

NATIONAL WEATHER SERVICE POLICY DIRECTIVE 10-7
MAY 3, 2007
Operations and Services
TSUNAMI WARNING SERVICES

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SUMMARY OF REVISIONS: This directive supersedes NWS Policy Directive 10-7, dated May 19, 2003. Numerous changes occurred in this revision of the directive to outline new responsibilities and clarify geographic areas of responsibility. Most of these changes reflect a change in procedures, following the December 26, 2004, tsunami in Indonesia.

1. Tsunamis are a series of very long waves generated by any rapid, large-scale disturbance of the sea. Most are generated by sea floor displacements from large undersea earthquakes. Tsunamis can cause great destruction and loss of life within minutes on shores near their source, and some tsunamis can cause destruction within hours across an entire ocean basin. Although infrequent, tsunamis are a significant natural hazard with great destructive potential and are known to occur in every ocean and sea. This hazard is addressed through programs of assessment, warning, mitigation, education, preparedness, and research. This directive governs NWS provision of tsunami program services to meet the needs of its users and partners.

2. The objective of this policy is the protection of life and property and enhancement of the national economy through the National Weather Service (NWS) provision of tsunami warning services. Consistent with Public Law 109-424, NWS operational objectives are: a) to detect, locate and size major earthquakes in areas which could produce tsunamis affecting the area of responsibility (AOR), b) to determine their tsunamigenic potential, c) to forecast tsunami wave arrival times and, when possible, run-up and inundation on the coast, d) to detect and measure the tsunami waves in order to refine the forecast, and e) to provide timely and effective tsunami information and warnings to coastal populations within the AOR to reduce the risks of tsunamis, especially to human life.

To achieve these objectives, the NWS operates two tsunami warning centers (TWCs): the Richard H. Hagemeyer Pacific Tsunami Warning Center (PTWC) in Ewa Beach, Hawaii and the West Coast/Alaska Tsunami Warning Center (WC/ATWC) in Palmer, Alaska. Each Center will provide tsunami warning services to its AOR as defined in sections 3.3.1 and 3.3.2 and will act as a backup to the other Center. In support of warning operations, the Centers will monitor seismic and sea level stations sufficient for rapidly, accurately, and reliably detecting and evaluating the earthquake and tsunami. Although much of the seismic and sea level data come from cooperating organizations, the NWS will operate additional seismic and sea level stations

as needed to carry out the mission. The NWS will also access or operate a wide and effective communications network for receiving the data and disseminating information and warnings.

3. This directive establishes the following authorities and responsibilities:

3.1 National Program Responsibilities. The Pacific Region Director will serve as the NWS Tsunami Program Operations Leader (TPOL). The TPOL is responsible for establishing national policies and procedures for the provision of consistent tsunami products and services and monitoring the national performance and effectiveness indicators of the tsunami program.

The TPOL will be the U.S. national contact point for operational matters involving the tsunami programs of the UNESCO Intergovernmental Oceanographic Commission (IOC) and with foreign governments and observatories regarding arrangements for operational matters (including data and information exchange, and system interoperability), related cooperative programs, and technical exchanges.

3.1.1 The Office of Climate, Water, and Weather Services (OCWWS) will provide support to the Tsunami Program. Specific responsibilities of OCWWS are to: (a) advise and assist the TPOL in the development of all policies and procedures related to tsunami warning services; (b) provide coordinated input to the TPOL in the consideration of broad management decisions; (c) identify requirements for new and needed changes in existing plans, policies, and procedures affecting the Tsunami Warning System (TWS); (d) provide support for the NWS awareness, preparedness, and external warning coordination, including the TsunamiReady Program; and (e) provide support for technical user education, dissemination and communication, and user notification programs as they relate to tsunami warning services.

3.2 Regional Headquarters. The Pacific, Alaska, Western, Southern, and Eastern Regional Headquarters will: (a) operate, monitor, and maintain the tsunami warning program within their AOR and provide regional guidelines and instructions to their field offices, as required, (b) maintain liaison with international, national, state, county, and local emergency services agencies, as required, (c) interact with the TWCs, National Weather Service Headquarters (WSH), the TPOL, other regions, the National Tsunami Hazard Mitigation Program (NTHMP), and other Federal, state, and local government agencies in planning improved tsunami warning services, and (d) provide input on tsunami program requirements to the TPOL.

3.2.1 The Pacific Region Headquarters (PRH) provides administrative, facility, travel, financial and other support to the PTWC and to the International Tsunami Information Center (ITIC). PRH also provides additional guidance to its field offices on the communication and disaster preparedness aspects of the tsunami program and establishes and coordinates regional program requirements with the other regions and WSH.

3.2.2 The Alaska Region Headquarters (ARH) provides administrative, facility, travel, financial and other support to the WC/ATWC. ARH also provides additional guidance to its field offices on the communication and disaster preparedness aspects of the tsunami program and establishes and coordinates regional program requirements with the other regions and WSH.

3.2.3 The Western, Southern, and Eastern Region Headquarters provide additional guidance to

their field offices on the communication and disaster preparedness aspects of the tsunami program and establish and coordinate regional program requirements with the other regions and WSH.

3.2.4 Disaster Preparedness. Each regional headquarters is responsible for implementing NWS policy for disaster preparedness activities for tsunami events and maintaining an effective regional disaster preparedness program. Warning Coordination Meteorologists at coastal NWS field offices will carry out tsunami disaster preparedness activities in their AOR with federal regional, state, county, and local emergency management or civil defense officials.

