IUGG TSUNAMI COMMISSION ACTIVITIES REPORT 1995-1999

The activity of the IUGG Tsunami Commission in 1995-1999 was centered on six main areas:

1. Upgrading the status of the Commission
2. Sponsoring of tsunami related meeting, conferences and workshops
3. Publication of proceedings, reports and scientific articles
4. Coordinating the tsunami related research projects
5. Coordinating the Field Tsunami Surveys
6. Supporting information exchange through electronic Tsunami Bulletin Board and dedicated Web sites

1. Upgrading the status of the Commission

The IUGG Tsunami Commission (IUGG/TC) is an Inter-Association Commission responsible for international coordination of tsunami related meetings, researches, field surveys and other tsunami related efforts. Since 1995, the IUGG/TC is chaired by Viacheslav K.Gusiakov (Novosibirsk, Russia) with James F.Lander (Boulder, USA) serving as Secretary and Yoshinoby Tsuji (Tokyo, Japan) and Stefano Tinti (Bologna, Italy) as Vice-Chairmen. Currently, the Commission membership includes 33 members representing 12 countries (Australia, Canada, Chile, Greece, Italy, Japan, Korea, Portugal, Russia, Turkey, United Kingdom, USA).

Until 1995, the International Tsunami Commission had been jointly sponsored by two Associations - IASPEI and IAPSO, but this was expanded to include the IAVCEI in view of importance of volcanic generated tsunamis. This required the agreement of the three associations and the IUGG Executive Council. This was accomplished in the fall of 1996. The IAVCEI has nominated Y.Nishimura (Usu Volcano Observatory, Hokkaido University, Japan) to serve as a official IAVCEI representative at the UIGG/TC. The official representatives of IASPEI and IAPSO are commission members Kenji Satake (Geological Survey of Japan, Tsukuba, Japan) and Fred Camfield (U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, USA), respectively.

2. Sponsoring of tsunami related meeting, conferences and workshops

The 18th International Tsunami Symposium was held in Melbourne, Australia, on July 2-4, in conjunction with the Joint Assemblies of IAMAS and IAPSO. This was the first symposium held in the Southern Hemisphere since the 1974 Symposium in Wellington, New Zealand. The Symposium was convened by Dr. Roger Braddock. A total of 40 papers were presented in 10 sessions chaired by Dr.V.Gusiakov, Dr.K.Satake, Dr.E.Pelinovsky, Dr.N.Shuto, Dr.F.Gonzalez, Dr.W.DeLange and Dr.E.Bryant. Authors were present from Australia (6), Indonesia (2), New Zealand (2), Japan (18), Russia (4), Greece (2), Turkey (1), and the United States (5). On average, there were about 30 attendees in each session. Whenever it was possible, the presentations were followed with

a lively question and answer period. The biannual business meeting of the Commission was held on Wednesday evening, July 2 at the Melbourne Congress Center.

In addition to this major biannual international tsunami symposium, in the period from 1995 to 1999, the IUGG/TC sponsored and/or its officers participated as officially invited representatives of the IUGG/TC in the following tsunami-related meetings, conferences and workshops:

IOCARIBE Tsunami Warning System Workshop held in St. John, Virgin Islands, on May 23-24, 1996 (J.Lander)

XV Session of the International Coordination Group for the Tsunami Warning System (ICG/ITSU) in the Pacific held in Papeete, Tahiti, July 24-26, 1995 (V.Gusiakov, J.Lander)

Two Great Tsunamis: U.S. - Japan Anniversary Symposium and joint UJNR Workshop was held in Hilo, Hawaii on April 1-3, 1996.(J.Lander)

International Workshop "Tsunami Mitigation and Risk Assessment" held in Petropavlovsk-Kamchatkiy, Russia on August 21-24, 1996 (V.Gusiakov, J.Lander, Y.Tsuji)

GITEC Project Working Meeting held in Reykjavik, Iceland on September 5-9, 1996 in conjunction with XXII General Assembly of the European Seismological Commission (V.Gusiakov, S.Tinti).

