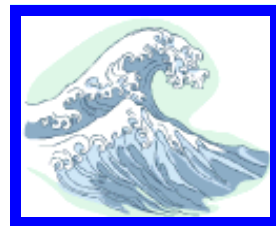


Tsunami Newsletter



INTERNATIONAL TSUNAMI INFORMATION CENTER - ITIC

SUMMARY OF PACIFIC BASIN EARTHQUAKES

Occurring December 2000—January 2001

*With surface wave or moment magnitudes greater than or equal to 6.5,
with a depth no greater than 100 km, or an event for which a TIB or RWW was issued.
(Preliminary Ms provided by PTWC, Harvard's moment and depth through NEIC)*

DATE	LOCATION	TIME (UTC)	LAT.	LONG.	DEPTH (km)	Ms	Mw	PTWC AC- TION	ACTION (UTC)	Tsunami
Dec 21	New Britain Region	01:01	5.7 S	151.1 E	36	6.5	6.4			No
Jan 1	Mindanao, Philippines	06:57	7.0 N	126.6 E	40	7.3	7.4	TIB	07:24	No
Jan 9	Vanuatu	16:49	14.7 S	167.1 E	112	—	7.0	TIB	17:38	No
Jan 10	Kodiak Island Region, Alaska	16:03	57.0 N	153.4 W	33	6.8	7.1	TIB	16:13	No
Jan 13	Off Coast of Central America	17:33	13.1 N	88.8 W	48	7.8	7.7	TIB RWW Sup 1 Sup 2 Sup 3 Sup 4 Cancel	17:57 18:08 19:06 20:04 21:08 22:01 22:29	No
Jan 16	Sumatera, Indonesia	13:25	3.9 S	101.6 E	33	6.7	6.1	TIB	14:21	No

TIB=Tsunami Information Bulletin **RWW**=Regional Watch Warning **Sup**=Supplemental message

MEETING OF EXPERTS FROM THE CARIBBEAN AND ITSU INITIATES ORGANIZATION OF INTRA-AMERICAS SEA TSUNAMI WARNING SYSTEM by Michael Blackford

Twenty experts from the fields of earthquake and tsunami research, tsunami warning center operations, and disaster emergency management met in Mayaguez, Puerto Rico from the 19th to the 21st of December 2000 to discuss the next steps to be taken in the organization and establishment of a tsunami warning system in the Caribbean. Representatives from Colombia, Costa Rica, Dominica, France, Nevis, Puerto Rico, St. Vincent, the Virgin Islands, and the United States were present. There were also representatives from the Organization of the American States (OAS) and from the UNESCO/Intergovernmental Oceanographic Commission (IOC).

From the earliest days of the region's recorded history, there have been reports of disastrous tsunamis causing considerable loss of life and significant property damage. In 1996, a regional meeting was held in the Virgin Islands to formally consider whether or not establishing some form of tsunami warning system was necessary for the Intra-Americas Sea (IAS). The conclusion of those present at that meeting was that indeed such a warning system was necessary. In addition to a number of smaller sessions, held in conjunction with related topical meetings in the region, a second formal meeting on developing a plan for an Intra-Americas Sea tsunami warning system was held in Mayaguez in 1997. At that meeting, a plan was developed and presented at the International Coordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU) 17th Meeting in Seoul, Korea in 1999. The Group decided that a joint meeting between experts from the ITSU and the IAS TWS Steering Group should be held to review the project and to discuss strategies for its implementation, thus, this meeting was held in Mayaguez in December 2000.

The Department of Marine Sciences of the University of Puerto Rico at Mayaguez hosted the meeting at their on-campus facilities. Professor Aurelio Mercado, chairman of the local organizing committee, opened the meeting and a series of welcoming addresses were presented. Mr. Richard Hagemeyer, U.S. National Contact to, and former Chairman of, the ICG/ITSU, and Dr. George Maul of the Florida Institute of Technology and Chairman of the IAS TWS Steering Group were elected co-chairmen. They conducted the remainder of the meeting agenda. The current Chairman of the ICG/ITSU, François Schindele, presented a series of objectives for the meeting: 1) share experience of the ICG/ITSU in the creation and operation of its system with the IAS experts; 2) establish bonds of cooperation between tsunami and earthquake scientific groups of the Pacific and IAS regions and identify ways and mechanisms of cooperation; and 3) decide on the steps to be taken for the finalization of the tsunami warning system project proposal for the IAS region and develop an action plan. George Maul followed with synopsis of past efforts by the Steering Group in its efforts to move forward establishment of an IAS TWS.

Dr. Schindele led off the presentations with a brief description of the causes and types of tsunamis and of the characteristics of tsunamis that can be expected in the IAS region. Michael Blackford, Director of the ITIC, described tsunami warnings in general, from the natural warning provided by the occurrence of a very strong earthquake nearby to the sounding of an alarm following the detection of the seismic waves from a distant earthquake. He pointed out that in contrast to the more or less homogenous regional TWSs in the Pacific area, usually under a limited number of governmental jurisdictions, a regional system in the IAS region would be much more diverse and would spread across many independent political entities. This most likely will have repercussions on the form an IAS TWS takes when it is established.

