. 4: A Review of the U.S. Military's response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

572 Ibid.

573 Ibid.

Profile of US rescue effort team:

- US Aircraft Generated:
- 2x MH-130J (from the 17th Special Operations Squadron)
- 1x NSAV aircraft (SOCPAC asset)
- 1 x C-12 aircraft (US Embassy Bangkok DAO asset) – delivered MREs to rescue site

Personnel Deployed:

- 42 total including 353rd SOG, Air Force Special Operations pararescuemen from the 320th Special tactics Squadron, US Embassy, and SOCPAC. Plus one member from the Joint U.S. Military Advisory Group Thailand.⁵⁷⁴

Cargo Deployed from 353rd SOG:

- 2x STS Internal Stability Unit (ISU) containers
- 1x medical / communications package

Locations of personnel and equipment:

- Chiang Rai
- U-tapao
- US Embassy Bangkok^{575, 576}

An interesting aspect of the Thai cave rescue is the internal USG decision and authority process that occurred in the initial hours of the response. While standard EXECSEC procedures were completed in the first 1-2 days of the operation, initial movement of forces happened prior to the EXECSEC process being finalized. This is both permissible and legal under DOD Directive 5100.46 authority governing Foreign Disaster Response, which states that nothing shall prevent a military commander with assigned forces at or near the immediate scene of a foreign disaster from taking prompt action to save human lives.⁵⁷⁷

Note: This section has been excerpted from and based on “CFE-DM Case Study No. 4: A Review of the U.S. Military’s Response in Support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective.” Please see this case study for additional information on the DOD support to the Thai Cave Rescue. The publication is available to view and download at: https://www.cfe-dmha.org/LinkClick.aspx?fileticket=7l8A_ecvpH8%3d&portalid=0

⁵⁷⁴ DoD Personnel Assist in Thai Cave Rescue Operations, <https://dod.defense.gov/News/Article/Article/1569955/dod-personnel-assist-in-thai-cave-rescue-operations/>

⁵⁷⁵ Case Study No. 4: A Review of the U.S. Military’s response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

⁵⁷⁶ ‘No Room for Error’: That’s How These PJs Remember the Thai Cave Rescue, <http://www.dodlive.mil/2018/08/23/no-room-for-error-thats-how-these-pjs-remember-the-thai-cave-rescue/>

⁵⁷⁷ Case Study No. 4: A Review of the U.S. Military’s response in support of the 2018 Thailand Cave Rescue: A U.S. Indo-Pacific Command Perspective, https://www.cfe-dmha.org/LinkClick.aspx?fileticket=PX6SL_xZLm0%3d&portalid=0

September 2018

Indonesia: Sulawesi Earthquake and Tsunami

Background

On September 28, 2018, a series of earthquakes struck Indonesia's Central Sulawesi province. The initial earthquake was a 6.1 magnitude earthquake that was later joined with subsequent aftershocks. Around three hours later, the strongest quake measuring 7.4M struck at only 10 km beneath the surface and with its epicenter close (48 miles north) to the provincial capital, Palu. The earthquake triggered a tsunami striking Talise beach in Palu and Donggala. The earthquakes, tsunami and resulting liquefaction and landslides caused significant damage and loss of life. At least 2,227 deaths were reported, and some 211,000 people were displaced by the disaster.^{578, 579} Overall, some 1.5 million people were affected by the disaster.⁵⁸⁰ The disaster cut off much of Palu and Donggala for several days. The airport runway and control tower were both badly damaged. And the seaport, which the region relied upon for fuel supplies, lost its crane for cargo.^{581, 582}

On October 1, the Government of Indonesia (GOI), through the Ministry of Foreign Affairs and the national disaster management organization (BNPB), welcomed specific offers of international assistance. The BNPB and the regional disaster management agency coordinated the response to the disaster under the overall leadership of the Coordinating Minister for Political and Security Affairs. Additionally, the GoI requested the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) serve as a conduit for offers of international assistance for the response. The Humanitarian Country Team worked closely with the AHA Centre, while the AHA Centre's Emergency Response and Assessment Team (ERAT) worked with the BNPB's National Assisting Post (Pospenas) to coordinate international assistance.⁵⁸³

On October 26, the GoI closed operations at the humanitarian staging area in Balikpapan, initiating a shift to early recovery activities.

The Indonesian military (TNI) provided 2 C-130s and a Hanggar Cn235 aircraft to respond to the disaster. The TNI also appointed a dedicated Commander Officer for the coordination of Foreign Military Assets (FMA) in Balikpapan, the designated Operations Hub for the response.



U.S. Air Force Lt. Col. Aaron Lane, 36th Mobility Response Squadron commander, Maj. Sean Conley, 36th MRS operations officer, both assigned to the 36th Contingency Response Group Andersen Air Force Base, Guam, are greeted by an Indonesian military member in Palu, Indonesia Oct. 6, 2018.

U.S. Air Force photo by Master Sgt. JT May III

Source: <https://www.pacom.mil/Media/News/News-Article-View/Article/1659037/4-ways-the-us-is-responding-to-the-indonesia-earthquake-and-tsunami/>

578 Indonesia: Humanitarian snapshot central Sulawesi (as of 20 Dec 2018) https://reliefweb.int/sites/reliefweb.int/files/resources/revised_file_v2_final_palu_infographics_english_0.pdf

579 Central Sulawesi earthquake and tsunami, https://reliefweb.int/sites/reliefweb.int/files/resources/Sulawesi_EQ_021118.pdf

580 Central Sulawesi Earthquake Response Plan (Oct 2018 - Dec 2018), <https://reliefweb.int/report/indonesia/central-sulawesi-earthquake-response-plan-oct-2018-dec-2018>

581 Central Sulawesi earthquake response (Oct 2018 - Dec 2018), <https://reliefweb.int/sites/reliefweb.int/files/resources/SULAWESI%20R%20051018%20FINAL.PDF>

582 USAID: Indonesia, <https://www.usaid.gov/crisis/indonesia>

583 Ibid.

A total of 18 foreign militaries provided 28 aircraft to support the response. These were:

- Australia: 2 x C-130
- China: 1 x B747
- Denmark: 1 x Antonov An-12
- France: 1 x Ilyushin II-96
- Germany: 1 x Antonov An-12
- India: C-130
- Japan: 1 x C-130
- Malaysia: 2 x C-130, 1x airbus A400, 1x Eurocopter
- New Zealand: 1 x C-130
- Philippines: 1 x C-130
- Qatar: C-17
- Republic of Korea: 2 x C-130
- Russia; 1 x Ilyushin II-76
- Singapore: 2 x C-130
- Spain: 1 x Antonov An-12
- Switzerland: 1 x Dassault Falcon 900, 1 x B757
- United Kingdom: 1 x airbus A400M, 1 x Ilyushin II-76
- United States: 3 x C-130s⁵⁸⁴

U.S. Government Response

On October 1, U.S. Ambassador to Indonesia Joseph R. Donovan Jr., declared a disaster and in response, USAID/OFDA provided an initial US\$100,000 in emergency relief funding to the NGO, World Vision, and mobilized a regional advisory team to coordinate response with the GoI, relief organizations and the DOD.⁵⁸⁵

Additionally, USAID deployed a team of disaster experts to coordinate U.S. response efforts, conduct damage assessments, and work closely with local authorities, the GoI and humanitarian organizations.⁵⁸⁶

USAID requested the unique capabilities of the U.S. military to support its response by providing transportation and logistics assistance. U.S. Indo-Pacific Command deployed three C-130 Hercules cargo aircraft, which delivered over 594 metric tons of relief supplies, along with transporting USAID's disaster team and nearly 80 aid workers.^{587, 588}



U.S. Air Force C-130 Hercules from the 374th Airlift Wing at Yokota Air Base, Japan flies over while 36th Mobility Response Squadron aerial porters, from Andersen Air Force Base, Guam load humanitarian supplies in Balikpapan, Indonesia Oct. 14, 2018.
Photo by Master Sgt. James May
Source: <https://www.pacom.mil/Media/News/News-Article-View/Article/1668481/us-bolsters-indonesian-partnership-by-extending-troops-stay/>

⁵⁸⁴ Central Sulawesi earthquake: International Deployed Assets (as of 10 October 2018), <https://reliefweb.int/report/indonesia/central-sulawesi-earthquake-international-deployed-assets-10-october-2018>

⁵⁸⁵ Indonesia – Earthquakes and Tsunami, Fact Sheet #2, Fiscal year (FY) 2019, https://www.usaid.gov/sites/default/files/documents/1866/indonesia_eq_fs02_10-26-2018.pdf

⁵⁸⁶ 4 Ways the U.S. is Responding to the Indonesia Earthquake and Tsunami, <https://www.pacom.mil/Media/News/News-Article-View/Article/1659037/4-ways-the-us-is-responding-to-the-indonesia-earthquake-and-tsunami/>

⁵⁸⁷ 4 Ways the U.S. is Responding to the Indonesia Earthquake and Tsunami, <https://www.pacom.mil/Media/News/News-Article-View/Article/1659037/4-ways-the-us-is-responding-to-the-indonesia-earthquake-and-tsunami/>

⁵⁸⁸ U.S. Response to Indonesia Earthquake and Tsunami, https://www.usaid.gov/sites/default/files/documents/1866/11.19.18_Indonesia_Infographic.pdf

Supplies being distributed include emergency shelter kits, blankets, hygiene kits, solar-powered lamps, and other critical relief supplies. Close to 30 airmen from the 36th Contingency Response Group at Andersen Air Force Base, Guam, and the 374th Airlift Wing at Yokota Air Base, Japan with three C-130J Super Hercules aircraft, arrived in Balikpapan, Indonesia, on October 5.^{589, 590}

The U.S. DOD primarily transported humanitarian commodities for the relief effort. The U.S. military flew 49 missions and delivered almost 600 MT of relief. The military also transported USAID/OFDA experts and more than 110 aid workers and more than 300 Indonesians displaced by the earthquake. The U.S. military helped expedite the offloading of relief supplies at Balikpapan and Palu and offloaded some 1,570 MT of humanitarian commodities for onward transport on 115 aircraft.⁵⁹¹

The U.S. military essentially oversaw the air-bridge operations between Balikpapan and Palu. U.S. Air Force personnel from the 36th Contingency Response Group (CRG) Guam and 374th Airlift Wing at Yokota Air Base, Japan extended their mission until October 25, when the GoI decided to end the air bridge operations between Palu and Balikpapan.^{592, 593}



The U.S. Government announced that it would implement 3 million USD in new funding through the United States Agency for International Development's Office of U.S. Foreign Disaster Assistance (USAID/OFDA) in support of relief efforts for the Central Sulawesi earthquake and tsunami response.

Courtesy photo

Source: <https://www.pacom.mil/Media/News/News-Article-View/Article/1669696/us-announces-additional-3-million-usd-for-central-sulawesi-earthquake-and-tsunami/>



U.S. Air Force members assigned to the 36th Contingency Response Group Andersen Air Force Base, Guam, three C-130J Super Hercules aircraft and aircrew from the 374th Airlift Wing, Yokota Air Base, Japan arrive at Balikpapan, Indonesia Oct. 5, 2018.

U.S. Air Force photo by Master Sgt. JT May III

Source: <https://www.pacom.mil/Media/News/News-Article-View/Article/1659037/4-ways-the-us-is-responding-to-the-indonesia-earthquake-and-tsunami/>

⁵⁸⁹ US delivering \$3.7 million in aid to Indonesia earthquake, tsunami victims, <https://www.stripes.com/news/pacific/us-delivering-3-7-million-in-aid-to-indonesia-earthquake-tsunami-victims-1.551119>

⁵⁹⁰ U.S. and Indonesian relief efforts provide hope, future, <https://www.pacaf.af.mil/News/Article-Display/Article/1657552/us-and-indonesian-relief-efforts-provide-hope-future/>

⁵⁹¹ Indonesia – Earthquakes and Tsunami, Fact Sheet #2, Fiscal year (FY) 2019, https://www.usaid.gov/sites/default/files/documents/1866/indonesia_eq_fs02_10-26-2018.pdf

⁵⁹² U.S. Bolsters Indonesian Partnership by Extending Troops' Stay, <https://www.pacom.mil/Media/News/News-Article-View/Article/1668481/us-bolsters-indonesian-partnership-by-extending-troops-stay/>

⁵⁹³ U.S. Announces Additional 3 million USD for Central Sulawesi Earthquake and Tsunami Response, <https://www.pacom.mil/Media/News/News-Article-View/Article/1669696/us-announces-additional-3-million-usd-for-central-sulawesi-earthquake-and-tsunami/>



March 2021

Timor-Leste: Floods

Background

Heavy rains from around March 29 to April 4, 2021, resulted in widespread flash flooding and landslides across Timor-Leste.⁵⁹⁴ Weather disturbances surrounding the Savu Sea during that period had resulted in the formation of Tropical Depression (TD) 99S on April 2,⁵⁹⁵ and this weather system brought downpours. All 13 municipalities across the country were affected, with Dili, the capital city, and surrounding low-lying areas being the worst affected areas.⁵⁹⁶ A total of 34 people were killed, a number which includes 14 missing people who were presumed dead, according to the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). Twenty-two of the deaths were in Dili.⁵⁹⁷ On April 5, as the storm moved away from Timor-Leste, it gained intensity and was upgraded to the Category 1 Tropical Cyclone (TC) Seroja.⁵⁹⁸ TC Seroja did not make landfall in Timor-Leste but first impacted parts of Indonesia as a tropical storm and attained peak intensity when it reached Australia on April 10.⁵⁹⁹ According to the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) in their post-disaster assessment report, affected areas of Timor-Leste experienced a precipitation rate of “more than 400% of their normal average rainfall.”⁶⁰⁰ The flash floods were said to be the worst the country had seen in some 40 years, according to the Timor-Leste Red Cross (Cruz Vermelha de Timor-Leste, or CVTL)⁶⁰¹ and the UN’s World Food Programme (WFP).⁶⁰²

On April 8, the Government of Timor-Leste (GoTL) declared a state of calamity in Dili and requested international assistance.⁶⁰³ At the peak of the emergency, the flash flooding displaced around 15,876 people who sought shelter in 30 evacuation



The U.S. Navy Seabees are out supporting the Red Cross and Timor-Leste’s Civil Protection Agency to help people affected by the flooding in Dili. Stay safe everyone! Twitter, April 4, 2021, 5:12 PM.

U.S. Embassy Dili [@USEmbassyDili]. 2021.
Source: <https://twitter.com/USEmbassyDili/status/1378908323324456961/photo/2>

594 FAO. Timor-Leste Floods: Urgent call for assistance, <https://reliefweb.int/report/timor-lesste/timor-lesste-floods-urgent-call-assistance>

595 CFE-DM. Timor-Leste Disaster Management Reference Handbook, March 2022, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=ze3tgWkESqs%3d&portalid=0>

596 UNRC Timor-Leste. Timor-Leste Floods - Situation Report No. 11 (As of 16 July 2021), <https://reliefweb.int/report/timor-lesste/timor-lesste-floods-situation-report-no-11-16-july-2021>

597 Ibid.

598 FAO. Timor-Leste Floods: Urgent call for assistance, <https://reliefweb.int/report/timor-lesste/timor-lesste-floods-urgent-call-assistance>

599 CFE-DM. Timor-Leste Disaster Management Reference Handbook, March 2022, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=ze3tgWkESqs%3d&portalid=0>

600 Ibid.

601 CVTL. CVTL Team Response to Disaster, <https://reliefweb.int/report/timor-lesste/cvttl-team-response-disaster>

602 WFP. Aerial Assessments help Timor-Leste recover following the worst floods in 40 years, <https://reliefweb.int/report/timor-lesste/aerial-assessments-help-timor-lesste-recover-following-worst-floods-40-years>

603 FAO. Timor-Leste Floods: Urgent call for assistance, <https://reliefweb.int/report/timor-lesste/timor-lesste-floods-urgent-call-assistance>

centers.⁶⁰⁴ In total, around 30,367 households (or 151,835 people) were affected.⁶⁰⁵ Of those, some 24,816 households were in Dili.⁶⁰⁶ Around 4,212 houses were damaged throughout the country,⁶⁰⁷ and roads and infrastructure were also damaged in the flooding.⁶⁰⁸ Rice and maize production was severely affected by the floods, landslides and strong winds, with some rice fields being completely destroyed, according to the UN's Food and Agriculture Organization (FAO).⁶⁰⁹ A total of 2,163 hectares of agricultural land was destroyed.⁶¹⁰ Total damage was estimated at over US\$307.7 million.⁶¹¹ Additionally, Water, Sanitation, and Hygiene (WASH) and health concerns were raised when two children died of suspected diarrhea and acute respiratory infection in Masilidun in Tasi Tolu on April 27 and 28.⁶¹²

Because of the extent of the emergency, the Declaration of the State of Calamity in Dili Municipality (Government Resolution N.º75/2021, May 31) was extended until August 4, 2021, while the State of Emergency (Decree no. 39/2021, June 30), which covered the entire national territory, was also renewed until it expired on July 31, 2021.⁶¹³

The overall coordination of the flood response was led by the GoTL with support from the CVTL, whose national disaster workforce from 11 branches assisted with relief efforts, and the international humanitarian community, including the UN and non-governmental organizations (NGO). Regional countries such as Australia, China, Japan, New Zealand, Singapore and the United States also assisted Timor-Leste with humanitarian assistance, including funding, relief goods and logistical support. In support of the government, the Timor-Leste Defence Force (Falintil de Defesa de Timor-Leste, or F-FDTL) assisted with various taskings, including distributing food and providing emergency power, water and clean-up activities.⁶¹⁴

The north coast of the country had experienced floods and mudslides a little over a year earlier in March 2020, and those events had injured seven people and affected more than 9,000 people. According to the International Federation of the Red Cross and Red Crescent Societies (IFRC), at least 190 houses were also destroyed.⁶¹⁵

National and international response to the 2021 flooding was complicated by the ongoing COVID-19 pandemic. The disaster struck as Timor-Leste was grappling with a surge of COVID-19 cases with Dili municipality in a lockdown that had begun about a month earlier. To help combat the surge in cases, the country's first batch of COVID-19 vaccines arrived on April 5, and the country's national vaccination program began on April 7.⁶¹⁶ The UN and humanitarian organizations expressed concern over the possible spread of COVID-19 and vector-borne and waterborne diseases among flood-affected populations, in particular displaced persons.⁶¹⁷ Due to concerns over the impact that COVID-19 lockdowns in Dili could

604 Ibid.

605 CVTL. CVTL 2021 Flood Response (7 Jan 2022), <https://reliefweb.int/report/timor-leste/cvtl-2021-flood-response-7-jan-2022>

606 UNRC Timor-Leste. Timor-Leste Floods - Situation Report No. 11 (As of 16 July 2021), <https://reliefweb.int/report/timor-leste/timor-leste-floods-situation-report-no-11-16-july-2021>

607 Ibid.

608 CFE-DM. Timor-Leste Disaster Management Reference Handbook, March 2022, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=ze3tgWkESqs%3d&portalid=0>

609 FAO. Timor-Leste Floods: Urgent call for assistance, <https://reliefweb.int/report/timor-leste/timor-leste-floods-urgent-call-assistance>

610 CFE-DM. Timor-Leste Disaster Management Reference Handbook, March 2022, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=ze3tgWkESqs%3d&portalid=0>

611 Ibid.

612 Ibid.

613 UNRC Timor-Leste. Timor-Leste Floods - Situation Report No. 11 (As of 16 July 2021), <https://reliefweb.int/report/timor-leste/timor-leste-floods-situation-report-no-11-16-july-2021>

614 CFE-DM. Timor-Leste Disaster Management Reference Handbook, March 2022, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=ze3tgWkESqs%3d&portalid=0>

615 Ibid.

616 UNRC Timor-Leste. Timor-Leste Floods - Flash Update No. 2 (As of 7 April 2021), <https://reliefweb.int/report/timor-leste/timor-leste-floods-flash-update-no-2-7-april-2021>

617 Ibid.



have on disaster relief efforts, the lockdown was temporarily suspended on April 9 despite the increased risk of further COVID spread.⁶¹⁸

Among key facilities affected by inundation, the national medical storage facility, Servico Autonomo de Medicamentos e Equipamentos de Saude (SAMES), was heavily flooded, with many medical supplies - including for the COVID-19 response - damaged or lost. Additionally, the isolation facility had to be temporarily evacuated, and the national laboratory was temporarily affected.⁶¹⁹

U.S. Government Response

In response to the GoTL's request for international assistance, the United States, through the U.S. Agency for International Development (USAID), in early April provided an initial US\$100,000 in immediate assistance to help people affected by the flooding. The funding was intended to be used with partners on the ground to deliver urgent relief aid.⁶²⁰ U.S. Ambassador to Timor-Leste, Kevin Blackstone, arranged to have USAID provide the funding to affected people, and the funding was used by the International Organization for Migration (IOM) to work with GoTL's State Secretariat for Civil Protection to provide emergency relief.⁶²¹ In early July 2021, USAID provided an additional US\$900,000. The additional assistance supported USAID partner World Vision to support farmers whose crops were destroyed by the flooding as well as to support food security.⁶²² The additional US\$900,000 was expected to help 2,650 families (around 15,000 people). USAID partners Catholic Relief Services, Caritas and Mercy Corps also assisted.⁶²³