The Second Caribbean Conference on Natural Hazards and Disasters held in Kingston, Jamaica on October 9-12, 1996 (J.Lander)

Caribbean Tsunami Workshop held in Mayaguez, Puerto Rico on June 11-13, 1997 (V.Gusiakov, J.Lander).

XVI Session of the International Coordination Group for the Tsunami Warning System in the Pacific held in Lima, Peru, September 22-25, 1997 (V.Gusiakov, J.Lander)

Tsunami Sources Workshop held in Thessaloniki, Greece on August 18-31, 1997 in conjunction with XX General Assembly of the International Association of Seismology and Physics of Earth Interiors (V.Gusiakov, S.Tinti, Y.Tsuji)

International Workshop on Bathymetry and Coastal Topography Data Management held in Seattle, USA on March 20 and 21, 1998 (V.Gusiakov, J.Lander)

International Conference "Modern Preparation and Response Systems for Earthquakes, Tsunami and Volcanic Hazards" held in Santiago, Chile on April 27-30, 1998 (V.Gusiakov, J.Lander)

HAZARDS'98, 7th International Conference on Natural and Man-Made Hazards, May 17-22, 1998, Chania, Crete, Greece (V.Gusiakov, J.Lander)

Tsunami Workshop sponsored by the European Union, UNESCO, and the Laboratory of Detection and Geophysics held in Paris, France on 26-28 May, 1998, (J.Lander, S.Tinti)

Okushiri Tsunami Workshop held in Sapporo, Japan on July 9-13, 1998 (J.Lander, Y.Tsuji)

ICG/ITSU Officers Meeting held in Honolulu, USA on January 25-29, 1999 (V.Gusiakov, J.Lander))

3. Publication of proceedings, reports and scientific articles

Proceedings of the 1995 Tsunami Symposium in Boulder, CO, USA. was published by Kluwer Academic Publisher as a 218-page book titled "Perspectives on Tsunami Hazard Reduction" with the IUGG/TC member .J.Hebenstreit served as the Editor

Proceedings of the Kamchatka Tsunami Workshop was edited and published by V.Gusiakov, IUGG/TC Chair as 68-page report: "Tsunami Mitigation and Risk Assessment", Computing Center, Siberian Division, Russian Academy of Sciences, Novosibirsk, 1997.

International Tsunami workshops in Paris (May 26-28, 1998) and in Sapporo (July 9-13, 1998) were followed by publication of volumes of abstracts.

4. Research Projects Coordinated by the Commission

Tsunami Inundation and Modeling Exchange Project

The TIME (Tsunami Inundation and Modeling Exchange) Project was launched in 1991 by the initiative of Prof.N.Shuto (Project Leader) and Dr.E.Bernard (IUGG/TC Past-Chair)) as a joint project of the IUGG/TC and ICG/ITSU. Disaster Control Research Center of Tohoku University (DCRC/TU)has been acting as the center of TIME to transfer its technique of the tsunami numerical simulation to the countries that suffer tsunami damage and are needed in the preparation of tsunami inundation maps. During these years, the software was transferred to 12 institutes in 10 countries. Since 1995, the DCRC/TU trained two Indonesian scientist in the use of the programs, Dr. Gegar Sapta Prasetya and Mr. Nur Adi Kristanto. Copies of the codes were sent to Mr. Aldo Drago of the Malta Council for Science and Technology, and Dr. Modesto Ortiz of Mexico, an earlier recipient, had shared a copy with Prof. Aurelio Mercado, University of Puerto Rico, Mayaguez, who used it to model the 1918 Puerto Rico tsunami.

Historical Tsunami Database for the Pacific, 47 B.C. -1999 A.D.

