

***NATIONAL WEATHER SERVICE WESTERN REGION SUPPLEMENT 17-2003  
APPLICABLE TO NWSI 10-701  
JULY 7, 2012***

***Operations and Services  
Tsunami Warning Services, NWSPD 10-7  
Tsunami Warning Center Operations, NWSI 10-701  
WESTERN REGION TSUNAMI OPERATIONS***

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**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

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**SUMMARY OF REVISIONS:** This directive supersedes NWS Western Region Supplement 17-2003, dated October 15, 2010.

The following changes were made in this issuance:

1. Added format and content guidelines for Local Information Statements (via SPS product) during tsunami events.

This supplement describes responsibilities and provides guidance to National Weather Service (NWS) offices in Western Region for planning and for taking action when there is a threat of a tsunami. It supplements instructions contained in NWSI 10-701.

Signed

06/25/12

Vickie Nadolski

Date

Director, Western Region

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1. General: This Regional Supplement describes responsibilities and provides guidance to National Weather Service (NWS) Western Region (WR) Weather Forecast Offices (WFO) with coastal areas of responsibility. WR WFOs with coastal areas of responsibility are responsible for planning for and taking appropriate action when there is a threat of a tsunami, including local area dissemination of tsunami watches, warnings, and advisories from the West Coast/Alaska Tsunami Warning Center (WC/ATWC). Written instructions cannot address every situation. Operational personnel must exercise initiative and professional judgement to minimize risk to public safety and property in instances when written instructions do not provide appropriate guidance.

Coastal WFOs in WR are also responsible for ensuring the readiness of office staff and systems through routine operational drills, for coordinating community outreach activities to increase tsunami hazard awareness, and to assist in emergency preparedness for tsunami events (e.g. through promotion of the TsunamiReady program). State and local emergency management officials are responsible for local evacuation plans and procedures. Specific local tsunami operational procedures will be included in WFO Station Duty Manuals.

2. Tsunami Products: The WC/ATWC, located at Palmer, Alaska, is the official source of all tsunami watches, warnings, and advisories for Washington, Oregon, and California. If needed, the Pacific Tsunami Warning Center (PTWC), located in Hawaii, has operational back-up responsibility for WC/ATWC. Tsunami Watch, Warning, Advisory, and Information Statement products are described at: <http://wcatwc.arh.noaa.gov/Products/msgdefs.htm>. Tsunami product dissemination from WC/ATWC is described at: <http://wcatwc.arh.noaa.gov/Products/messagesumm-nolink.htm>.

Voice announcement of tsunami watches, warnings, and advisories are also normally conducted over the National Warning System (NAWAS).

2.1. Tsunami Warnings, Advisories and Watches (AWIPS product ID: TSUWCA): Tsunami Warnings, Advisories, and Watches will be given top priority. Rapid, accurate, and efficient dissemination of this information within WFO's designated areas of geographical responsibility is critical.

In accordance with local WFO procedures and state/local Emergency Alert System (EAS) plans, WFOs will prepare and broadcast Tsunami Warnings and Watches via NOAA Weather Radio (NWR), including appropriate SAME codes for EAS activation.

Information contained in Tsunami Advisory products should also be broadcast on NWR, particularly when there is a possibility of hazardous conditions associated with the expected tsunami event (e.g. strong currents in bays and harbors).

Minimum information for broadcast:

- a. Effective area(s) for watches/warnings
- b. Time, location, and magnitude of tsunami-generating earthquake
- c. Estimated times of arrival of initial tsunami waves at well-known geographical points within the WFO's area of responsibility (as provided by WC/ATWC in issued products or on the WC/ATWC web site), as needed.

2.2. Updates: WFOs will follow similar procedures as outlined in paragraph 2.1 when WC/ATWC issues updated Tsunami Warnings, Advisories and Watches.