A U.S. Navy Naval Mobile Construction Battalion (NMCB, popularly known as the “Seabees”) was already on the ground in Timor-Leste and, when called upon, was ready to provide a helping hand. Immediately after the flooding occurred, the U.S. Navy Seabees in Timor-Leste provided assistance to Timor-Leste's Civil Protection Agency and the CVTL to help those affected by the flooding.⁶²⁴ Part of the relief effort included providing sleeping cots to evacuees at the September



The U.S. Navy Seabees are out supporting the Red Cross and Timor-Leste's Civil Protection Agency to help people affected by the flooding in Dili. Stay safe everyone! Twitter, April 4, 2021, 5:12 PM. U.S. Embassy Dili [@USEmbassyDili]. 2021. Source: <https://twitter.com/USEmbassyDili/status/1378908323324456961/photo/3>

618 UNRC Timor-Leste. Timor-Leste Floods - Situation Report No. 4 (As of 12 April 2021), <https://reliefweb.int/report/timor-leste/timor-leste-floods-situation-report-no-4-12-april-2021>

619 UNRC Timor-Leste. Timor-Leste Floods - Flash Update No. 1 (As of 5 April 2021), <https://reliefweb.int/report/timor-leste/timor-leste-floods-flash-update-no-1-5-april-2021>

620 USAID. United States Providing Humanitarian Assistance in Response to Deadly Timor-Leste Floods, <https://reliefweb.int/report/timor-leste/united-states-providing-humanitarian-assistance-response-deadly-timor-leste>

621 U.S. Embassy Timor-Leste. United States Provides Disaster Assistance after Floods in Timor-Leste, <https://www.pacom.mil/Media/News/News-Article-View/Article/2567594/united-states-provides-disaster-assistance-after-floods-in-timor-leste/>

622 USAID. United States Providing Additional \$900,000 in Humanitarian Assistance to Boost Response Efforts for Timor-Leste Flood, <https://www.usaid.gov/news-information/press-releases/jul-8-2021-united-states-providing-additional-900000-humanitarian-assistance-timor-leste>

623 U.S. Embassy Timor-Leste. U.S. Ambassador Kevin Blackstone's Remarks on the Announcement of an Additional \$900,000 in U.S. Humanitarian Assistance to Timor-Leste, <https://tl.usembassy.gov/u-s-ambassador-kevin-blackstone-remarks-on-the-announcement-of-an-additional-900000-in-u-s-humanitarian-assistance-to-timor-leste/>

624 U.S. Embassy – Dili, Timor-Leste. April 4, 2021. <https://www.facebook.com/USEmbassyDili/posts/forsa-naval-eua-seabees-apoia-kruz-vermella-no-timor-leste-nia-ajensia-protesaun/4001761569845959/>

4th school on April 9.⁶²⁵ U.S. Navy Seabees have a history of assisting the people of Timor-Leste and have deployed to the country since 2009. Groups of Seabees have rotated through the country around every six months to assist with projects.⁶²⁶ At the time of the March 2021 floods, the Seabees had completed over 100 construction projects, including schoolhouses, health clinics and other critical infrastructure.⁶²⁷ The Seabees have worked jointly with U.S. Army Pacific (USARPAC) Task Force Oceania Team Timor-Leste to conduct joint humanitarian projects in the country. Task Force Oceania consisted of civil affairs soldiers that were organized into two-person Pacific Augmentation Teams that worked on various tasks including humanitarian assistance and disaster response planning.⁶²⁸ Additionally, the Seabees have worked closely with the F-FDTL and the Australian Defence Force (ADF) on various construction projects in Timor-Leste.⁶²⁹

625 U.S. Embassy Timor-Leste. United States Provides Disaster Assistance after Floods in Timor-Leste, <https://www.pacom.mil/Media/News/News-Article-View/Article/2567594/united-states-provides-disaster-assistance-after-floods-in-timor-leste/>

626 Belcher, Stephane. US Navy Seabees in Timor-Leste Hold Multinational Ribbon-Cutting Ceremony, <https://www.pacom.mil/Media/News/News-Article-View/Article/2889388/us-navy-seabees-in-timor-leste-hold-multinational-ribbon-cutting-ceremony/>

627 Seabees Begin Construction to Further Educational Opportunities in Timor-Leste, <https://www.dvidshub.net/news/391561/seabees-begin-construction-further-educational-opportunities-timor-leste>

628 Task Force Oceania and Seabees Team Up in Timor Leste, https://www.army.mil/article/244013/task_force_oceania_and_seabees_team_up_in_timor_leste.dvidshub.net/image/6480791/seabees-strengthen-relationship-with-timor-leste-community

629 Belcher, Stephane. US Navy Seabees in Timor-Leste Hold Multinational Ribbon-Cutting Ceremony, <https://www.pacom.mil/Media/News/News-Article-View/Article/2889388/us-navy-seabees-in-timor-leste-hold-multinational-ribbon-cutting-ceremony/>



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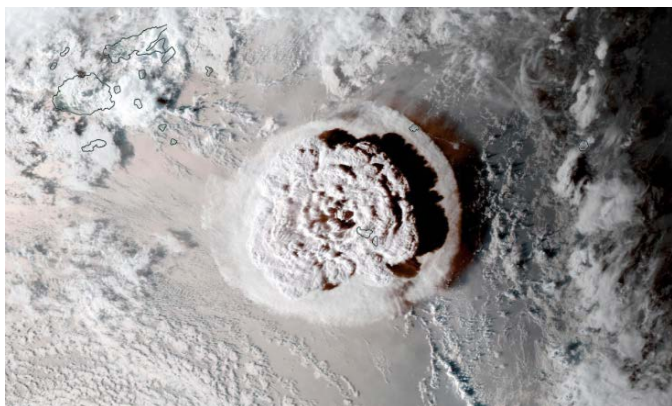
Tonga: Hunga Tonga-Hunga Ha’apai (HTHH) Volcano Eruption and Tsunami

Background

The Hunga Tonga-Hunga Ha’apai (HTHH) volcano, located on the Kingdom of Tonga’s uninhabited Hunga Tonga Island, began erupting on January 14, 2022.⁶³⁰ The next day, a more powerful eruption occurred and triggered tsunami waves of up to 15 meters (49.21 feet). The volcano is located approximately 69 kilometers (43 miles) northwest of Nuku’alofa, Tonga’s capital, which is located on the north side of the main island, Tongatapu.⁶³¹

The tsunami waves struck the west coasts of the islands of Tongatapu, ‘Eua and Ha’apai.⁶³² Moreover, the tsunami from the eruption registered on instruments as far away as Japan, South America and North America.⁶³³ The volcano spewed an ash plume that reportedly reached up to 18,000 meters (60,000 feet) high and spread across an area approximately 400 kilometers (250 miles) wide.⁶³⁴ According to the International Federation of Red Cross and Red Crescent Societies (IFRC), the ash blocked out the sun, creating darkness, and then precipitated out to cover large areas of the country in a thick layer.⁶³⁵

The eruption was reportedly the largest recorded worldwide since the eruption of Krakatoa, located in the Strait of Sunda between Java and Sumatra, Indonesia, in 1883. Three people died as a direct result of the HTHH eruption, while another person’s death was indirectly linked to the event.⁶³⁶ The IFRC reported that as the eruption occurred during the daytime and produced loud sonic booms, fatalities and injuries were minimized as people took action to escape Tonga’s coastline.⁶³⁷ Additionally, the United Nations (UN) says that Tonga’s well-functioning early warning system and successful preparedness activities helped keep casualties low.⁶³⁸ Tonga ranked third in the World Risk Index 2021 after Vanuatu and Solomon Islands with the highest



GeoColor reflectance image animation of the explosive eruption of the Hunga Tonga-Hunga Ha’apai volcano on January 15, 2022, between 04:00 – 05:20 UTC/17:00 – 18:20 Tonga Time. These images were acquired by the Advanced Baseline Imager (ABI) instrument, aboard the GOES-West (currently, GOES-17) satellite. Source: EarthData – National Aeronautics and Space Administration (NASA). <https://www.earthdata.nasa.gov/worldview/worldview-image-archive/explosive-eruption-of-hunga-tonga-hunga-ha-apai-volcano>

⁶³⁰ U.S. Embassy in Fiji, Kiribati, Nauru, Tonga, and Tuvalu. Chargé d’affaires Announces US\$100,000 in Support to Tonga, <https://www.pacom.mil/Media/News/News-Article-View/Article/2902988/charg-daffaires-announces-us100000-in-support-to-tonga/>

⁶³¹ USAID. Tonga – Volcanic Eruptions and Tsunami, February 11, 2022, Fact Sheet #1, https://www.usaid.gov/sites/default/files/2022-05/2022-02-11_Tonga_Volcanic_Eruptions_and_Tsunami_Fact_Sheet_1.pdf

⁶³² IFRC. Tonga | Volcano and Tsunami - Operation Update #5 (18-month Report), Emergency Appeal N° MDRT002, <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-operation-update-5-18-month-report-emergency-appeal-ndeg-mdrto002>

⁶³³ Garamone, Jim. USS Sampson Delivers Aid, Assistance to Tonga After Volcano, Tsunami, <https://www.defense.gov/News/News-Stories/Article/Article/2910665/uss-sampson-delivers-aid-assistance-to-tonga-after-volcano-tsunami/>

⁶³⁴ USAID. Tonga – Volcano and Tsunami Response: USAID/BHA Response Summary (January 2022), <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-response-usaidbha-response-summary-january-2022>

⁶³⁵ IFRC. Tonga | Volcano and Tsunami - Operation Update #5 (18-month Report), Emergency Appeal N° MDRT002, <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-operation-update-5-18-month-report-emergency-appeal-ndeg-mdrto002>

⁶³⁶ Ibid.

⁶³⁷ Ibid.

⁶³⁸ OCHA. Tonga: Volcanic Eruption Situation Report No.1 (As of 25 January 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no1-25-january-2022>

disaster risk worldwide,⁶³⁹ and recognition of this level of exposure had led the Kingdom to take risk reduction seriously before the HTHH eruption.⁶⁴⁰

The ashfall covered many of Tonga’s roughly 169 islands, of which 36 are inhabited, although approximately 70% of the total population of 105,000 live on Tongatapu.⁶⁴¹ As of January 17, an estimated 2.5 centimeters (1 inch) of ashfall had covered the major populated islands, with 10-15 centimeters (4-6 inches) of ashfall reported in some areas, according to the Government of Tonga (GoT) and the UN.⁶⁴²

Later analysis showed that the eruption was larger than any nuclear detonation ever recorded, according to the monitoring body, the Comprehensive Nuclear Test Ban Treaty Organization.⁶⁴³ Additionally, the explosion of the volcano was seen from space and could be heard as far away as Alaska.⁶⁴⁴

The tsunami severely damaged at least two sections of undersea fiber-optic cable, the Kingdom’s only direct connection to the rest of the world, and this damage severely disrupted international and domestic telecommunications. Because of the damage to the cable, little information was initially available from Tonga, a lack that hampered coordination among the GoT and affected areas, as well as between the GoT and humanitarian responders.⁶⁴⁵ On January 17, the New Zealand Defence Force (NZDF) and Australian Defence Forces (ADF) flew the first surveillance flights that revealed significant damage to houses, roads, water tanks and other infrastructure on the west coast of Tongatapu, in the Ha’apai island group and on the west coast of ‘Eua.⁶⁴⁶

On January 18, the Prime Minister of Tonga declared a state of emergency effective from January 16, 2022. The GoT and Tonga Red Cross Society (TRCS) requested international assistance⁶⁴⁷ and on January 19, the UN Resident Coordinator received a request from the GoT for urgent humanitarian assistance due to the disaster.⁶⁴⁸

According to preliminary GoT estimates, on Tongatapu, Ha’apai and ‘Eua, 84,176 people (some 84% of the population) were affected. Around 3,000 people were displaced, including some evacuees from affected islands off the coast of Tongatapu and in the Ha’apai island group.⁶⁴⁹ Most subsequently returned to their communities.⁶⁵⁰

The eruption and tsunami damaged or destroyed at least 2,900 structures, including almost 300 houses, and produced 463 road/bridge obstacles, according to an analysis by the UN Satellite Centre (UNOSAT).⁶⁵¹ Total economic damages were estimated at around US\$90.4 million, according to assessments by the UNOSAT and the World Bank. Additionally, nearly 85% of agricultural households in Tonga were affected,

639 OCHA. Tonga: Volcanic Eruption Situation Report No. 4 (As of 10 February 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no-4-10-february-2022>

640 ADPC and UNDRR. Disaster Risk Reduction in the Kingdom of Tonga: Status Report. 2022. <https://www.undrr.org/media/83687/download>

641 Olson, Wyatt. Destroyer USS Sampson helps Tonga islands damaged by volcanic eruption, tsunami. Stars and Stripes. <https://www.stripes.com/branches/navy/2022-01-24/tonga-relief-efforts-volcano-eruption-tsunami-navy-uss-sampson-4404726.html>

642 USAID. Tonga – Volcano and Tsunami Response: USAID/BHA Response Summary (January 2022), <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-response-usaid-bha-response-summary-january-2022>

643 Olson, Wyatt. Destroyer USS Sampson helps Tonga islands damaged by volcanic eruption, tsunami. Stars and Stripes. <https://www.stripes.com/branches/navy/2022-01-24/tonga-relief-efforts-volcano-eruption-tsunami-navy-uss-sampson-4404726.html>

644 Garamone, Jim. USS Sampson Delivers Aid, Assistance to Tonga After Volcano, Tsunami, <https://www.defense.gov/News/News-Stories/Article/Article/2910665/uss-sampson-delivers-aid-assistance-to-tonga-after-volcano-tsunami/>

645 USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

646 IFRC. Tonga | Volcano and Tsunami - Operation Update #5 (18-month Report), Emergency Appeal N° MDRT002, <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-operation-update-5-18-month-report-emergency-appeal-ndeg-mdrto002>

647 Ibid.

648 USAID. Tonga – Volcano and Tsunami Response: USAID/BHA Response Summary (January 2022), <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-response-usaid-bha-response-summary-january-2022>

649 IFRC. Tonga | Volcano and Tsunami - Operation Update #5 (18-month Report), Emergency Appeal N° MDRT002, <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-operation-update-5-18-month-report-emergency-appeal-ndeg-mdrto002>

650 Ibid.

651 OCHA. Tonga: Volcanic Eruption Situation Report No. 4 (As of 10 February 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no-4-10-february-2022>



according to the UN Food and Agriculture Organization (FAO).⁶⁵² Total estimated agricultural losses stood at US\$17 million, according to Tonga’s Ministry of Agriculture, Food and Forests.⁶⁵³

The GoT led the overall response, with the National Emergency Management Office (NEMO) coordinating efforts. In response to the emergency, the NEMO activated the National Emergency Operations Centre, District Emergency Operations Centres and the national cluster system.⁶⁵⁴

The international humanitarian community supported the GoT in its response. Under the leadership of the UN Resident Coordinator, the Pacific Humanitarian Team supported national efforts. UN agencies such as the UN Office for the Coordination of Humanitarian Affairs (OCHA), worked with the NEMO on coordination.⁶⁵⁵ According to the U.S. Agency for International Development (USAID), agriculture, food, livelihoods, protection, shelter, and water, sanitation, and hygiene (WASH) assistance were the immediate priority needs. Flooding in Tongatapu followed by heavy rains in February also compounded some humanitarian needs during early relief efforts.⁶⁵⁶

Tonga’s armed forces played a key role in relief efforts. His Majesty’s Armed Forces (HMAF) was active supporting NEMO during operations. Soldiers helped clear volcanic ash from the runway at Fua’amotu International Airport and cleared other critical infrastructure, including roads and shops. HMAF personnel participated in distribution of water on Tongatapu. At sea, Tonga’s two Guardian class patrol boats evacuated the outlying Ha’apai island group. HMAF’s VOEA Ngahau Kaula sailed the day after the eruption for Ha’apai to reestablish communication, while VOEA Ngahau Siliva was already in Vava’u. Tonga’s VOEA Late, a landing craft, also helped distribute supplies to remote communities. Additionally, HMAF forces in Ha’apai supported clean-up of Ha’afeva Health Centre.⁶⁵⁷

Due to the efforts by HMAF personnel and other national responders, Fua’amotu airport was cleared of ash on January 26, and this clean-up allowed for the arrival of international relief flights from nations around the region.⁶⁵⁸

The already challenging situation in Tonga was further complicated by the emergence and rapid spread of COVID-19, which impacted relief efforts as well as response planning by the GoT and humanitarian organizations.⁶⁵⁹ Tonga had reported no cases of the virus until October 30, 2021, when the first COVID-19 case was reported on a repatriation flight from New Zealand in an arriving traveler.⁶⁶⁰ However, after this patient was isolated and tracing was completed, no community spread was recorded until after the HTHH event.⁶⁶¹

Foreign militaries in the region began assisting Tonga shortly after the devastating eruption. Preliminary damage assessment flights were carried out by the NZDF and ADF two days after the eruption. Operations were challenged by the ongoing pandemic, and defense officials from all nations

652 USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

653 OCHA. Tonga: Volcanic Eruption Situation Report No. 4 (As of 10 February 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no-4-10-february-2022>

654 OCHA. Tonga: Volcanic Eruption Situation Report No.1 (As of 25 January 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no1-25-january-2022>

655 Ibid.

656 USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

657 CFE-DM. Kingdom of Tonga Disaster Management Reference Handbook, May 2023, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=w6xVhFFdkME%3d&portalid=0>

658 Reuters. Relief efforts ramp up in Tonga, more aid arrives, <https://www.reuters.com/world/asia-pacific/relief-efforts-ramping-up-tonga-more-aid-arrives-2022-01-26/>

659 OCHA. Tonga: Volcanic Eruption Situation Report No. 4 (As of 10 February 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no-4-10-february-2022>

660 CFE-DM. Kingdom of Tonga Disaster Management Reference Handbook, May 2023, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=w6xVhFFdkME%3d&portalid=0>

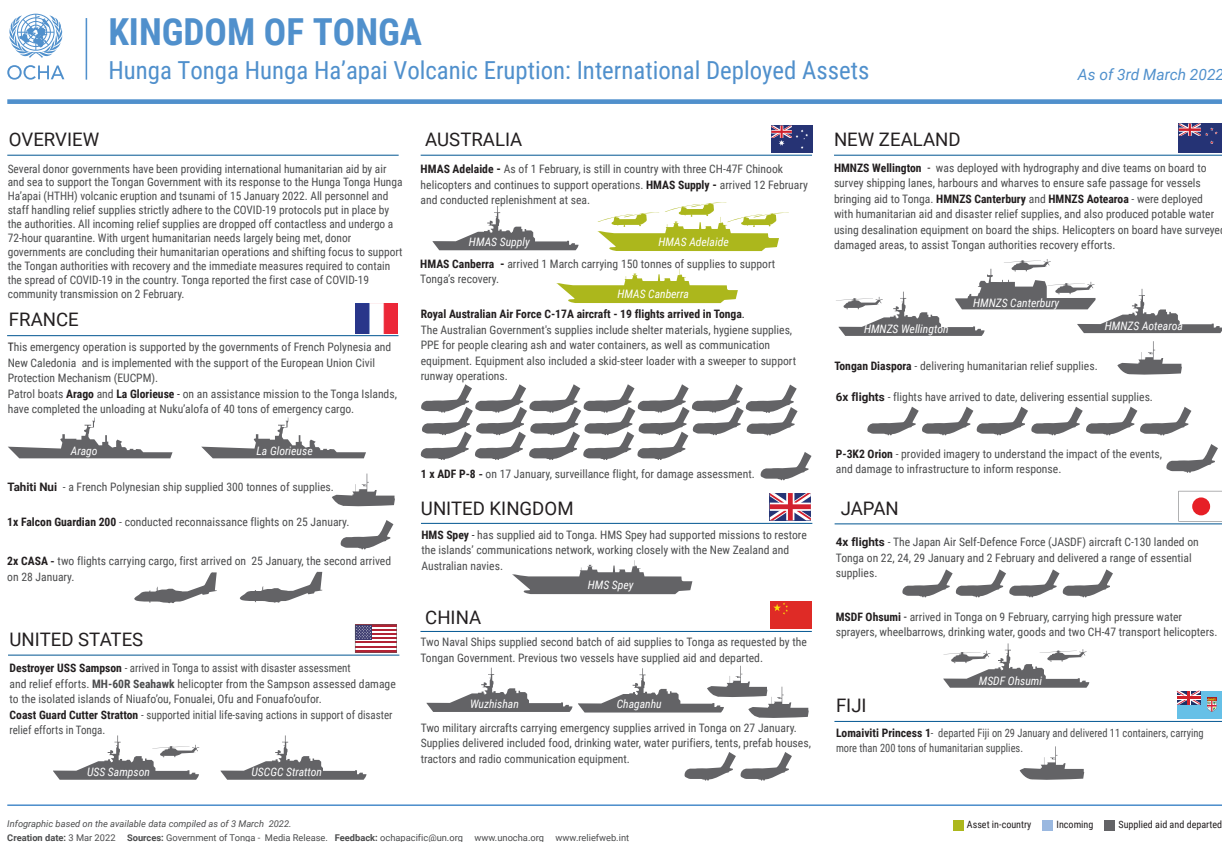
661 Regan, Helen. Disaster-hit Tonga goes into lockdown after recording first local Covid cases. CNN. 2 February 2022. <https://www.cnn.com/2022/02/01/asia/tonga-lockdown-covid-volcano-intl-hnk/index.html>

involved in relief operations stressed adherence to strict COVID protocols. In general, as part of the “contactless” protocol in Tonga, aid flights landed, then offloaded aid without contact with those on the ground. All personnel and staff handling relief supplies sought to adhere to the COVID-19 protocols put in place by the GoT and delivered relief aid supplies also underwent a 72-hour quarantine.⁶⁶²

