Recommendations of the International Workshop
"Local Tsunami Warning and Mitigation"
Petropavlovsk-Kamchatskiy, Russia, September 10 - 15, 2002

Analysis of the state-of-the-art of the local tsunami problem made by the Workshop participants testifies to the potential of a significant improvement for the forecast methodology and hazard reduction. Based on the presented papers and follow-up discussions, the Workshop has made the following recommendations as an approach to realizing this potential.

Databases
Comprehensive historical databases are one of the key elements of the local tsunami risk assessment methodology. The existing tsunami databases supported by the Novosibirsk Tsunami Laboratory (NTL) and the NGDC/NOAA can serve as a good basis for this work. Study of paleotsunami deposits can provide a significant addition for historical database that can considerably extend its time coverage. While nearly all historical events included in the published national, regional and Pacific-wide catalogs have already been included in the databases, a wealth of less-known data still exists locally. A lot of work is still needed for their search, parameterization and including in the databases.

People Education
Local tsunami has a very short travel time, therefore conventional tsunami warning procedures might be ineffective. People living in vulnerable coastal areas should be well-informed about a potential tsunamis hazard. Everybody should know how to act in the case of a strong earthquake or tsunami warning. The Workshop strongly recommends to conduct public educational programs (involving mass media), to publish informational booklets, etc.

Paleotsunami research
A destructive tsunami is rather a rare event at a given coastal location. To estimate the existing tsunami hazard properly, a long-term observations are required. Geologic records of pre-historical tsunamis can extend the historical and instrumental records to the recent past. They are also necessary in filling historic records gaps, or in filling geographic gaps for known tsunamis. Paleotsunami data in conjunction with numerical modeling can be useful for the tsunami sources identification.

Hydroacoustic methods in the local tsunami warning problem
Monitoring of the hydroacoustic signals emitted by the source area of impending underwater earthquake allows localization of this area for some time (from several to tens of minutes) prior to the main shock. This result testifies to the potential perspectives of hydroacoustic methods for the short-time prediction of local tsunamis.

Tsunami generation mechanism

Several papers presented at the Workshop have clearly demonstrated that the submarine slumping can play an important role in tsunami generation; nonlinear phenomena in a tsunami source can increase the tsunami amplitude. The Workshop recommends further investigation of the tsunami generation mechanism. The investigation should be directed at the development of the software tools for the calculation of the initial conditions in the generation area allowing the submarine slumping and non-linear phenomena for their further use in the tsunami propagation models.

High resolution bathymetry and topographic data

Quite often numerical modeling is the only way to determine the potential run-ups and to delineate the inundation area from local tsunamis. For accurate modeling, detailed bathymetric and topographic data are required. The Workshop recommends to continue efforts for collecting high-resolution bathymetric and topographic data for the tsunami-prone areas available in different centers and institutions in a single web-assessed database.

Preparation of collected volume "The 1952 Great Kamchatka Tsunami"

The 1952 Great Kamchatka Tsunami was one of the most destructive tsunamis in the last century. It had a destructive effect in the South Kamchatka and North Kuriles and was widely observed all over the Pacific. The publication of a special volume of papers containing all the earlier known and new materials related to this event is of great importance for understanding of local tsunami behavior, generation and propagation mechanism of trans-Pacific tsunamis and for improvement of their warning and hazard mitigation.

Kamchatka Tsunami (Warning) Center

The Workshop recommends setting up in Petropavlovsk-Kamchatsky the "Kamchatka Tsunami (Warning) Center" (KTC). Being one of the most active seismic- and tsunami-prone areas in the Pacific, Kamchatka is an appropriate place for a scientific center to coordinate the tsunami research, to carry out educational activity, etc. Using the scientific potential of the research centers and institutions located in the Far-East region, the TCW could serve as Center of Excellence for the development of new methods of tsunami prediction and mitigation and their implementation in the existing Tsunami Warning System.