

# Exercise SoCal 2011 Participant Handbook

A Southern California tsunami warning exercise:  
June 23, 2011

Prepared by:  
West Coast/Alaska Tsunami Warning Center



NOTE: The contents of this handbook are patterned after the Exercise Pacific Wave 08 manual published by the Intergovernmental Oceanographic Commission. Citation: *Exercise Pacific Wave 08. A Pacific-wide Tsunami Warning and Communication Exercise, 28-30 October 2008*. IOC Technical Series No. 82. Paris, UNESCO, 2008 and the PACIFEX10 and 11 handbooks.

SoCal Tsunami Exercise

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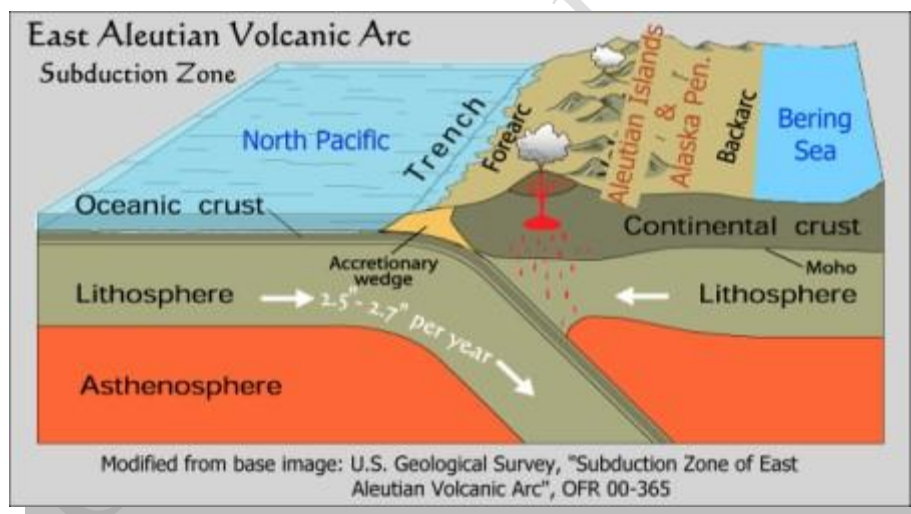
*SoCal Tsunami Exercise*

## 1. Background

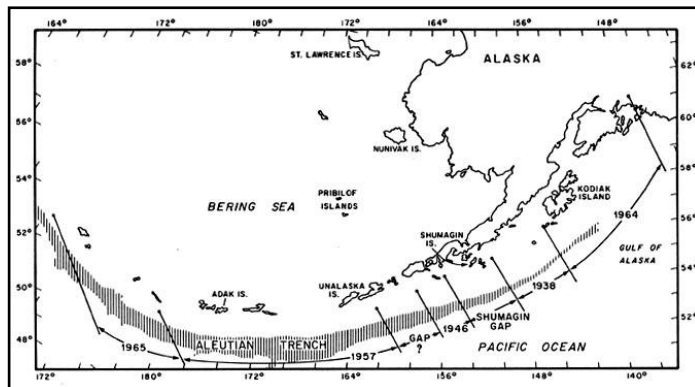
This tsunami exercise is being conducted to assist tsunami preparedness efforts within California. Historical tsunami records from sources such as the National Oceanic and Atmospheric Administration's (NOAA) National Geophysical Data Center (NGDC) show that approximately 85% of the world's oceanic tsunamis occur in the Pacific Basin and surrounding seas. Tsunamis have impacted U.S. and Canadian Pacific coasts several times in the past century with devastating results. Preparing and exercising emergency response plans throughout this region is an important part of tsunami preparedness.

This Southern California exercise simulates an earthquake located south of the Alaska Peninsula, 160 miles southeast of Chignik, Alaska, which generates a major tsunami. The description below provides an overview of the region's tectonics.

The Aleutian Islands and associated trench are products of the Pacific "plate" to the south being gradually forced beneath the North American plate in the Bering Sea. Many earthquakes result as a consequence, including some of the largest that have ever been recorded.

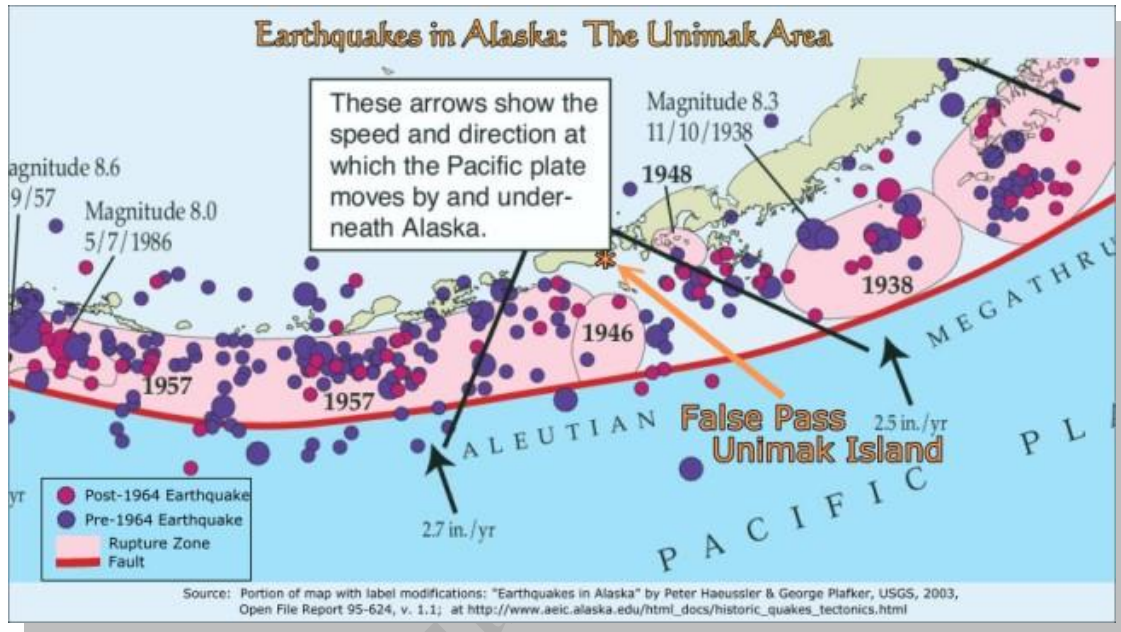


Typically, great earthquakes of magnitude 8.0 or more occur on an average of about 70 years' interval within different segments of the arc. During each of these large earthquakes, the accumulated strain is released along a certain length of the arc system, generally on the order of a few hundred miles (the 1964 Prince William Sound earthquake of magnitude 9.2 released strain along a total distance of over 400



miles, from near Valdez to Kodiak Island). It is believed that, over the years, the pattern of strain should fill in more-or-less uniformly along the entire system.