However, Tonga’s main outbreak of COVID-19 came shortly after the disaster struck. On February 1, 2022, Prime Minister Siaosi Sovaleni and Minister of Health Dr. Saia Piukala confirmed that two positive cases had been detected in port workers at the Queen Salote Wharf in Nuku‘alofa, despite strict precautions for contactless aid delivery. A nationwide lockdown was instituted the following day; however, local transmission significantly increased. The lockdown, curfew, school and business closures, and strict social distancing restrictions started on February 2 and challenged relief efforts.⁶⁶³

Repairs to severed sections of the Fiji–Tonga undersea communications cable concluded on February 22 and largely restored telecommunications services for Tongatapu.⁶⁶⁴

At least eight foreign militaries in total from around the region assisted Tonga with the delivery of relief supplies by air and by sea. Aside from the United States, these included Australia, China, Fiji, France, Japan, New Zealand, and the United Kingdom.⁶⁶⁵ The following infographic by UNOCHA summarizes relief operations by supporting regional militaries:



Source: OCHA. Kingdom of Tonga: Hunga Tonga Hunga Ha’apai Volcanic Eruption: International Deployed Assets (As of 3rd March 2022), <https://reliefweb.int/report/tonga/kingdom-tonga-hunga-tonga-hunga-ha-apai-volcanic-eruption-international-deployed-2>

⁶⁶² OCHA. Kingdom of Tonga: Hunga Tonga Hunga Ha’apai Volcanic Eruption: International Deployed Assets (As of 3rd March 2022), <https://reliefweb.int/report/tonga/kingdom-tonga-hunga-tonga-hunga-ha-apai-volcanic-eruption-international-deployed-2>

⁶⁶³ CFE-DM. Kingdom of Tonga Disaster Management Reference Handbook, May 2023, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=w6xvhFFdkME%3d&portalid=0>

⁶⁶⁴ USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

⁶⁶⁵ OCHA. Kingdom of Tonga: Hunga Tonga Hunga Ha’apai Volcanic Eruption: International Deployed Assets (As of 3rd March 2022), <https://reliefweb.int/report/tonga/kingdom-tonga-hunga-tonga-hunga-ha-apai-volcanic-eruption-international-deployed-2>



FRANZ Arrangement partners, which are comprised of France, Australia and New Zealand, deployed maritime and air assets to support the GoT response. FRANZ is a civilian-led arrangement that is supported by defense forces.⁶⁶⁶ Support included reconnaissance flights and the delivery of relief by air and sea. FRANZ partners largely led the regional response, with careful coordination among France, Australia and New Zealand, alongside Fiji, Japan, the United Kingdom and the United States to assist Tonga.⁶⁶⁷ The last FRANZ coordination meeting with other assisting countries was held on February 10 as the immediate emergency relief phase began to wind down.⁶⁶⁸

By early March, OCHA reported that urgent humanitarian needs were largely being met, and donor governments began concluding humanitarian operations and shifting focus to support the GoT with recovery, reconstruction and containing the spread of COVID-19.⁶⁶⁹

U.S. Government Response

After the eruption, on January 16, U.S. Chargé d’affaires to Fiji, Kiribati, Nauru, Tonga, and Tuvalu Tony Greubel announced the approval of US\$100,000 in immediate assistance to support those affected in Tonga.⁶⁷⁰ Overall U.S. Government (USG) support to Tonga was increased by US\$2.5 million shortly after, for a total of US\$2.6 million in assistance.⁶⁷¹

In partnership with the IFRC and the TRCS, USAID also provided water, sanitation, and hygiene supplies and supported disease prevention messaging campaigns.⁶⁷² The U.S. government support was delivered in partnership with the TRCS through the IFRC and other partners.⁶⁷³

The humanitarian organization CARE and the UN FAO, as partners of USAID’s Bureau for Humanitarian Assistance (BHA), assisted with agriculture, shelter, and WASH support for affected populations, in coordination with local partners, particularly on ‘Eua Island and in the Tongatapu and Ha’apai island groups.⁶⁷⁴ CARE also disseminated messages regarding ash cleanup, health hazards, and COVID-19 prevention best practices.⁶⁷⁵ Additionally, with USAID/BHA support, the UN Children’s Fund (UNICEF) delivered some 15,000 COVID-19 testing kits and personal protective equipment (PPE), among other relief supplies, to health care facilities.⁶⁷⁶ Previously provided USAID/BHA and USAID Bureau for Global Health (USAID/GH) funding supported COVID-19 preparedness and response efforts in the country.⁶⁷⁷

Also with previous USAID/BHA support, the UN World Food Programme (WFP) and the UN Population Fund (UNFPA) provided logistics, emergency telecommunications, health, and protection

⁶⁶⁶ USAID. Tonga – Volcanic Eruptions and Tsunami, February 11, 2022, Fact Sheet #1, https://www.usaid.gov/sites/default/files/2022-05/2022-02-11_Tonga_Volcanic_Eruptions_and_Tsunami_Fact_Sheet_1.pdf

⁶⁶⁷ Lt. Cmdr. Keiley, Joe, USS Sampson Supports Disaster Relief Efforts in Tonga with International Forces, <https://www.pacom.mil/Media/News/News-Article-View/Article/2913251/uss-sampson-supports-disaster-relief-efforts-in-tonga-with-international-forces/>

⁶⁶⁸ OCHA. Tonga: Volcanic Eruption Situation Report No. 4 (As of 10 February 2022), <https://reliefweb.int/report/tonga/tonga-volcanic-eruption-situation-report-no-4-10-february-2022>

⁶⁶⁹ OCHA. Kingdom of Tonga: Hunga Tonga Hunga Ha’apai Volcanic Eruption: International Deployed Assets (As of 3rd March 2022), <https://reliefweb.int/report/tonga/kingdom-tonga-hunga-tonga-hunga-ha-apai-volcanic-eruption-international-deployed-2>

⁶⁷⁰ USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

⁶⁷¹ U.S. Embassy in Fiji, Kiribati, Nauru, Tonga, and Tuvalu. USAID Announces Additional \$2.5 Million In Humanitarian Assistance in Response to Volcanic Eruptions and Tsunami in Tonga, <https://www.pacom.mil/Media/News/Spotlight/Article/2913192/usa-announces-additional-25-million-in-humanitarian-assistance-in-response-to/>

⁶⁷² Ibid.

⁶⁷³ Hartman, Leigh. U.S. and Pacific partners aid Tonga after disaster, <https://share.america.gov/us-pacific-partners-aid-tonga-after-disaster/>

⁶⁷⁴ USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

⁶⁷⁵ Ibid.

⁶⁷⁶ Ibid.

⁶⁷⁷ Ibid.



assistance.⁶⁷⁸ USAID also supported OCHA and UNICEF to provide health, coordination, protection, and WASH assistance across the most-affected areas.⁶⁷⁹

Tonga is also one of the countries where, since 2009, USAID/BHA has supported the U.S. National Oceanic and Atmospheric Administration (NOAA) to deploy “chatty beetles,” which are satellite terminals that facilitate text messaging in remote areas with limited connectivity. The chatty beetles provided Tonga’s government with the capability to disseminate alerts to outer islands following the eruption when communications failed after damage to the undersea cable system.⁶⁸⁰

Additional USG assistance to facilitate GoT-led emergency response and recovery efforts was provided by the USAID–U.S. Geological Survey (USGS) Volcano Disaster Assistance Program (VDAP) and NOAA.⁶⁸¹ The USGS monitored the situation at the volcano remotely, and NOAA implemented emergency volcano tsunami alert protocols and coordinated tsunami impact data collection in an effort to improve future tsunami response.⁶⁸² With support from USAID/BHA, NOAA deployed satellite equipment to enable text messaging in areas with limited connectivity.⁶⁸³ Additionally, the USAID–USGS VDAP shipped volcano monitoring equipment, which included devices to detect volcano-related earthquakes and explosions.⁶⁸⁴

USAID disaster response experts in the region coordinated relief assistance with humanitarian and FRANZ partners, including through regular participation in FRANZ coordination hub meetings.⁶⁸⁵

The U.S. Department of Defense (DOD) assisted with disaster assessments and relief efforts with the deployment of the Arleigh Burke-class guided missile destroyer USS Sampson (DDG 102). The Sampson was later joined by the U.S. Coast Guard cutter (USCGC) Stratton (WMSL-752). Both the USS Sampson and USCGC Stratton coordinated with FRANZ partners and the Government of the United Kingdom to support the GoT following the volcanic eruptions, according to USAID.⁶⁸⁶

USS Sampson was deployed as part of Commander, Task Force (CTF) 71/ Destroyer Squadron (DESRON) 15 attached to U.S. 7th Fleet. ⁶⁸⁷ CTF 71/DESRON 15 is the Navy’s largest forward-deployed DESRON and the U.S. 7th Fleet’s principal surface force. U.S. Navy’s 7th Fleet is the largest forward-deployed fleet.⁶⁸⁸ The Sampson was on a scheduled deployment to the U.S. 7th Fleet area of operations⁶⁸⁹ as part of the Abraham Lincoln Carrier Strike Group, which had deployed from San Diego in early January 2022. At the time of the eruption, Sampson was at American Samoa, about 965 kilometers (600 miles) northeast of Tonga. The ship arrived in the vicinity of Tonga around five days after the eruption, according

678 USAID. Tonga – Volcanic Eruptions and Tsunami, February 11, 2022, Fact Sheet #1, https://www.usaid.gov/sites/default/files/2022-05/2022-02-11_Tonga_Volcanic_Eruptions_and_Tsunami_Fact_Sheet_1.pdf

679 USAID. Tonga – Volcano and Tsunami, March 4, 2022, Fact Sheet #2, https://www.usaid.gov/sites/default/files/2022-05/2022-03-04_Tonga_Volcano_and_Tsunami_Fact_Sheet_2.pdf

680 CFE-DM. Kingdom of Tonga Disaster Management Reference Handbook, May 2023, <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=w6xVhFFdkME%3d&portalid=0>

681 USAID. Tonga – Volcanic Eruptions and Tsunami, February 11, 2022, Fact Sheet #1, https://www.usaid.gov/sites/default/files/2022-05/2022-02-11_Tonga_Volcanic_Eruptions_and_Tsunami_Fact_Sheet_1.pdf

682 Price, Ned. Assistance to Tonga in the Wake of the Hunga Tonga-Hunga Ha’apai Eruptions and Tsunami, <https://www.state.gov/assistance-to-tonga-in-the-wake-of-the-hunga-tonga-hunga-haapai-eruptions-and-tsunami/>

683 Hartman, Leigh. U.S. and Pacific partners aid Tonga after disaster, <https://share.america.gov/us-pacific-partners-aid-tonga-after-disaster/>

684 Ibid.

685 USAID. Tonga – Volcano and Tsunami Response: USAID/BHA Response Summary (January 2022), <https://reliefweb.int/report/tonga/tonga-volcano-and-tsunami-response-usaids-bha-response-summary-january-2022>

686 USAID. Tonga – Volcanic Eruptions and Tsunami, February 11, 2022, Fact Sheet #1, https://www.usaid.gov/sites/default/files/2022-05/2022-02-11_Tonga_Volcanic_Eruptions_and_Tsunami_Fact_Sheet_1.pdf

687 Nostrant, Rachel. USS Sampson provides disaster relief to Tonga after volcano eruption, tsunami, <https://www.militarytimes.com/news/your-navy/2022/01/27/uss-sampson-provides-disaster-relief-to-tonga-after-volcano-eruption-tsunami/>

688 Lt. Cmdr. Keiley, Joe. USS Sampson Supports Disaster Relief Efforts in Tonga with International Forces, <https://www.pacom.mil/Media/News/News-Article-View/Article/2913251/uss-sampson-supports-disaster-relief-efforts-in-tonga-with-international-forces/>

689 Nostrant, Rachel. USS Sampson provides disaster relief to Tonga after volcano eruption, tsunami, <https://www.militarytimes.com/news/your-navy/2022/01/27/uss-sampson-provides-disaster-relief-to-tonga-after-volcano-eruption-tsunami/>



to Navy Captain Kyle Raines, director of public affairs for USINDOPACOM.⁶⁹⁰

Sailors and Marines aboard the Sampson began providing disaster relief to Tonga on January 25, 2022.⁶⁹¹ “The USS Sampson is on scene now. She is providing lifesaving efforts and assistance alongside France, Australia, New Zealand, the United Kingdom, Japan and others. The multinational approach by allies and partners to assist friends in need demonstrates our shared values towards regional stability and security,” Raines said in an email message at the time.⁶⁹²

However, even before arriving off-shore the ship began utilizing an MH-60R helicopter to conduct damage assessments of the remote

islands of Niuafo’ou, Fonualei, Ofu and Fonuafo’ou, according to Raines.⁶⁹³ Aside from conducting initial damage assessments, MH-60R Seahawk helicopters assigned to the “Scorpions” of Helicopter Maritime Strike Squadron (HSM) 49 embarked aboard the Sampson also air-dropped supplies.⁶⁹⁴

The USS Sampson arrived on scene to join Australia’s HMAS Adelaide, New Zealand’s HMNZS Aotearoa, HMNZS Wellington and HMNZS Canterbury, and the United Kingdom’s HMS Spey, along with the Japan Maritime Self-Defense Force (JMSDF) landing ship tank JS Ohsumi, French Navy patrol vessel FNS Arago and French offshore patrol vessel FNS La Glorieuse.⁶⁹⁵ USCGC Stratton was also in transit to Tonga at the time as part of the overall USG effort and arrived shortly afterward to support initial disaster relief efforts.⁶⁹⁶

As part of the coordinated operations with partner militaries in the region, the Sampson conducted a replenishment at sea with New Zealand oiler HMNZS Aotearoa⁶⁹⁷ on January 25. Aotearoa had been in Tonga since January 21 and conducted replenishment for both the Sampson⁶⁹⁸ and HMS Spey.⁶⁹⁹ The refueling allowed the Sampson to remain on station longer to assist Tonga.⁷⁰⁰

The USS Sampson’s support to Tonga concluded on February 4, 2022. However, as part of continuing USG efforts, the USCGC Stratton continued to operate in the area to support any additional requests from



An MH-60R Sea Hawk Helicopter assigned to the “Scorpions” of Helicopter Maritime Strike Squadron (HSM) 49 conducts fly over missions on islands near Tonga.

U.S. Navy photo by Retail Service Specialist 3rd Class Ederson Dait
Source: <https://www.dvidshub.net/image/7027438/sampson-supports-tonga>

690 Olson, Wyatt. Destroyer USS Sampson helps Tonga islands damaged by volcanic eruption, tsunami, <https://www.stripes.com/branches/navy/2022-01-24/tonga-relief-efforts-volcano-eruption-tsunami-navy-uss-sampson-4404726.html>

691 Nostrant, Rachel. USS Sampson provides disaster relief to Tonga after volcano eruption, tsunami, <https://www.militarytimes.com/news/your-navy/2022/01/27/uss-sampson-provides-disaster-relief-to-tonga-after-volcano-eruption-tsunami/>

692 Garamone, Jim. USS Sampson Delivers Aid, Assistance to Tonga After Volcano, Tsunami, <https://www.defense.gov/News/News-Stories/Article/Article/2910665/uss-sampson-delivers-aid-assistance-to-tonga-after-volcano-tsunami/>

693 U.S. Embassy New Zealand. An Additional \$2.5 Million in Humanitarian Support for Tonga & USS Sampson Delivers Aid, <https://nz.usembassy.gov/tonga/>

694 Nostrant, Rachel. USS Sampson provides disaster relief to Tonga after volcano eruption, tsunami, <https://www.militarytimes.com/news/your-navy/2022/01/27/uss-sampson-provides-disaster-relief-to-tonga-after-volcano-eruption-tsunami/>

695 Mahadzir, Dzirhan. Aussie Big Deck Adelaide Suffers Power Outage During Tonga Aid Operations. USNI. <https://news.usni.org/2022/01/31/aussie-big-deck-adelaide-suffers-power-outage-during-tonga-aid-operations>

696 OCHA. Kingdom of Tonga: Hunga Tonga Hunga Ha’apai Volcanic Eruption: International Deployed Assets (As of 3rd March 2022), <https://reliefweb.int/report/tonga/kingdom-tonga-hunga-tonga-hunga-ha-apai-volcanic-eruption-international-deployed-2>

697 FORUM. U.S., allies continue lifesaving efforts to Tonga in volcano aftermath, <https://ipdefenseforum.com/2022/02/u-s-allies-continue-lifesaving-efforts-to-tonga-in-volcano-aftermath/>

698 Lt. Cmdr. Keiley, Joe. USS Sampson Supports Disaster Relief Efforts in Tonga with International Forces, <https://www.pacom.mil/Media/News/News-Article-View/Article/2913251/uss-sampson-supports-disaster-relief-efforts-in-tonga-with-international-forces/>

699 Mahadzir, Dzirhan. Aussie Big Deck Adelaide Suffers Power Outage During Tonga Aid Operations. USNI. <https://news.usni.org/2022/01/31/aussie-big-deck-adelaide-suffers-power-outage-during-tonga-aid-operations>

700 Ambassador Marie C. Damour (@USAmbSuva), Jan 26, 2022, 12:00 p.m. X. <https://twitter.com/USAmbSuva/status/1486458933971546114>

the GoT.⁷⁰¹

The USS Sampson had experience providing humanitarian assistance in the region, as the ship also supported relief efforts to affected populations following New Zealand’s Kaikoura earthquake in 2016. During that relief effort, the Sampson also worked with regional partners and allies as part of a multi-nation response, which included ships from New Zealand, Canada and Australia, and a P-1 aircraft from Japan. (Please see section “November 2016 – New Zealand: Kaikoura Earthquake” for more details on that response)



An MH-60R Sea Hawk Helicopter assigned to the “Scorpions” of Helicopter Maritime Strike Squadron (HSM) 49 hovers aboard the Arleigh Burke-class guided-missile destroyer USS Sampson (DDG 102), January 28, 2022.

