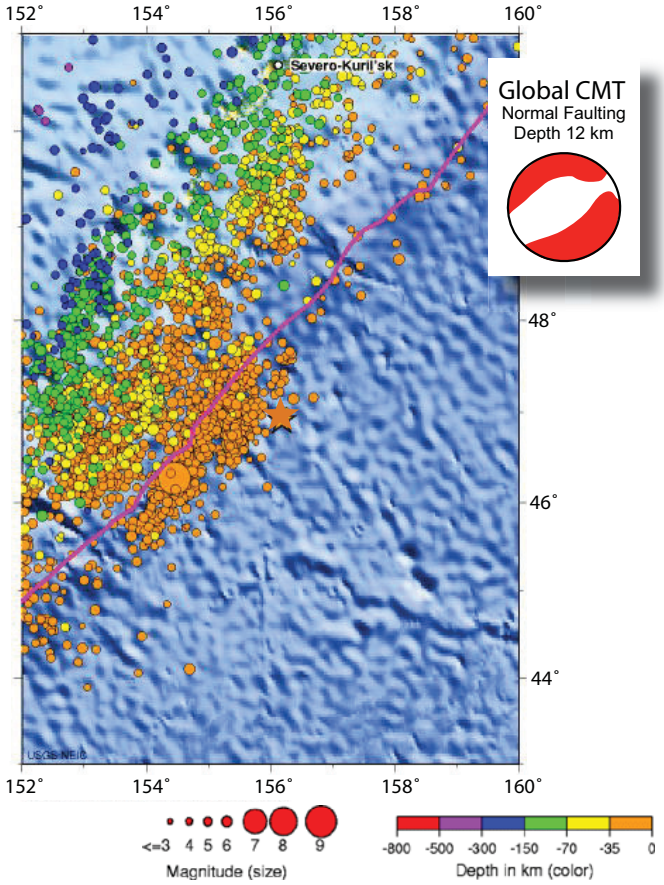
East of Kuril Islands, 13 January 2007, 04:23 UTC, Mw=7.9

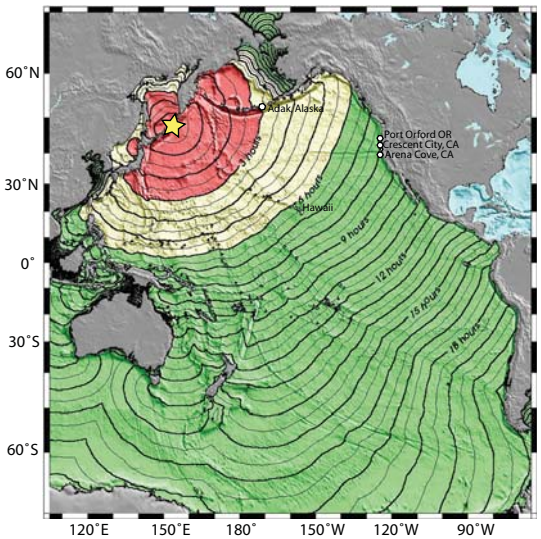
At 04:23 UTC 13 January 2007, a magnitude 8.2 earthquake centered east of the Kuril Islands, which is just north of Hokkaido and near the mainland of Russia. The earthquake generated a tsunami wave placing several countries in the western Pacific into Warning status. Within 11 minutes of the earthquake, a Tsunami Watch was issued for US interests of Hawaii, Wake Island, Midway, the Northern Marianas, Guam, the Marshall Islands, Belau, and the Federated States of Micronesia, along with Johnston Island.

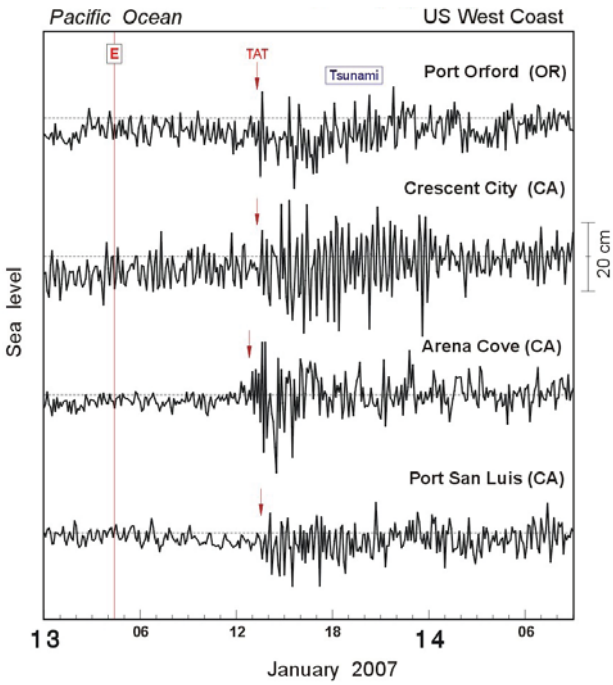
The hourly updates from the Pacific Tsunami Warning Center (PTWC) resulted in the US interests in Guam, the Northern Marianas, Wake, Midway, the Marshall Islands, and the parts of the Federated States of Micronesia including Yap, Pohnpei and Chuuk being upgraded to a Tsunami Warning. US interests in Hawaii, Belau, Johnston Island and Kosrae remained in 'Tsunami Watch' status. The first hourly update came after a report from Hokkaido in northern Japan - the first measurement of the tsunami wave.