One segment of the arc that has inspired much debate is the area of the Shumagin Islands, off the tip of the Alaska Peninsula. The last great earthquake known to have occurred there (according to Russian records) was in 1848. This nagging seismic silence along a 200-mile-long zone has for decades caused scientists to predict a strong earthquake there “in the foreseeable future.”



Survey data may prove that the future is not so foreseeable. Strain accumulation during the 1980-85 interval has been measured by means of trilateration surveys in the Shumagin and Yakataga seismic gaps, which are the two regions identified as the most likely sites for the next great thrust earthquakes along the Alaska-Aleutian arc. No significant strain accumulation was detected in the Shumagin gap, but experience at similar subduction zones and simple models of the subduction process suggest that a measureable amount of strain should have accumulated. The most likely explanation of the observation is that subduction there is either aseismic or episodic. The strain accumulation measured in the Yakataga gap is consistent with that expected for the plate convergence rate, although the direction of maximum compression may suggest a somewhat more oblique convergence than expected.

Because the Aleutians are so sparsely populated, the primary hazard to population centers would probably be from tsunamis that could be damaging as far away as Hawaii.

Contributing articles to this summary can be found at <http://www.gi.alaska.edu/ScienceForum/ASF6/628.html> and <http://lib.bioinfo.pl/pmid:17750970>.

NOAA operates a tsunami warning system for U.S. Pacific coasts and western Canada through its West Coast/Alaska Tsunami Warning Center (WCATWC) in Palmer, Alaska and the Pacific Tsunami Warning Center (PTWC) in Ewa Beach, Hawaii. These Centers provide tsunami warning, watch, advisory, and information messages approximately five minutes after an earthquake's occurrence for earthquakes in the United States and Canada. Primary recipients of Tsunami Warning Center (TWC) messages include National Weather Service (NWS) coastal Weather Forecast Offices (WFO), state/territory warning points/emergency operation centers, national Coast Guards, Canada's Provincial Emergency Program, national tsunami warning focal points, and military organizations. These agencies transmit the message to people potentially impacted by a tsunami.

This exercise will provide simulated tsunami warning messages from the WCATWC triggered by a hypothetical earthquake located 160 miles southeast of Chignik, Alaska. Exercises like this will ensure that the U.S./Canadian Pacific coasts are ready to respond in case of a dangerous tsunami. Other recent tsunami exercises in the Pacific and Atlantic Basins have proven effective in strengthening preparedness levels of emergency management organizations.

## **2. Exercise Concept**

### **2.1 Purpose**

The purpose of this exercise is to improve the effectiveness of the tsunami warning system within California. The exercise provides an opportunity for emergency management organizations along its coast to exercise their operational lines of communications, review their tsunami response procedures, and promote tsunami preparedness. Regular exercising of response plans is critical to maintain readiness for an emergency. This is particularly true for tsunamis which are infrequent, but high impact events. Though this exercise was requested for use by Southern California coastal counties, all interested emergency personnel are encouraged to participate. While the exercise messages are set for June 23, 2011, the exercise can be conducted at any time.

### **2.2 Objectives**

Each organization can develop their objectives for the exercise depending on their level of involvement in the scenario. The main objective of the exercise is to provide a realistic scenario and set of messages for a tsunami warning exercise for southern California.

## 2.3 Type of Exercise

Exercises stimulate the development, training, testing, and evaluation of Disaster Plans and Standard Operating Procedures. Exercise participants may use their own past multi-hazard drills (e.g. flood, hurricane, earthquake, etc.) as a framework to conduct this exercise.

Exercises can be conducted at various scales of magnitude and sophistication. The following are examples of types of exercises conducted by EMOs.

1. **Orientation Exercise (Seminar):** An Orientation Exercise lays the groundwork for a comprehensive exercise program. It is a planned event, developed to bring together individuals and officials with a role or interest in multi-hazard response planning, problem solving, development of standard operational procedures (SOPs), and resource integration and coordination. An Orientation Exercise will have a specific goal and written objectives and result in an agreed upon Plan of Action.
2. **Drill:** The Drill is a planned activity that tests, develops, and/or maintains skills in a single or limited emergency response procedure. Drills generally involve operational response of single departments or agencies. Drills can involve internal notifications and/or field activities.
3. **Tabletop Exercise:** The Tabletop Exercise is a planned activity in which local officials, key staff, and organizations with disaster management responsibilities are presented with simulated emergency situations. It is usually informal, in a conference room environment, and is designed to elicit constructive discussion from the participants. Participants will examine and attempt to resolve problems, based on plans and procedures, if they exist. Individuals are encouraged to discuss decisions in depth with emphasis on slow-paced problem solving, rather than rapid, real time decision-making. A Tabletop Exercise should have specific goals, objectives, and a scenario narrative (see Appendix A for a Sample Tabletop Exercise Outline).
4. **Functional Exercise:** A Functional Exercise is a planned activity designed to test and evaluate organizational capacities. It is also utilized to evaluate the capability of a community's emergency management system by testing the Emergency Operations Plan (EOP). It is based on a simulation of a realistic emergency situation that includes a description of the situation (narrative) with communications between players and simulators. The Functional Exercise gives the players (decision-makers) a fully simulated experience of being in a major disaster event. It should take place at the appropriate coordination location (i.e. emergency operations center, emergency command center, command post, master control center, etc.) and activate all the appropriate members designated by the plan. Both internal and external agencies (government, private sector, and volunteer agencies) should be involved. It requires players, controllers, simulators, and evaluators. Message traffic will be simulated



and inserted by the control team for player response/actions, under real time constraints. It may or may not include public evacuations. A Functional Exercise should have specific goals, objectives, and scenario narrative.

5. **Full-scale Exercise:** A full-scale Exercise is the culmination of a progressive exercise program that has grown with the capacity of the community to conduct exercises. A Full-Scale exercise is a planned activity in a “challenging” environment that encompasses a majority of the emergency management functions. This type of exercise involves the actual mobilization and deployment of the appropriate personnel and resources needed to demonstrate operational capabilities. EOCs and other command centers are required to be activated. A Full-scale Exercise is the largest, costliest, and most complex exercise type. It may or may not include public evacuations.

