

Tsunami Newsletter



INTERNATIONAL TSUNAMI INFORMATION CENTER - ITIC

SUMMARY OF PACIFIC BASIN EARTHQUAKES

Occurring April —May 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)	M _s	M _w	PTWC ACTION	ACTION (UTC)	Tsunami
May 25	Kuril Islands	00:41	44.5 N	148.2 E	30.4	6.6	6.7	TIB*	01:10	No

*Tsunami Information Bulletin

This issue's list of one earthquake, is unusually short. There were several earthquakes over magnitude 6 (Solomon Islands May 9, Fiji, May 15, Mexico May 20, Indonesia May 28) Before going to press on June 2, a magnitude 7 occurred near the Kermadec Islands. It will not be listed in the next newsletter, since it was deeper than 100 km.

ISDR UPDATE

**United Nations
International Strategy
for Disaster Reduction
(ISDR)**



The theme of the UN's ISDR 2001 Campaign is "Targeting Vulnerability". The ISDR is developing materials to support this campaign which will culminate on World Disaster Reduction Day, October 10, 2001. All parties are being asked to organize local events to address the role of science and technology, in building the needed infrastructures and planning to minimize the effects of disasters. There will be a prize awarded for risk assessment maps drawn of local communities and a map-making contest for children. Materials can be adapted from those supplied by the ISDR Secretariat. Guidelines are provided at: <http://www.unisdr.org/unisdr/camp2201guide.htm>

For more information on this year's theme "Targeting Vulnerability" please contact:

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WEB WATCH

The Tsunami Community, an ad hoc committee of 14 tsunami researchers, has developed a web site at <http://www.tsunamicommunity.org>. Designing it to be a stage for research-in-progress and data exchange, Phil Watts, one of the committee members, anticipates involvement by both the research community and emergency managers. The following goals are stated on the introductory page;

- To describe tsunami generation
- To facilitate tsunami hazard mitigation
- To document historical tsunamis
- To provide tsunami benchmark problems
- To distribute seafloor bathymetry
- To showcase community models
- To provide tsunami case studies
- To simulate future tsunami scenarios
- To gather tsunami links and songs.

Featured in the link from 'to describe tsunami generation', are clearly diagrammed explanations of how tsunami can be generated through plate tectonics or landslides with mathematical equations included. (As of this review, the outline includes future links to similar definitions for generation by meteors and volcanoes). The site includes, recent research regarding the use of hydroacoustic recorders to record occurrences of an underwater landslide. The section on benchmarking begins with a discussion of the inherent need to define model assumptions and includes a list of standards to use in modeling. Data sets are available for downloading that make it possible to model tsunami based on underwater landslide data. The aim is to make this data available so others will be free to use, refine, or expand on it. Take a look; contributions and comments are encouraged. The names and e-mail addresses of the committee are provided as are instructions on how to submit materials that can be posted on the site following committee review. Here's to the site — may it be so successful it requires a search engine!

www.tsunamicommunity.org

Another new site is **Tsunami: Linking Insurance and Science**; <http://www.nerc-bas.ac.uk/tsunami-risks/index.html>. It is sponsored by The Tsunami Initiative, a group which seeks to promote understanding of tsunami hazards within the insurance industry. It created this site out of its 'Tsunami Risks Project'. The Initiative emerged from the Foresight Programme, a general initiative by the Government of the United Kingdom to stimulate science and industry interchanges. This site provides useful background information on tsunami within a social/economic context.

Given its goal to educate those in the insurance industry, this site provides a substantial amount of material on tsunamis. It is the finest attempt to date at addressing the phenomena of tsunami on the Web in a way that promotes science literacy. Besides a concrete introduction to tsunami in terms of causes and physics, the disastrous impact to society is thoroughly explored. Each page of the site has a different factoid relating to tsunamis, which will appeal to an entry level explorer.

A risk assessment atlas for the world is provided that when swept by a cursor, will display a graph of tsunami height against a thousand year return period for various regions around the world. Some of the regions are quite large and it would help to see points for locations for which the data is collected. For instance, given the Hawaiian region, the given 20 m height probability is maximized in Hilo as opposed to uniform for the region delimited. This could be pinpointed on the map with a red dot. The specifics of tsunami directionality and localized impact are not taken into account. Although vague, comparative conclusions can be drawn from this map and graphs, it is clearly material which calls on the viewers critical thinking, and at least makes the non-expert aware that the risk of tsunami does vary from place to place.

A case study evaluates the effects the 1964 Alaska Earthquake Tsunami would have it were to occur again in 2000. It looks at what the present day impact would be to the Alaska's tourism, oil, fishing and insurance industries. Another section covers possible consequences in general, citing damage to infrastructures and social/political consequences such as compromised housing and public health.

A paper by A.G. Dawson, "Tsunami risk in the Northeast Atlantic Region", discusses the possibility of tsunami occurring along Northern European coastlines and the potential damage to off-shore structures.