At 07:23 UTC on 13 January 2007, all warnings and watches were cancelled within the Pacific Tsunami Warning Center's area of responsibility based on several measurements of a small non-destructive tsunami wave. Measurements ranged from 6 to 10 centimeters in the western Pacific to 32 centimeters in Shemya, Alaska.



Map showing historical seismicity from 1900 to the present and location of epicentre (coutesy of USGS NEIC). The orange star indicates the current earthquake's epicenter.

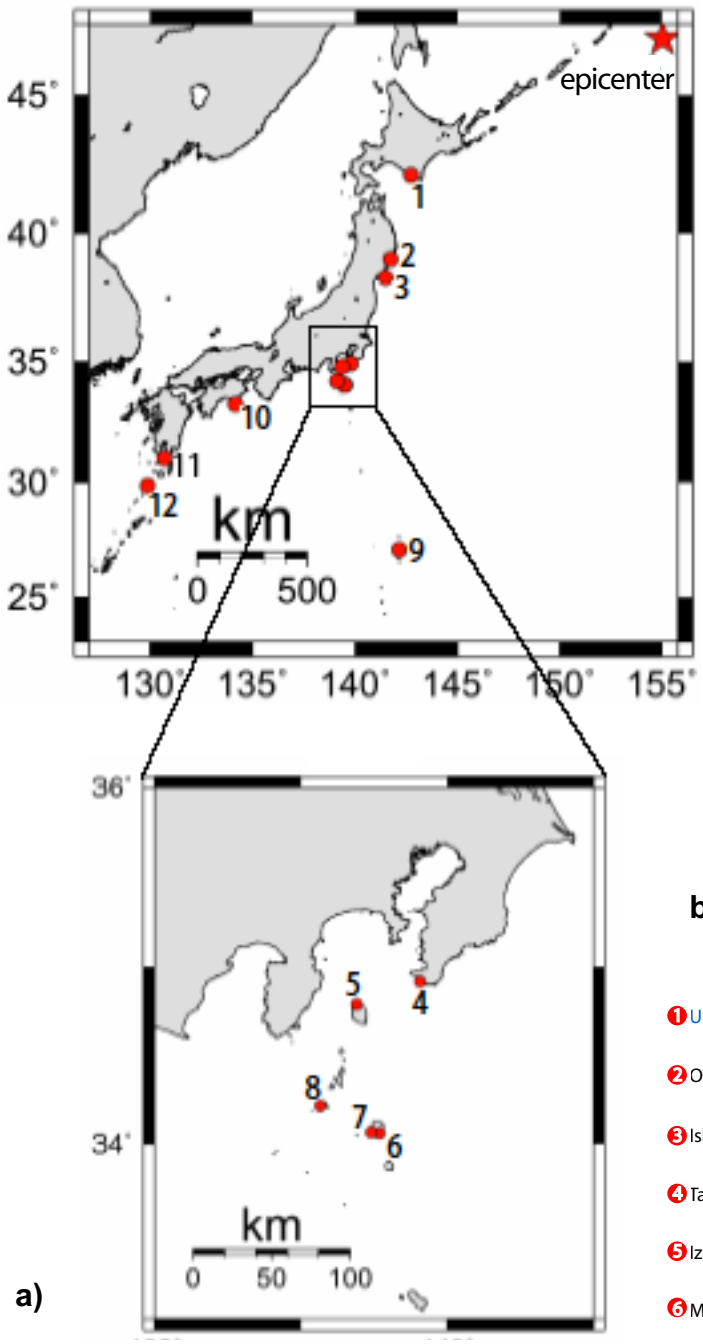


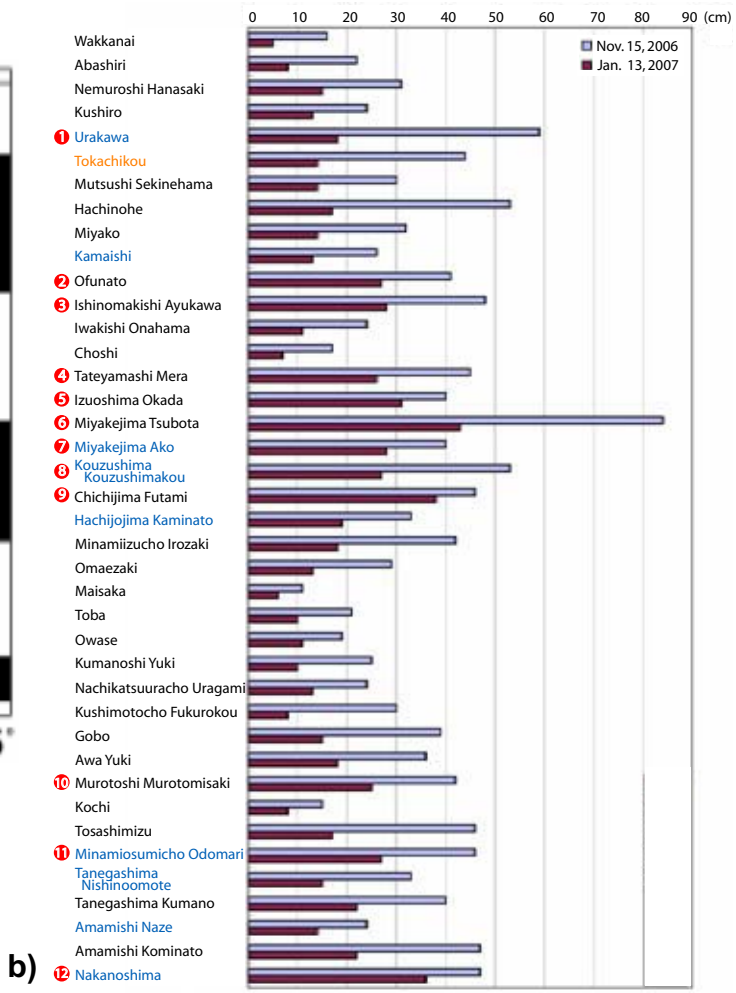


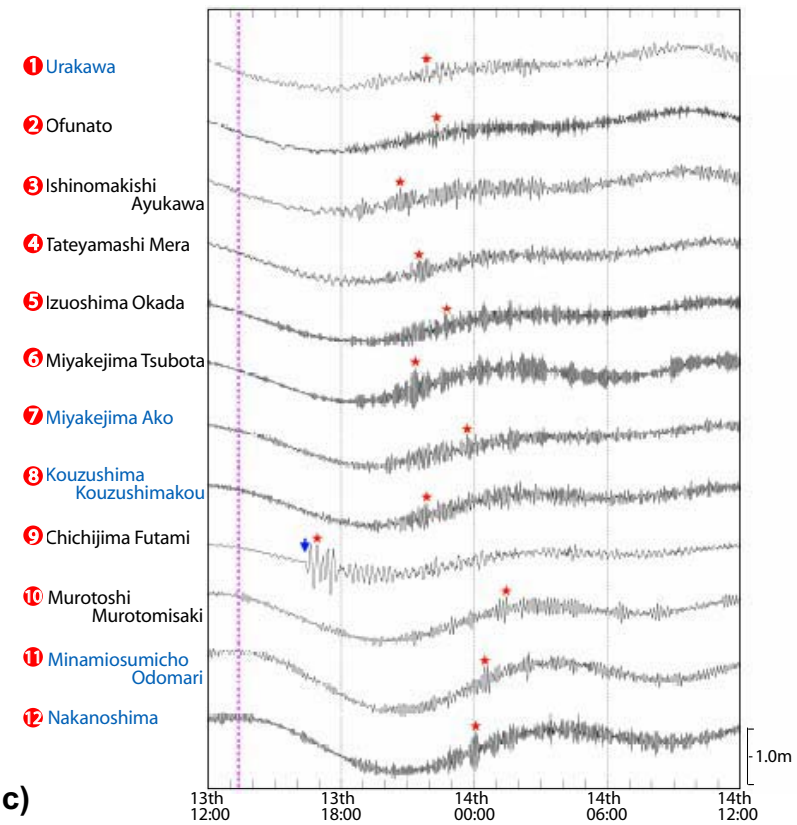
cm	Station reporting
10	Hana-saki, Japan
4	Adak Alaska
32	Shemya Island, Alaska
33	Arena Cove, Alaska
37	Crescent City, California
20	Port San Luis, California
12	Hilo, Hawaii
14	Kahului, Hawaii
9	Nawiliwili, Hawaii
27	Port Orford, Oregon
18	Midway Island;
9	Wake Island.