### Example Time Frames for Different Exercise Types

Style	Planning Period	Duration	Comments
Orientation Exercise	2 wks	1 day	Individual or mixed groups
Drill	2 days	1 day	Individual technical groups generally
Tabletop Exercise	2 weeks	1-3 days	Single or multiple agency
Functional Exercise	1-2 months	1-5 days	Multiple Agency participation
Full-scale Exercise	2-6 months	1 day/ week	Multiple Agency participation

## 3. Exercise Outline

### 3.1 General

The scenario will start with a magnitude 9.2 earthquake located 160 miles southeast of Chignik, Alaska at 54.5°N, 155.8°W. A large tsunami with vertical runups exceeding 5.0 meters near the source zone occurs along U.S. and Canadian Pacific coasts. The earthquake occurs at 1600 UTC on June 23, 2011. The tsunami inundates extensive sections of land in the epicentral region and also significantly impacts other U.S. and Canadian coasts in the Pacific. This is a realistic scenario for a major Shumagin Gap earthquake which is discussed in greater detail in Appendix B.

The WCATWC will not issue live messages during the exercise. Participants should follow the schedule in Table 1 to look at new messages. Table 1 is the timeline for when messages would be issued by WCATWC if this were a real event and should be used by EMOs to drive the exercise timing. The warning messages (as shown in Appendix C) cover a 9 1/2-hour period, though in an actual event they would likely continue longer.

The WCATWC issues two official products each time a message is issued. The first, and the ones provided in Appendix C, are known as the standard message. This message is a segmented message which includes encoded NWS zones and their level of threat in the lower section of the message. The segmentation is used for automated processing systems which parse NWS products. The standard product also lists expected arrival times. The second product is known as the public message. This message has no segmentation and is written in a non-tabular, easier-to-read format. The products contain the same basic information. EMOs generally use the standard product for warning response as it has more complete information. The WCATWC also issues additional graphical and web-based products to its web site. Examples of these are shown in Appendix D.

During Pacific events, PTWC also issues two official products. The first is an international product that covers Hawaii, American Samoa, Guam, and all other countries in the Pacific except Canada. The second is a product specifically for the State of Hawaii. These products are designed and intended for EMOs.

Participants may elect to exercise using their own timelines in order to achieve their particular objectives. For example, a particular EMO's exercise control may choose to feed the TWC bulletins into the exercise at times of their own choosing, or alternatively put them in envelopes with the time they must be opened written on each, with each key participant agency having their own set of envelopes. The messages, provided in Appendix C, will facilitate this approach.

Estimated tsunami arrival times to several U.S. and Canadian Pacific locations are included in the TWC messages (Appendix D contains a list of arrival times to more Pacific locations which would be available over the web during an event as well as a travel time map). In addition, EMOs are welcome to modify estimated arrival times and/or wave amplitudes to suit their exercise – for example, to have the tsunami arrive sooner and with larger amplitude. Other exercise injects, such as tsunami damage reports, are also encouraged.

## **3.2 Master Schedule (Exercise Script)**

### **Table 1: Scenario Timeline**

Tsunami generated by a magnitude 9.2 earthquake with epicenter at 54.5°N, 155.8°W occurring on June 23, 2011 at 1600 UTC. (Note No public “Dummy” messages stating the exercise has started will be issued.)

Date (UTC)	Time (UTC)	WCATWC Message		
		#	Type	Dummy
06/23/2011	1600	- Earthquake Occurs -		
06/23/2011	1604	01	WWA	No
06/23/2011	1633	02	WWA	No
06/23/2011	1704	03	WWA	No
06/23/2011	1739	04	WWA	No
06/23/2011	1808	05	WWA	No
06/23/2011	1835	06	WWA	No
06/23/2011	1908	07	WWA	No
06/23/2011	1937	08	WWA	No
06/23/2011	2010	09	WWA	No
06/23/2011	2039	10	WWA	No
06/23/2011	2105	11	WWA	No
06/23/2011	2137	12	WWA	No
06/23/2011	2208	13	WWA	No
06/23/2011	2233	14	WWA	No
06/23/2011	2306	15	WWA	No
03/23/2011	2334	16	WWA	No
03/24/2011	0004	17	WWA	No
03/24/2011	0035	18	WWA	No
03/24/2011	0105	19	WWA	No
03/24/2011	0133	20	Can	No

**WCATWC Message Types:**

WWA Warning/Watch/Advisory  
Can WWA Cancellation

**Dummy:**

Yes Dummy Issued  
No Dummy Not Issued

### 3.3 Actions in Case of a Real Event

Not Applicable.

### 3.4 Procedure for False Alarm

Any time disaster response exercises are conducted, the potential exists for the public or media to interpret the event as real. Procedures should be set up by all participating entities to address public or media concerns involving this exercise in case of mis-interpretation by media or the public.

### 3.5 Resources

Although EMOs will have advance notice of the exercise and may elect to stand up a special dedicated shift to allow normal core business to continue uninterrupted, it is suggested that realistic resource levels be deployed in order to reflect some of the issues that are likely to be faced in a real event.

Questions on the exercise can be addressed to:

Jim Goltz	CA EMA, Tsunami PM	626-356-3810	<a href="mailto:jim.goltz@oes.ca.gov">jim.goltz@oes.ca.gov</a>
Rick Wilson	CA Geological Survey	916-327-0981	<a href="mailto:Rick.Wilson@conservation.ca.gov">Rick.Wilson@conservation.ca.gov</a>
Paul Whitmore	WCATWC Director	907-745-4212	<a href="mailto:paul.whitmore@noaa.gov">paul.whitmore@noaa.gov</a>
James Waddell	WCATWC Exercise Rep.	907-745-4212	<a href="mailto:james.waddell@noaa.gov">james.waddell@noaa.gov</a>

### **3.6 Media Arrangements**

One advantage in conducting exercises is that it provides a venue to promote awareness of the exercise topic. Many residents along the Pacific coast may not realize that a tsunami warning system exists for their region, let alone the proper response. Communities may wish to invite their local media to the exercise to promote local awareness of the tsunami hazard. Appendix E contains a sample press release which can be adapted as necessary.

### **4 Post-Exercise Evaluation**

Not Applicable.