This is the joint project of the IUGG/TC and ICG/ITSU launched in 1997 and directed to improve the situation with catalogization of historical tsunamis in the Pacific by means of organizing them in the form of the database containing the comprehensive historical tsunami catalog in the Pacific along with all the meaningful reference information related to the tsunami problem in this region. This database summarizes the long-term efforts of many research groups and individuals in collecting, refining and digitizing the tsunami related data and, upon accomplishment, will represent the updated, revised and homogenous tsunami data set. During 1997-1998, the beta version of the database along with supporting graphic shell was developed by the Tsunami Laboratory of Siberian Division, Russian Academy of Sciences recorded on a CD-ROM and distributed among the regional project coordinators for further data editing and refining. It is expected that the final version of the database will be published as a multi media CD-ROM "Tsunamis in the Pacific, 47 B.C. -2000 A.D." soon after the millenium is over and the observational data set for the year of 2000 is become available.

As the first step to the development of the Internet-based version of tsunami database, the dedicated Web-site was established by the Tsunami Laboratory of the Institute of Computational Mathematics and Mathematical Geophysics in Novosibirsk, Russia (http://tsun.sscc.ru/htdbpac) in the end of 1998.. This site contains the on-line historical tsunami catalog in the Pacific, covered the whole historical period of observations (47 B.C. to 1998) and currently contains 1490 events. The specially developed data management software allows for a remote user to make data retrieval by complex criteria and to obtain the resulting list of tsunamigenic events with their basic source parameters.

Improvement of gridded bathymetry on a regional and global basis.

Among the tsunami research community, the importance of gridded data on bathymetry and coastal topography has been emphasized and discussed at several meetings and workshops. At its business 1997 meeting, the IUGG/TC established the Working Group on Digital Bathymetry with the purpose to formulate the policy and standards in further developing the DBM and to represent the IUGG/TC interest in other international bodies dealing with bathymetry data (IOC, IHO, BODC, NGDC, GEBCO Guiding Committee, etc.). The first international workshop dedicated to this particular subject was sponsored by the NSF and conducted in Seattle, USA on March 20-21, 1998 with a Commission member Prof.H.Yeh as the leading convener. The second workshop of that type is planned to be conducted in Birmingham, UK in conjunction with the IUGG General Assembly.

5. Coordinating the Field Tsunami Surveys

Since July 1, 1995 to December 31, 1998, 29 tsunamigenic events in the Pacific occurred. Most of these tsunamis were small local and regional events observed only on mareograph records, however, among them there were 9 damaging events with 6 of them resulted in human loss. The IUG/TC coordinated and its members participated in the field surveys following all most destructive and damaging recent tsunamis:

Mw8.0 October 9, 1995 Jalisco (Mexico) earthquake and tsunami
Mw7.9 January 1, 1996 Sulawesi (Indonesia) earthquake and tsunami
Mw8.2 February 17, 1996 Irian Java (Indonesia) eathquake and tsunami
Mw7.8 February 21, 1996 Chimbote (Northern Peru) earthquake and tsunami
Mw7.1 July 17, 1998 Aitape (Papua New Guinea) earthquake and tsunami

These field surveys provided large amounts of high quality observational data usually inaccessible by any other way.

6. Supporting information exchange through electronic Tsunami Bulletin Board and dedicated Web sites

In 1995 - 1998 the officers and members of the IUGG/TC actively participated in the information and data exchange through the Tsunami Bulletin Board (Tsunami BB), the dedicated electronic network established in the end of 1992 by PMEL/NOAA. In 1996, the routine maintenance of the Tsunami BB was transferred to the International Tsunami Information Center (ITIC) in Honolulu (USA). Currently, this network is being used by some 150 tsunami researches and practitioners in 15 countries to share the data and information of recent tsunamigenic events. The IUGG/TC is also trying to coordinate the development of the tsunami dedicated Web-site established in last years by many research centers, institutions and individuals. In December of 1998, a new site supporting the comprehensive on-line Pacific Tsunami Catalog was established at the following URL: http://tsun.sscc.ru/htdbpac. The site contains basic tsunami parameters on almost 1490 historical tsunamigenic events occurred in the Pacific from 47 B.C up to the present time along with nearly 8000 coastal run-up and tide-gauge observations of wave heights. The site provides users with screen forms for data search by a number of criteria, for their listing, sorting and for several types of data processing (a histogram of tsunami occurrence, intensity-time and intensity-magnitude charts).