Tsunami wave heights in centimeters (peak-to-trough) were recorded at the following tide stations as reported by NOAA's National Geophysical Data Center (NGDC).

Kuril Islands, *continued*







Above: a) Map with inset showing the stations in Japan reporting wave data following the Kuril Island Earthquake 13 January 2007. Above right; b) A chart comparing wave records from Japanese stations, comparing records from the recent Kuril event (13 January) with wave heights recorded for the 15 November 2006 event. c) Individual tide records according to stations referred to on the map. Red dash refers to time of earthquake. Red stars indicate point of maximum wave height. The stations with names in blue, are operated and maintained by the Japan Coast Guard, while those in black are maintained by Japan Meteorological Agency (JMA), while Tokachibu (in orange) is maintained by the Hokkaido Development Bureau of the Ministry of Land, Infrastructure and Transport Japan, (MLIT).

Kuril Islands, *continued*

No fatalities or injuries were reported with this event. In Guam and the islands of Hawaii, beaches were closed and campers were moved but no evacuations were conducted. City buses were placed into position to begin evacuations of beaches in Oahu as were emergency personnel in some of the more susceptible locations if they became necessary. Beaches remained closed on islands for several hours prior and after the predicted arrival time of the waves due to potentially strong and unusual currents.

The PTWC issued three bulletins within the initial three hours of the Warning and Watch process and issued two supplemental products to inform the public of the sea level measurements as the initial wave arrived at various locations in the Pacific Ocean Basin.

The National Weather Forecast Offices in Guam, Honolulu and American Samoa issued Special Weather Statements alerting the public to move out of the water and leave beach areas.

Numerous conference calls were made with Hawaii Civil Defense and Emergency Management Offices by the NWS offices throughout the event. Conference calls between the two US Tsunami Warning Centers as well as the international warning centers took place several times to coordinate Pacific Basin Wide Warnings, Watches and to share data. Communications with the NWS offices in the Pacific Region and the regional headquarters were numerous throughout the event.

All media markets through the Pacific were alerted. Several media interviews were conducted through the PTWC including all four television stations and both newspapers in Oahu, Hawaii. The Director of Operations at the NWS Weather Forecast Office in Honolulu also conducted two television interviews the next day, in order to follow up on the events of the previous night.

During the event, nine members of the PTWC and one member from Pacific Regional Headquarters were in the PTWC office to aid in answering questions via phone, media press conferences and coordination with other offices.

Kuriles 2007 Marine Expedition, First Stage Results

Tatiana Ivelskaya, Sakhalin Tsunami Warning Center, 78, Zapadnaya Str, Yuzhno-Sakhalinsk, 693000, Russia
E-mail: tanya.ivelskaya@gmail.com

The first stage of *Kuriles 2007* marine expedition of the Institute of Marine Geology and Geophysics (Yuzhno-Sakhalinsk, Russian Academy of Sciences) was performed aboard Iskatel'(researcher)-4 ship in July 2007. The expedition has been carried out owing to financial support from the Russian Fund of Basic Research and the Presidium of the Far East Branch of the Russian Academy of Sciences.

Experts from the following institutes and agencies took part in the expedition:

- Institute of Marine Geology and Geophysics, Yuzhno-Sakhalinsk,
- Pacific Institute of Geography, Vladivostok,
- Sakhalin Tsunami Center,
- Washington University,
- Institute of Volcanology and Seismology, Petropavlovsk-Kamchatsky,
- Alaska Volcanological Observatory,
- Physicotechnical Institute, Saint-Petersburg,
- P.P. Shirshov Institute of Oceanology, Moscow and
- Sakhalin Regional Museum.

The main objective of the expedition was to inspect displays of Kurile Island earthquakes and tsunamis on November 15, 2006 and January 13, 2007 including to search for seismic faults and definition of tsunami run-up heights along the central Kuril Islands coast (Urup, Simushir, Ketoy Islands).