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## Appendix A. Example Table Top Exercise

### Tabletop Exercise Development Steps

Source: California Emergency Management Agency

A Tabletop Exercise is a planned activity in which local officials, key staff, and organizations with disaster management responsibilities are presented with simulated emergency situations. It is usually informal and slow paced, in a conference room environment, and is designed to elicit constructive discussion from the participants to assess plans, policies, and procedures. Participants will examine and attempt to resolve problems, based on plans and procedures, if they exist. Individuals are encouraged to discuss decisions in depth based on their organization's Standard Operating Procedures (SOPs), with emphasis on slow-paced problem solving, rather than rapid, real time decision-making. An Exercise Controller (moderator) introduces a simulated tsunami scenario to participants via written message, simulated telephone or radio call, or by other means. Exercise problems and activities (injects) are further introduced. Participants conduct group discussions, and resolution is generally agreed upon, and then summarized by a group leader. A Tabletop Exercise should have specific goals, objectives, and a scenario narrative.

The following provides a Tabletop Exercise structure with sample text and example.

#### 1. **Vulnerability Analysis: Problem Statement**

*An example for a hurricane might be:*

*Due to the recent Hurricane incidents that the Southeast region of the United States, an awareness of the threat risk involved in these disasters has become more apparent, therefore the need for evacuation system is vital. The state of Louisiana continues its ongoing tasks of planning, preparing, and training for Hurricane preparedness.*

#### 2. **Purpose (Mission): Intent, what you plan to accomplish (Policy Statement)**

*An example for a hurricane might be:*

*The State of Louisiana has realized and recognizes the need for a more efficient and effective evacuation system, and is responding with this Comprehensive Exercise Plan. These events will include seminars, workshops, tabletop exercise, functional and full-scale exercises within an 18-month time frame, under the State Homeland Security grant program.*

#### 3. **Scope:**

<b>Exercise Activities</b>
<b>Agencies Involved</b>
<b>Hazard Type</b>
<b>Geographic Impact Area</b>

*An example might be:*

*Emergency Services coordinators at local levels of government will identify representative jurisdictions from each of the six mutual aid regions located throughout the State to participate as host jurisdictions in a series of disaster preparedness exercises. These host jurisdictions will develop a progressive series of exercises each type building upon the previous type of exercise. The process will begin with a vulnerability analysis for each jurisdiction and continue through a progression of exercise activities including; orientation seminars,*

*workshops, tabletop and functional exercises. The eventual objective of these activities will be to reduce disaster impacts to their populations and city infrastructure. All events will be evaluated utilizing US Homeland Security Exercise Evaluation Program (HSEEP) after action reporting (AAR) standards. Steps for corrective actions will be made a part of the after action process and report. Surrounding jurisdictions in the mutual aid area will act as exercise design team members, exercise evaluators, or exercise observers for the purpose of information transfer to increase their operational readiness. Jurisdictions will participate on a rotational basis every two years to provide the opportunity for multiple jurisdiction participation.*

**4. Goals and Objectives:**

**Criteria for good objectives: Think SMART**

- Simple (concise)
- Measurable
- Achievable (can this be done during the exercise?)
- Realistic (and challenging)
- Task Oriented (oriented to functions)

**An example might be:**

*Comprehensive Exercise Program (CEP) Objectives*

- *To improve operational readiness*
- *To improve multi-agency coordination and response capabilities for effective disaster response*
- *To identify communication pathways and problem areas pre-event between local jurisdictions and operational area, regional and state emergency operations centers*
- *To establish uniform methods for resource ordering, tracking and supply for agencies involved at all levels of government.*

**5. Narrative:**

The Narrative should describe the following:

- Triggering emergency/disaster event
- Describe the environment at the time the exercise begins
- Provides necessary background information
- Prepares participants for the exercise
- Discovery, report: how do you find out?
- Advance notice?
- Time, location, extent or level of damage

**6. Evaluation:**

The Evaluation should describe the following:

- Objectives Based
- Train Evaluation Teams
- Develop Evaluation Forms

**7. After Action Report (AAR):** The AAR should be compiled using the evaluation reports

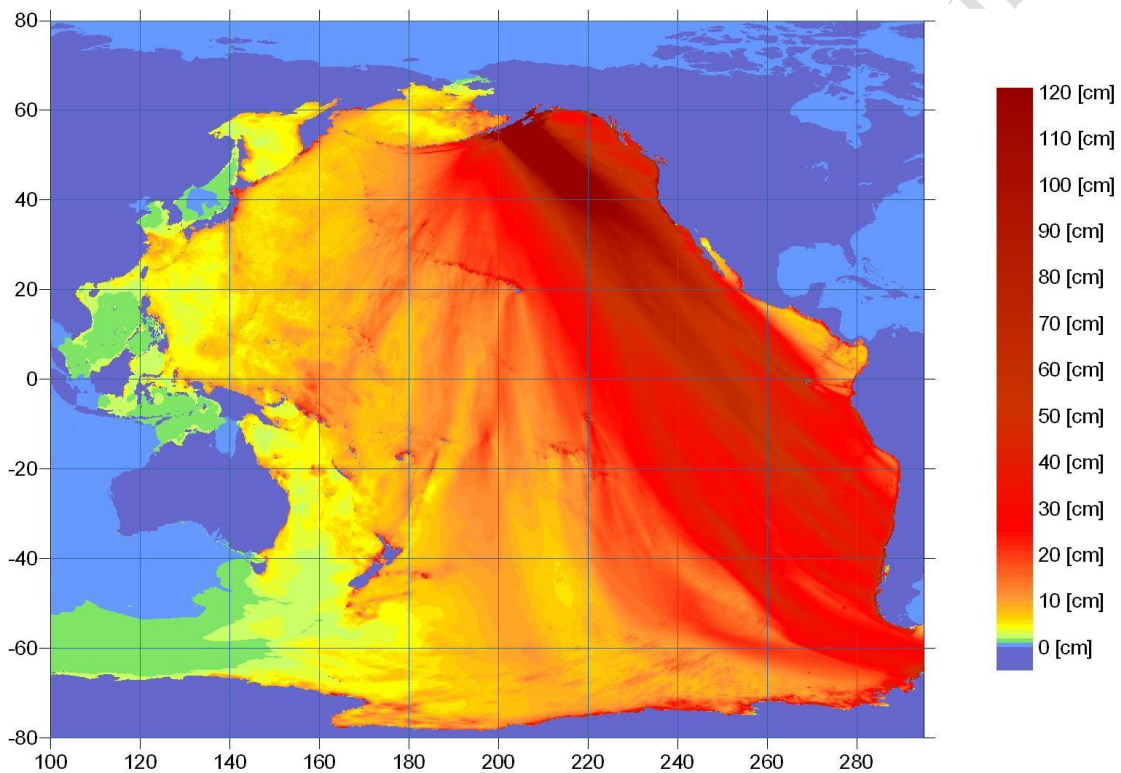
**8. Improvement Plan (IP):** The IP should reduce vulnerabilities.