U.S. Navy photo by Mass Communication Specialist 3rd Class Tristan Cookson
Source: <https://www.dvidshub.net/image/7027433/sampson-supports-tonga>

⁷⁰¹ HHS. Biden Administration Continues to Prioritize Response to the 2022 Hunga Tonga Volcano Eruption and Tsunami, <https://www.hhs.gov/about/news/2022/02/08/biden-administration-continues-prioritize-response-2022-hunga-tonga-volcano-eruption-tsunami.html>



February 2022

Australia: Queensland and New South Wales Floods

Background

Large portions of eastern Australia were impacted by torrential rainfall and flooding in early 2022. Record rainfall and storms began in late February 2022, with southeast portions of the state of Queensland (QLD) impacted first. The unusually heavy rainfall continued for weeks, made its way south, and began to affect northern parts of neighboring New South Wales (NSW) state. Both states were hit by several rounds of flash floods and river flooding. The floods also affected the major cities of Brisbane, the capital of Queensland, and Sydney, the capital of NSW. Tens of thousands of people were evacuated, with numerous people being rescued from their homes by boat or helicopter. Many homes and belongings were destroyed.^{702, 703} The rain that fell over Brisbane was described as a “rain bomb,” which reportedly dumped more water on the city than falls over London in an entire year, or some 80% of the region’s annual rainfall in just three days.⁷⁰⁴ More than 20,000 homes in Southeast Queensland and some 3,000 homes in the NSW town of Lismore were flooded.⁷⁰⁵ Media reports estimated at least 22 deaths from the rains and flooding⁷⁰⁶ in what was described as one of the nation’s most devastating disasters. In response to the destructive flooding, Prime Minister Scott Morrison declared a national emergency on March 9, 2022.^{707, 708}

According to Australia’s National Emergency Management Agency (NEMA), the unusually heavy rainfall was due to three intense weather systems that drove the flooding, which lasted until early April.⁷⁰⁹ In the last week of February, parts of southeast QLD and northeast NSW had rainfall 2.5 times their monthly average with some areas receiving more than five times their monthly average.⁷¹⁰ NEMA reported that by the end of the first week in March, southern Queensland and northern parts of NSW received more than a year’s worth of rainfall in one week.^{711, 712} It was also Queensland’s worst flooding since 2011.⁷¹³

After the first round of rains in late February and early March, an intense low-pressure system brought heavy rains to Australia’s east coast on March 30 and forced thousands to evacuate again. Torrential rains returned on April 7, with Sydney reportedly experiencing almost a month’s worth of rain overnight; thousands were forced to evacuate. The first three months of 2022 reportedly saw a year’s worth of rain in Sydney due to the record rainfall.⁷¹⁴

According to Australia’s Bureau of Meteorology, “the rainfall was the result of a combination of weather systems over eastern Australia and the Tasman Sea, where a large volume of humid tropical

702 Australian Red Cross. Queensland and New South Wales Floods Report February to June 2022, https://www.redcross.org.au/globalassets/cms/stories/floods-report-2022/floodreport_2022.pdf

703 Munich Re. Climate change and La Niña driving losses: the natural disaster figures for 2022, <https://reliefweb.int/report/world/climate-change-and-la-nina-driving-losses-natural-disaster-figures-2022>

704 Purtle James. NSW, Queensland floods on track to be among country’s worst-ever natural disasters, Climate Council says. ABC News. <https://www.abc.net.au/news/science/2022-03-10/floods-nsw-queensland-climate-change-worst-ever-natural-disaster/100894956>

705 IAG. Reflecting on the catastrophic floods one-year on, <https://www.iag.com.au/newsroom/community/anniversary-southeast-queensland-and-new-south-wales-floods-2022>

706 NASA. Australia Floods 2022, <https://appliedsciences.nasa.gov/what-we-do/disasters/disasters-activations/australia-floods-2022>

707 Ibid.

708 Disaster Philanthropy. Australian Flooding, <https://disasterphilanthropy.org/disasters/2022-australian-flooding/>

709 NEMA. One year on from the 2022 QLD and NSW floods, <https://nema.gov.au/2022-QLD-and-NSW-floods>

710 Bureau of Meteorology, Australia. Special Climate Statement 76 - Extreme rainfall and flooding in south-east Queensland and eastern New South Wales, February-March 2022, <https://media.bom.gov.au/releases/1014/special-climate-statement-76-extreme-rainfall-and-flooding-in-south-east-queensland-and-eastern-new-south-wales-february-march-2022/>

711 NEMA. One year on from the 2022 QLD and NSW floods, <https://nema.gov.au/2022-QLD-and-NSW-floods>

712 Disaster Philanthropy. Australian Flooding, <https://disasterphilanthropy.org/disasters/2022-australian-flooding/>

713 Ibid.

714 Ibid.



air moving onshore over eastern Australia was lifted in the atmosphere to produce heavy rain and thunderstorms.”⁷¹⁵ International reinsurance company Munich Re reported that for insurers, the floods were the second-costliest natural disaster globally in 2022, with overall losses estimated at roughly US\$6.6 billion.⁷¹⁶

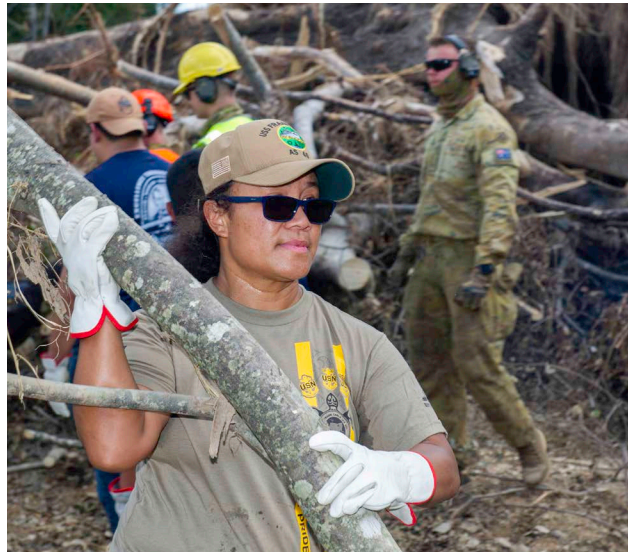
Among other responding Australian government entities, the Australian Defence Force (ADF) supported the QLD and NSW state governments under Operation Flood Assist 2022, which began on February 25, 2022.⁷¹⁷ The ADF’s initial response included helicopters and personnel from the Brisbane region supporting Queensland emergency services with helicopter search-and-rescue assistance. At the peak of the operation, more than 1,600 ADF personnel were available for tasking to provide community assistance to southeast Queensland.⁷¹⁸ During the operation, approximately 7,000 ADF personnel were available for tasking in QLD and NSW.⁷¹⁹

ADF personnel assisting southeast Queensland flood-affected areas returned home after state requests for assistance concluded on March 25. ADF personnel continued to assist communities in NSW into early April.⁷²⁰

Military personnel from Fiji, Singapore and the U.S. assisted the ADF with the flood response in northern NSW and southeast QLD. In northern NSW, Republic of Fiji Military Forces soldiers joined Australian Army engineers to rebuild access roads to the Upper Wilsons Creek community. Republic of Singapore Air Force transport aircraft delivered disaster assistance stores to Australia, and then Australian and Singaporean CH-47F Chinook helicopters flew the stores and troops into northern NSW, according to Australia’s Department of Defence.⁷²¹

U.S. Military Response

In response to the flood disaster, U.S. Navy personnel on a routine deployment volunteered to assist the ADF in mid-March 2022.⁷²² Sailors and Military Sealift Command (MSC) civil service mariners assigned to the Emory S. Land-class submarine tender USS Frank Cable (AS 40), known as the “Fighting Frank,”⁷²³



Chief Logistics Specialist Vivian Gapith, a U.S. Navy Sailor assigned to the USS Frank Cable, moves tree limbs alongside members of the Australian Defence Force in support of Operation Flood Assist, March 18. Sailors and Military Sealift Command civil service mariners worked side-by-side with Australian military forces to clear debris from impacted areas around Brisbane. U.S. Navy photo by Mass Communication Specialist 2nd Class Chase Stephens/Released
Source: <https://www.dvidshub.net/image/7100795/frank-cable-supports-operation-flood-assist>

⁷¹⁵ Bureau of Meteorology, Australia. Special Climate Statement 76 - Extreme rainfall and flooding in south-east Queensland and eastern New South Wales, February-March 2022, <https://media.bom.gov.au/releases/1014/special-climate-statement-76-extreme-rainfall-and-flooding-in-south-east-queensland-and-eastern-new-south-wales-february-march-2022/>

⁷¹⁶ Munich Re. Climate change and La Niña driving losses: the natural disaster figures for 2022, <https://reliefweb.int/report/world/climate-change-and-la-nina-driving-losses-natural-disaster-figures-2022>

⁷¹⁷ Department of Defence, Australia. Operation Flood Assist 2022, <https://www.defence.gov.au/news-events/news/2022-04-08/operation-flood-assist-2022>

⁷¹⁸ AVN. ADF support to South East Queensland flood response nears completion, <https://www.australianveterannews.com/post/adf-support-to-south-east-queensland-flood-response-nears-completion>

⁷¹⁹ Ibid.

⁷²⁰ Department of Defence, Australia. Operation Flood Assist 2022, <https://www.defence.gov.au/news-events/news/2022-04-08/operation-flood-assist-2022>

⁷²¹ ADF. ADF says thanks to our friends in Fiji, Singapore and the US, <https://www.youtube.com/watch?v=fV3X6F4XyY8>

⁷²² Ibid.

⁷²³ Dept. of Defence, Australia. US crew thanked for their help, <https://www.defence.gov.au/news-events/news/2022-03-24/us-crew-thanked-their-help>



assisted the ADF in Operation Flood Assist 2022.⁷²⁴

The Frank Cable's homeport is Apra Harbor in Guam. Part of its mission is to repair, rearm and re-provision submarines and surface vessels in the U.S. 7th Fleet area of operations in the Indo-Pacific region.⁷²⁵ It had departed Guam on March 1 and was headed to Australia for a planned visit.⁷²⁶

As an additional part of its mission, the Frank Cable was on patrol in the Pacific where it was conducting expeditionary maintenance and logistics in support of national security in the U.S. 7th Fleet area of operations, according to the U.S. Department of Defense (DOD).⁷²⁷ The

submarine tender's first scheduled port visit on its deployment was to Brisbane, where it arrived on March 14.⁷²⁸ U.S. military personnel on the ship were ready to assist with flood relief efforts the day after the ship docked.⁷²⁹

"We provide manpower, maintenance and logistics support, which we will specifically coordinate with the Australian Defence Force counterparts to determine where to best employ our crew," the Frank Cable's commanding officer Captain Albert Alarcon said ahead of relief efforts.⁷³⁰ According to Alarcon, the crew allocated the first four days of the visit to assisting with the clean-up,⁷³¹ and more than 200 personnel from the Frank Cable volunteered to assist ADF personnel.⁷³²

The sailors and MSC civil service mariners worked alongside Australian military members in affected areas around Brisbane, where they moved tree limbs and branches and cleared brush and other debris in areas impacted by the widespread flooding.⁷³³ Personnel also assisted the Australian Navy and Maritime Safety Queensland personnel with cleaning up the Brisbane River.⁷³⁴ The U.S. military personnel joined ADF personnel along Kedron Brook in Mitchelton, QLD, where they helped clean up flood debris in parks



A U.S. Navy Sailor assigned to the USS Frank Cable, and a member of the Australian Defence Force clear flood debris from impacted areas around Brisbane during Operation Flood Assist, March 16, 2022. U.S. Navy photo by Mass Communication Specialist Seaman Wendy Arauz/Released Source: <https://www.dvidshub.net/image/7098278/frank-cable-supports-operation-flood-assist>

724 U.S. Navy, March 22, 2022. #Operation Flood Assist22, <https://www.facebook.com/USNavy/posts/operationfloodassist22-sailors-assigned-to-the-emory-s-land-class-submarine-tend/333567232141415/>

725 USS Frank Cable Returns from Patrol, <https://guam.stripes.com/spotlight/uss-frank-cable-returns-patrol>

726 Ibid.

727 DVIDS. Frank Cable Supports Operation Flood Assist, <https://www.dvidshub.net/image/7100795/frank-cable-supports-operation-flood-assist>

728 DVIDS. Frank Cable Arrives in Brisbane, Australia, <https://www.dvidshub.net/image/7096462/frank-cable-arrives-brisbane-australia>

729 USS Frank Cable Returns from Patrol, <https://guam.stripes.com/spotlight/uss-frank-cable-returns-patrol>

730 9news. US Navy pitches in to help Queensland flood recovery, <https://www.9news.com.au/national/queensland-floods-clean-up-us-navy-arrives-in-brisbane-to-help-recovery/ee5939d5-b065-4a75-84ff-8765e48de732>

731 ADF. ADF says thanks to our friends in Fiji, Singapore and the US, <https://www.youtube.com/watch?v=fv3X6F4XyY8>

732 USS Frank Cable Returns from Patrol, <https://guam.stripes.com/spotlight/uss-frank-cable-returns-patrol>

733 U.S. Navy, March 22, 2022. #Operation Flood Assist22, <https://www.facebook.com/USNavy/posts/operationfloodassist22-sailors-assigned-to-the-emory-s-land-class-submarine-tend/333567232141415/>

734 9news. US Navy pitches in to help Queensland flood recovery, <https://www.9news.com.au/national/queensland-floods-clean-up-us-navy-arrives-in-brisbane-to-help-recovery/ee5939d5-b065-4a75-84ff-8765e48de732>



and along walkways and bike paths.⁷³⁵ The crew also helped the ADF with Brisbane’s largest clean-up at Teralba Park in Everton Park.⁷³⁶ Brisbane Mayor Adrian Schrinner later presented the Brisbane city flag to the crew of the “Fighting Frank” in recognition of the volunteer efforts.⁷³⁷

“Our ship is very honored to be given the opportunity to support the local Brisbane community,” Captain Alarcon said. “The crew has a very high level of volunteerism and interest in public support, so when offered the opportunity to help out, it resonated across the deck fleet.” The visit was coordinated with the support of the state governments and Australian Border Force.⁷³⁸

After providing assistance alongside the ADF, the Frank Cable departed Brisbane on March 25 to head to Sydney, the capital of NSW,⁷³⁹ and then to the Australian Naval Base HMAS Stirling on Garden Island, located off the coast of Perth, the capital of Western Australia. The ship returned to its homeport in Guam on May 16, 2022.⁷⁴⁰



U.S. Navy Sailors assigned to the Emory S. Land-class submarine tender USS Frank Cable (AS 40), move tree limbs alongside members of the Australian Defence Force in support of Operation Flood Assist 2022, March 18.

U.S. Navy photo by Mass Communication Specialist 2nd Class Chase Stephens/Released

Source: <https://www.dvidshub.net/image/7100794/frank-cable-supports-operation-flood-assist>

⁷³⁵ ADF. ADF says thanks to our friends in Fiji, Singapore and the US, <https://www.youtube.com/watch?v=fV3X6F4XyY8>

⁷³⁶ Katie. U.S. Navy on Deck for Kedron Brook Clean Up. EchoNews. <https://echo-news.com.au/u-s-navy-on-deck-for-kedron-brook-clean-up/>

⁷³⁷ Dept. of Defence, Australia. US crew thanked for their help, <https://www.defence.gov.au/news-events/news/2022-03-24/us-crew-thanked-their-help>

⁷³⁸ Dept. of Defence, Australia. US Navy crew helps clean up, <https://www.defence.gov.au/news-events/news/2022-03-18/us-navy-crew-helps-clean>

⁷³⁹ DVIDS. Frank Cable Departs Brisbane Australia, <https://www.dvidshub.net/image/7111180/frank-cable-departs-brisbane-australia>

⁷⁴⁰ USS Frank Cable Returns from Patrol, <https://guam.stripes.com/spotlight/uss-frank-cable-returns-patrol>

July 2023

Philippines: Typhoon Doksuri (locally known as Typhoon Egay)

Background

At approximately 3:10 a.m. local time on July 26, 2023, Typhoon Doksuri (locally known in the Philippines as Egay), made landfall in the vicinity of remote northern Fuga Island, which is administratively part of Aparri Municipality, Cagayan Province.⁷⁴¹ The 700-kilometer- (435-mile-) wide super typhoon had wind gusts up to 235 kilometers per hour (kph; 146 miles per hour, or mph), battered 15 municipalities, and spurred local governments to declare a province-wide state of calamity.⁷⁴² The storm had intensified rapidly, becoming a severe tropical storm on July 23 with maximum wind speeds of 87-117 kph (54-73 mph) and a super typhoon on July 25 with maximum wind speeds exceeding 185 kph (115 mph), as categorized by the Philippine Atmospheric, Geophysical, and Astronomical Services Association.⁷⁴³ Doksuri / Egay made landfall with winds of about 220 kph (140 mph), equivalent to a category 4 Atlantic hurricane. The typhoon then slowly moved north-northwest from Fuga to nearby Dalupiri Island, where it made landfall on July 26. It maintained its strength as it continued west-northwest and on July 27 exited the Philippine Area of Responsibility.⁷⁴⁴

The tropical cyclone resulted in the deaths of at least 39 people in the Philippines. At least 13 people were killed as the typhoon brought flooding to five regions and triggered more than a dozen rain-induced landslides.⁷⁴⁵ Another 26 people died on July 27 after a boat capsized close to reaching Talim Island, southeast of the capital Manila, according to the Philippine Coast Guard (PCG, Tanod Baybayin ng Pilipinas).⁷⁴⁶ Additionally, another 52 people were reportedly injured, almost 313,000 people displaced,⁷⁴⁷ and a reported 974,454 families (or 3,617,340 persons) affected in 5,678 barangays in the following regions: NCR (National Capital Region/ Metro Manila), I (Ilocos), II (Cagayan Valley), III (Central Luzon), Calabarzon, Mimaropa, V (Bicol), VI (Western Visayas), VII (Central Visayas), VIII (Eastern Visayas), XI (Davao), XII (Soccsksargen), CAR (Cordillera Administrative Region), and BARMM (Bangsamoro Autonomous Region in Muslim Mindanao).⁷⁴⁸ Among those affected, at least 15,566 families (57,281 individuals) sought shelter in 763 evacuation centers.

Doksuri triggered rainfall in parts of Southern Luzon, Visayas, and Mindanao, as it intensified the effect of the Southwest Monsoon or Habagat, which brings seasonal wind, heavy rainfall and storms from the southwest direction from May to September. More than 38,855 houses were damaged across the regions of Ilocos, Cagayan Valley, Central Luzon, Calabarzon, Mimaropa, Bicol, Western Visayas, Northern Mindanao, Soccsksargen (formerly Central Mindanao), Bangsamoro, and the Cordillera Administrative

⁷⁴¹ Magramo, Kathleen. Typhoon Doksuri kills at least five as Philippines battles floods and landslides, CNN, 26 July 2023. <https://www.cnn.com/2023/07/25/asia/philippines-typhoon-doksuri-egay-landfall-intl-hnk/index.html>

⁷⁴² 2nd Lt. Madison Walls. U.S. Marines Answer the Call | 3rd Marine Aircraft Wing Conducts Typhoon Egay Relief Efforts in the Philippines, U.S. Marine Corps, 7 August 2023. <https://www.marines.mil/News/News-Display/Article/3485048/us-marines-answer-the-call-3rd-marine-aircraft-wing-conducts-typhoon-egay-relief/>

⁷⁴³ Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), About Tropical Cyclones. <https://bagong.pagasa.dost.gov.ph/information/about-tropical-cyclone>

⁷⁴⁴ DSWD DROMIC Report #51 on the Effects of Southwest Monsoon and Super Typhoon “Egay” as of 06 October 2023, 6PM, ReliefWeb, <https://reliefweb.int/report/philippines/dswd-dromic-report-51-effects-southwest-monsoon-and-super-typhoon-egay-06-october-2023-6pm>

⁷⁴⁵ Philippines National Disaster Risk Reduction and Management Council. SitRep No. 8 for the Combined Effects of Southwest Monsoon and TC EGAY (2023): 28 July 2023 08:00. https://ndrrmc.gov.ph/attachments/article/4234/SitRep_No_8_for_the_Combined_Effects_of_Southwest_Monsoon_and_TC_EGAY_2023.pdf

⁷⁴⁶ Magramo, Kathleen, Duarte Mendonca, Alex Stambaugh, Wayne Chang, and Caolán Magee. Typhoon Doksuri (Egay) lashes China's Fujian province after leaving 39 dead in the Philippines, CNN, 28 July 2023. <https://www.cnn.com/2023/07/28/asia/typhoon-doksuri-china-landfall-intl-hnk/index.html>

⁷⁴⁷ Philippines, Taiwan, China - Tropical cyclone DOKSURI, update (DG ECHO, GDACS, CMA - China Meteorological Administration, PAGASA, NDRRMC, media) (ECHO Daily Flash of 31 July 2023), ReliefWeb, 31 July 2023. <https://reliefweb.int/report/philippines/philippines-taiwan-china-tropical-cyclone-doksuri-update-dg-echo-gdacs-cma-china-meteorological-administration-pagasa-ndrrmc-media-echo-daily-flash-31-july-2023>

⁷⁴⁸ DSWD & DROMIC. Effects of Southwest Monsoon and Typhoon Egay [21 July 2023], DROMIC, 6 October 2023. <https://dromic.dswd.gov.ph/severe-tropical-storm-egay-21-july-2023/#20231007-080606>

Region. The typhoon also caused up to PHP 1.36 billion (US\$24.4 million) in crop loss and agricultural damage that impacted more than 91,268 farmers. Infrastructure and transportation systems in the affected areas sustained significant damage, with 397 road sections and 33 bridges affected. Additionally, power supply was disrupted in 306 cities or municipalities.⁷⁴⁹

The response to Typhoon Doksuri was civilian led by Philippine government agencies. These agencies included the National and Provincial Disaster Risk Reduction and Management Offices, the Department of Social Welfare and Development, Office of Civil Defense, Department of Health, and Department of Human Settlements and Urban Development, which were all involved in

coordinating response efforts and providing relief supplies following the typhoon. These Philippine civilian government agencies provided the vast majority of the relief supplies that reached affected areas.

The Philippine Red Cross (PRC) supported government efforts and mobilized 2,130 personnel for the response operation across Luzon. The International Federation of Red Cross and Red Crescent Societies (IFRC) supported the PRC in response operations and also provided coordination among other participating National Societies that supported the PRC.⁷⁵⁰ The international response was not on a large enough scale to spur a collective response from the Humanitarian Country Team. However, individual United Nations (UN) agencies and other organizations that already had an established country presence or strong relationships engaged in responding to the situation.

In support of the civilian-led response in the Philippines, various units of the Armed Forces of the Philippines (AFP) conducted disaster response operations in areas hit by Typhoon Doksuri; these operations included evacuations of populations at risk, Search-and-Rescue, and delivery of relief goods, among many other tasks. On July 25, the Philippine Army mobilized its Disaster Response Units (DRU), as well as military equipment and assets for deployment, transportation assistance and evacuation.⁷⁵¹

The AFP stated on 26 July that it had deployed its DRUs to rescue thousands of individuals from vulnerable areas in various parts of the country. The DRUs, comprised of personnel from the Philippine Army, Philippine Navy, and Philippine Air Force, assisted local government units in the evacuation of typhoon-affected residents.⁷⁵²

Among other taskings, the AFP reported that 350 Search, Rescue and Retrieval (SRR) teams, led by the AFP's Northern Luzon Command (NOLCOM), were deployed to typhoon-hit areas in Northern



U.S. Marines with 3d Marine Littoral Regiment, 3d Marine Division, assist with offloading equipment provided by the Government of the Philippines, while conducting relief efforts in the wake of Typhoon Egay, international name Typhoon Doksuri at Laoag International Airport, July 29, 2023. U.S. Marine Corps Photo by 1st Lt. Erin Scudder
Source: <https://www.dvidshub.net/image/7945192/marines-conduct-relief-efforts-wake-typhoon-egay>

749 IFRC. Philippines Super Typhoon Doksuri - DREF Operation (MDRPH052), ReliefWeb, 7 August 2023. <https://reliefweb.int/report/philippines/philippines-super-typhoon-doksuri-dref-operation-mdrph052>

750 IFRC. Philippines Super Typhoon Doksuri - DREF Operation (MDRPH052), ReliefWeb, 6 August 2023. <https://reliefweb.int/report/philippines/philippines-super-typhoon-doksuri-dref-operation-mdrph052>

751 Photo: <https://www.facebook.com/photo/?fbid=651065627055851&set=pcb.651066013722479> Philippine Army. Humanitarian Assistance and Disaster Response | The Philippine Army has mobilized yesterday, July 25 its Disaster Response Unit, AFP Facebook, 25 July 2023. <https://www.facebook.com/armedforcesofthephilippines/>

752 Sadongdong, Martin. AFP rescues thousands of typhoon-hit residents, Manila Bulletin, 25 July 2023. <https://mb.com.ph/2023/7/25/afp-rescues-thousands-of-typhoon-hit-residents>

Luzon. The teams, comprised of 1,992 highly trained SRR personnel, 813 Civilian Active Auxiliary, and 197 reservists, provided aid to affected communities.⁷⁵³ In other examples of AFP relief efforts, by July 29, the Philippine Navy reported that it had dispatched 27 Disaster Response and Rescue Teams throughout its Naval Forces Northern Luzon area of responsibility in Cagayan, Ilocos Norte, and Ilocos Sur.⁷⁵⁴ Overall, the AFP provided extensive support throughout the Government of the Philippines response to the typhoon.