There was performed a detailed inspection of Central Kuril Islands coast with the purpose of detection of tsunami flooding zones, namely:

- *measurement of the tsunamis run-up heights and maximum penetration;*
- *performing of geological cross-sections to reveal traces of paleotsunamis*.

Data received during the inspection are valuable for testing of numerical models allowing to estimate further a tsunami hazard for this region.

For both of the strong earthquakes in Simushir area on November 15, 2006 and January 13, 2007 tsunami warnings were issued by Sakhalin Tsunami Warning Service. The earthquake of November 15, 2006 caused a transoceanic tsunami.

While the tsunami warnings were in effect, there was no information regarding actuality of a tsunami along the coast nearest the earthquake epicenter. Naturally, such a state of affairs makes for difficulties in analysing the situation and decision-making for cancellation of a tsunami warning.

Based on preliminary calculation data, the tsunami wave height could run up to 4-6 meters for the nearest coast (Simushir Island). According to results of the inspection of the coastlines of the Central Kuril Islands

Kuril survey, *continued*

(Urup, Simushir, Ketoy) there is a great excess over the calculated data.

Survey results of Central Kuril Island coasts (maximum run-ups) are as follows:

- Urup Island- 6 meters;
- Ketoy Island- 8-10 meters;
- Simushir Island- more than 10-15 meters.

This is preliminary information. At present data is being processed. The obtained data are extremely important not only for scientific researches with the purpose of studying the nature of tsunami (including mechanisms of wave generation and propagation, evidence along coasta) but also for Tsunami Warning Systems.

Simushir Island, Spaseniya Bay, Pacific coast. The float found in alder bushes, a distance some hundred meters from the coast. Right, Simushir Island, Mil'na Bay, Okhotsk coast, evidence of tsunami. All photos coutesty of T. Ivelskaya.

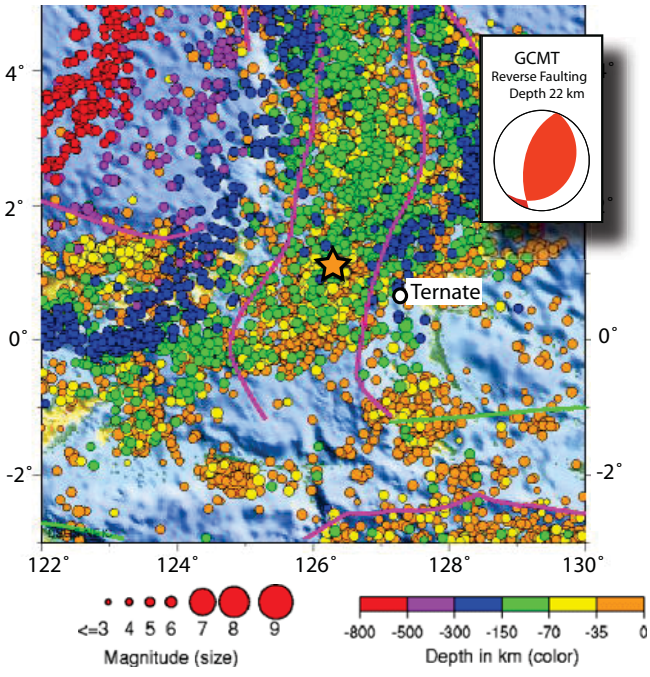
Simushir Island, Dushnaya Bay, Pacific coast.A blockage of logs found in a branch of the river.

Northern Molucca Sea, 21 January 2007, 11: 28 UTC, M_W= 7.5

An earthquake occurred on 21 January 2007 measuring Mw 7.5 (G) at 11:28 UTC, approximately 125 km (80 miles) from Ternate, Molussas, Indonesia. Tsunami bulletins were issued by PTWC and the Northwest Pacific Tsunami Advisory, that a local destructive tsunami was possible following an earthquake of this magnitude.

One person died of a heart attack, 3 others killed, 4 others injured and minor damage to some buildings at Mandano, Sulawesi, Indonesia. Felt (VI) on Ternate; (VI) at Bitung and Tondano, (V) at Kotamobagu, (IV) at Gorontalo, Sulawesi; (IV) in southern Halmahera, Indonesia.

Reports were later verified that a very small tsunami did occur and that several people were swept out to sea by the wave.



Right: Map of historical seismicity in the area of the epicenter (yellow star) from 1990 to the present. Global Centroid Moment Tensor (GCMT) shows seismic analysis of the earthuqke. Map courtesy of the USGS National Earthquake Information Center (NEIC).