10 Years after the Indian Ocean Tsunami 2004

Intergovernmental Oceanographic Commission

Contributors to the UNESCO/IOC Intergovernmental Coordination Group (ICG)
Indian Ocean Tsunami Warnings & Mitigation System (IOTWS):
Rick Bailey, Jan Sopaheluwakan, Srinivasa Kumar, Tony Elliott, Sam Hettiarachchi, Irina Rafliana, Harkunti Rahayu, Satheesh Shenoi, Daniel Jaksa, Ray Canterford, Riyadi Mochammad, Chip McCreery, Laura Kong, Takeshi Koizumi, Masturyono, Mark Leonard, Wahyu Pandoe, Peter Coburn, Karyono, Suhardjono, Prih Harjadi, Shailesh Nayak, Chris Ryan, Yuelong Miao, Ridwan Djamaluddin, Geoff Crane, Chari Pattiaratchi, John Schneider, Harald Spahn, Joern Lauterjung, David McKinnie, Peter Koltermann, Ardito Kodijat

Prior to 26 December 2004

Before the Indian Ocean Tsunami (IOT), when a magnitude 9.1 undersea earthquake off the coast of Northern Sumatra of Indonesia, near the city of Banda Aceh, generated a tsunami taking more than 230,000 lives across the Indian Ocean:

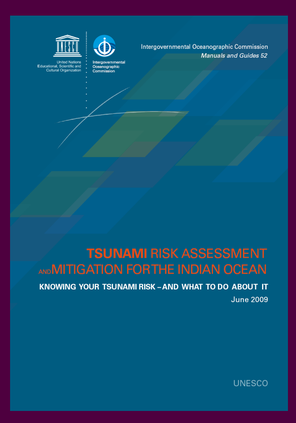
- Tsunami risk considered low
- Very limited seismic observations to detect
- Very limited real-time sea level observations to verify
- No tsunami warning system to forecast
- No national tsunami warning contact points to inform
- Community unaware and not prepared

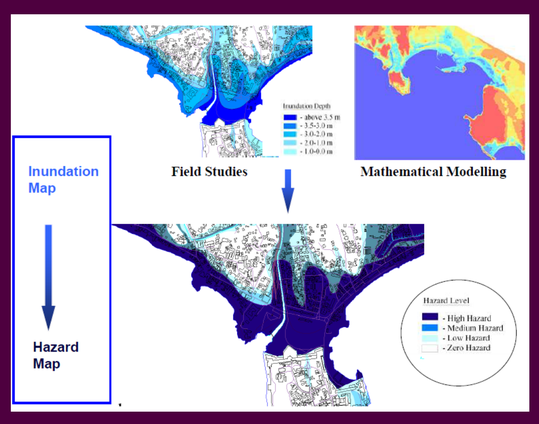
International Response

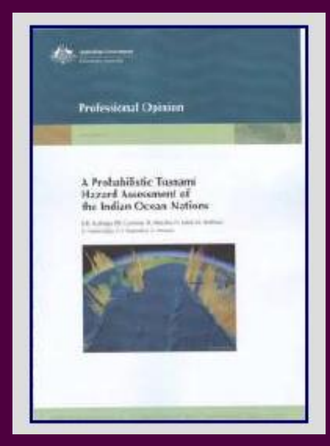
- Governments around the Indian Ocean and around the world commit to the recovery and reduction of risk of the tsunami threat in the region
- UNESCO's Intergovernmental Oceanographic Commission (IOC) is given the mandate to establish Indian Ocean Tsunami Warning & Mitigation System (IOTWS)
- The USA and Japan provide an Interim Advisory Service (IAS) through the Pacific Tsunami Warning Centre (PTWC) in Hawaii and Japan Meteorological Agency (JMA) in Tokyo, whilst the Indian Ocean region develops its own capability.

Risk Assessment & Reduction

Risk assessment guidelines and tools have been developed. Countries have been trained in their use to help them undertake hazard assessments to determine their risk and develop evacuation maps.