## Appendix B. Scenario Description

The Alaska Tsunami Forecast Model (ATFM) was used to simulate the tsunami generated by a magnitude 9.2 earthquake 160 miles southeast of Chignik, Alaska with an epicenter at 54.5°N and 155.8°W.

The model was computed using a 4-minute resolution grid in the open ocean and additional 1-minute and 12-second resolution grids along the U.S./Canadian Pacific coasts.

The following figure displays the maximum modeled tsunami amplitude throughout the Pacific. The amplitude represents the highest level of the tsunami above normal sea level.



**Figure B1: Maximum modeled tsunami amplitudes throughout the Pacific.**

The following table provides maximum modeled amplitudes at several points throughout the exercise area. Amplitude indicates the level of the tsunami above ambient sea level at the coast. The vertical runups along shore may exceed the forecast amplitude by double or more due to the long period nature of tsunamis.

Location	Amplitude (m)	Location	Amplitude (m)
Attu, AK	0.36	Auke Bay, AK	0.45
Karab Cove, AK	0.11	Hoonah, AK	0.80
Alaid I., AK	0.16	Elfin Cove, AK	0.80
Nizki I., AK	0.14	Cape Bingham, AK	0.59
Shemya, AK	0.09	Kruzof I., AK	1.56
False Bay, AK	0.23	Krestof I., AK	1.56

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Adak Dock, AK	0.44	Sitka, AK	1.71
Agony Point, AK	0.27	Povorotni, AK	1.61
West Atka I., AK	0.30	Biorka I., AK	1.24
Samalga I., AK	0.52	Langara, BC	0.73
St. Paul, AK	0.17	White Point, BC	1.90
Nikolski, AK	0.33	Cape Scott, BC	1.03
Unalaska, AK	0.67	Matlahaw Point, BC	1.25
Sedanka I., AK	1.18	Tofino, BC	1.10
Akutan, AK	0.44	Neah Bay, WA	0.76
Avatanak I., AK	0.95	Port Angeles, WA	0.65
False Pass, AK	0.84	Bellingham, WA	0.72
Sanak, AK	1.15	Everett, WA	0.23
Cold Bay, AK	1.02	Seattle – Pier 48, WA	0.25
King Cove, AK	2.20	Moclips, WA	1.59
Belkofski, AK	3.02	Westport, WA	0.67
Sand Pt., AK	2.86	Long Beach, WA	1.51
Ivanof Bay, AK	5.83	East Astoria, OR	0.31
Perryville, AK	4.51	Clatsop Spit, OR	2.00
Gull Point, AK	3.56	Cannon Beach, OR	1.67
Kodiak, AK	2.33	Oceanside, OR	1.55
Port Lions, AK	3.50	Neskowin, OR	1.87
Ouzinki, AK	2.71	Siletz, OR	2.40
Selezen Pt., AK	2.53	Newport, OR	2.51
English Bay, AK	1.28	Yachats, OR	1.97
Seldovia, AK	1.17	Siuslaw River Mouth, OR	1.69
Homer Spit, AK	0.97	Umpqua River Mouth, OR	1.40
Halibut Cove, AK	1.42	Empire, OR	0.48
Seward, AK	1.27	Coos Bay, OR	0.16
Whittier, AK	0.44	Charleston, OR	1.01
Montague I., AK	0.51	Bastendorf Beach, OR	2.13
Capr Hinchinbrook, AK	0.69	Coquille Point, OR	2.04
Tatitlek, AK	0.94	Port Orford, OR	1.99
Valdez, AK	0.52	Brookings, OR	2.23
Cordova, AK	0.26	Crescent City, CA	2.18
Icy Bay, AK	1.46	Klamath River Mouth, CA	2.89
Schooner Beach, AK	1.42	Trinidad, CA	2.12
Yakutat dock, AK	1.01	Humboldt Bay, CA	1.44
Eureka, CA	0.58	Carpinteria, CA	1.46
South Spit, CA	2.00	Santa Cruz I., CA	0.55
Ten Mile River, CA	2.71	Ventura, CA	2.42
Mendocino, CA	1.99	Malibu, CA	0.78
Elk, CA	2.89	Santa Monica, CA	1.07
Arena Cove, CA	2.42	Redonda Beach, CA	0.95
Bodega Bay, CA	1.97	L.A., CA	0.88
Point Reyes Beach, CA	1.64	Middle Harbor, CA	0.88
Fort Point, CA	1.11	Huntington Beach, CA	1.83
Sausalito, CA	0.60	Laguna Beach, CA	1.18
Alameda, CA	0.39	Encinitas, CA	1.62
Pacifica, CA	2.25	La Jolla, CA	1.98
Half Moon Bay, CA	3.46	Ballast Point, CA	1.12
Rio Del Mar, CA	3.06	San Diego Navy Pier, CA	0.50
Santa Cruz, CA	2.35	North Imperial Beach, CA	1.30
Monterey, CA	1.65	Midway Is.	0.37



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Carmel, CA	1.55	Hanalei, HI	0.84
Point Sur, CA	2.46	Nawiliwili, HI	0.67
Morro Bay, CA	3.11	Haleiwa, HI	0.81
Point San Luis, CA	2.08	Moku O Loe I. TG, HI	0.71
Pismo Beach, CA	2.96	Honolulu TG, HI	0.42
Lions Head, CA	4.03	Kalaupapa, HI	0.67
Surf, CA	2.55	Kahului, HI	2.01
Gaviota, CA	1.21	Kihei, HI	1.18
Naples, CA	1.15	Kawaihae, HI	1.00
Santa Barbara, CA	1.09	Hilo TG, HI	1.17

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## Appendix C. WCATWC Exercise Messages

The following messages, created for the SoCal 2011 tsunami exercise, are representative of the official standard products issued by the WCATWC during a large magnitude 9.2 earthquake and tsunami originating at 54.5°N, 155.8°W. During a real event, the Center would also issue graphical and html-based products to its web site and via RSS.

