



# Sounding the Alarm

Nothing can prevent a tsunami from happening—they are enormously powerful events of nature. But in many cases networks of seismic detectors, sea-level monitors and deep ocean buoys can allow authorities to provide adequate warning to those at risk. Mathematical models constructed from partial differential equations use the generated data to determine estimates of the speed and magnitude of a tsunami and its arrival time on coastlines. These models may predict whether a trough or a crest will be the first to arrive on shore. In only about half the cases (not all) does the trough arrive first, making the water level recede dramatically before the onslaught of the crest.

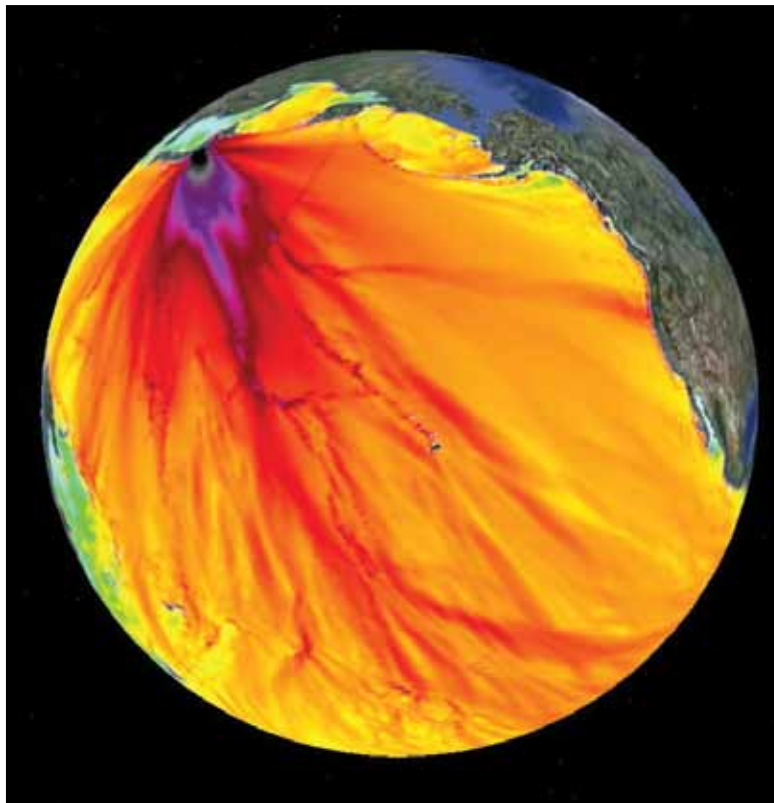


Image: Maximum wave amplitude plot for March 11, 2011 tsunami, © Google. Data: SIO, NOAA, U.S. Navy, NGA, GEBCO; Image: IBCAO.



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