U.S. Military Response

Following the conclusion of the Marine Aviation Support Activity 23 (MASA 23) exercise, U.S. Department of Defense (DOD) personnel on the ground in the Philippines were re-tasked to provide logistical and transportation support to the typhoon response efforts. The MASA 23 exercise took place in the Philippines July 6-21, 2023, with U.S. Marines and Sailors from the First and Third Marine Expeditionary Force (I and III MEF) working with the Philippines Marine Corps.⁷⁵⁵ MV-22B Ospreys and CH-53E Super Stallions from Marine Medium Tiltrotor Squadron 163 (VMM-163) deployed to Antonio Bautista Air Base for exercise activities held at Puerto Princesa, Palawan.⁷⁵⁶ Bautista Air Base is one of nine Enhanced Defense Cooperation Agreement (EDCA) sites at Philippine military bases, where U.S. troops and equipment have facilitated access and the U.S. assists with infrastructure upgrades to enhance capabilities. (Please see box inset for more information on EDCA sites)

Between July 25 and 28, there were various discussions on whether there would be an official request for assistance, which, if approved, would have seen the U.S. Agency for International Development's (USAID) Bureau of Humanitarian Assistance (BHA) play the lead coordinating role for the U.S. government response, per U.S. policy. However, the Government of the Philippines did not make an official request through its Department of Foreign Affairs to the U.S. Embassy. The national government assessed that it generally had the capacity to handle the response.

The Philippines Secretary of Defense Gilberto C. Teodoro, Jr., who had previous experience working with the U.S., was aware that U.S. forces were already in the country for an exercise. On July 28, a request for U.S. military assistance was sent from AFP staff to U.S. DOD via the Joint U.S. Military Assistance Group, Philippines (JUSMAGPHIL) at Camp Aguinaldo. This direct request largely influenced military-military coordination that featured prominently in this response operation.⁷⁵⁷ U.S. DOD determined it could assist AFP, and authority to support the disaster response was ultimately granted, referencing Commander's immediate response. In accordance with DOD Directive (DODD) 5100.46, the colloquially known "72-hour authority" or "life and limb clause" allows commanders with assigned forces at or near the immediate scene of a foreign disaster to take prompt action to save human lives.⁷⁵⁸ On July 30, USINDOPACOM J3 gave a verbal order to Marine Forces Pacific (MARFORPAC) and JUSMAGPHIL to provide support to AFP for a 72-hour period, commencing from the beginning of the first flight, which departed on July 31 at 14:30.

At the request of the AFP, VMM-163 (Reinforced), Marine Aircraft Group 16 (MAG-16), 3rd Marine

753 Philippine Army. Humanitarian Assistance and Disaster Response | Various units of the AFP, AFP Facebook, 26 July 2023. <https://www.facebook.com/armedforcesofthephilippines/>

754 Philippine Navy. AT YOUR SERVICE | PH #Navy in Northern Luzon carries out HADR Ops, PN Facebook, 29 July 2023. <https://www.facebook.com/PhilippineNavy>

755 Franquez, Oscar. Strengthening Alliances: U.S. Marines return to the Philippines for MASA 23, USINDOPACOM, 10 July 2023. <https://www.pacom.mil/Media/News/News-Article-View/Article/3453698/strengthening-alliances-us-marines-return-to-the-philippines-for-masa-23/>

756 Lariosa, Aaron-Matthew. U.S., Philippines Forces Training in Tandem as Countries' Alliance Expands, USNI News, 18 July 2023. <https://news.usni.org/2023/07/18/u-s-philippines-forces-training-in-tandem-as-countries-alliance-expands>

757 While this was not strictly a military-military activity in the sense that AFP operated in support of Philippine civilian government agencies, DoD involvement did rely heavily on military-military interaction as the U.S. and Philippine militaries worked closely together throughout the operation.

758 DoD. Department of Defense Directive 5100.46, July 6, 2012, Incorporating Change 1, July 28, 2017, Washington Headquarters Service. <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/510046p.pdf>



A U.S. Marine Corps MV-22B Osprey with Marine Medium Tiltrotor Squadron (VMM) 163 (Reinforced), Marine Aircraft Group 16, 3rd Marine Aircraft Wing is offloaded by U.S. Marines and Filipino citizens in support of emergency relief efforts in the wake of Typhoon Egay, international name Typhoon Doksuri, on Fuga Island, Philippines, Aug. 3, 2023.

U.S. Marine Corps photo by Sgt. Sean Potter

Source: <https://www.dvidshub.net/image/7951967/us-marines-and-philippine-allies-conclude-relief-efforts-fuga-island-wake-typhoon-egay>

Aircraft Wing (3rd MAW), and I MEF were tasked to support relief efforts in the northern Philippines. A reported 35 Marines and Sailors, four MV-22B Ospreys, and four CH-53E Super Stallions transitioned from preparing to redeploy to Marine Corps Air Station Miramar, California, from the Philippines, after completing MASA-23, to supporting relief efforts in response to Typhoon Doksuri. The unit was re-tasked on July 30 and, within 24 hours, all eight aircraft were airborne from Antonio Bautista Air Base, Puerto Princesa, Palawan, to Subic Bay International Airport to begin loading and delivering relief supplies that were provided by the Government of the Philippines.⁷⁵⁹

Initially, three of the CH-53s had to divert to the Danilo Atienza Air Base at Sangley Point across the bay from Manila, as the weather at Subic was not conducive to landing. However, all aircraft made it to Subic by August 1.

During the three days of relief efforts, VMM-163 delivered approximately 64,000 pounds of food and water, provided by the Government of the Philippines, to remote, affected communities.⁷⁶⁰ Supplies were flown across 3,900 nautical miles to affected communities as far away as the remote Batanes Islands located north of Luzon in the Philippine Sea.⁷⁶¹

Additionally, the U.S. military provided maritime search-and-rescue support for four PCG personnel who went missing July 26, the day Doksuri made landfall. ⁷⁶² U.S. Marines utilized MV-22s starting around July 31 as they returned from Basco, Batanes,⁷⁶³ to support the PCG's search-and-rescue efforts over Babuyan and Camiguin Islands, also north of Luzon.⁷⁶⁴

Challenges to the response effort included weather and refueling issues. Inclement weather hampered operations during August 1-2. The weather delayed an MV-22, which had transited to Lal-lo, in Cagayan Province, for fuel but was unable to proceed to the logistics hubs at Tuguegarao or Vigan, both also in Cagayan, as both airfields were temporarily closed due to weather. Fueling was also a challenge at the smaller airports. Aircraft were unable to refuel at Laoag, Ilocos Norte, as the airport was not prepared to deal with the sudden influx of U.S. military aircraft. Many regional airports in the Philippines only maintain enough fuel to service scheduled domestic flights. Therefore, the MV-22 refueled at Lal-lo

⁷⁵⁹ 2nd Lt. Madison Walls. U.S. Marines Answer the Call: 3rd Marine Aircraft Wing Conducts Typhoon Egay Relief Efforts in the Philippines, U.S. Marine Corps, 7 August 2023. <https://www.marines.mil/News/News-Display/Article/3485048/us-marines-answer-the-call-3rd-marine-aircraft-wing-conducts-typhoon-egay-relief/>

⁷⁶⁰ <https://www.dvidshub.net/image/7951973/us-marines-and-philippine-allies-conclude-relief-efforts-fuga-island-wake-typhoon-egay>

⁷⁶¹ 2nd Lt. Madison Walls. U.S. Marines Answer the Call: 3rd Marine Aircraft Wing Conducts Typhoon Egay Relief Efforts in the Philippines, U.S. Marine Corps, 7 August 2023. <https://www.marines.mil/News/News-Display/Article/3485048/us-marines-answer-the-call-3rd-marine-aircraft-wing-conducts-typhoon-egay-relief/>

⁷⁶² CNN Philippines. Missing tugboat crew found safe in Camiguin, 29 July 2023. <https://www.cnnphilippines.com/news/2023/7/29/seven-crew-members-tugboat-found-Cagayan-.html>

⁷⁶³ Email communication with Michael Wylie, CFE-DM DMHA Advisor who supported DoD efforts.

⁷⁶⁴ USEMB. The Enhanced Defense Cooperation Agreement (EDCA) increases ability to respond, Facebook, 1 August 2023. <https://www.facebook.com/USEmbassyPH/>

Airport, where the fuel was delivered in barrels and hand-pumped into the aircraft.⁷⁶⁵ Lal-lo served as an important refueling station for U.S. military aircraft carrying the relief supplies.⁷⁶⁶ The I MEF Multinational Logistics Officer worked with the AFP to procure additional fuel using the Military Logistics Support Agreement between the U.S. and the Philippines.

Lal-lo Airport played an important role in the operation. At Lal-lo, 1,200 food packs and 56 solar panels were loaded onto U.S. aircraft, a V-22 Osprey and a CH-53 Sea Stallion, for transport onward to Fuga and Calayan islands. Lal-lo is significant for being an EDCA site where U.S. military aircraft refueled, and Defense Secretary Teodoro and AFP Chief of Staff General Romeo S. Brawner, Jr., both personally visited the site during operations. As Lal-lo had been designated an EDCA site in April 2023, its use shined a spotlight on the role of EDCA sites in boosting disaster response capabilities and fostering mutual assistance.

EDCA sites are jointly agreed upon facilities where the U.S. invests in infrastructure and capacity development and the Philippines allows access to U.S. troops to enhance mutual security cooperation. The boxed inset explains more about the significance of EDCA:



U.S. Marines with 3d Marine Littoral Regiment, 3d Marine Division, provide road clearing assistance while conducting relief efforts in the wake of Typhoon Egay, international name Typhoon Doksuri at Laoag International Airport, July 29, 2023.

U.S. Marine Corps Photo by 1st Lt. Erin Scudder

Source: <https://www.dvidshub.net/image/7945200/marines-conduct-relief-efforts-wake-typhoon-egay>

ENHANCED DEFENSE COOPERATION AGREEMENT (EDCA)

Lal-lo, which was used for transit, refueling, and other air logistics support in the Typhoon Doksuri / Egay response, was identified in April 2023 as an EDCA site, agreed upon between the Philippines and the U.S.

The Philippines has operated five EDCA base locations since 2014, with four new sites, including Lal-lo, announced in 2023. The five original EDCA sites are Fort Magsaysay in Nueva Ecija, Basa Air Base in Pampanga, Antonio Bautista Air Base in Palawan, Mactan-Benito Abuen Air Base in Cebu, and Lumbia Air Base in Cagayan de Oro.⁷⁶⁷

The 2014 Enhanced Defense Cooperation Agreement enables the U.S. and Philippine militaries to train together, better respond to natural and humanitarian crises, and achieve modernization goals. To achieve this, EDCA provides a legal basis for Philippine and U.S. service members to undertake security cooperation exercises, pursue joint and combined military training activities, and rapidly respond to humanitarian assistance efforts from agreed locations in the Philippines, on a rotational basis. EDCA sites have been used by U.S. and Philippine forces during the annual Kamandag and Balikatan military

⁷⁶⁵ Email communication with Michael Wylie, CFE-DM DMHA Advisor who supporting JUSMAGPHIL during the operation.

⁷⁶⁶ USEMB Philippines. The Enhanced Defense Cooperation Agreement (EDCA), Facebook, 1 August 2023. <https://www.facebook.com/USEmbassyPH/>

⁷⁶⁷ 351st Civil Affairs Command Functional Specialty Team (FXSP). Philippines Country Study, 6 August 2023.

exercises.⁷⁶⁸

The Philippines has sovereignty and control over EDCA sites. The U.S. and the Philippines decide upon EDCA locations together, with Philippine leadership granting final approval. The U.S. has allocated over US\$82 million towards EDCA implementation at all five existing locations to support 21 projects and enable the U.S. and the Philippines to build lasting security infrastructure to promote long-term modernization, build a credible mutual defense posture, maintain humanitarian assistance and disaster relief capabilities, and enhance the strength of the alliance. The U.S. has awarded the majority of contracts supporting these projects to Philippine companies, thereby generating local economic growth.⁷⁶⁹ This work includes the following projects at the 2014 sites:

- Fort Magsaysay, Nueva Ecija (US\$11.4 million allocated)
 - Humanitarian assistance and disaster response warehouse
 - Command and control infrastructure
 - Urban combat training facilities
- Basa Air Base, Pampanga (US\$66.57 million allocated)
 - Humanitarian assistance and disaster response warehouse
 - Command and control infrastructure
 - Fuel storage
 - Runway improvements
 - Aircraft parking
- Antonio Bautista Air Base, Palawan (US\$1.8 million allocated)
 - Ammunition warehouse
 - Storage warehouse renovation
 - Fuel storage
 - Command and control infrastructure
- Mactan-Benito Abuen Air Base, Cebu (US\$2.7 million allocated)
 - Fuel storage facility
- Lumbia Air Base, Cagayan de Oro (US\$3.7 million allocated)
 - Humanitarian assistance and disaster response warehouse
 - Runway lighting improvements⁷⁷⁰

The 2023 addition of new EDCA locations allowed for more rapid support for humanitarian and climate-related disasters in the Philippines and for better response to other shared challenges. The enhanced cooperation under the EDCA aims to strengthen interoperability, including through infrastructure improvements; enhanced joint use of facilities; advancement of additional maritime security, maritime domain awareness; and humanitarian assistance and disaster relief capabilities.⁷⁷¹

⁷⁶⁸ The United States and the Republic of the Philippines Bilateral Defense Guidelines, U.S. Department of Defense, 3 May 2023. <https://media.defense.gov/2023/May/03/2003214357/-1/-1/0/THE-UNITED-STATES-AND-THE-REPUBLIC-OF-THE-PHILIPPINES-BILATERAL-DEFENSE-GUIDELINES.PDF>

⁷⁶⁹ Government of the U.S., White House. FACT SHEET: Vice President Harris Launches New Initiatives to Strengthen U.S.-Philippines Alliance, 20 November 2022. <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/20/fact-sheet-vice-president-harris-launches-new-initiatives-to-strengthen-u-s-philippines-alliance/>

⁷⁷⁰ U.S. Embassy in the Philippines. Enhanced Defense Cooperation Agreement (EDCA) Fact Sheet, 20 March 2023. <https://ph.usembassy.gov/enhanced-defense-cooperation-agreement-edca-fact-sheet/>

⁷⁷¹ U.S. Department of Defense. FACT SHEET: U.S.-Philippines Bilateral Defense Guidelines, 3 May 2023. <https://www.defense.gov/News/Releases/Release/Article/3383607/fact-sheet-us-philippines-bilateral-defense-guidelines/>

The Typhoon Doksuri response was unique for the U.S. as the DOD responded to the AFP's direct request for assistance through JUSMAGPHIL, in contrast with typical U.S. foreign disaster relief, which is coordinated by the USAID/BHA. The request coincided with U.S. military personnel already being present in the Philippines for the bilateral MASA-23 exercise on Palawan, and this presence allowed for support to be provided before they redeployed out of the country. The U.S. Embassy in the Philippines did not issue a declaration of humanitarian

need following Typhoon Doksuri, but this step would start the typical U.S. process and whole-of-government response for foreign disaster relief led by BHA, as was done in the Philippines following the Mayon Volcano eruption in June 2023, multiple tropical storms in 2022, and Super Typhoon Rai (Odette) in December 2021.⁷⁷² Instead, during Doksuri, the U.S. DOD utilized the 72-hour Commander's immediate response authority to provide assistance, which was executed from July 31 to August 3, 2023.

The DOD supported relief efforts in the Philippines by providing airlift of relief goods and supporting search-and-rescue efforts. Four MV-22B Ospreys, four CH-53E Super Stallions, and 35 Marines and Sailors supported the response to Doksuri. During the three days of relief efforts, VMM-163 transported approximately 64,000 pounds of food and water, supplied by the Government of the Philippines. The U.S. military refueled in coordination with the Philippines government at expeditionary locations, including Lal-lo Airfield, which was notable for being one of the more newly designated EDCA sites.

Note: This section has been excerpted from and based on "CFE-DM Case Study No. 11: U.S. Military Response to Typhoon Doksuri/Egay in the Philippines." Please see this case study for additional information on the DOD response to the typhoon. The publication is available to view and download at: cfe-dmha.org/LinkClick.aspx?fileticket=y8eq6AbXJFU%3d&portalid=0



A U.S. Marine Corps CH-53E Super Stallion with Marine Medium Tiltrotor Squadron (VMM) 163 (Reinforced), Marine Aircraft Group 16, 3rd Marine Aircraft Wing is offloaded by U.S. Marines and Filipino citizens in support of emergency relief efforts in the wake of Typhoon Egay, international name Typhoon Doksuri, on Fuga Island, Philippines, Aug. 3, 2023. U.S. Marine Corps photo by Sgt. Sean Potter
Source: <https://www.dvidshub.net/image/7951960/us-marines-and-philippine-allies-conclude-relief-efforts-fuga-island-wake-typhoon-egay>

⁷⁷² USAID/BHA. Philippines Assistance Overview, October 2023. https://www.usaid.gov/sites/default/files/2023-10/USAIDBHA_Philippines_Assistance_Overview-October_2023.pdf

July 2023

Papua New Guinea: Mount Bagana Eruption

Background

On July 7, 2023, Mount Bagana, an active volcano located on central Bougainville Island in the Autonomous Region of Bougainville (ARB), in eastern Papua New Guinea (PNG), erupted. Bagana spewed an ash column that reached 16-18 kilometers (52,500–59,100 feet) high, according to the United Nations Country Team in PNG (UNCT PNG).⁷⁷³ The volcanic eruption emitted ash, gas, steam plumes and lava flows, and caused significant ashfall on communities. After the eruption occurred, an aviation color code red was issued by the Volcanic Ash Advisory Centre (VAAC) in Darwin, Australia.⁷⁷⁴ The Rabaul Volcano Observatory (RVO), PNG's national observatory responsible for monitoring geological hazards, including volcano eruptions, initially recommended a Stage 3 Alert; however, this alert was downgraded to a Stage 2 Alert (on a four-level scale),⁷⁷⁵ indicating the risk level was low-to-medium in areas close to the volcano.⁷⁷⁶

A second and third volcanic eruption occurred on July 15 and 17, 2023. The Autonomous Bougainville Government (ABG), in coordination with the RVO, reported increased seismic activity in the area. Areas impacted included Torokina, Wakunai, and Kunua districts in South, Central, and North Bougainville, respectively. Ashfall reportedly polluted drinking water sources and caused widespread damage to food gardens within the affected communities.⁷⁷⁷ For context, Mount Bagana has been erupting almost continuously, but not explosively, since February 2000.⁷⁷⁸ According to the National Aeronautics and Space Administration (NASA) Earth Observatory, Mount Bagana exudes several thousand tons of noxious pollutants per day.⁷⁷⁹

Bougainville is located roughly 965 kilometers (600 miles) northeast of PNG's capital, Port Moresby, and is home to some 300,000 people.⁷⁸⁰ Mount Bagana lies roughly in the center of Bougainville,



Displaced Bougainville villagers alongside U.S. Marines with the 31st Marine Expeditionary Unit and other non-governmental organizations move offload aid supplies during a humanitarian assistance and disaster relief operation on Bougainville Island, Papua New Guinea, Aug. 12, 2023. U.S. Marine Corps photo by Gunnery Sgt. J. R. Heins
Source: <https://www.dvidshub.net/image/7969131/31st-meu-supports-humanitarian-efforts-papa-new-guinea>

⁷⁷³ UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

⁷⁷⁴ Ibid.