### WCATWC Message #1

WEPA41 PAAQ 231604  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 1  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
804 AM AKDT THU JUN 23 2011

...A TSUNAMI WARNING IS NOW IN EFFECT WHICH INCLUDES THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO ATTU ALASKA...

...A TSUNAMI WATCH IS NOW IN EFFECT WHICH INCLUDES THE COASTAL AREAS OF CALIFORNIA - OREGON AND WASHINGTON FROM THE CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

#### 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.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI WATCH COASTAL AREAS SHOULD STAY ALERT FOR SUPPLEMENTAL INFORMATION.

#### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5° NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

TSUNAMI WATCHES ARE AN ADVANCE NOTICE TO AREAS THAT COULD BE IMPACTED BY A TSUNAMI AT A LATER TIME. WATCH AREAS MAY BE UPGRADED TO WARNING OR ADVISORY STATUS - OR CANCELED - BASED ON NEW INFORMATION OR ANALYSIS. PERSONS IN A WATCH AREA SHOULD CLOSELY FOLLOW SUBSEQUENT TSUNAMI MESSAGES.

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT [WWW.WEATHER.GOV/PTWC](http://WWW.WEATHER.GOV/PTWC).

THIS MESSAGE IS BASED MAINLY ON EARTHQUAKE DATA. EARTHQUAKES OF THIS SIZE ARE KNOWN TO GENERATE DANGEROUS TSUNAMIS. AS MORE INFORMATION BECOMES AVAILABLE THE WARNING AND WATCH AREAS WILL BE REFINED.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT

## Southern California Tsunami Exercise Handbook

UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE  
WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-  
912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-  
125-121-171-181-185-187-191-231704-  
/T.NEW.PAAQ.TS.W.0033.110623T1604Z-110623T1704Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE WASHINGTON-BRITISH  
COLUMBIA BORDER TO ATTU ALASKA  
804 AM AKDT THU JUN 23 2011

...A TSUNAMI WARNING IS NOW IN EFFECT WHICH INCLUDES THE  
COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE  
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SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL  
ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED  
SITES IN THE WARNING ARE PROVIDED BELOW.

SAND PT.-AK	0915	AKDT	JUN 23	COLD BAY-AK	0950	AKDT	JUN 23
KODIAK-AK	0917	AKDT	JUN 23	VALDEZ-AK	0958	AKDT	JUN 23
DUTCH HARBOR-AK	0922	AKDT	JUN 23	LANGARA-BC	1058	PDT	JUN 23
SEWARD-AK	0939	AKDT	JUN 23	CORDOVA-AK	1008	AKDT	JUN 23
ELFIN COVE-AK	0940	AKDT	JUN 23	SHEMYA-AK	1030	AKDT	JUN 23
ADAK-AK	0946	AKDT	JUN 23	HOMER-AK	1032	AKDT	JUN 23
YAKUTAT-AK	0948	AKDT	JUN 23	CRAIG-AK	1049	AKDT	JUN 23
SITKA-AK	0948	AKDT	JUN 23	TOFINO-BC	1226	PDT	JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE  
WCATWC.ARH.NOAA.GOV

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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-  
002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-231704-  
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SITES IN THE WATCH ARE PROVIDED BELOW.

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SEASIDE-OR	1254	PDT	JUN 23	SANTA BARBARA-CA	1418	PDT	JUN 23
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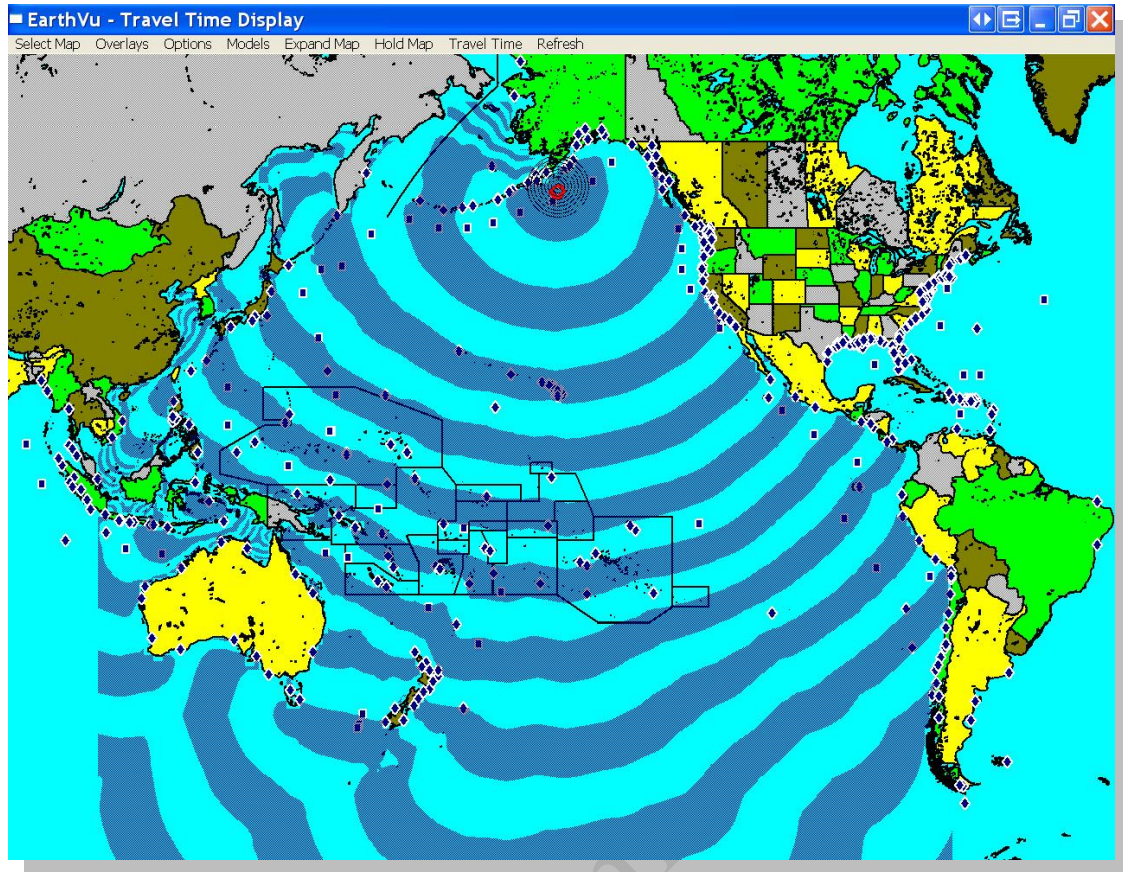


Figure C1: Modelled wave location at Message #1.