The warning system in the Pacific is described under the section on mitigation and some points are made as to the success and failure of the system. Weaknesses include the inability to address local crisis, the lack of accuracy in tide records, singular reliance on seismic data, and lack of methods to calculate the time of the final wave. Although, those involved in the warning system may be able to offer elaborations on these points or add to the list, knowing that problems exist is a step forward in letting the non-expert know that the situation is complex, the science imprecise and ongoing effort is required.

www.tsunamicommunity.org

A new edition of Steven K. Baum's *Glossary of Physical Oceanography and Related Disciplines* is now available on the Web at <http://stommel.tamu.edu/~baum/paleo/ocean/ocean.html>. Associated with the Department of Oceanography at Texas A&M University, Baum has compiled a useful list of terms and acronyms. The preface to the older edition at <http://stommel.tamu.edu/~baum/paleo/paleogloss/node1.html> explains the scope and links to 'Web competition', 20 glossaries dealing with any of the included subjects. The older site also links to 9 lists of acronyms.

[www.stommel.tamu.edu/~baum/paleo/paleogloss/node1.html](http://stommel.tamu.edu/~baum/paleo/paleogloss/node1.html)

IMPROVEMENTS IN STORE FOR TSUNAMI WAVE RESEARCH

A major upgrade is in store for the multidirectional wave basin at the O.H. Hindsdale Wave Research Laboratory at Oregon State University. According to Solomon Yim, Professor of Civil Engineering at OSU, the wave basin will be operational with advanced tsunami testing capabilities by October 2003, and available for researchers world-wide to conduct experiments by October 2004. In 2004, the basin will be functional for both remote operations and remote observation via the Internet. That is, any number of researchers, anywhere, in conjunction with engineers at the wave basin, will be able to carry out and monitor hydraulic experiments in real-time. Furthermore, the data will be available and archived for future reference. Yim is the principle investigator (with Professors Cherri Pancake and Charles Sollitt, co-PI's) in a grant, from the National Science Foundation George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) program, to fund the tsunami research center at Oregon State University.

Enhancements to the existing wave basin will make it the largest of its kind. The dimensions of the wave basin will expand from existing dimensions of 60' x 87' x 5' deep to 87' x 160' x 6.6' (approximately 26.5 meters x 30.5m x 2m deep). The generator's capacity will be: stroke: 6.6' (2m), velocity: 6.1 ft/sec (1.86m/sec), and capable of creating a tsunami height of 2.6 ft. (79 cm). Data will be collected through various instruments including: electro-resistive water gauges, Doppler velocimeters, pressure gauges, accelerometers, force transducers, surface and underwater video, microphones and hydrophones. US Government sponsorship is not necessary for proposals to conduct experiments at the lab and ITIC encourages all parties in ITSU Member States to consider taking advantage of this resource. Research into viscosity, debris flow, wave attenuation, lift/drag/inertia and large structure diffraction are all possible areas of experimental research.

TSUNAMI NEWS FROM CANADA

Submitted by Fred Stephenson

Tsunami Warning Plan Updated

The Provincial Emergency Program (PEP), which has the responsibility to provide tsunami warnings to all local governments and government agencies in British Columbia, has updated their Tsunami Warning and Alerting Plan. The updated version of the Plan (January 2001) is available in Adobe Acrobat format on the PEP website <http://www.pep.bc.ca/>. Additional information available at this website includes a Kids Zone with emergency preparedness games and puzzles for younger web surfers.

Improving our Response Capability

The three dedicated tsunami monitoring stations on the British Columbia coast each have the capability to send or receive information by MSAT satellite communication. At present that communication is between the monitoring station and the base station at the Institute of Ocean Sciences. The Canadian Hydrographic Service (CHS) plans to further improve the response capability by: (1) making the water level information available in real time to Tsunami Warning Centres and

Provincial Emergency Program officials via the internet, and (2) allowing CHS responders to communicate directly with the monitoring stations and the IOS base station using iPAC handhelds and cellular phones. Both initiatives will help ensure rapid access to information at times outside of normal office hours. These projects will be reported on in more detail at the IOC/ITSU meeting in October.

Numerical Modeling Initiative

The government of Canada through the *New SAR Initiatives Fund* has provided \$220K (CAN) for a three year program to develop numerical models for estimating tsunami wave amplitudes and currents resulting from a Cascadia Subduction Zone earthquake. The study will focus on harbours and anchorages along the west coast of Vancouver Island. The results of the model simulations will assist the Canadian Coast Guard in developing tsunami preparedness and Search and Rescue (SAR) guidelines, and for preparing information for public distribution. Much of this area has been re-surveyed to modern standards in the past 15 years and exists in digital form for use in local-area high-resolution models. Multibeam survey data also exists for several of the candidate harbors.

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INTERNATIONAL TSUNAMI INFORMATION CENTER (ITIC)



[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: **Monitoring** the international tsunami warning activities in the Pacific and recommending improvements with regard to communications, data networks, data acquisition, and information dissemination; **Bringing** 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; Assisting Member States of ITSU in the establishment of national warning systems and improving preparedness for tsunamis in all nations throughout the Pacific Ocean; **Gathering** and promulgating knowledge on tsunamis and fostering tsunami research and its application to prevent loss of life and damage to property.