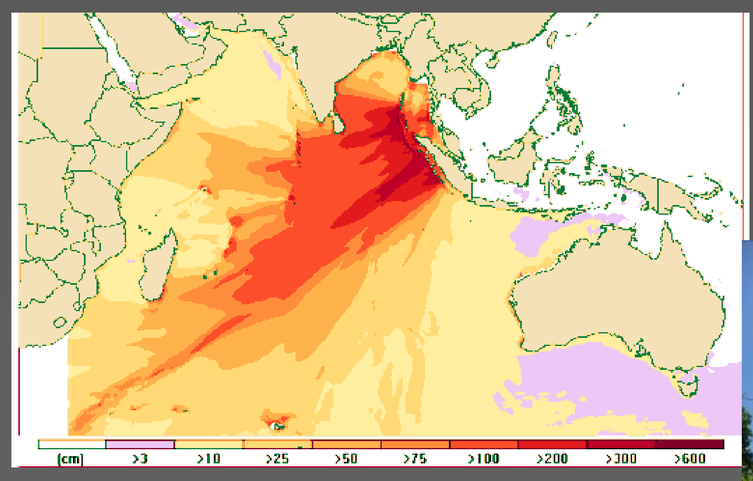


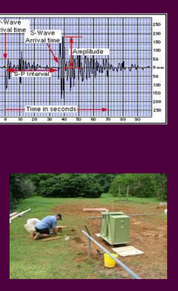


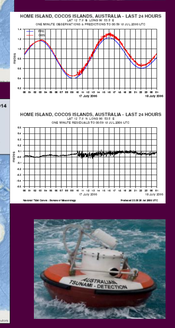


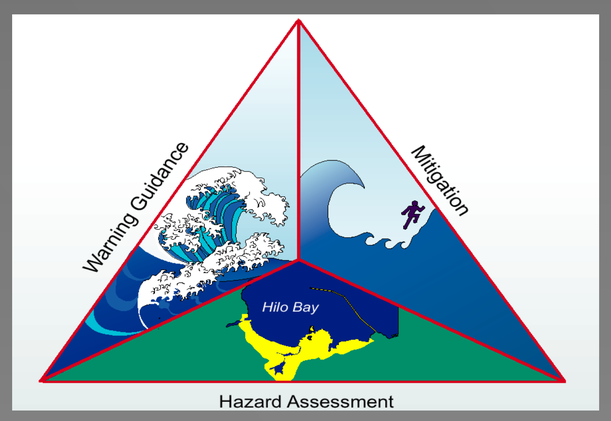
Tsunami Detection, Warning & Dissemination

- Seismic and sea level monitoring networks have been greatly expanded.
- Three countries… Australia, India and Indonesia… have established Tsunami Service Provider (TSP) capabilities to use computer forecast models to derive and issue standardised tsunami threat information to National Tsunami Warning Centres (NTWCs) and Tsunami Warning Focal Points (TWFPs) of the 28 countries in the Indian Ocean.
- Countries have sovereign responsibility for warning their own communities
- Training workshops are held routinely for NTWC and Disaster Management Office (DMO) staff and the media.









The Next 10 Years

The Indian Ocean is "safer" against the tsunami threat than it was in 2004. Unfortunately due to the nature of the tsunami threat, communities can never be completely "safe", but they must always be "ready".

Challenges for the IOTWS:

- Sustaining the achievements since 2004
- Enhancements to address identified gaps & further meet needs
- Maintaining and further developing community awareness & preparedness
- Power and unpredictability of tsunamis

Awareness & Preparedness

- The best technical warning in the world won't be effective if the coastal communities at risk do not know what to do.
- Much effort has gone into preparing materials and helping countries educate their communities, including and most importantly the children, elderly, tourism sector, and emergency services.
- Indian Ocean-wide "IOWAVE" Exercises are held every two years to test regional and national warning and community response capabilities.
- The Indian Ocean Tsunami Information Centre (IOTIC) was inaugurated in 2014 to support awareness and preparedness across the Indian Ocean; see http://iotic.ioc-unesco.org/