2.3. Local Information Statements: Following issuance of Tsunami Watches, Warnings, and/or Advisories, coastal WFOs should issue local information statements (using the Special Weather Statement (AWIPS product ID: SPS)). WFOs should issue (and broadcast on NWR) local statements as needed, following official initial and updated bulletins from WC/ATWC. Local information statements are used to supplement official information from WC/ATWC products, WC/ATWC web site, official conference calls (between WC/ATWC, WFOs, and state warning points), and/or reliable local information (as coordinated with WC/ATWC). Local statements will use the following format (with respect to the order of information, in particular) to ensure consistency between coastal WFOs (see Appendices A and B for examples):

2.3.1 Updates since last message. A brief statement of significant changes since the previously issued local statement (SPS). As a minimum, this will include any changes to Watch, Warning, or Advisory status for the WFO's area of responsibility (for example: "TSUNAMI WATCH UPDATED TO TSUNAMI WARNING").

2.3.2 Headline(s) for any Tsunami Warning, Tsunami Advisory, or Tsunami Watch as appropriate, for the WFO's area of responsibility.

2.3.3. Overview (optional). A brief summary of the situation. Information about the earthquake may be included here, in lieu of the more detailed "Earthquake information" (2.3.8).

2.3.4 Local Impacts (as needed). Local impacts include information of a local (WFO area of responsibility), but high impact nature regarding expected tsunami impacts (e.g. inundation or strong currents) or current/recently reported impacts which are confirmed from a trusted, reliable source (e.g. emergency manager, U.S. Coast Guard, or law enforcement agency). For example: “The Ventura Harbor Master has reported strong currents and damage to docks” or “Del Norte County Sherriff’s Deputies have reported tsunami wave activity and inundation along Highway 101 at Crescent Beach”. Note: Additionally, such information should be shared on the next Tsunami Conference Call with WC/ATWC and entered into Local Storm Reports as soon as possible.

2.3.5 Recommended Actions (consistent with information in WC/ATWC bulletins).

2.3.6 Tsunami forecasts and/or observations. A subset of forecast times of initial tsunami wave arrival for selected locations within the WFO’s area of responsibility, as provided by WC/ATWC. Maximum forecast tsunami amplitudes should also be provided for the same locations, when they become available from WC/ATWC. When official tsunami observations become available from WC/ATWC for these locations, they should replace the forecast values.

2.3.7 Tide information (optional).

2.3.8 Earthquake information (optional). If included, the most recent information from WC/ATWC should be used.

2.3.9 Information regarding next local statement update and additional information (as needed).

2.3.10 Link to WC/ATWC and any additional links to locally-specific information (e.g. evacuation route maps, etc.), as needed.

2.4. Local Tsunami Warning Procedures for WFO Eureka (ONLY): In the event of an earthquake where WFO Eureka staff experience extreme and prolonged shaking (as defined in the WFO’s Emergency Station Duty Manual), indicating possible generation of a tsunami, the following steps should be followed:

2.4.1 Immediately place a call to WC/ATWC to determine the location and magnitude of the earthquake.

2.4.2 If WC/ATWC cannot immediately be reached, prepare and broadcast on NWR a statement mentioning the earthquake and the possibility that a tsunami may have been generated. Include in the statement a recommendation to move immediately to higher ground (in prior coordination with, and at the request of local emergency management). The Emergency Alert System (EAS) code “EVT” (“Evacuation Immediate”) should be invoked with this broadcast.

2.4.3 Continue attempts to contact WC/ATWC for more information.

2.4.4 If an official “Tsunami Warning” is received from WC/ATWC (either via normal dissemination or verbally confirmed by phone with WC/ATWC), immediately remove the statement from NWR (2.4.2) and follow standard procedures (2.1).

2.4.5 If official information from WC/ATWC confirms there is no tsunami threat (either via normal dissemination or verbally confirmed by WC/ATWC), immediately remove the statement (2.4.2) and follow up by broadcasting another statement appropriately worded to indicate there is no longer a threat of a tsunami.

2.5. ALL CLEAR: The WC/ATWC is responsible for issuing Tsunami Watch, Warning, and Advisory cancellation bulletins (using TSUWCA product). However, local emergency management authorities are ultimately responsible for providing the final “ALL CLEAR” message.

3. Tsunami Information Statements (AWIPS product ID: TIBWCA) and Tsunami Seismic Information Statements (AWIPS product ID: EQIWOC). Information contained in these statements may be selectively broadcast via NWR, if needed, according to local needs.

