

**WORKSHOP ON MULTI-HAZARD, EARLY WARNING CENTERS' CONCEPT OF OPERATIONS FOR THE INDIAN OCEAN TSUNAMI WARNING SYSTEM**

Item: 2

ENGLISH only

SINGAPORE, 21-23 NOVEMBER 2005

**ANNOTATED PROVISIONAL AGENDA****1. Opening**

The Workshop on Multi-Hazard Early Warning Centres' Concept of Operations for the Indian Ocean Tsunami Warning System will, at the kind invitation of the Singapore Meteorological Service, commence registration at 9:00 and open at 9:30 a.m. on Monday 21 November 2005 at Hotel Rendezvous (Tel: (65) 6336 0220; Fax: (65) 6337 3773; Email: sales@rendezvous.com.sg) in Singapore. General information for participants will be available via the WMO Web server at: <http://www.wmo.int/web/www/BAS/CBS-meetings.html>

**2. Organization of the Workshop**

- 2.1 Election of the Chair of the Workshop. The Workshop will be invited to elect the Chair of the Workshop from among the participants.
- 2.2 Approval of the agenda. The Workshop will be invited to consider the annotated provisional agenda with a view to its adoption.
- 2.3 Agreement on working arrangements. The Workshop will agree on details concerning the organization of its work including working hours. The documentation will be available in English only, and the Workshop will be conducted in English.

**3. Contribution of WMO RSMCs to the operational concept of Multi-hazard Early Warning Centres**

WMO is working together with UNESCO-IOC, ISDR and other key partners at the international, regional, and national levels to contribute its relevant capabilities to the development of end-to-end tsunami early warning systems in the Indian Ocean and other regions at risk. WMO is also committed to developing the capabilities of the National Meteorological and Hydrological Services (NMHSs) of the Indian Ocean Rim countries to establish an effective tsunami early warning system within a multi-hazard framework, particularly related to national multi-hazards alert and response mechanisms. The value of this effort applies not only to all the Indian Ocean Rim countries, but also to all regions at-risk.

The purpose of the workshop is to develop advice and recommendations for concept of operations of 24/7 TWS within multi-hazard warning systems. The following presentations will be made at the workshop to contribute to the development of the concept of operations of the candidate Tsunami Warning Centres:

Presentation by WMO Secretariat of the multi-hazard early warning concept

Presentation by WMO Secretariat of the goals of the workshop

The WMO Tropical Cyclone Programme (TCP) is established and maintained to primarily address the requirements for real-time operational meteorological watch, detection and to locate and forecast trajectory and intensity of Tropical Cyclones. WMO has implemented and maintained the operational Global and Regional Arrangements, for the provision of specialized tropical cyclone advisory products provided by 6 designated WMO Regional Specialized Meteorological Centres (RSMCs), with activity specialization in tropical cyclone forecasting, to its Members. The role of the national meteorological service includes interpretation of the advisory products and providing warnings to national disaster management agencies, other responders and the public. To demonstrate this unique experience of the WMO RSMCs on tropical cyclone forecasting the following presentations will be made at the workshop to contribute to the development of the concept of operations of the candidate Tsunami Warning Centres:

Presentations by RSMCs on tropical cyclone forecasting of operational practices and procedures and role of associated NMSs.

The WMO Emergency Response Activities (ERA) programme is established and maintained to primarily address the requirements for real-time operational meteorological support to nuclear accidents and radiological emergencies. The WMO, jointly with the International Atomic Energy Agency, has implemented and maintained the operational Global and Regional Arrangements, for provision of specialized atmospheric transport modelling products provided by 8 designated Centres of the WMO to its Members. The role of the national meteorological service includes interpretation of the products and providing advice to national disaster management agencies. The lead role in issuing warnings to disaster management agencies rests with the national atomic energy/radiation protection agency. To demonstrate the experiences of the WMO RSMCs on nuclear emergency response activities, volcanic ash and smoke from wild land fires detection and forecast, the following presentations will be made at the workshop to contribute to the development of the concept of operations of the candidate Tsunami Warning Centres:

Presentations by RSMCs of operational practices and procedures and role of NMSs for

- Nuclear emergency response activities
- Volcanic ash detection and forecast
- Smoke from wild-land fires detection and forecast

#### **4. Current practices and procedures of tsunami warning centres (TWCs)**

The operational objective of the Tsunami Warning System (TWS) is to detect and locate major earthquakes in the Indian Ocean region, to determine whether they have generated tsunamis, and to provide timely and effective tsunami information, advisory and warnings to the population of the Indian Ocean to minimize the hazards of tsunamis, especially to human life and movable property. To achieve his objective, the TWS has to establish and

implement practices and procedures that ensure continuous monitoring, processing and dissemination of the seismic activity information and related impact on sea level of the relevant Ocean. The workshop will be informed of the outcome of the IOC Intergovernmental Coordination Group (ICG) Working Group 4, the current experiences of the TWCs for the Pacific basin, and interim arrangements for the Indian Ocean. The following presentations will be made at the workshop to contribute to the development of the concept of operations of the candidate Tsunami Warning Centres:

Presentation of IOC- ICG- Working Group 4 Report

Presentations by JMA and PTWC Honolulu of current operational practices and procedures for their TWCs. JMA will present their national tsunami warning practices and procedures. PTWC will present Pacific Basin tsunami advisory and warning practices and procedures

Presentations by JMA and PTWC Honolulu, of interim operational arrangements for providing interim tsunami advisory information to authorized contacts in the Indian Ocean States

Presentation by ASEAN TWC Jakarta of their current operational practices and procedures

Presentation by selected NTWCs/NMS on their current operational practices and procedures.

## **5. Development of recommendations for concept of operations of RTACs and NTWCs**

The Workshop is invited to form two sub-groups and develop advice on practices and procedures for the following issues, needed to assure the IOTWS operational objective and other multi-hazard early warning systems are achieved. The advice will be used by WMO in further development of its multi-hazard concept of operations and will also be provided to the IOC Intergovernmental Coordination Group (ICG) for the IOTWS, in particular its Working Group 4.

Subgroup 1 will address the following issues:

- Notification and provision of incident data with tsunamic generating potential to TWCs
- Collection and provision of sea-level and sea state including deep sea-wave monitoring data and information to TWCs
- Reliability and readiness of related aspects of the above bullets
  - Contingency plans, preparedness (tests and exercises), operational redundancy

Subgroup 2 will address the following issues:

- Generation and dissemination of tsunami advisories at regional advisory centres
- Generation and dissemination of tsunami warnings at national warning centres

- Dissemination to national disaster management agency and other responders including the targeted local communities.
- o Reliability and readiness of related aspects of the preceding two bullets
  - Contingency plans, preparedness (tests and exercises), operational redundancy

**6. Presentation of reports of sub-groups**

**7. Adoption of final report of the workshop**

**8. Closure**

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