**WCATWC Message #2**

WEPA41 PAAQ 231633  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 2  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
833 AM AKDT THU JUN 23 2011

NO NEW UPDATES SINCE LAST MESSAGE.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
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RECOMMENDED ACTIONS

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- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI WATCH COASTAL AREAS SHOULD STAY ALERT FOR SUPPLEMENTAL INFORMATION.

PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011

## Southern California Tsunami Exercise Handbook

LOCATION - 54.5 NORTH 155.8 WEST  
160 MILES/257 KM SE OF CHIGNIK ALASKA  
510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

TSUNAMI WATCHES ARE AN ADVANCE NOTICE TO AREAS THAT COULD BE IMPACTED BY A TSUNAMI AT A LATER TIME. WATCH AREAS MAY BE UPGRADED TO WARNING OR ADVISORY STATUS - OR CANCELED - BASED ON NEW INFORMATION OR ANALYSIS. PERSONS IN A WATCH AREA SHOULD CLOSELY FOLLOW SUBSEQUENT TSUNAMI MESSAGES.

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT [WWW.WEATHER.GOV/PTWC](http://WWW.WEATHER.GOV/PTWC).

THIS MESSAGE IS BASED MAINLY ON EARTHQUAKE DATA. EARTHQUAKES OF THIS SIZE ARE KNOWN TO GENERATE DANGEROUS TSUNAMIS. AS MORE INFORMATION BECOMES AVAILABLE THE WARNING AND WATCH AREAS WILL BE REFINED.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE [WCATWC.ARH.NOAA.GOV](http://WCATWC.ARH.NOAA.GOV) FOR MORE INFORMATION.

BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-125-121-171-181-185-187-191-231733-  
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833 AM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO ATTU ALASKA...

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ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-231733-  
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## Southern California Tsunami Exercise Handbook

AREAS OF CALIFORNIA - OREGON AND WASHINGTON FROM THE CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

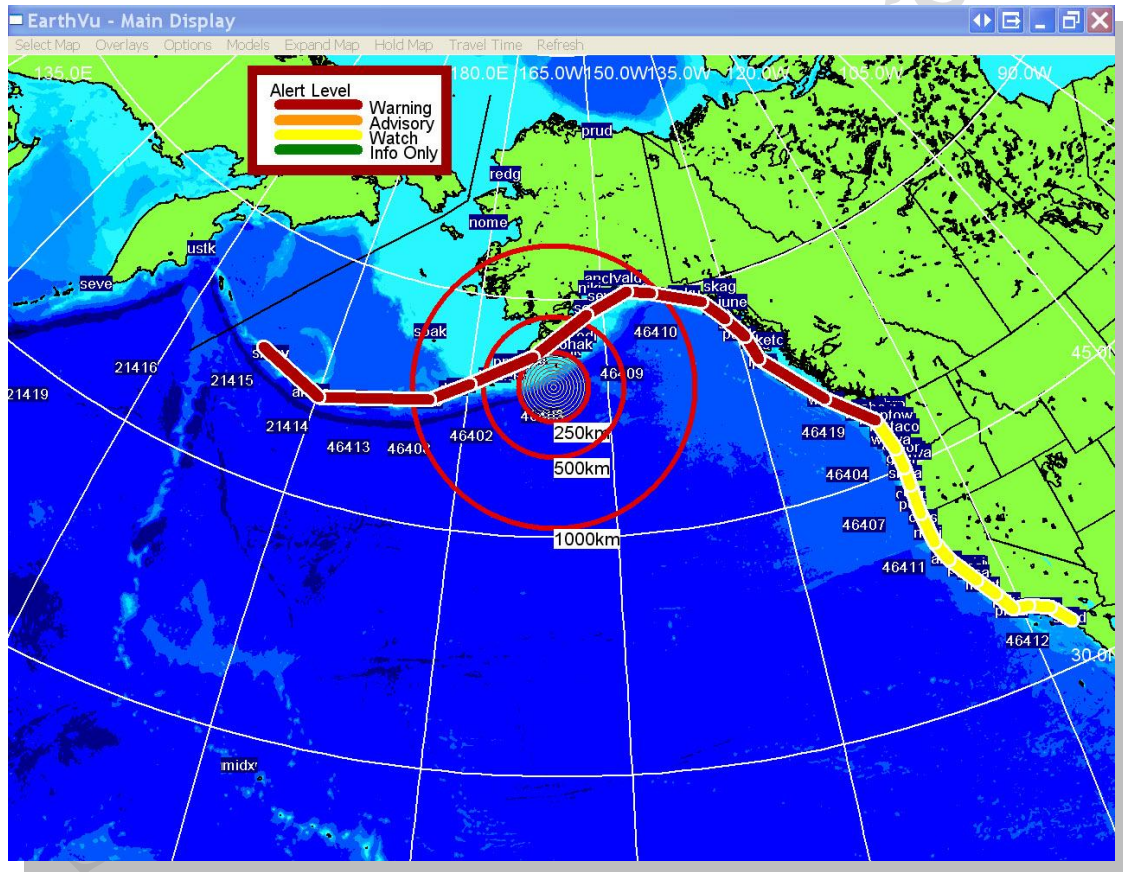
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CRESCENT CITY-CA	1305	PDT JUN 23			

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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**Figure C2: Small-scale map issued with Message #2.**

### **WCATWC Message #3**

WEPA41 PAAQ 231704  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 3  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
904 AM AKDT THU JUN 23 2011

THE TSUNAMI WARNING HAS BEEN EXPANDED FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO THE CALIFORNIA-MEXICO BORDER. MORE OBSERVATIONS ARE LISTED BELOW.