4. Acknowledgment of Test Messages: Rapid dissemination of Tsunami Watch/Warning/Advisory information is a top priority. Therefore, WFOs will not acknowledge (via AWIPS) Tsunami Watch/Warning/Advisory products. However, WFOs should acknowledge monthly and special “test” products issued by WC/ATWC, using the AWIPS product ID **TMAXXX** (where “XXX” = WFO identifier). In the Acknowledgment message, provide time of receipt (UTC), WFO name (or 3-letter WFO ID), and name of responding individual.

**APPENDIX A**

**Example “Local Information Statement” (SPS) (Warning and Advisory in Effect)**

WWUS86 KLOX DDHHMM  
SPSLOX  
SPECIAL WEATHER STATEMENT  
NATIONAL WEATHER SERVICE LOS ANGELES/OXNARD CA  
329 PM PDT MON MAY 21 2012

CAZ034-035-039>041-087-220129  
SAN LUIS OBISPO COUNTY CENTRAL COAST-  
SANTA BARBARA COUNTY CENTRAL COAST-SANTA BARBARA COUNTY SOUTH COAST-  
VENTURA COUNTY COAST-LOS ANGELES COUNTY COAST-CATALINA ISLAND-  
329 PM PDT MON MAY 21 2012

...A TSUNAMI WARNING IS IN EFFECT NORTH OF POINT CONCEPTION. . .

...A TSUNAMI ADVISORY IS IN EFFECT SOUTH OF POINT CONCEPTION. . .

A TSUNAMI WARNING AND ADVISORY HAVE BEEN ISSUED AS A RESULT OF AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.0 ON THE RICHTER SCALE THAT OCCURRED AT 111 PM PDT. THE EARTHQUAKE LOCATION WAS APPROXIMATELY 10 MILES SOUTH OF ADAK ALASKA.

\* LOCAL IMPACTS . . . NONE AT THIS TIME.

\* RECOMMENDED ACTIONS FOR PEOPLE IN THE WARNING AREA NORTH OF POINT CONCEPTION . . . PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES. IF YOU ARE IN THE TSUNAMI WARNING AREA . . . MOVE INLAND TO HIGHER GROUND.

\* TSUNAMI WAVE ARRIVAL TIMES . . .  
PORT SAN LUIS AT 615 PM PDT.  
SANTA BARBARA HARBOR AT 625 PM PDT.  
SANTA MONICA AT 635 PM PDT.  
SAN PEDRO HARBOR AT 638 PM PDT.

TSUNAMIS OFTEN ARRIVE AS A SERIES OF WAVES OR SURGES WHICH COULD BE DANGEROUS FOR SEVERAL HOURS AFTER THE INITIAL WAVE ARRIVAL.

\* FORECASTED PEAK TSUNAMI WAVE HEIGHTS . . .  
PORT SAN LUIS AT 4.5 FEET.  
SANTA BARBARA HARBOR AT 3.4 FEET.  
SANTA MONICA AT 2.0 FEET.  
SAN PEDRO AT 2.3 FEET.

\* TIDE INFORMATION . . .

PORT SAN LUIS . . . LOW TIDE OF 2 FEET AT 412 PM PDT MONDAY. HIGH TIDE OF 7 FEET AT 1015 PM PDT MONDAY.

SAN PEDRO HARBOR . . . LOW TIDE OF 3 FEET AT 440 PM PDT MODAY. HIGH TIDE OF 7 FEET AT 1045 PM PDT MONDAY.

A TSUNAMI WARNING MEANS THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT . . . EXPECTED OR OCCURRING. A WARNING INDICATES THAT WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE SEVERAL HOURS AFTER THE INITIAL WAVE ARRIVAL.

A TSUNAMI ADVISORY MEANS THAT A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS IMMINENT . . . EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS UNDER AN ADVISORY. CURRENTS MAY BE HAZARDOUS TO SWIMMERS . . . BOATS . . . AND COASTAL STRUCTURES AN MAY CONTINUE FOR SEVERAL HOURS AFTER THE INTITIAL WAVE ARRIVAL.