⁷⁷⁵ Smithsonian Institution, National Museum of Natural History, Global Volcanism Program. Bagana. <https://volcano.si.edu/volcano.cfm?vn=255020>

⁷⁷⁶ UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

⁷⁷⁷ IOM. Papua New Guinea: Mt. Bagana Volcano Eruption Response, Autonomous Region of Bougainville - Situation Report, 15 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-response-autonomous-region-bougainville-situation-report-15-august-2023>

⁷⁷⁸ Smithsonian Institution, National Museum of Natural History, Global Volcanism Program. Bagana. <https://volcano.si.edu/volcano.cfm?vn=255020>

⁷⁷⁹ Lawrence, Drew. Marines Tapped to Aid Papua New Guinea in Wake of Volcanic Activity. Military.com. Aug. 9, 2023. <https://www.military.com/daily-news/2023/08/09/marines-tapped-aid-papua-new-guinea-wake-of-volcanic-activity.html>

⁷⁸⁰ Nieberg, Patty. Marines dodged fog, ash and typhoons in volcano response mission. Task and Purpose. Jan. 4, 2024. <https://taskandpurpose.com/news/marine-expeditionary-unit-bougainville-volcano/>



which is mostly covered in dense jungles.⁷⁸¹ The volcano initially affected more than 6,300 people living in Torokina and Wakunai districts and had the potential to affect up to 17,000 people living near the volcano's crater, according to the ABG and the humanitarian organization CARE.⁷⁸² The eruption eventually impacted more than 12,000 people.⁷⁸³

Although there were no initial reports of casualties, as of July 18, ashfall was reported in all 12 wards in Torokina District, where an estimated 8,111 people were affected. Heavy ashfall was also reported at Ruruvu ward (approximately 22 kilometers / 13.5 miles north of Bagana) in the Wakunai District of Central Bougainville.⁷⁸⁴ Remote Torokina is only accessible by air and sea, an obstacle that further complicated relief efforts.⁷⁸⁵ On July 20, the ABG assembled an evacuation team and began coordinating the movement of affected communities to designated care centers. Initial evacuations occurred from July 20 to 24.⁷⁸⁶

Assistance from outside Bougainville began flowing in, first from the Government of PNG and the PNG Defence Force (PNGDF) after the ABG President formally requested support from the Government of PNG,⁷⁸⁷ and from the wider international humanitarian community. On July 31, the National Disaster Centre (NDC) of PNG formally welcomed international support through the United Nations (UN) Resident Coordinator's Office to support affected populations in Wakunai and Torokina districts.⁷⁸⁸

The UN, through the Disaster Management Team and the Inter-Cluster Coordination Group, deployed a multi-agency team on August 7 to conduct assessments. The team was comprised of cluster experts in water, sanitation and hygiene (WASH), protection, information management, logistics and emergency operations coordination. The team was supported by shelter, camp coordination/camp management and food security officers from the International Organization for Migration (IOM) and UN Food and Agriculture Organization (FAO) who were already on the ground.⁷⁸⁹

Communities from Torokina and Wakunai were asked to evacuate following a huge amount of ashfall that also contaminated most of the water sources and crops, particularly in Wakunai, according to the ABG.⁷⁹⁰ Schools were closed and displaced persons, especially women and children, were sent to shelters.⁷⁹¹ The care centers first began receiving evacuees on July 20.⁷⁹² Initial numbers of displaced stood at 3,303 individuals from 724 households (HH) after local authorities first issued evacuation notices.⁷⁹³

781 Ibid.

782 USAID. The United States Provides Immediate Emergency Assistance to Support Communities Affected by Mount Bagana Volcanic Eruptions, <https://www.usaid.gov/pacific-islands/press-releases/aug-08-2023-united-states-provides-immediate-emergency-assistance-support-communities-affected-mount-bagana-volcanic-eruptions>

783 Lawrence, Drew. Marines Tapped to Aid Papua New Guinea in Wake of Volcanic Activity. Military.com. Aug. 9, 2023. <https://www.military.com/daily-news/2023/08/09/marines-tapped-aid-papua-new-guinea-wake-of-volcanic-activity.html>

784 UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

785 Lawrence, Drew. Marines Tapped to Aid Papua New Guinea in Wake of Volcanic Activity. Military.com. Aug. 9, 2023. <https://www.military.com/daily-news/2023/08/09/marines-tapped-aid-papua-new-guinea-wake-of-volcanic-activity.html>

786 FAO, FSC, WFP. Rapid Food Security Assessment Report: Mt. Bagana Volcanic Eruption, Autonomous Region of Bougainville (08 August 2023), <https://reliefweb.int/report/papua-new-guinea/rapid-food-security-assessment-report-mt-bagana-volcanic-eruption-autonomous-region-bougainville-08-august-2023>

787 UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

788 Ibid.

789 UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

790 ECHO. Papua New Guinea - Volcanic activity (GDACS, Autonomous Bougainville Government, media) (ECHO Daily Flash of 20 July 2023) <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-volcanic-activity-gdacs-autonomous-bougainville-government-media-echo-daily-flash-20-july-2023>

791 IOM. Papua New Guinea: Mt. Bagana Volcano Eruption Response, Autonomous Region of Bougainville - Situation Report, 15 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-response-autonomous-region-bougainville-situation-report-15-august-2023>

792 UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

793 Ibid.

According to the IOM as of August 16, 3,920 displaced individuals from 900 HHs were identified at the Wakunai (1,712 individuals from 414 HHs) and Piva (Torokina; 2,208 individuals from 486 HHs) care centers.⁷⁹⁴

According to the UNCT PNG, the PNGDF arrived to assist with relief efforts in Buka, the capital of ARB, on the southern coast of Buka Island, ARB's second largest island, right across a narrow strait from the northern tip of Bougainville Island. According to the PNG Disaster Management Team, "the PNG Defence force were in Buka [for the first time] after more than 20 years following the Mt. Bagana Volcano to provide support

to evacuate those in danger and bring relief supplies to those who need it." The NDC in Port Moresby also supplied Non-Food Items (NFI) to the Regional Disaster Centre for onward delivery to the care centers.⁷⁹⁵

Aside from the relief efforts by the local ABG and PNG governments, the PNGDF and humanitarian organizations, regional governments, including Australia, New Zealand, France and the United States, began assisting with relief efforts following the call for international support.

Australia's Department of Foreign Affairs and Trade (DFAT) and New Zealand's Ministry of Foreign Affairs and Trade (MFAT) donated NFI supplies, consisting of tarpaulins, shelter tool kits, hygiene kits, dignity kits, sleeping mats, blankets, mosquito nets, water containers, and water purification tablets, all of which were delivered by Royal Australia Airforce C-27 aircraft and Royal New Zealand Airforce C-130 aircraft into Buka.⁷⁹⁶ Two U.S. Marine Osprey MV22Bs and two Sea Stallion CH-53s performed the onward transport of the NFI relief items from Buka airport into Torokina and Wakunai care centers on Bougainville.⁷⁹⁷ The aircraft also provided transport of officers from the Emergency Disaster Management team, volunteers and donor partners.⁷⁹⁸

France also provided assistance comprised of supplies of food, water, hygiene and kitchen kits, and tents. The French Navy's FS Vendémiaire frigate delivered the supplies to Bougainville to assist displaced communities.⁷⁹⁹



Displaced Bougainville villagers transport supplies from a MV-22B Osprey, with Marine Medium Tiltrotor Squadron 265 (Rein.), to a truck during a humanitarian assistance and disaster relief operation on Bougainville Island, Papua New Guinea, Aug. 15, 2023.

U.S. Marine Corps photo by Lance Cpl. Bridgette Rodriguez

Source: <https://www.dvidshub.net/image/7973937/31st-meu-marines-help-displaced-bougainville-villagers>

⁷⁹⁴ IOM. Autonomous Region of Bougainville, Papua New Guinea: Wakunai and Torokina Displacement Profile - Round 2, Released 16 August 2023, <https://reliefweb.int/report/papua-new-guinea/autonomous-region-bougainville-papua-new-guinea-wakunai-and-torokina-displacement-profile-round-2-released-16-august-2023>

⁷⁹⁵ UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

⁷⁹⁶ Mahadzir, Dzirhan. USS America, Embarked 31st MEU Elements in Papua New Guinea for Humanitarian Efforts. USNI. Aug. 14, 2023. <https://news.usni.org/2023/08/14/uss-america-embarked-31st-meu-elements-in-papua-new-guinea-for-humanitarian-efforts>

⁷⁹⁷ UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

⁷⁹⁸ PNG Today. USA, Australia and New Zealand come to AID PNG's Bougainville victims of Mt Bagana volcanic eruption. Aug. 13, 2023. <https://news.pngfacts.com/2023/08/usa-australia-and-new-zealand-come-to.html>

⁷⁹⁹ Embassy of France in Port Moresby. PRESS RELEASE: France Extends a Helping Hand to Bougainville After Volcanic Eruption, <https://pg.ambafrance.org/PRESSRELEASE-France-Extends-a-Helping-Hand-to-Bougainville-After-Volcanic>



U.S. Government Response

On August 2, Joseph Zadrozny, the U.S. Chargé d’Affaires, a.i., to Papua New Guinea and Vanuatu, issued a declaration of humanitarian need (DHN) due to the effects of the Bagana Volcano after a determination that the island was experiencing “significant unmet humanitarian need.”⁸⁰⁰ In response, in coordination with U.S. Government (USG) counterparts, the U.S. Agency for International Development’s Bureau for Humanitarian Assistance (USAID/BHA) provided an immediate US\$200,000 to IOM for emergency shelter and relief supplies, logistical support, and community-level advocacy and training related to responding to volcanic crises. This emergency funding was in addition to USAID/BHA assistance in other areas of the country and investments in disaster risk reduction programs in PNG and in ARB.⁸⁰¹

USAID/BHA also financially supported the IOM’s deployment of the Displacement Tracking Matrix (DTM) site assessment tool to assist with response planning. IOM also supplied emergency shelters and NFIs through USAID/BHA support. Air and sea transport assets supplied by the Australian, U.S. and French Governments transported IOM’s/BHA’s relief supplies from Port Moresby to Buka. According to IOM, the coordination of flights was organized through the Australian High Commission in PNG, USAID/BHA and the U.S. Embassy in Port Moresby, while the French Government arranged the shipment of the NFIs from Port Moresby to ARB.⁸⁰²

As part of the USAID-funded support, IOM provided four water tanks and 127 collapsible water containers which were prepositioned through an existing USAID/BHA disaster risk reduction program. IOM also deployed a public health specialist to conduct health assessments.⁸⁰³

USAID Administrator Samantha Power visited PNG in mid-August 2023 during relief efforts; she opened a new USAID Country Representative Office in Port Moresby and met with PNG Prime Minister James Marape.⁸⁰⁴ During her visit, she announced that, at the request of the Government of PNG and in consultation with the ABG, USAID was providing US\$500,000 (including the initial US\$200,00 previously discussed) for food, water, shelter, water tanks and other assistance for people impacted by the Mount Bagana eruption, as part of a total US\$5.2 million in humanitarian assistance and disaster preparedness package for PNG from the USG.⁸⁰⁵



U.S. Marines with the 31st Marine Expeditionary Unit alongside United States Agency for International Development workers, load supplies onto a CH-53E Super Stallion during a humanitarian assistance and disaster relief operation on Bougainville Island, Papua New Guinea, Aug. 13, 2023.

U.S. Marine Corps photo by Lance Cpl. Bridgette Rodriguez
Source: <https://www.dvidshub.net/image/7975732/31st-meu-humanitarian-assistance-and-disaster-relief-bougainville>

⁸⁰⁰ Lawrence, Drew. Marines Tapped to Aid Papua New Guinea in Wake of Volcanic Activity. Military.com Aug. 9, 2023. <https://www.military.com/daily-news/2023/08/09/marines-tapped-aid-papua-new-guinea-wake-of-volcanic-activity.html>

⁸⁰¹ USAID. Papua New Guinea, <https://www.usaid.gov/humanitarian-assistance/papua-new-guinea>

⁸⁰² IOM. IOM, USAID, France and the Australian Government Partner to Aid Mt. Bagana Volcano-Affected Communities in Papua New Guinea, <https://roasiapacific.iom.int/news/iom-usaid-france-and-australian-government-partner-aid-mt-bagana-volcano-affected-communities-papua-new-guinea>

⁸⁰³ USAID. Administrator Samantha Power Meets with Prime Minister James Marape, Announces New Support for Papua New Guinea, <https://reliefweb.int/report/papua-new-guinea/administrator-samantha-power-meets-prime-minister-james-marape-announces-new-support-papua-new-guinea>

⁸⁰⁴ Samantha Power, @PowerUSAID: “As 1st USAID Administrator to visit, thrilled to open USAID’s country office in PNG alongside Prime Minister Marape. This fortifies our partnership and will help USAID support the Pacific’s objectives of conserving the environment and building a more resilient, inclusive economy.” (8/14, 0204)

⁸⁰⁵ USAID. USAID Chief Samantha Power Wraps Up Papua New Guinea Visit, <https://www.miragenews.com/usa-id-chief-samantha-power-wraps-up-papua-new-1065126/>

Administrator Power announced that the funding would help allow partners to provide emergency food assistance, WASH support, shelter kits and relief items, support protection assistance for women and children, provide logistical support, and manage camps for displaced persons.⁸⁰⁶ Administrator Power concluded her visit to PNG with a joint briefing with personnel from USAID, the U.S. Department of Defense (DOD), and IOM, all of whom worked together to coordinate delivery of USG humanitarian assistance to affected people.⁸⁰⁷

Due to the logistical challenges of delivering relief supplies in Bougainville, USAID/BHA requested the unique capabilities of the DOD to transport emergency relief to ARB. The various reasons for turning to the unique assets and capabilities of the military included the lack of road infrastructure, terrain challenges, and weather conditions in addition to the remoteness of locations in Bougainville. Under the leadership of USAID/BHA, the U.S. military proceeded to provide transport for delivery of emergency relief to affected people in hard-to-reach areas.⁸⁰⁸

In immediate response to the request by USAID/BHA, the DOD assigned personnel aboard the amphibious assault ship USS America (LHA-6) to help support the response. The USS America and its embarked elements of the 31st Marine Expeditionary Unit (31st MEU) arrived in Bougainville around August 10 to support relief operations.⁸⁰⁹ The 31st MEU was tasked to airlift supplies from the airfield at Buka and distribute the supplies to various landing fields.⁸¹⁰

According to a USAID release, “To help transport this life-saving emergency assistance to hard-to-reach locations, the U.S. Department of Defense, upon the request of USAID’s Bureau for Humanitarian Assistance, has assigned personnel aboard USS America to help deliver critical relief supplies to these remote locations. Marines with the 31st Marine Expeditionary Unit (MEU) will support USAID emergency assistance efforts providing transport via 31st MEU medium and heavy lift rotary wing and tiltrotor aviation platforms.”⁸¹¹

Marines with the 31st MEU supported USAID/BHA emergency assistance efforts primarily by providing transport assets. The transportation and logistics capabilities provided by the U.S. Navy-Marine Corps team included MV-22 Ospreys with Marine



U.S. Marines with 31st Marine Expeditionary Unit and Bougainville Disaster Response Joint-Agency workers load humanitarian aid supplies onto MV-22B Ospreys during a humanitarian assistance and disaster relief operation on Bougainville Island, Papua New Guinea, Aug. 12, 2023.
U.S. Marine Corps photo by Cpl. Abigail Godinez
Source: <https://www.dvidshub.net/image/7969156/31st-meu-supports-humanitarian-assistance-disaster-relief-bougainville>

⁸⁰⁶ USAID. Administrator Samantha Power Meets with Prime Minister James Marape, Announces New Support for Papua New Guinea, <https://reliefweb.int/report/papua-new-guinea/administrator-samantha-power-meets-prime-minister-james-marape-announces-new-support-papua-new-guinea>

⁸⁰⁷ USAID. USAID Chief Samantha Power Wraps Up Papua New Guinea Visit, <https://www.miragenews.com/usa-id-chief-samantha-power-wraps-up-papua-new-1065126/>

⁸⁰⁸ USAID. The United States provides immediate emergency assistance to support communities affected by Mount Ulawun volcanic eruptions, <https://www.usaid.gov/pacific-islands/press-releases/dec-04-2023-united-states-provides-immediate-emergency-assistance-support-communities-affected-mount-ulawun-volcanic-eruptions-0>

⁸⁰⁹ Mahadzir, Dzirhan. USS America, Embarked 31st MEU Elements in Papua New Guinea for Humanitarian Efforts. USNI. Aug. 14, 2023. <https://news.usni.org/2023/08/14/uss-america-embarked-31st-meu-elements-in-papua-new-guinea-for-humanitarian-efforts>

⁸¹⁰ Nieberg, Patty. Marines dodged fog, ash and typhoons in volcano response mission. Task and Purpose. Jan. 4, 2024. <https://taskandpurpose.com/news/marine-expeditionary-unit-bougainville-volcano/>

⁸¹¹ Mahadzir, Dzirhan. USS America, Embarked 31st MEU Elements in Papua New Guinea for Humanitarian Efforts. USNI. Aug. 14, 2023. <https://news.usni.org/2023/08/14/uss-america-embarked-31st-meu-elements-in-papua-new-guinea-for-humanitarian-efforts>

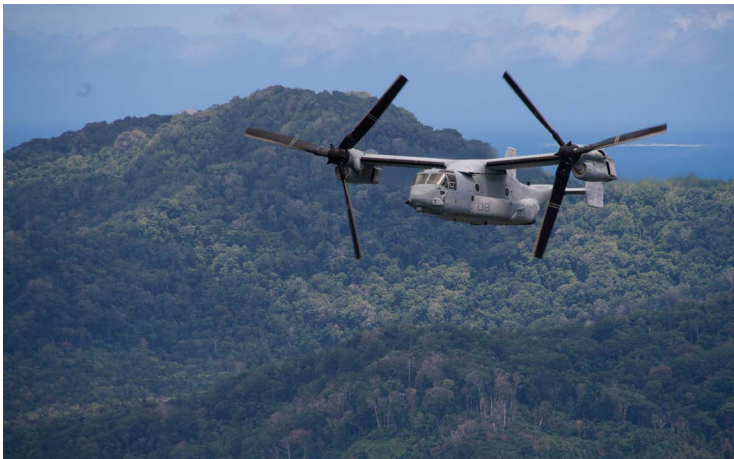


Medium Tiltrotor Squadron 265 (VMM-265), with 11 Ospreys attached to the 31st MEU,⁸¹² CH-53E Super Stallions, and SH-60 Seahawks.⁸¹³ In addition to supporting and coordinating with USAID/BHA, the mission also involved on-the-ground liaising with the U.S. embassy at Port Moresby and the chargé d'affaires.⁸¹⁴

Some of the items delivered included relief items from IOM. Through coordination with USAID/BHA, IOM dispatched emergency shelter and NFIs to Piva station from Buka, with final delivery to Piva station completed by the DOD.⁸¹⁵ The Ospreys and Sea Stallions also assisted deployment of assessment teams into Torokina.⁸¹⁶ Personnel from the 31st MEU transported supplies and Bougainville Disaster Response Joint-Agency workers to assist displaced villagers.⁸¹⁷

According to Pentagon Press Secretary Air Force Brig. Gen. Pat Ryder, the capability of the MEU allowed for the delivery of immediate emergency assistance. “The flexibility and rapid response capability of the Marine Expeditionary Unit team will allow for the delivery of immediate and much-needed emergency assistance during this crisis,” Ryder said.⁸¹⁸ He added that approximately 200 Marines who were already in PNG as part of Task Force Koa Moana 23 were on standby to assist if needed.⁸¹⁹

The 31st MEU was one of only two forward-deployed naval forces in the Indo-Pacific region at the time of the relief operation. A MEU is made up of roughly 2,200 Marines and Sailors on three or four



U.S. Marines MV-22B Osprey pilots with Marine Medium Tiltrotor Squadron 265 (Rein.), 31st Marine Expeditionary Unit, fly aid supplies during a humanitarian assistance and disaster relief operation on Bougainville Island, Papua New Guinea, Aug. 12, 2023.

