

## **TSUNAMI WARNING BROADCASTS**

**Submitted by AUSTRALIA**

### **1. ACTION REQUIRED**

The Commission is requested to:

- a) review the following comments concerning COMSAR Circular 36 as provided under agenda item 3.1.1; and
- b) decide as appropriate in respect of the recommendation in section 5 in establishing a joint working group comprising members from IMO, IHO, WMO and the IOC to further consider the matter of Tsunami warning broadcasts.

### **2. BACKGROUND TO TSUNAMI WARNING ARRANGEMENTS IN AUSTRALIA AND NEARBY COUNTRIES**

#### **2.1 INTERNATIONAL WARNING ARRANGEMENTS IN NAVAREA X, INCLUDING ITSU AND IOTWS**

2.1.1 At the present time tsunami warning arrangements in the countries located within Navarea X are not well developed. Following the Indian Ocean tsunami disaster of 26 December 2004 significant activity has taken place to initiate the development of the necessary detection, communications, scientific and operational infrastructure, including considerable capacity building and training, to support provision of tsunami warning services in both the Indian and Southwest Pacific ocean basins. Planning for the Indian Ocean Tsunami Warning System (IOTWS) is at an early stage. There are now strong commitments to the very large national and international efforts that are needed for this project to succeed.

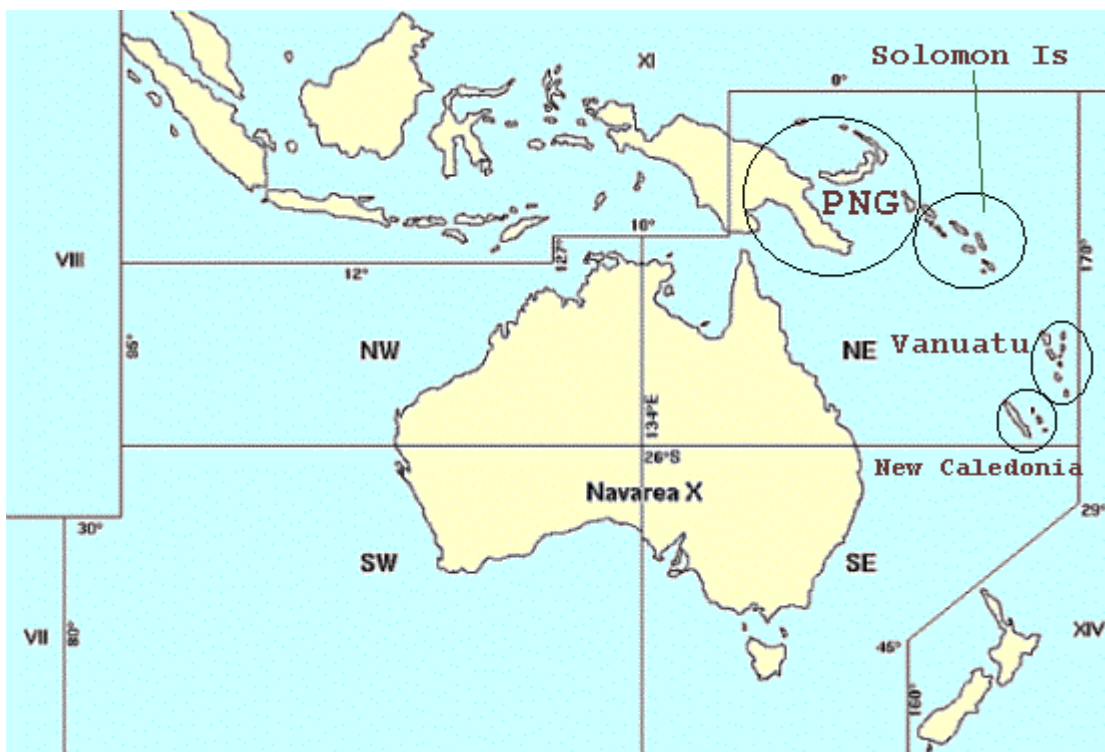
2.1.2 The Tsunami Warning System in the Pacific (ITSU) is currently the only operational international tsunami warning service in Navarea X. The terms of reference for ITSU do not cover the Indian Ocean. However, following the December 2004 event, interim arrangements have been put in place through which tsunami advices for the Indian Ocean are being provided by the Pacific Tsunami Warning Centre (PTWC) in Hawaii, which is the central operational node of ITSU and the Japan Meteorological Agency (JMA). International efforts to develop the IOTWS are underway but a fully-fledged operational system is not expected for several years. However, it is likely that some of the more developed or active countries will implement some kind of national warning arrangements well before the whole system is operational.

