

NATIONAL WEATHER SERVICE POLICY DIRECTIVE 10-7
JULY 9, 2009
Operations and Services
TSUNAMI WARNING SERVICES

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SUMMARY OF REVISIONS: This directive supersedes NWS Policy Directive 10-7, dated May 3, 2007.

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 to set forth roles and responsibilities for service delivery of National Weather Service (NWS) tsunami forecasts and warnings. Consistent with the Tsunami Warning and Education Act, Public Law 109-479, Title VIII, NWS operational objectives are: a) to rapidly detect and characterize earthquakes in regards to their tsunami potential for the area of responsibility (AOR), b) to forecast tsunami wave arrival times and, when possible, run-up and inundation on the coast, c) to detect and measure the tsunami waves in order to refine the forecast, and d) 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 provides tsunami warning services to its AOR as defined in sections 3.3.1 and 3.3.2 and acts as a backup to the other Center. In support of warning operations, the Centers monitor seismic and sea level stations sufficient for rapid, accurate, and reliable detection and evaluation of earthquakes and tsunamis. Although much of the seismic and sea level data come from cooperating organizations, the NWS operates additional seismic and sea level stations as needed to carry out the mission. The NWS also accesses or operates 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 OCWWS Responsibilities. NWS' Office of Climate, Water, and Weather Services (OCWWS) is responsible for managing the NOAA Tsunami Program. OCWWS responsibilities include: a) establishing national policies and procedures for the provision of consistent tsunami domestic and international products and services b) developing and maintaining national NWS tsunami warning system directives and instructions, c) providing support for NWS awareness, preparedness, and external warning coordination, including the National Tsunami Hazard Mitigation (NTHMP) Program and TsunamiReady program, d) identifying requirements for new and needed changes in existing plans, policies and procedures affecting the Tsunami Warning System (TWS), e) develop annual NOAA Tsunami Program Operating Plan in support of NOAA's Program, Planning, Budgeting and Execution System (PPBES) f) monitoring the national performance and effectiveness indicators of the tsunami program, g) providing support for technical end user education, dissemination and communications, and user notification programs as they relate to tsunami warning services, and h) provide support for international efforts to develop a fully functional global tsunami forecast and warning system comprising regional tsunami warning networks through technology transfer and training.

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 (NWSH), the NOAA Tsunami Program Manager, other regions, the 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 TWCs and/or OCWWS.

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 NWSH.

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 NWSH.

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 NWSH.

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 (WCMs) 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, National Ocean Service, 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 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 are 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 serves 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 serves as a backup to the WC/ATWC.

3.3.3 International Tsunami Information Center (ITIC). The ITIC is 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 ITIC Director reports directly to the appropriate IOC authorities on matters not affecting NWS operations or U.S. policy, and to the NWS 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. This includes dissemination of tsunami warnings, watches, and advisories from the TWCs, and the issuance of appropriate local statements if required. 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 and take the lead role promoting the TsunamiReady program and performing liaison functions with the state and local departments of homeland security/emergency management and homeland security in their service area, and assist them as appropriate in their responsibilities to develop warning procedures, plans, and evacuations. 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 TWCs, the NWS regions, OCWWS, 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 NWS Regions.

Signed by

June 25, 2009

John L. Hayes
NOAA Assistant Administrator for Weather Services

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
The Tsunami Warning and Education Act, 33 U.S.C. §§ 3201 *et seq.*