U.S. Marine Corps photo by Gunnery Sgt. J. R. Heins

Source: <https://www.dvidshub.net/image/7969137/31st-meu-supports-humanitarian-efforts-papa-new-guinea>

amphibious ships and consists of four elements: command, ground combat, aviation combat, and logistics combat.⁸²⁰

The America Amphibious Ready Group (ARG) consisted of the USS America and amphibious transport docks USS New Orleans (LPD-18) and USS Green Bay. The ARG had just completed the U.S. – Australian-led multinational exercise Talisman Sabre, held on the east coast of Australia, in early August 2023. After the exercise, the Green Bay deployed to Sydney, Australia, for the U.S. – Australia – Japan- India Quad alliance Exercise Malabar 2023, while the New Orleans

812 Nieberg, Patty. Marines dodged fog, ash and typhoons in volcano response mission. Task and Purpose. Jan. 4, 2024. <https://taskandpurpose.com/news/marine-expeditionary-unit-bougainville-volcano/>

813 The United States provides immediate emergency assistance to support communities affected by Mount Bagana volcanic eruptions, <https://www.marforpac.marines.mil/News/Article/Article/3494022/the-united-states-provides-immediate-emergency-assistance-to-support-communities/>

814 Nieberg, Patty. Marines dodged fog, ash and typhoons in volcano response mission. Task and Purpose. Jan. 4, 2024. <https://taskandpurpose.com/news/marine-expeditionary-unit-bougainville-volcano/>

815 IOM. Autonomous Region of Bougainville, Papua New Guinea: Wakunai and Torokina Displacement Profile - Round 2, Released 16 August 2023, <https://reliefweb.int/report/papua-new-guinea/autonomous-region-bougainville-papua-new-guinea-wakunai-and-torokina-displacement-profile-round-2-released-16-august-2023>

816 UNCT PNG. Papua New Guinea: Mt. Bagana Volcano Eruption, Autonomous Region of Bougainville - Disaster Management Team Flash Update No. 1, 14 August 2023, <https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-mt-bagana-volcano-eruption-autonomous-region-bougainville-disaster-management-team-flash-update-no-1-14-august-2023>

817 MARFORPAC. 17 Aug. Pacific Marines, <https://www.facebook.com/pacificmarines/>

818 Mongilio, Heather. Navy, Marines Send Aid to Hawaii, Papua New Guinea Following Disasters. USNI. Aug. 10, 2023. <https://news.usni.org/2023/08/10/navy-marines-send-aid-to-hawaii-papua-new-guinea-following-disasters>

819 Pentagon Press Secretary Air Force Brig. Gen. Pat Ryder. Pentagon Press Secretary Air Force Brig. Gen. Pat Ryder Holds a Press Briefing, <https://www.defense.gov/News/Transcripts/Transcript/Article/3490413/pentagon-press-secretary-air-force-brig-gen-pat-ryder-holds-a-press-briefing/>

820 Nieberg, Patty. Marines dodged fog, ash and typhoons in volcano response mission. Task and Purpose. Jan. 4, 2024. <https://taskandpurpose.com/news/marine-expeditionary-unit-bougainville-volcano/>

went on patrol.⁸²¹

The volcanic ash, terrain, weather conditions and remote locations proved to be a challenge for U.S. military responders. “The weather patterns of Bougainville were really pretty exceptionally challenging. It’s a very densely covered jungle island with some high peaks in the middle which leads to low ceilings for clouds and stuff,” said 31st MEU Commander Col. Matthew Danner.⁸²²

“A chief advantage of a MEU for crisis response is that it’s self-sustaining and it’s sea-based, so in other words, we don’t show up with things and then also need to go find and draw on local resources for water, for power, for places to set down our equipment. We can do it all from our ships and day trips, so to speak, from the ships,” according to Danner.⁸²³

The mission involved long days due to the amount of planning and endurance required, according to Danner. Adding to the complexity of the mission were simultaneous typhoons in the Ryukyu Islands and the main islands of Japan, Danner said.⁸²⁴ After 10 days of operations under challenging conditions, the 31st MEU had delivered 118 pallets of relief supplies totaling almost 70,000 pounds.⁸²⁵



A CH-53E Super Stallion pilot standbys while MV-22B Osprey pilots take off, all with Marine Medium Tiltrotor Squadron 265 (Rein.), 31st Marine Expeditionary Unit, during a humanitarian assistance and disaster relief operation on Bougainville Island, Papua New Guinea, Aug. 13, 2023. The amphibious assault ship USS America (LHA 6) and the 31st MEU worked in coordination with the United States Agency for International Development’s Bureau for Humanitarian Assistance at the request of USAID/BHA, in consultation with the Autonomous Bougainville Government, after the volcanic eruption of Mount Bagana.

U.S. Marine Corps photo by Lance Cpl. Bridgette Rodriguez

Source: <https://www.dvidshub.net/image/7975806/31st-meu-humanitarian-assistance-and-disaster-relief-bougainville>

821 Mahadzir, Dzirhan. USS America, Embarked 31st MEU Elements in Papua New Guinea for Humanitarian Efforts. USNI. Aug. 14, 2023. <https://news.usni.org/2023/08/14/uss-america-embarked-31st-meu-elements-in-papua-new-guinea-for-humanitarian-efforts>

822 Nieberg, Patty. Marines dodged fog, ash and typhoons in volcano response mission. Task and Purpose. Jan. 4, 2024. <https://taskandpurpose.com/news/marine-expeditionary-unit-bougainville-volcano/>

823 Ibid.

824 Ibid.

825 Ibid.

January 2024

Japan: Noto Peninsula Earthquake and Tsunami

Background

On New Years Day, January 1, 2024, a powerful 7.6-magnitude earthquake struck the west coast of Japan's main Honshu island, near the northern coast of the Noto Peninsula region of Ishikawa prefecture.⁸²⁶ At least 240 people died in the earthquake, with 15 others unaccounted for.⁸²⁷ The earthquake also triggered a tsunami that was recorded to be at least .9 meters (3 feet) high and that damaged houses and property in the region,⁸²⁸ while the area near Akasaki port experienced nearly 4.2-meter- (14-foot) high tsunamis, according to a University of Tokyo Earthquake Research Institute field investigation team.⁸²⁹ The Japan Meteorological Agency (JMA) initially issued a major tsunami warning but reduced it to an advisory. It was reportedly the first major warning since the devastating 2011 Tohoku earthquake and tsunami.⁸³⁰ At least 296 acres (120 hectares) of land was flooded by the 2024 tsunami, according to the land ministry.⁸³¹ Multiple landslides were also triggered by the earthquake.^{832, 833}

This event was reportedly the deadliest earthquake to hit Japan since April 2016, when a series of earthquakes struck the Kumamoto region of Japan's southern Kyushu Island, where at least 72 people were killed and at least 2,000 others were injured. Japan is the most seismically active country on earth, with 18.5% of all the earthquakes around the world occurring there, and it is home to around 10% of the world's active volcanoes.⁸³⁴

In the Noto earthquake, about 55,000 homes were totally destroyed or badly damaged.⁸³⁵ Thousands of people - peaking at more than 30,000 - were displaced,⁸³⁶ and by the end of January 2024, more than 13,000 residents were still living in evacuation centers, according to the local Ishikawa government.⁸³⁷ The earthquake also damaged infrastructure, and many residents were left without power and running water.⁸³⁸ Japanese news media reported widespread liquefaction, which contributed to the extensive damages.⁸³⁹

Wajima city in Ishikawa was one of the areas most affected by the earthquake and accounted for most of the casualties. Many of the city's 23,000 residents fled after tsunami evacuation orders.⁸⁴⁰ In addition, the earthquake sparked a massive fire in the city; it burned down around 200 buildings and damaged many others.^{841, 842}

826 Disaster Philanthropy. 2024 Japan Earthquake, <https://disasterphilanthropy.org/disasters/2024-japan-earthquake/>

827 AP. Residents Want Japanese Nuclear Plant Damaged in Quake Examined. VOA. Feb. 3, 2024. <https://www.voanews.com/a/residents-japanese-nuclear-plant-damaged-in-quake-examined-/7469396.html>

828 Disaster Philanthropy. 2024 Japan Earthquake, <https://disasterphilanthropy.org/disasters/2024-japan-earthquake/>

829 Mathewson, Samantha. Japan's coastline moved over 800 feet after the devastating Jan 1. Earthquake. Jan. 14, 2024. <https://www.livescience.com/planet-earth/earthquakes/japans-coastline-moved-over-800-feet-after-the-devastating-jan-1-earthquake>

830 Disaster Philanthropy. 2024 Japan Earthquake, <https://disasterphilanthropy.org/disasters/2024-japan-earthquake/>

831 Ibid.

832 NHK. More than 10,000 Noto earthquake survivors still living in shelters. Feb. 4, 2024. https://www3.nhk.or.jp/nhkworld/en/news/20240205_05/

833 Martin, Alex. For Japan, earthquakes are an existential matter. The Japan Times. Feb. 4, 2024. <https://www.japantimes.co.jp/environment/2024/02/04/earth-science/japan-geography-earthquake-uplift/>

834 Ibid.

835 NHK. New challenges as residents climb back from earthquake. Feb. 5, 2024. https://www3.nhk.or.jp/nhkworld/en/news/20240207_03/

836 Yomiuri Shimbun. Most Noto Quake Victims Don't Want Secondary Evacuation; Reluctant to Relocate Because of Work, Family Obligations. January 31, 2024. <https://japannews.yomiuri.co.jp/society/noto-peninsula-earthquake/20240131-165869/>

837 Murakami, Sakura and Bateman, Tom. Japan earthquake survivors battle unsanitary conditions with no running water. Japan Today. Jan. 31, 2024. <https://japantoday.com/category/national/japan-earthquake-survivors-battle-unsanitary-conditions-with-no-running-water1>

838 NHK. More than 10,000 Noto earthquake survivors still living in shelters. Feb. 4, 2024. https://www3.nhk.or.jp/nhkworld/en/news/20240205_05/

839 NHK. Liquefaction triggered by Noto Peninsula Earthquake causes extensive damage. Jan. 22, 2024. <https://www3.nhk.or.jp/nhkworld/en/news/backstories/3007/>

840 Disaster Philanthropy. 2024 Japan Earthquake, <https://disasterphilanthropy.org/disasters/2024-japan-earthquake/>

841 Ibid.

842 NHK. New challenges as residents climb back from earthquake. Feb. 6, 2024. https://www3.nhk.or.jp/nhkworld/en/news/20240207_03/

The Government of Japan utilized its Disaster Relief Act for 35 cities, 11 towns and 1 village in 4 prefectures, including Ishikawa, Niigata, Toyama and Fukui, in an effort to start and lead national-level relief operations, according to the Japanese Red Cross Society (JRCS). In addition to government relief agencies, the JRCS and its chapters in affected areas began assessment and relief activities by deploying Emergency Relief Teams, Disaster Medical Coordination Teams and hundreds of volunteers.⁸⁴³

Coastal areas reportedly experienced significant uplift, according to Earthquake Research Institute at the University of Tokyo researchers who conducted field investigations along the northwest coast of the Noto Peninsula. Additionally, the Japan Aerospace Exploration Agency's (JAXA) Advanced Land Observing Satellite-2 (ALOS-2, also known as Daichi-2) captured the coastal uplift in satellite images that were taken on January 2 and showed the shoreline shifted seaward in multiple areas, compared to earlier photos, according to a statement from the Geospatial Information Authority of Japan (GSI).⁸⁴⁴

According to an analysis by GSI, an uplift of over 1 meter (3.28 feet) was observed across a wide area of northern Noto, while sections of Wajima were elevated by as much as 4 meters (13.1 feet).⁸⁴⁵ Additionally, a report from the Association of Japanese Geographers estimates that the quake pushed up land along 90 kilometers (55.9 miles) of the coastline and thrust the seaboard outward by around 240 meters (787 feet) in Wajima's Monzenmachi Kuroshimamachi district.⁸⁴⁶

The uplift along the coast impacted the region's fishing industry while exposing marine flora and fauna.⁸⁴⁷ Other key industries in the region, such as agriculture, forestry and tourism, were also badly impacted.⁸⁴⁸

Two reactors at the Shika nuclear power plant on the Noto Peninsula were damaged and experienced temporary power outages.⁸⁴⁹ For comparison, the March 11, 2011, 9.0-magnitude Tohoku earthquake and tsunami damaged three reactors in the Fukushima Daiichi Nuclear Plant and triggered a nuclear crisis, in addition to the widespread damages due to the earthquake and tsunami. Damages to the Fukushima nuclear plant and the leaking of radioactive material forced the evacuation of more than 700,000 people living within a 20-kilometer (12.4-mile) exclusion zone in 2011. In 2024, the Japan Nuclear Regulatory Authority said that no issues were found with reactors at nuclear plants in the affected area, including at the Shika plant.⁸⁵⁰

In addition to houses, infrastructure such as roads, ports, utilities and buildings were damaged or destroyed. Many of the roads in the region were affected by landslides or suffered other damages, which made it difficult for delivery trucks bringing relief supplies to the affected communities. Damage to ports further complicated relief efforts in difficult-to-access communities along the coast. Cold and snow also hindered relief and recovery efforts, and the lack of running water for tens of thousands of residents weeks after the quake raised health concerns for those affected. Additionally, Japan's All Nippon Airways was not able to resume commercial flights to the Noto Peninsula until January 27.⁸⁵¹

843 JRCS. Operation Update No.27: 2024 Noto Peninsula Earthquake: The Japanese Red Cross Society's Response, <https://www.jrc.or.jp/english/relief/2024NotoPeninsulaEarthquake.html>

844 Mathewson, Samantha. Japan's coastline moved over 800 feet after the devastating Jan 1. Earthquake, Jan. 14, 2024. <https://www.livescience.com/planet-earth/earthquakes/japans-coastline-moved-over-800-feet-after-the-devastating-jan-1-earthquake>

845 Martin, Alex. For Japan, earthquakes are an existential matter. Japan Times. Feb. 4, 2024. <https://www.japantimes.co.jp/environment/2024/02/04/earth-science/japan-geography-earthquake-uplift/>

846 Ibid.

847 Martin, Alex. For Japan, earthquakes are an existential matter. Japan Times. Feb. 4, 2024. <https://www.japantimes.co.jp/environment/2024/02/04/earth-science/japan-geography-earthquake-uplift/>

848 Yomiuri Shimbun. Noto Quake — A Closer Look / Rebuilding Communities a Race Against Time; Survival of Traditional Crafts Under Threat. Feb 8, 2024. <https://japannews.yomiuri.co.jp/society/noto-peninsula-earthquake/20240208-167374/>

849 Disaster Philanthropy. 2024 Japan Earthquake, <https://disasterphilanthropy.org/disasters/2024-japan-earthquake/>

850 JRCS. Operation Update No.27: 2024 Noto Peninsula Earthquake: The Japanese Red Cross Society's Response, <https://www.jrc.or.jp/english/relief/2024NotoPeninsulaEarthquake.html>

851 Disaster Philanthropy. 2024 Japan Earthquake, <https://disasterphilanthropy.org/disasters/2024-japan-earthquake/>

Among other Japanese agencies responding to the earthquake, the Japan Self-Defense Forces (JSDF) mobilized to assist in the relief effort. In the first month after the disaster struck, the JSDF dispatched thousands of troops to affected areas. The JSDF rescued around 1,000 people and helped reconstruct roads, transport relief supplies and support the overall relief effort.⁸⁵² Due to road conditions in affected areas, the JSDF decided to conduct operations mainly by air and started to send goods and people by helicopter just hours after the earthquake struck.⁸⁵³ The Japan Maritime SDF (JMSDF) also utilized landing craft air cushion boats to ferry heavy machinery to help clear roads.⁸⁵⁴ At least 50 aircraft and 10 ships also conducted operations in the affected areas, according to Japanese Defense Minister Minoru Kihara.⁸⁵⁵



Members of the Japan Ground Self Defense Force download supplies from a U.S. Army UH-60 helicopter assigned to U.S. Army Aviation Battalion Japan at Noto Airport, Ishikawa Japan, Jan. 17. Following a formal request for support, U.S. Forces Japan assigned two UH-60 aircraft from U.S. Army Aviation Battalion Japan to assist the JSDF with delivering material to those affected by the earthquake. U.S. Army Photo by Lt. Col. Nicklaus Franck
Source: <https://www.dvidshub.net/image/8204881/usfj-supports-jsdf-noto-earthquake-relief-efforts>

At the Japan Air SDF's (JASDF) Komatsu base in Ishikawa prefecture, up to 50 helicopters were used to carry emergency supplies and rescuers, which included police officers and firefighters along with military members.⁸⁵⁶ The JMSDF delivered relief items and personnel using its landing craft air cushion ships as many ports were unusable by regular transport vessels due to the sea floor uplift⁸⁵⁷ that created newly exposed beaches and left some ports dry and unreachable by most boats.⁸⁵⁸

U.S. Government Response

In the aftermath of the disaster, the U.S. government offered assistance to support relief efforts in areas affected by the January 1 quake. On January 5, the U.S. Embassy in Tokyo provided an immediate US\$100,000 aid package through Peace Winds Japan, an NGO working in affected areas. The assistance included blankets, water, and medical supplies.^{859, 860} U.S. Ambassador to Japan Rahm Emanuel also said that U.S. Forces Japan (USFJ) were readying logistical support, food and other supplies.⁸⁶¹ Among other

⁸⁵² Japan Times. 170,000 SDF members sent to Noto quake areas over one month. Feb. 4, 2024. <https://www.japantimes.co.jp/news/2024/02/04/japan/japan-ishikawa-earthquake-sdf-operations/>

⁸⁵³ Ibid.

⁸⁵⁴ Johnson, Jesse. U.S. military to join relief effort in earthquake-hit Noto area. Japan Times, Jan. 16, 2024. <https://www.japantimes.co.jp/news/2024/01/16/japan/politics/us-military-ishikawa-quake/>

⁸⁵⁵ Kosuke, Takahashi. US Forces Japan Join JSDF Earthquake Relief Efforts. The Diplomat. Jan. 17, 2024. <https://thediplomat.com/2024/01/us-forces-japan-join-jsdf-earthquake-relief-efforts/>

⁸⁵⁶ Japan Times. 170,000 SDF members sent to Noto quake areas over one month. Feb. 4, 2024. <https://www.japantimes.co.jp/news/2024/02/04/japan/japan-ishikawa-earthquake-sdf-operations/>

⁸⁵⁷ Ibid.

⁸⁵⁸ Mathewson, Samantha. Japan's coastline moved over 800 feet after the devastating Jan 1. Earthquake. LiveScience. Jan. 14, 2024. <https://www.livescience.com/planet-earth/earthquakes/japans-coastline-moved-over-800-feet-after-the-devastating-jan-1-earthquake>

⁸⁵⁹ U.S. Mission Japan. U.S. Assistance to Earthquake-Affected Regions in Japan, <https://jp.usembassy.gov/us-assistance-to-earthquake-affected-regions-in-japan/>

⁸⁶⁰ Robson, Seth. US Army Black Hawk helicopters to join earthquake relief efforts in Japan. Stars and Stripes. Jan. 16, 2024. <https://www.stripes.com/branches/army/2024-01-16/army-black-hawks-earthquake-japan-12690365.html>

⁸⁶¹ Robson, Seth and Kusumoto, Hana. American Black Hawks fly nearly 2,000 pounds of aid to Japanese quake victims. Stars and Stripes. Jan. 22, 2024. https://www.stripes.com/theaters/asia_pacific/2024-01-22/army-japan-earthquake-aid-12753685.html

efforts, Peace Winds Japan dispatched an emergency support team of Flying Search and Medical Team (“ARROWS”). The team consisted of doctors, nurses, rescue workers and a disaster relief dog team, and it provided search and rescue support, medical support and emergency supplies.⁸⁶²

On January 16, Defense Minister Kihara announced that a formal request was made for military assistance. “We’ve made the request for U.S. cooperation to avoid any interruption in supply transportation that has been carried out by the SDF,” Kihara said. “The U.S. military has self-contained transportation capabilities ready to operate in Japan, requiring minimal logistical support from us.”⁸⁶³ He added that the U.S. military had helicopters already stationed in Japan and that they regularly cooperate with the JSDF. The U.S. Forces would join some 7,000 JSDF troops taking part in operations.⁸⁶⁴

The request to the U.S. was an “exceptional” one, Kihara said, since Japan had initially not accepted assistance and declined personnel or material support from other countries; it cited arrangement difficulties and a lack of preparation for such cross-border efforts.^{865, 866}

The transportation of supplies by USFJ allowed the JSDF aircraft to increase efforts to transport evacuees away from affected areas. “The SDF is currently making every effort to transport secondary evacuees” away from the affected areas, Kihara said. “But due to the significant increase in the SDF’s mission, we’ve requested support from the U.S. Forces in Japan to continue transporting relief supplies that the SDF has been carrying out without a hitch.”⁸⁶⁷ He added, “From Wednesday, Jan. 17, on, the U.S. forces in Japan plan to transport relief goods to Noto airport with UH-60 helicopters for disaster victims, while using the Air Self-Defense Force’s Komatsu base as headquarters.”⁸⁶⁸

“Two Blackhawk helicopters will supplement Japan’s fleet assisting to move supplies and personnel as they provide aid and relief to those affected by the January 1 earthquake,” Ambassador Emanuel said on social media platform X, on January 16.^{869, 870} Emanuel also said on the X platform that the U.S. military and the JSDF “are getting it done, side by side.”⁸⁷¹



U.S. Army Aviation Battalion Japan Soldiers participate in a bilateral planning session with Japan Ground Self Defense Members at Komatsu Airbase, Ishikawa, Japan, Jan. 17.

U.S. Army Photo by Niklaus Franck

Source: <https://www.dvidshub.net/image/8204883/usfj-supports-jsdf-noto-earthquake-relief-efforts>

862 PWJ. [Japan] 2024 January Noto Peninsula Earthquake Emergency Support, <https://peace-winds.org/en/news/3352>

863 Asahi Shimbun. U.S. military joins relief efforts for Noto quake victims. Jan. 17, 2024. <https://www.asahi.com/ajw/articles/15116050#:~:text=U.S.%20military%20forces%20stationed%20in,via%20helicopter%20on%20Jan.%2017.>

864 Johnson, Jesse. U.S. military to join relief effort in earthquake-hit Noto area. Japan Times. Jan. 16, 2024. <https://www.japantimes.co.jp/news/2024/01/16/japan/politics/us-military-ishikawa-quake/>

865 Kyodo News. U.S. forces to join relief efforts for central Japan quake from Jan. 17. Jan. 16, 2024. <https://english.kyodonews.net/news/2024/01/ea72879fa2eb-urgent-us-forces-to-join-relief-efforts-for-central-japan-quake-on-wed.html>

866 Asahi Shimbun. U.S. military joins relief efforts for Noto quake victims. Jan. 17, 2024. <https://www.asahi.com/ajw/articles/15116050#:~:text=U.S.%20military%20forces%20stationed%20in,via%20helicopter%20on%20Jan.%2017.>

867 Kosuke, Takahashi. US Forces Japan Join JSDF Earthquake Relief Efforts. The Diplomat. Jan. 17, 2024. <https://thediplomat.com/2024/01/us-forces-japan-join-jsdf-earthquake-relief-efforts/>

868 Robson, Seth. US Army Black Hawk helicopters to join earthquake relief efforts in Japan. Stars and Stripes. Jan. 16, 2024. <https://www.stripes.com/branches/army/2024-01-16/army-black-hawks-earthquake-japan-12690365.html>

869 Reuters. US military to deploy helicopters to Japan’s earthquake-hit peninsula, [https://www.reuters.com/world/asia-pacific/us-military-japan-deploy-earthquake-hit-area-sources-2024-01-16/#:~:text=TOKYO%2C%20Jan%2016%20\(Reuters\),to%20Japan%20said%20on%20Tuesday.](https://www.reuters.com/world/asia-pacific/us-military-japan-deploy-earthquake-hit-area-sources-2024-01-16/#:~:text=TOKYO%2C%20Jan%2016%20(Reuters),to%20Japan%20said%20on%20Tuesday.)