## 2.2 ARRANGEMENTS IN AUSTRALIA, INCLUDING ATAS AND ATWS

2.2.1 In Australia action to expedite the implementation of the Australian Tsunami Alert Service (ATAS) is in train. The ATAS was being developed jointly by the Bureau of Meteorology, Geoscience Australia (GA) and Emergency Management Australia (EMA), prior to the December 2004 event, utilising the limited existing resources of the participating agencies. In the wake of the December 2004 event, the Australian government has provided \$68.9M funding for a four-year project to develop the Australian Tsunami Warning System (ATWS). The ATWS will supplant the ATAS when fully implemented in 2009 and will contribute to the tsunami warning services in the Indian and Southwest Pacific Ocean basins, ie. in Navarea X. The exact nature of the contributions have not been determined at this stage. However, a primary objective of the ATWS is that tsunami warning services relevant to Australia and its territories are provided from an Australian centre.

2.2.2 At the present time warnings are promulgated by the Bureau of Meteorology, with the assistance of GA and advice from the PTWC. Under ATAS, warnings will be jointly issued although the Bureau will be the agency disseminating the messages. Operational arrangements for issuing warnings under ATWS are likely to be similar to ATAS, however, the infrastructure and supporting systems will be vastly improved, leading to a significant increase in capability to detect and predict dangerous tsunamis.

## 2.3 ARRANGEMENTS IN NEARBY COUNTRIES



**Figure 1- Navarea X**

2.3.1 Generally speaking nearby countries (see Figure 1) do not at this time have an independent capacity to issue tsunami advices for their territories. Southwest Pacific island countries rely on the PTWC, which may or may not provide detailed advice/warnings, depending on arrangements, which may have been brokered with the PTWC. Further, the PTWC only serves those Pacific countries,

which are members of ITSU<sup>1</sup>. Thus the service it provides is not uniform or complete in geographical coverage.

2.3.2 Warning arrangements in the Indian Ocean are at an early stage. The Bureau of Meteorology promulgates Advises/Warnings for Australia. Refer to comments in para 2.2.2 above.

### **3. THE COMSAR 9 DECISION – COMSAR/Circ. 36**

3.1 The public good was clearly behind the decision by COMSAR 9 to encourage the re-broadcast of tsunami warnings/advisories via the GMDSS SafetyNET service. However, there are a number of difficulties in implementing the decision with respect to tsunamis at least in Navarea X. It is not clear how warning information concerning small Pacific countries in Navarea X which are not party to ITSU, will be captured for promulgation via SafetyNET. Hopefully the situation regarding ITSU non-member countries will be resolved more generally at the twentieth session of the International Coordination Group (ICG) of ITSU (ITSU-XX, Chile, 3-7 October 2005). While ITSU membership is voluntary, the PTWC has seen a duty of care for non-members, which no doubt has been intensified in light of the December 2004 event. Its policy on providing tsunami warnings to these countries will be discussed at ITSU-XX. Until this matter is resolved, and as an interim measure, the Navarea X coordinator (AMSA), in consultation with the Bureau of Meteorology will continue to broadcast relevant extracts from tsunami warnings/advisories provided by the PTWC.

3.2 Within Australia an interim arrangement for generating brief tsunami advisories, suitable for SafetyNET messaging, has been developed between the Bureau of Meteorology and AMSA. In practical terms, this will involve interpreting ATAS and eventually ATWS advisories/warnings into a form suitable for broadcast to shipping, together with an assessment of their status (advisories or warnings) and related broadcast priority.

