# END-TO-END TSUNAMI WARNING – AN OVERVIEW

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The following summarizes topics important for successful end-to-end tsunami warning. All responding stakeholders should have a basic understanding of tsunami science, and be familiar with warning concepts, detection, threat evaluation, and alerting methods, and emergency response and evacuation operations. In order to assist countries in strengthening their warning systems, the IOC has compiled and developed a Training Manual containing reference, best practice, decision support tools, and guidance materials summarizing key components, requirements, and operations to enable an effective and timely warning and evacuation against tsunamis. The materials were developed under the lead of the ITIC and in close partnership with experienced practitioners in tsunami warning and emergency response, and have been used in numerous training courses since the 2004 Indian Ocean tsunami. The Manual includes session plans, lectures (in Powerpoint), exercises, and multi-media materials. Together, they represent part of the IOC's collaborative contribution to national capacity building and training on end-to-end tsunami warning and tsunami standard operating procedures to countries of the Indian Ocean, Pacific, Southeast Asia, and the Caribbean.

The topics covered in end-to-end training courses typically include:
- Tsunami Science
- Tsunami Disaster Reduction Strategy
- Stakeholders, Roles & Responsibilities, and Standard Operating Procedures (SOPs) and their Linkages
- End-to-end Tsunami Response and SOPs
- Tsunami Warning Centre operations
- Tsunami Emergency Response operations
- Public Alerting
- The Role of Media
- Evacuation and Signage
- Use of Exercises to Build Preparedness
- Awareness and Education
- Community-based Disaster Risk Management

For specific details and algorithms and for actual descriptions of tsunami warning and emergency response operations, including data networks and data collection, methods of evaluation and criteria for action, products issued and methods of communication of alerts, and evacuation, original source references or plans should be consulted. These are the high-level system descriptions, operations manuals, and users guides of each regional and national system, as well as operations manuals.

Basic references providing a comprehensive summary on tsunami warning centre and emergency response operations considerations are:
- *IOC Manual on Tsunami Warning Centre Standard Operating Procedures (Guidance and Samples), version 2009 (drafts distributed as part of SOP capacity building).*
- *IOC Manual on Tsunami Emergency Response Standard Operating Procedures (Guidance and Samples), version 2009 (drafts distributed as part of SOP capacity building)*

For a description of the Pacific, Indian Ocean, and Caribbean systems, as provided by the Japan Meteorological Agency, Pacific Tsunami Warning Center, and/or the West Coast / Alaska Tsunami Warning Center), consult the system IOC Technical Series documents. These are:
- *PTWS Operational Users Guide (draft version December 2007)*
- *IOTWS Users Guide for the Indian Ocean Tsunami Warning and Mitigation System Interim Tsunami Advisory Information Service (version April 2007)*
- *Communication Plan for the Interim Tsunami Advisory Information Service to the Caribbean Sea and Adjacent Regions (version July 2006)*

General information of the IOC global tsunami warning systems and on tsunami mitigation and preparedness can be accessed at:
- *IOC: http://www.ioc-tsunami.org*
- *IOC ITIC: http://ioc3.unesco.org/itic or http://www.tsunamiwave.org*