870 Johnson, Jesse. U.S. military to join relief effort in earthquake-hit Noto area. Japan Times. Jan. 16, 2024. <https://www.japantimes.co.jp/news/2024/01/16/japan/politics/us-military-ishikawa-quake/>

871 Kyodo News. U.S. forces to join relief efforts for central Japan quake from Jan. 17. Jan. 16, 2024. <https://english.kyodonews.net/news/2024/01/ea72879fa2eb-urgent-us-forces-to-join-relief-efforts-for-central-japan-quake-on-wed.html>

U.S. and JSDF staff jointly planned the relief mission at the Komatsu Air Base.⁸⁷² According to USFJ, planning for the mission involved a combined effort of USFJ and JSDF operations and logistics experts to assess the need and plan the routes and assets involved. “This mission was enabled through our persistent bilateral training and operations across Japan, and it clearly demonstrates the collective resolve of the Alliance,” said Lt Col Busbey, USFJ Deputy Director of Operations.⁸⁷³

On January 17, U.S. military forces from USFJ began assisting JSDF personnel with relief efforts.^{874, 875} The two UH-60 Black Hawk helicopters joined JSDF members to help deliver relief supplies to affected populations. The helicopters were from Camp Zama, located southwest of Tokyo.⁸⁷⁶ The helicopters flew between the JASDF Komatsu Air Base and Noto airport in Wajima. The Black Hawks delivered supplies to the JSDF personnel at the airport, and they, in turn, delivered the relief to evacuation shelters.^{877, 878}

“It’s very encouraging that U.S. Forces Japan are helping the transportation of relief supplies,” Defense Minister Kihara said during a visit to JSDF members at Noto airport, after joint operations began. “A friend in need is a friend indeed. I feel that this is a second Operation Tomodachi.”

In total, the helicopters delivered almost 907 kilograms (2,000 pounds) of supplies in support of operations. “We are here to support our Tomodachi (friends),” the USFJ had posted on its official X account.⁸⁷⁹ The two helicopters supported JSDF operations, with missions completed by January 19.⁸⁸⁰

The U.S. Department of Defense (DOD) previously assisted Japan during the responses to the 2016 Kumamoto earthquakes and the devastating 2011 Tohoku earthquake and tsunami, the latter of which was dubbed “Operation Tomodachi.” (Please see previous sections in this publication for additional details).



CAMP ZAMA, Japan – A JGSDF member waves goodbye as an UH-60 assigned to U.S. Army Aviation Battalion Japan begins its ascent to Noto Peninsula, Ishikawa, Japan on Jan. 17, to support Japan Self Defense Forces during ongoing relief efforts for those affected by the Jan. 1 earthquake.

Photo by Esther Dacanay, U.S. Army Japan

Source: <https://www.dvidshub.net/image/8199728/usfj-supports-jsdf-noto-earthquake-relief-efforts>

⁸⁷² Robson, Seth and Kusumoto, Hana. American Black Hawks fly nearly 2,000 pounds of aid to Japanese quake victims. Stars and Stripes. Jan. 22, 2024. https://www.stripes.com/theaters/asia_pacific/2024-01-22/army-japan-earthquake-aid-12753685.html

⁸⁷³ USFJ. U.S. Forces Japan Join JSDF Earthquake Relief Efforts. Jan. 16, 2024. <https://www.usfj.mil/Media/Press-Releases/Article-View/Article/3645226/us-forces-japan-join-jsdf-earthquake-relief>

⁸⁷⁴ Kosuke, Takahashi. US Forces Japan Join JSDF Earthquake Relief Efforts. The Diplomat. Jan. 17, 2024. <https://thediplomat.com/2024/01/us-forces-japan-join-jsdf-earthquake-relief-efforts/>

⁸⁷⁵ Asahi Shimbun. U.S. military joins relief efforts for Noto quake victims. Jan. 17, 2024. <https://www.asahi.com/ajw/articles/15116050#:~:text=U.S.%20military%20forces%20stationed%20in,via%20helicopter%20on%20Jan.%202017>

⁸⁷⁶ Robson, Seth and Kusumoto, Hana. American Black Hawks fly nearly 2,000 pounds of aid to Japanese quake victims. Stars and Stripes. Jan. 22, 2024. https://www.stripes.com/theaters/asia_pacific/2024-01-22/army-japan-earthquake-aid-12753685.html

⁸⁷⁷ Jiji Press. U.S. Forces Transport Quake Aid Supplies. Jan. 18, 2024. <https://japannews.yomiuri.co.jp/society/noto-peninsula-earthquake/20240118-162957/>

⁸⁷⁸ USFJ. U.S. Forces Japan Join JSDF Earthquake Relief Efforts. Jan. 16, 2024. <https://www.usfj.mil/Media/Press-Releases/Article-View/Article/3645226/us-forces-japan-join-jsdf-earthquake-relief-efforts/#:~:text=United%20States%20Forces%20Japan%20is,UH%20D60%20aircraft%20from%20U.S.>

⁸⁷⁹ Robson, Seth and Kusumoto, Hana. American Black Hawks fly nearly 2,000 pounds of aid to Japanese quake victims. Stars and Stripes. Jan. 22, 2024. https://www.stripes.com/theaters/asia_pacific/2024-01-22/army-japan-earthquake-aid-12753685.html

⁸⁸⁰ Kyodo News. U.S. forces to join relief efforts for central Japan quake from Jan. 17. Jan. 16, 2024. <https://english.kyodonews.net/news/2024/01/ea72879fa2eb-urgent-us-forces-to-join-relief-efforts-for-central-japan-quake-on-wed.html>

Appendices

Other USINDOPACOM Foreign Disaster Response Support

Due to limited information on these USINDOPACOM operations, a chronological list and summary of support is provided:

July 1990 - Philippines: Earthquake

MAGTF-4-90 and 13th MEU assisted in search and rescue missions and emergency relief operations to victims of a 7.8 Magnitude earthquake in Central Luzon. Marines conducted 313 sorties, lifted 627,000 pounds of cargo, and flew more than 1,800 persons in Baguio City, Cabanatuan. Military personnel from Clark Air Force Base also assisted in response operations.^{881, 882}

September 1990 - Philippines: Heavy Rains and Mudslides

MAGTF-4-90 responded to victims of torrential downpours and mudslides, which blocked roads causing Marines to airlift 98,600 pounds of food and clothing, evacuate 447 villagers and conduct 6 medevac extractions from 24 isolated villages and Baguio City.⁸⁸³

January 1995 – Japan: Great Hanshin Earthquake (also known as the Kobe Earthquake)

III MEF Marines provided disaster relief following the quake.⁸⁸⁴ C-130s of the 374th Airlift Wing, based in Japan, delivered relief supplies.⁸⁸⁵

January 1998 – Hebei Province, China: Earthquake

A 437th Airlift Wing C-17 delivered 40 tons of medical supplies, sleeping bags, blankets, cold weather clothing, and rations from Kadena Air Base, Japan to Beijing.⁸⁸⁶

September 1999 – Taiwan: Chi-Chi Earthquake

A team from the U.S. Army Corps of Engineers was sent to Taiwan to conduct site analysis and assess damage patterns in urban areas. The U.S. DOD also contributed US\$82,000 toward the response effort by supplying 1,500 body bags to local authorities as part of relief efforts for the 7.6 magnitude earthquake which occurred on 21 September. USAID provided US\$25,000 through AIT which channeled assistance through the TRCO. USAID also committed US\$2,386,200 for the cost of an SAR team comprised of 92 SAR specialists.⁸⁸⁷

November 1999 – Vietnam: Floods

Two C-130s from 353d Special Operations Group, based in Japan, airlifted almost 22,000 pounds of plastic sheeting, 3,600 blankets, and 5,000 water containers from Guam to Hue, Vietnam.⁸⁸⁸

881 Selected Marine Corps Humanitarian Operations: 1970 to 2007, <https://www.usmcu.edu/Research/Marine-Corps-History-Division/Information-for-Units/-Marine-Corps-Humanitarian-Operations/>

882 Air Force History: The January, 1995 Evacuation of Clark Air Force Base, <https://www.tinker.af.mil/News/Article-Display/Article/1218915/air-force-history-the-evacuation-of-clark-air-force-base/>

883 Ibid.

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December 2004 – Luzon, Philippines: Typhoons and Tropical Storms

The USS Fort McHenry provided humanitarian assistance after a series of typhoons and tropical storms, caused massive flooding and landslides on the Philippine Island of Luzon. The Fort McHenry delivered 30,000 pounds of supplies and helped treat 100 patients.⁸⁸⁹

2007 – Philippines: Legazpi Typhoon Recovery

III MEF Marines assisted with this response.^{890, 891}

January 2020 – Australia: Bushfires

Two five-person cargo load teams from the 36th Contingency Response Group (CRG) of the USAF joined U.S. Department of the Interior and U.S Forest Service (USFS) wildfire and firefighter personnel to help combat bushfires in support of Australia's Operation Bushfire Assist.^{892, 893} Earlier, USAF personnel at Nellis Air Force Base assisted the Royal Australian Air Force with transporting fire retardant to Australia.⁸⁹⁴

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Acronyms and Abbreviations

\$	Dollars (U.S.)
%	Percent
I MEF	I Marine Expeditionary Force
III MEF	III Marine Expeditionary Force
3rd MAW	3rd Marine Aircraft Wing
31st MEU	31st Marine Expeditionary Unit
36th CRG	36th Contingency Response Group
AB	Air Base
ABG	Autonomous Bougainville Government (in Papua New Guinea)
ACSA	Acquisition and Cross-Servicing Agreement
ADF	Australian Defence Force
ADM	Admiral
AFB	Air Force Base
AFD	Armed Forces Division (of Bangladesh)
AFP	Armed Forces of the Philippines
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on disaster management
AIT	American Institute in Taiwan
ALCSG	Abraham Lincoln Carrier Strike Group
AMC	Air Mobility Command, formerly known as the Military Airlift Command (MAC)
AOR	Area of Responsibility
APAN	All Partners Access Network
ARB	Autonomous Region of Bougainville (in Papua New Guinea)
ARG	Amphibious Ready Group
ASEAN	Association of Southeast Asian Nations
BARM	Bangsamoro Autonomous Region in Muslim Mindanao (of the Philippines)
BCRC	British Cave Rescue Council
BHA	Bureau for Humanitarian Assistance (of USAID)
BNPB	Badan Nasional Penanggulangan Bencana (Indonesia's national disaster management organization)
BHRESG	Bonhomme Richard Expeditionary Strike Group
CAR	Cordillera Administrative Region (of the Philippines)
CCCM	Camp Coordination/Camp Management
CDAC-PAK	Combined Disaster Assistance Center-Pakistan (of the U.S. DOD utilized for the 2005 Kashmir earthquake response)
CDC	Centers for Disease Control and Prevention (of the U.S.)
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance
CJTF	Combined Joint Task Force
CMAGTF	Contingency Marine Air-Ground Task Force

CMAT	Consequence Management Advisory Team
CMRT	Combined Medical Relief Team
CMSE	Civil-Military Support Element (attached to the U.S. Embassy)
COC	Command Operations Center
CONUS	Continental U.S.
COVID-19	Coronavirus Disease 2019
CRG	Contingency Response Group
CSF	Combined Support Force
CSG	Combined Support Group
CTF	Commander, Task Force
CVTL	Cruz Vermelha De Timor-Leste (Timor-Leste Red Cross)
DART	Disaster Assessment and Relief Team
DCM	Deputy Chief of Mission
DESRON	Destroyer Squadron
Det	Detachment
DFAT	Department of Foreign Affairs and Trade (of Australia)
DHN	Declaration of Humanitarian Need (of the U.S.)
DHSUD	Department of Human Settlements and Urban Development (of the Philippines)
DJTFAC	Deployable Joint Task Force Augmentation Cell
DMHA	Disaster Management and Humanitarian Assistance
DMT	Disaster Management Team
DOD	Department of Defense (of the U.S.)
DODD	DOD Directive
DOH	Department of Health
DOS	Department of State
DRU	Disaster Response Unit (of the Armed Forces of the Philippines)
DSWD	Department of Social Welfare and Development (of the Philippines)
DTM	Displacement Tracking Matrix
DTRA	Defense Threat Reduction Agency
DVIDS	U.S. Defense Visual Information Distribution Service
EDCA	Enhanced Defense Cooperation Agreement
ERAT	AHA Centre's Emergency Response and Assessment Team
EWS	Early Warning Systems
EXECSEC	Executive Secretary (Memo)
FCE	Forward Control Element
F-FDTL	Falintil de Defesa de Timor-Leste (Timor-Leste Defence Force)
FFPs	Family food packs
FAO	Food and Agriculture Organization (of the UN)
FMA	Foreign Military Assets
FRANZ	France, Australia, and New Zealand (Arrangement)

FVEY	Five Eyes alliance
GFDRR	Global Facility for Disaster Reduction and Recovery
GoI	Government of Indonesia
GoJ	Government of Japan
GoN	Government of Nepal
GoP	Government of the Philippines
GoSL	Government of Sri Lanka
GoT	Government of Tonga
GoTL	Government of Timor-Leste
GSDf	Ground Self-Defense Forces (of Japan)
GSI	Geospatial Information Authority of Japan
HADR	Humanitarian Assistance and Disaster Relief
HARRT	Humanitarian Assistance Rapid Response Team
HAST	Humanitarian Assistance Survey Team
HCT	Humanitarian Country Teams
HH	Households
HLZ	Helicopter Landing Zone
HMAF	His Majesty's Armed Forces (of Tonga)
HSM	Helicopter Maritime Strike Squadron
HTTH	Hunga Tonga-Hunga Ha'apai (volcano in Tonga)
HuMOCC	Humanitarian-Military Operations Centre
HQ	Headquarters
IASC	Inter-Agency Standing Committee
ICCG	Inter-Cluster Coordination Group
ICRC	International Committee of the Red Cross
ICS	Incident Command System
IFRC	International Federation of Red Cross and Red Crescent Societies
INGOs	International Non-Governmental Organizations
IOM	International Organization for Migration
ISB	International Staging Base
JASDF	Japan Air Self-Defense Force
JAXA	Japan Aerospace Exploration Agency
JCET	Joint Combined Exchange Training
JFACC	Joint Force Air Component Commander
JFMCC	Joint Force Maritime Component Commander
JHAST	Joint Humanitarian Assessment Survey Team
JICA	Japan International Cooperation Agency
JMA	Japan Meteorological Agency
JMSDF	Japan Maritime Self-Defense Force
JOC	Joint Operations Center

JRCS	Japan Red Cross Society
JSDF	Japan Self-Defense Force
JSF	Joint Support Force
JSOTF	Joint Special Operations Task-Force
JTF	Joint Task Force
JTF-505	Joint Task Force-505
JTWC	Joint Typhoon Warning Center (of the U.S. Navy)
JUSMAGPHIL	Joint U.S. Military Assistance Group to the Republic of the Philippines
Km/km ²	Kilometer(s)/square kilometer(s)
kph	Kilometers per hour
LNO	Liaison Officers
MAC	Military Airlift Command (Now known as the Air Mobility Command (AMC))
MAG-16	Marine Aircraft Group 16
MAGTF	Marine Air-Ground Task Force
MARFORPAC	U.S. Marine Corps Forces, Pacific
MARFORJ	Marine Forces Japan
MAPS	Mobile Aerial Port Squadron
MASA 23	Marine Aviation Support Activity 23
MASH	Mobile Army Surgical Hospital
MAW	Marine Aircraft Wing
MCAS	Marine Corps Air Station
MEB	Marine Expeditionary Brigade
MEC	U.S. Marine Corps Forces Pacific Experimentation Center
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MFAT	Ministry of Foreign Affairs and Trade (of New Zealand)
MNCC	Multinational Coordination Center
MNMCC	Multi-National Military Coordination Center
m/m ²	Meter(s)/square meter(s)
mm	Millimeters(s)
mph	Miles per hour
MREs	Meals, Ready to Eat
MSC	Military Sealift Command
MSS	Mission Support Site
MT	Metric Tons
NA	Nepalese Army
NASA	National Aeronautics and Space Administration (of the U.S.)
NATO	North Atlantic Treaty Organization
NCOIC	Non-Commissioned Officer in Charge
NCR	National Capital Region/Metro Manila (of the Philippines)

NDC	National Disaster Center (of Papua New Guinea)
NDMC	National Disaster Management Centre (of the Maldives)
NEMA	National Emergency Management Agency (of Australia)
NEMO	National Emergency Management Office (of Tonga)
NFIs	Non-food items
NGO	Non-governmental organization
NMCB	Naval Mobile Construction Battalion (popularly known as the “Seabees”)
NOAA	National Oceanic and Atmospheric Administration (of the U.S.)
NOLCOM	Armed Forces of the Philippine’s Northern Luzon Command
NSW	New South Wales (State in Australia)
NZDF	New Zealand Defence Force
OCHA	Office for the Coordination of Humanitarian Affairs (of the UN)
ODA	Special Forces Operational Detachments-Alpha
OFDA	Office of U.S. Foreign Disaster Assistance (now Bureau for Humanitarian Assistance)
OHDACA	Overseas Humanitarian, Disaster and Civic Aid
OSD	Office of the Secretary of Defense
OSOCC	On-Site Operations Coordination Center
PA	Philippine Army
PACAF	Pacific Air Forces
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PAF	Philippine Air Force
PAO	Public Affairs Officer
PAT	USPACOM Augmentation Team
PCG	Philippine Coast Guard
PDC	Pacific Disaster Center
PhibGru	Amphibious Group 3
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PN	Philippine Navy
PNG	Papua New Guinea
PNGDF	PNG Defence Force
PRA	Principal Regional Advisor (of USAID/OFDA)
PRC	Philippine Red Cross
QLD	Queensland (State in Australia)
RHCC	Changi Regional HADR Coordination Center (of Singapore)
RIST	Regional Information Support Team
RMT	Response Management Team (of USAID/OFDA)
RNZAF	Royal New Zealand Air Force
RNZN	Royal New Zealand Navy
ROAP	Regional Office for Asia and the Pacific (of UNOCHA)
ROTC	Reserve Officer Training Corps

ROWPU	Reverse Osmosis Water Purification Units
RTA	Royal Thai Army
RTG	Royal Thai Government
RTN	Royal Thai Navy
RTP	Royal Thai Police
RVO	Rabaul Volcano Observatory (in Papua New Guinea)
SAARC	South Asian Association for Regional Cooperation
SAMES	Servico Autonomo de Medicamentos e Equipamentos de Saude (the national medical storage facility for Timor-Leste)
SAR	Search and Rescue
SDO	Senior Defense Official
SLAF	Sri Lanka Air Force
SOCAPAC	Special Operations Command Pacific
SOG	Special Operations Group
SOS	Special Operations Squadron
SPMAGTF	Special Purpose Marine Air Ground Task Force
SRR	Search, Rescue and Retrieval (of the Philippines)
TACRON	Tactical Air Control Squadron
TALCE	Tanker Airlift Control Element
TC	Tropical Cyclone
TD	Tropical Depression
TIA	Tribhuvan International Airport (of Nepal)
TNI	Tentara Nasional Indonesia (Indonesian National Armed Forces)
TRANSCOM	Transportation Command
TRCO	Taiwan Red Cross Organization
TRCS	Tonga Red Cross Society
TS	Tropical Storm
TTX	Tabletop Exercise
UN	United Nations
UN-CMCoord	United Nations Humanitarian Civil-Military Coordination
UNCT	United Nations Country Team
UNDAC	United Nations Disaster Assessment and Coordination Team
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFPA	United Nations Population Fund
UNHAS	UN Humanitarian Air Service
UNHCR	UN High Commissioner for Refugees
UNHRD	United Nations Humanitarian Response Depot
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction

UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNODC	UN Office on Drugs and Crime
UNOSAT	UN Satellite Centre
UNRC	UN Resident Coordinator
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USAID	U.S. Agency for International Development
USAR	Urban Search and Rescue
USARJ	U.S. Army Forces Japan
USARPAC	United States Army, Pacific
USCENTCOM	U.S. Central Command
USCG	U.S. Coast Guard
USCGC	U.S. Coast Guard cutter
USCINCPAC	U.S. Commander in Chief, Pacific Command
USFJ	U.S. Forces Japan
USFS	U.S. Forest Service
USG	United States Government
USGS	United States Geological Survey
USINDOPACOM	United States Indo-Pacific Command (formerly United States Pacific Command)
USMC	United States Marine Corps
USN	United States Navy
USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command (now United States Indo-Pacific Command)
VAAC	Volcanic Ash Advisory Centre (of Australia)
VDAP	Volcano Disaster Assistance Program (of the U.S)
VMM-163	Marine Medium Tiltrotor Squadron 163
WASH	Water, Sanitation, and Hygiene
WFP	World Food Programme (of the UN)
WHO	World Health Organization (of the UN)



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