3.3 Bearing in mind para 3.1 above it is likely that the PTWC will be approached to assist in the derivation of SafetyNET messages for countries in the Navarea outside of Australian national responsibility.

3.4 The Bureau of Meteorology supports the intent of the decision, but is of the view that it can only be partially implemented in Navarea X at the present time. It is anticipated that as international coordination and strengthening of intergovernmental tsunami warning activities gather pace over the coming year or so, the operational impediments raised here will be resolved. Pending outcomes of ITSU-XX, that resolution may be fairly swift if:

- a) the problem of lack of coverage by ISTU in several Pacific countries can be addressed as an urgent priority; and
- b) derivation of appropriate SafetyNET messages for countries outside Australian responsibility can be agreed and implemented.

### **4. THE AUSTRALIAN POSITION**

4.1 Australia recognises that the COMSAR 9 decision to encourage the use of the SafeyNET service for the transmission of tsunami warnings to shipping at sea and in port is an interim measure until effective tsunami warning centres are established and registered. To enhance the interim

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<sup>1</sup> Presently restricted to Australia, Cook Islands, Fiji, France (territories such as New Caledonia), Indonesia, New Zealand, Samoa and USA territories.

arrangements and make progress towards establishing the more permanent arrangements, resolution of the following points would be useful:

- a) IMO will better facilitate the implementation of SafetyNET broadcast of tsunami warnings to ships if it resolves concerns about the primary sources of tsunami warning or advisory information. Taking the example of Navarea X, there remain uncertainties about the source of tsunami warnings or advisories for the part of the area covering several island countries in the NE corner of the Navarea. In other Navareas, especially covering the Indian Ocean, tsunami warning arrangements are in a state of early development. For the Indian Ocean there will not be a single source of tsunami warnings, but rather a network of national or regional centres acting independently but within a commonly adopted operational and technical framework. Thus the coordination of tsunami warning information is a significant factor for the agency tasked with deriving messages to be broadcast via the SafetyNET service.
- b) It is Australia's view that the more permanent coordination arrangements need to be jointly developed by IMO, IHO, WMO and the Intergovernmental Oceanographic Commission (IOC). The IOC is the intergovernmental body which manages and coordinates international tsunami warning arrangements. ITSU is a program of the IOC. WMO's involvement is useful since most of the agencies involved in providing tsunami warning services are, or are likely to be, national meteorological services. WMO and IOC also jointly operate the global intergovernmental coordination mechanisms for marine meteorological and oceanographic services. It would be extremely useful for the CPRNW to establish a joint IMO-IHO-WMO-IOC working group to determine the most appropriate way to implement the more permanent arrangements. The group would identify the issues and obstacles to implementation and how to solve them. It would also be helpful if it looked into the relevance of tsunami warnings to shipping and how best to target information for the SafetyNET user segment.

## **5. RECOMMENDATION**

5.1 Australia, recalling that the Intergovernmental Oceanographic Commission (IOC) of UNESCO is the intergovernmental organization having responsibility for managing and coordinating the provision of tsunami warnings, and recognising that the World Meteorological Organization (WMO) represents Members (of the United Nations) whose national meteorological services are most likely the responsible national agencies for operating tsunami warning services in those countries, it is proposed that the CPRNW should establish a joint working group between IMO, IHO, WMO and the IOC.

5.2 This working group should:

- a) evaluate the actions required to implement the COMSAR 9 decision to initiate operational transmission of tsunami warning information to shipping via the GMDSS SafetyNET service;
- b) provide the initial coordinating mechanism between the IMO, IHO, WMO and IOC for developing the new service; and
- c) ensure that the priority (status), format and contents of the SafetyNET broadcasts meet the requirements of shipping for information about the tsunami hazard and that the messages about the likely impact during a warning event are well targeted and plainly understood.

5.3 The working group should be set up as soon as is practical.