

JMA Tsunami Warning Operation for the Chilean Earthquake and Tsunami on 27 Feb, 2010

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The 1960 Chilean Tsunami caused serious damage to countries in and around the Pacific Ocean, and caused over 140 fatalities in Japan after it traveled the entire Pacific Ocean. Although Japan Meteorological Agency (JMA) had started a national tsunami warning service in 1952, JMA could not issue tsunami warning for the distant tsunami in a timely manner. After examining the lessons learned, JMA improved tsunami warning service to distant tsunamis.

In estimating tsunami and issuing tsunami warning/advisory, JMA utilizes tsunami forecast database on which the results of tsunami computer simulation for various scenarios are stored in advance. In a case of distant tsunami with enough time for the tsunami to arrive at the Japanese coast, JMA also conducts real-time tsunami computer simulation with the input of precise fault parameters which are available after the event. We compare the result with observations at overseas sea level stations to revise the preliminary tsunami estimation by the tsunami forecast database. JMA carried out this processes before issuing tsunami warnings/advisories for the Chilean tsunami event described below.

On 27 Feb 2010, a massive tsunami was generated by a magnitude 8.8 earthquake off the coast of central Chile. JMA analyzed seismic data and sea level data for this event, and issued earthquake information containing the details of the earthquake and overseas sea level observation, tsunami warning/advisory for the Japanese coast (mainly on the Pacific), and tsunami information containing sea level observation of Japanese coast. The tsunami warnings/advisories were in effect for about one day. JMA also held media briefings five times for this event to explain the situations and alert the public to the danger of tsunami.

Most of the estimated tsunami heights predicted by JMA for the Japanese coast were larger than observations. In order to increase the performance of tsunami prediction, JMA plans to improve the distant tsunami forecast database by upgrading numerical simulation model with higher spatial resolution, and increasing the number of assumed faults.

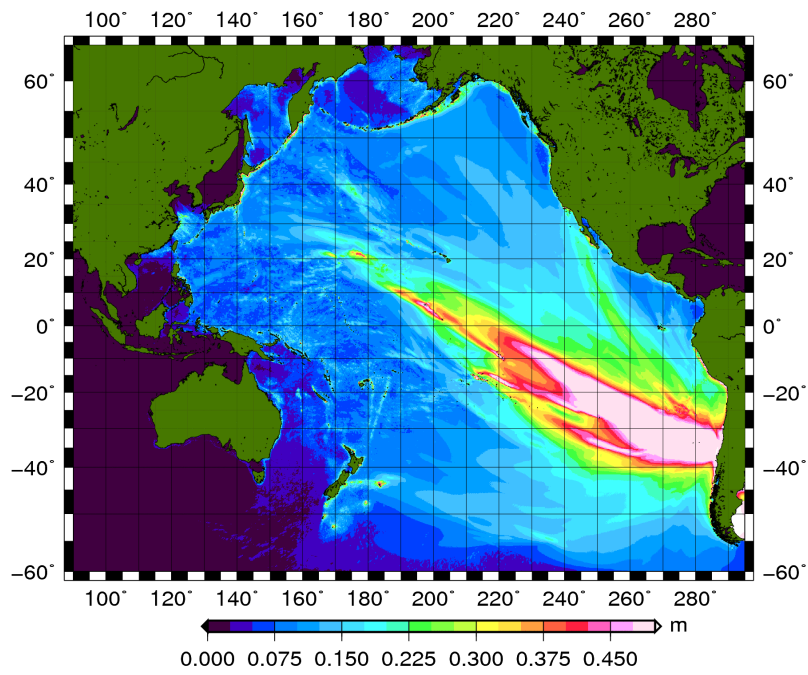


Figure. Distribution of the Maximum Tsunami Height

This map shows the computational result of tsunami simulation on basis of USGS WPhase Moment Tensor Solution.