

## TSUNAMI SAFETY AND PREPAREDNESS



During the retreat of sea level, interesting sights are often revealed. Fishes may be stranded on dry land thereby attracting people to collect them. Also, sandbars and coral flats may be exposed. These scenes tempt people to flock to the shoreline thereby increasing the number of people at risk.

Stay out of danger areas until **“all clear”** is issued by competent authority. A tsunami is not a single wave but a series of waves.

Do not stay in low-lying coastal areas after a strong earthquake. Move to higher grounds immediately.

If unusual sea conditions like rapid lowering of sea level are observed, immediately move towards high grounds.

Never go down the beach to watch for a tsunami. When you see the wave, you are too close to escape it.



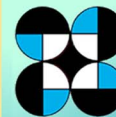
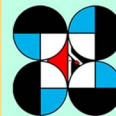
- Conduct community-level awareness about earthquakes and tsunamis focused on natural signs of an approaching tsunami, warning and evacuation procedure.
- Pre-determine high ground in your area and identify routes to get there.
- Put up signage.

### Department of Science and Technology PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY

PHIVOLCS Bldg., C.P. Garcia Ave.,  
U.P. Campus, Diliman, Quezon City, Philippines  
Tel. Nos. 9271330; 9274524; 9262611, 4261468 to 79  
PHIVOLCS Website: [www.phivolcs.dost.gov.ph](http://www.phivolcs.dost.gov.ph)

Prepared by: M.L. Martinez-Villegas  
R.A. Arante

November 2006  
Printed with support from DOST-Grant-in-Aid



## WHAT IS A TSUNAMI?

A tsunami is a series of giant sea waves commonly generated by under-the-sea earthquakes and whose heights could be greater than 5 meters. It is erroneously called tidal waves and sometimes mistakenly associated with storm surges. Tsunamis can occur when the earthquake is shallow-seated and strong enough to displace parts of the seabed and disturb the mass of water over it.


### Locally generated tsunamis

The coastal areas in the Philippines especially those facing the Pacific Ocean, South China Sea, Sulu Sea and Celebes Sea can be affected by tsunamis that may be generated by local earthquakes.

On 17 August 1976, a M7.9 earthquake in Moro Gulf produced tsunamis which devastated the southwest coast of Mindanao and left more than 3,000 people dead, with at least 1,000 people missing. More than 8,000 were injured and approximately 12,000 families were rendered homeless by more than 5-meter high waves

The 15 November 1994 Mindoro Earthquake also generated tsunamis that left 78 casualties.

These tsunamis occurred within a very short time, with a first wave reaching the shoreline nearest the epicenter, 2 to 5 minutes after the main earthquake. These tsunamis were both **locally generated**. There **will not be enough time for warning** in case of locally generated tsunamis.




An illustration of a man in a blue shirt and brown shoes holding a globe of the Earth. He is pointing with his right hand to the Philippines and with his left hand to Chile. Concentric white circles representing seismic waves radiate from the Chile location towards the Philippines.

### Far field Tsunamis


Tsunamis may also be generated from distant locations, such as those coming from other countries bordering the Pacific Ocean like Chile, Alaska in the USA and Japan (*far field tsunamis*). The tsunami of 2 May 1960 that was generated by a strong earthquake from Chile killed 61 in Hilo, Hawaii while 20 people were reportedly killed in the Philippines. Travel times for tsunamis generated in distant locations are longer (1 to 24 hours) and will generally give enough time for warning from the Pacific Tsunami Warning Center (PTWC) and Northwest Pacific Tsunami Advisory Center (NWPTAC).

## SOME NATURAL SIGNS OF AN APPROACHING LOCAL TSUNAMI



1. A felt earthquake





2. Unusual sea level change: sudden sea water retreat or rise



3. Rumbling sound of approaching waves