The TWCs also assist Regional Directors within their AOR in designing and implementing national and regional National Weather Service policies to ensure adequate public preparedness for tsunamis. Tsunami public preparedness is done cooperatively among the NWS, NOS, Federal Emergency Management Agency, U.S. Geologic Survey, the NTHMP, and state and local civil defense or emergency management agencies.

3.3 General Tsunami Warning Center Responsibilities.

a. Operations. Each Center is responsible for rapidly detecting, locating, sizing and otherwise parameterizing earthquakes to determine their tsunamigenic potential; for detecting and measuring tsunamis; for evaluating the tsunami threat based on all available data; and for issuing effective Tsunami Warning, Watch, Advisory, and Information Bulletins as well as other supporting products. Each Center is also responsible for supplying their operational data to the other Center, to the National Earthquake Information Center (NEIC), and to others, as appropriate. The TWCs and the NWS are responsible for the installation, maintenance and operation of certain seismic, sea level and telemetry equipment that provide direct support to their warning programs. TWCs are also responsible for conducting regular dissemination tests to ensure proper and efficient product delivery. The TWCs participate in exercises for testing and improving components of the TWS.

b. Research and Development. The Centers, in coordination, develop techniques necessary to upgrade and improve operational aspects of the TWS. In addition, the TWCs interact and collaborate with the ITIC, Pacific Marine Environmental Laboratory, the NTHMP, and other national and international tsunami-related research and development entities. Through these endeavors the TWCs stay abreast of research in tsunami generation, detection and forecasting, and implement appropriate and verified cutting edge techniques.

c. Procedures and Policy. The Centers provide technical information and recommendations regarding tsunami warning and mitigation procedures and policy to TWS-related decision-making and governing bodies within the NWS and NOAA, as well as at the local, state, national and international level.

d. Outreach. The Centers will conduct or participate in outreach activities to improve tsunami awareness and education levels of the public, the scientific community, emergency managers, and policy-makers. These activities will be conducted secondary to TWS operational priorities.

e. Other. The Centers also serve as collection sites for geomagnetic and/or seismic data under agreements with the U.S. Geological Survey and other U.S. and foreign agencies.

3.3.1 West Coast/Alaska Tsunami Warning Center (WC/ATWC). The WC/ATWC, located at Palmer, Alaska, is responsible for the preparation and dissemination of Tsunami Warning, Watch, Advisory, and information products to the WC/ATWC AOR. The WC/ATWC AOR is the coastal region of all U.S. states except Hawaii. WC/ATWC's AOR also includes Puerto Rico, the U.S. Virgin Islands, and the Pacific and Atlantic provinces of Canada. WC/ATWC has the primary responsibility for the detection and parameterization of potentially tsunamigenic earthquakes occurring within or immediately adjacent to its AOR, and events within the Atlantic Basin north of the Tropic of Cancer. The WC/ATWC will serve as a backup to the PTWC.

3.3.2 Richard H. Hagemeyer Pacific Tsunami Warning Center (PTWC). The PTWC, located at Ewa Beach, Oahu, Hawaii, is responsible for the preparation and dissemination of Tsunami Warning, Watch, Advisory, and information products to the PTWC AOR. The PTWC AOR is Hawaii and all U.S interests and other countries in the Pacific outside the WC/ATWC AOR, including the South China Sea. Further, it is responsible for issuing tsunami products for the Indian Ocean and for the wider Caribbean outside the WC/ATWC AOR. International responsibilities are by agreement and in coordination with UNESCO/IOC tsunami programs. PTWC has the primary responsibility for the detection and parameterization of potentially tsunamigenic earthquakes that might affect their AOR, except those for which WC/ATWC has the primary responsibility. The PTWC will serve as a backup to the WC/ATWC.

3.3.3 International Tsunami Information Center (ITIC). The ITIC will be operated for the UNESCO/IOC. Located at the PRH, the ITIC was established upon request of the IOC and is maintained by the NWS to strengthen the TWS and to assist Member States of the ICG/ITSU in mitigating the effects of tsunamis. The Director, ITIC, will report directly to the appropriate IOC authorities on matters not affecting NWS operations or U.S. policy, and to the TPOL, the Pacific Region Director, for administrative purposes.

3.4 Weather Forecast Offices (WFO) and Weather Service Offices (WSO). WFOs and WSOs with coastal areas of responsibility are responsible for planning for and taking appropriate action when there is a threat of a tsunami, including dissemination of tsunami watches and warnings from the TWCs, and also disseminating special weather statements (if applicable). Coastal WFOs and WSOs are also responsible for ensuring the readiness of office staff and systems through routine operational drills and for coordinating community outreach activities to increase tsunami hazard awareness. Coastal WFO Warning Coordination Meteorologists assist in community preparedness and emergency planning for tsunami events including promotion of the TsunamiReady program. State and local emergency management and homeland security have the responsibility to develop warning procedures, plans, and evacuations for local communities. WFOs and WSOs should cooperate with the state and local emergency management and homeland security agencies and, where possible, aid in their warning dissemination.

4. Compliance with this directive will be monitored by the warning centers, the NWS regions, the TPOL, and the NWS Assistant Administrator (AA) utilizing defined performance measures.

5. Procedural directives will be issued to implement this policy as needed and determined by the AA, OCWWS, and the National TPOL.

Signed by

April 12, 2007

Brigadier General David L. Johnson, USAF (Ret.)
NOAA Assistant Administrator for Weather Services and
Director, National Weather Service

Date

Attachment 1

References. This policy directive is supported by:

- NWS Instruction 10-701: Tsunami Warning Center Operations
- NWS Instruction 10-702: International Tsunami Information Center
- NWS Instruction 10-703: Post-Tsunami Surveys