FACTSHEET
The Devastating Tōhoku, Japan, Earthquake and Tsunami of March 11, 2011

THE EARTHQUAKE

At 14:46 JST (05:46 UTC) on Friday, March 11, 2011, an undersea megathrust earthquake occurred off the coast of Tōhoku, Japan, with a magnitude 9.0 (Mw) and underwater depth of approximately 20 miles (32 km). It was the strongest known earthquake ever to have hit Japan, and one of the five most powerful earthquakes in the world since modern record keeping began in 1900.

The earthquake moved Honshu 8 feet (2.4 m) east and shifted the Earth on its axis by estimates of 4-10 inches (10-25 cm). The earthquake triggered devastating tsunami waves in Tōhoku and then spread across the Pacific Ocean.

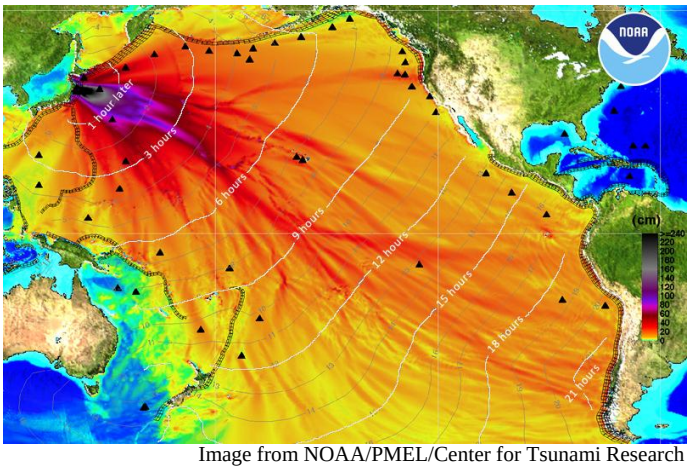

Image from NOAA/PMEL/Center for Tsunami Research

NOAA/NWS RESPONSE

Within minutes of the earthquake, and for many hours afterward, the National Oceanic and Atmospheric Administration (NOAA) National Weather Service Tsunami Warning Centers (TWCs) issued tsunami alerts for Pacific countries and the United States. Initial watches, advisories, and warnings were produced by the Pacific TWC in Hawaii and West Coast/Alaska TWC in Alaska using NOAA tsunami models. As the tsunami moved across the Pacific, the TWCs refined their alerts and predictions based on sea-level measurements they received from NOAA Deep-Ocean Assessment and Reporting of Tsunamis (DART®) buoys and tide gauges.

THE IMPACT

The tsunami waves reached heights of up to 133 feet (40.5 meters) in Miyako in Tōhoku's Iwate Prefecture, and traveled up to 6 miles (10 km) inland in the Sendai area. Nearly a year after the event, the National Police Agency of Japan's grim statistics are the earthquake and tsunami left 15,853 people dead, 6,013 injured, and 3,283 missing.

Over 375,000 buildings were damaged or destroyed in Japan, with insured loss estimated from U.S. $14.5-$34.6 billion.

Photo by U.S. Navy Mass Communication Specialist 3rd Class Dylan McCord

Approximately 7 hours after the earthquake, tsunami waves reached the Hawaiian Islands, with the largest wave on Maui measured at over 7 feet (2.75m) and on Oahu at 3 feet, 3 inches (1 m). Tsunami waves also struck the coasts of Oregon and California, causing severe damage to communities such as the harbors of Santa Cruz and Crescent City, California. Records show that the ocean remained disturbed by tsunami wave action on the coast of California for several days after the earthquake. One person who was photographing the tsunami near the mouth of the Klamath River in northern California was swept out to sea by the second tsunami wave and died. U.S. loss estimates range from $70-$90 million.

REDUCING U.S. TSUNAMI IMPACTS

In addition to operating the two TWCs, NOAA leads a working group of federal and state agencies called the National Tsunami Hazard Mitigation Program (NTHMP). The purpose of the NTHMP is to reduce the impact of tsunamis in the United States. Thanks to NTHMP state partner efforts, plans were in place and people were prepared to act when TWC alerts were received on March 11, 2011. Local officials initiated evacuations of designated coastal areas and movement of boats to open water. Those actions saved lives, protected property, and reduced the coastal economic impact of the devastating tsunami.

For additional information about this event, see links on: http://tsunami.gov/events/11Mar2011factsheet.php