James Lander reviewed the tsunami history of the area and announced that a new, updated Caribbean Tsunami Catalog will be published early in 2001. Richard Hagemeyer described the commitment of the United States to the IAS project. While the United States in its NOAA Strategic Plan for Weather, Water and Climate Services for 2000-2005 will be expanding its tsunami program into the IAS area, it does not expect to support a system like the systems it currently operates in the Pacific. Its support will come in the areas of providing basic resources focused on the tsunami characteristics of the IAS area and, more directly, through the cooperation of its agencies and resources located in the IAS area with the timely exchange of information on potentially tsunamigenic events. Mr. Hagemeyer also demonstrated how emergency managers may use computer-based tsunami databases to evaluate quickly the tsunami risk in specific localities during events. While the database for the Pacific is well along in its development, Mr. Hagemeyer pointed out that there is much room for improvement in the IAS region.

Mr. J. Vermeiren of the OAS and representatives from the various Caribbean localities made presentations on the status of tsunami preparedness in their localities. In general, their comments indicate that there exists a relatively low level of preparedness in the region compared to the hazard present. Because past history has shown that most tsunamis in the region have been only locally destructive, they felt that emphasis should be placed on education programs on tsunami awareness.

Attendees then broke into four groups, sea-level measurement, seismic instrumentation and detection, communications, and program implementation, to discuss in more detail these aspects of the proposed IAS TWS. The sea-level measurement system should take advantage of systems already in place in the IAS region for various meteorological and oceanographic programs adapting them where necessary to the requirements of a TWS. Some additional stations may need to be installed. With regard to seismic instrumentation the subgroup considered that the installation of about eight broad, three-component instruments equipped with TREMORS software would be most effective. A TREMORS package detects the arrival of a seismic event, makes a fairly reasonable estimate of the event's location and size and alerts the station operator of the event's occurrence. Each operator and participant in the system would receive data from all the stations in a satellite relay system and each participant would take appropriate action for his or her sub-region according to predetermined guidelines. The communications

—IAS TWS meeting, con't—

subgroup considered various alternatives for the timely distribution of the seismic and water level data. Two systems; EMWIN and INMARSAT, and combinations thereof were discussed. Further investigations into these systems are necessary before a final system is implemented. In the area of program implementation the OAS tentatively volunteered to take on the task of finding support for the initial establishment of an IAS TWS but it would hand over the actual implementation of the system to the participants involved. The participants would form a program advisory group (PAG). The main task of the PAG initially would be to oversee the implementation and development of the IAS TWS and subsequently to review its operation and make adjustments and improvements where necessary. Meeting at regular intervals, the PAG would function in a manner similar to the ICG/ITSU.

A number of action items based on the discussions were developed. Deadlines for these action items were optimistically set for completion during the first six months of 2001. If all goes well, actual implementation of an IAS TWS could happen in the next couple of years. The complete text of the report on the meeting will soon be available from the IOC and it will be posted on the ITIC web page.



ITIC NEWS

NATIONAL CONTACT UPDATES

New National Contact for Australia



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New National Contact for Chile



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2001 CONFERENCES

The following are some of the conferences scheduled for 2001, which may be of interest to tsunami researchers:

- March 21-23, GDIN 2001. (The second Global Disaster Information Network Conference) Canberra, Australia. [Http://www.ema.gov.au/gdin](http://www.ema.gov.au/gdin).
- March 25-30, The XXV EGS General Assembly. Session NH8 "Tsunamis", Nice, France. Contact steve@ibogfs.df.unifo.it or <http://www.mpae.gwdg.de/EGS/EGS.html>.
- July 8-11, PACON 2001. "Environmental Technologies for Sustainable Maritime Development", San Francisco, CA. Pacon@hawaii.edu, or for general information see <http://www.hawaii.edu/pacon>.
- September 3-5, WAVES 2001. The Fourth International Symposium on Ocean Wave Measurement and Analysis, San Francisco, CA. For contact information: waves@edge.tamu.edu or <http://edge.tamu.edu/waves2001>.
- November 19-23, EMECS 2001, Fifth International Conference on the Environmental Management of Enclosed Coastal Seas. Kobe, Japan. For contact information: secret@emecs.or.jp, <http://www.emecs.or.jp>.

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[http://www.shoa.cl/oceano/itic/
frontpage.html](http://www.shoa.cl/oceano/itic/frontpage.html)

Located in Honolulu, the **International Tsunami Information Center (ITIC)** was established on 12 November 1965 by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO). In 1968, IOC formed an International Coordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU). The present 25 Member States are:

Australia, Canada, Chile, China, Colombia, Cook Islands, Costa Rica, Democratic People's Republic of Korea, Ecuador, Fiji, France, Guatemala, Indonesia, Japan, Mexico, New Zealand, Nicaragua, Peru, Philippines, Republic of Korea, Singapore, Thailand, Russian Federation, United States of America, and Western Samoa.

ITIC is responsible, among other functions, for: **M**onitoring the international tsunami warning activities in the Pacific and recommending improvements with regard to communications, data networks, data acquisition, and information dissemination; **B**ringing to Member States and non-member States information on tsunami warning systems, on the affairs of ITIC and on how to become active participants in

the activities of ICG/ITSU; **A**ssisting Member States of ITSU in the establishment of national warning systems and improving preparedness for tsunamis in all nations throughout the Pacific Ocean; **G**athering and promulgating knowledge on tsunamis and fostering tsunami research and its application to prevent loss of life and damage to property.