

## Tsunami Risks in India

In the past, a few devastating tsunamis have occurred in the Indian Ocean and in the Mediterranean Sea. The most significant tsunami in the region of the Indian Ocean was the one associated with the violent explosion of the volcanic island of Krakatoa in August 1883. Even though tsunamis occur very rarely in the Indian Ocean region, in the last 300 years, this region recorded 13 tsunamis and 3 of them occurred in the Andaman and Nicobar region. The Indian Ocean Tsunami of 26<sup>th</sup> December 2004 is one of the most destructive Tsunamis known to have hit India.

## Distribution Pattern of Tsunami in India

Both East and West Indian shorelines are vulnerable to tsunami wave action. It has more than 2200 km shoreline which is heavily populated. For a tsunami to hit Indian coastline, it is necessary that a tsunamigenic earthquake of magnitude greater than 6.5 should occur. Actual tsunami hazard of a coastline depends on its bathymetry and coastal topography.

## Consequences of Tsunami Disaster

The effects of the tsunami can range from destruction and damage, death, diseases, injury, millions of dollars in financial loss, and long lasting psychological problems for the inhabitants of the region.

### The effects of a tsunami depend on the following factors:

- Characteristics of the seismic event that generated the tsunami.
- Distance from its point of origin, its size (magnitude)
- Configuration of the bathymetry (that is the depth of water in oceans).

Indian Ocean tsunami of December 2004 along the Indian coast highlighted that the maximum damage had occurred in low-lying areas near the coast and high casualties were found in thickly populated areas. Mangroves, forests, sand dunes and coastal cliffs provided the best natural barriers to reduce the impact of the tsunami and heavy damage was reported in areas where sand dunes were heavily mined.

**Table : History of tsunami's in India**

Date	Location	Impact
1524	Near Dabhol, Maharashtra	Sufficient data not available
02 April 1762	Arakan Coast, Myanmar	Sufficient data not available
16 June 1819	Rann of Kachchh, Gujarat	Sufficient data not available
31 October 1847	Great Nicobar Island	Sufficient data not available
31 December 1881	An earthquake of 7.9 in the Richter scale in Car Nicobar Island	Entire east coast of India and Andaman & Nicobar Islands; 1m tsunamis were recorded at Chennai.
26 August 1883	Explosion of the Krakatoa volcano in Indonesian.	East coast of India was affected; 2m tsunamis were recorded at Chennai.
26 June 1941	An 8.1 Richter scale earthquake in the Andaman archipelago.	East coast of India was affected but no estimates of height of the tsunami is available
27 November 1945	An 8.5 Richter scale earthquake at a distance of about 100km south of Karachi	West coast of India from north to Karwar was affected; 12m tsunami was felt at Kandla.
26 December 2004	Banda Aceh, Indonesia; Tamil Nadu, Kerala, Andhra Pradesh, Andaman and Nicobar Islands, India; Sri Lanka; high killing more than 10,000 precious lives.	The East cost of India was affected. The waves measured around 10 m