THIS PRODUCT WILL BE UPDATED AS NEW INFORMATION BECOMES AVAILABLE. STAY TUNED TO YOUR NEWS SOURCE AND NOAA WEATHER RADIO FOR FURTHER DEVELOPMENTS.

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ADDITIONAL INFORMATION CAN BE FOUND AT . . . [HTTP://ARH.NOAA.GOV](http://ARH.NOAA.GOV)

**APPENDIX B**

**Example “Local Information Statement” (SPS) (Warning in Effect)**

WWUS86 KLOX DDHHMM  
SPSLOX  
SPECIAL WEATHER STATEMENT  
NATIONAL WEATHER SERVICE LOS ANGELES/OXNARD CA  
730 PM PDT MON MAY 21 2012

CAZ034-035-039>041-087-220129  
SAN LUIS OBISPO COUNTY CENTRAL COAST-  
SANTA BARBARA COUNTY CENTRAL COAST-SANTA BARBARA COUNTY SOUTH COAST-  
VENTURA COUNTY COAST-LOS ANGELES COUNTY COAST-CATALINA ISLAND-  
730 PM PDT MON MAY 21 2012

UPDATE . . . TSUNAMI WAVE OBSERVATIONS HAVE BEEN ADDED.

. . . A TSUNAMI WARNING REMAINS IN EFFECT FOR THE IMMEDIATE COAST OF  
SOUTHERN CALIFORNIA . . .

A TSUNAMI WARNING HAS BEEN ISSUED AS A RESULT OF AN EARTHQUAKE WITH A  
PRELIMINARY MAGNITUDE OF 8.0 ON THE RICHTER SCALE THAT OCCURRED AT 111 PM  
PST. THE EARTHQUAKE LOCATION WAS APPROXIMATELY 10 MILES SOUTH OF ADAK  
ALASKA.

- \* LOCAL IMPACTS . . . PORTIONS OF HIGHWAY 101 ALONG BEACH AREAS IN SANTA  
BARBARA COUNTY NEAR REFUGIA STATE BEACH AND SOUTH OF CARPENTERIA  
HAVE BEEN REPORTED BY LAW ENFORCEMENT TO BE FLOODED FOR BRIEF PERIODS.  
HIGHWAY 101 IS CLOSED IN THESE AREAS.
- \* RECOMMENDED ACTIONS . . . PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE  
ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS.  
EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES. IF YOU  
ARE IN THE TSUNAMI WARNING AREA . . . MOVE INLAND TO HIGHER GROUND.
- \* EARLIER OBSERVED TSUNAMI WAVE HEIGHTS . . .  
PORT SAN LUIS AT 3.6 FEET.  
SANTA BARBARA HARBOR AT 2.6 FEET.  
SANTA MONICA HARBOR AT 3.2 FEET.  
SAN PEDRO HARBOR AT 3.3 FEET.

TSUNAMIS OFTEN ARRIVE AS A SERIES OF WAVES OR SURGES WHICH COULD BE  
DANGEROUS FOR SEVERAL HOURS AFTER THE INITIAL WAVE ARRIVAL.

- \* TIDE INFORMATION . . .  
PORT SAN LUIS . . . LOW TIDE OF 2 FEET AT 800 PM PDT MONDAY. HIGH TIDE OF 7  
FEET AT 410 PM PDT TUESDAY.  
SAN PEDRO HARBOR . . . LOW TIDE OF 4 FEET AT 730 PM PDT MONDAY. HIGH TIDE OF  
8 FEET AT 355 PM PDT TUESDAY.



A TSUNAMI WARNING MEANS THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT . . . EXPECTED OR OCCURRING. A WARNING INDICATES THAT WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR SEVERAL HOURS AFTER THE INITIAL WAVE ARRIVAL.

THIS PRODUCT WILL BE UPDATED AS NEW INFORMATION BECOMES AVAILABLE. STAY TUNED TO YOUR NEWS SOURCE AND NOAA WEATHER RADIO FOR FURTHER DEVELOPMENTS.

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