## Southern California Tsunami Exercise Handbook

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### RECOMMENDED ACTIONS

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- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
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DEPTH - 25 MILES/40 KM

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WCATWC.ARH.NOAA.GOV

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YAKUTAT-AK	0948 AKDT JUN 23	CRAIG-AK	1049 AKDT JUN 23
SITKA-AK	0948 AKDT JUN 23	TOFINO-BC	1226 PDT JUN 23

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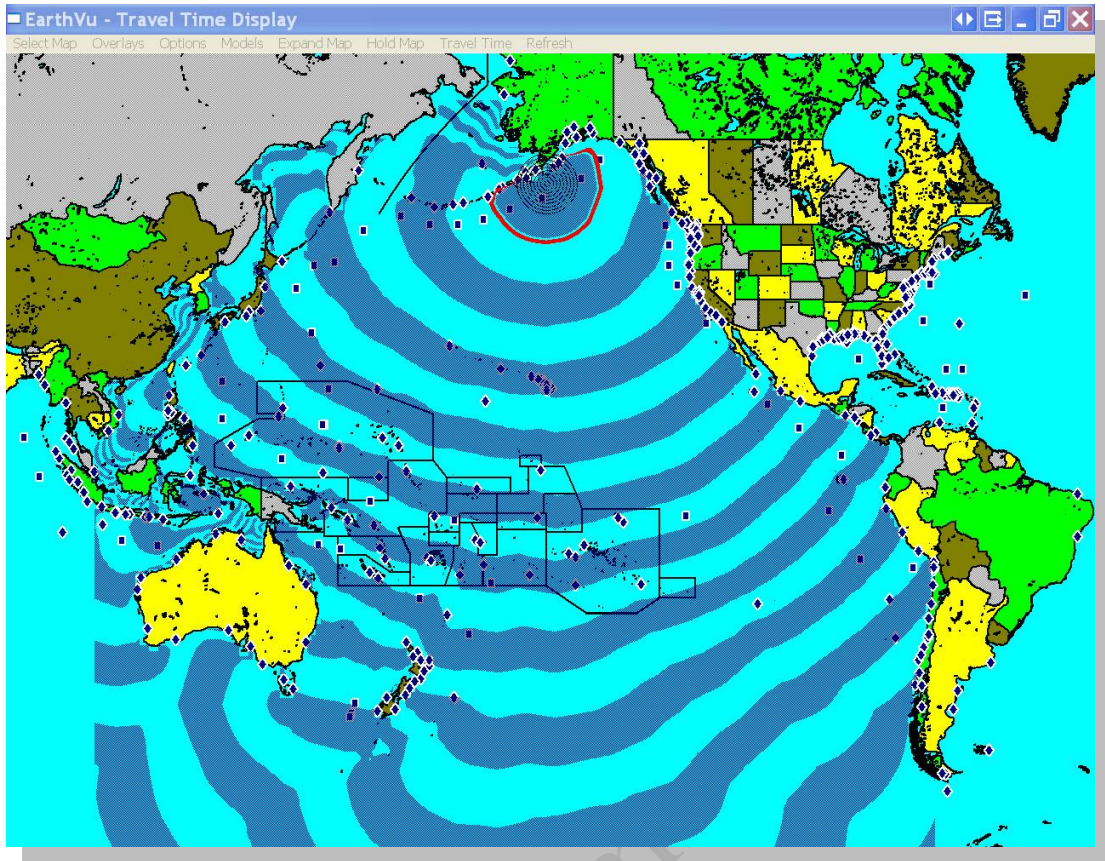


Figure C3: Modelled wave location at Message #3.

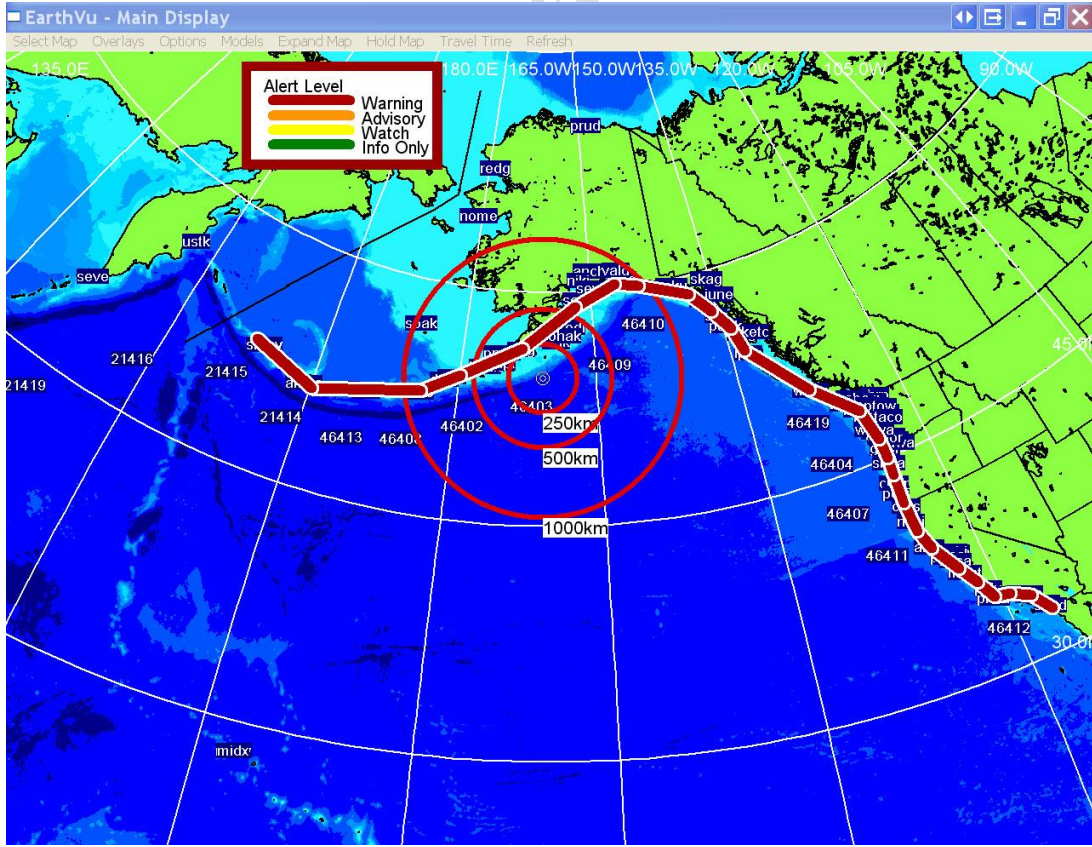


Figure C4: Small-scale map issued with Message #3.

**WCATWC Message #4**

WEPA41 PAAQ 231739  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 4  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
939 AM AKDT THU JUN 23 2011

SITES REPORTING TSUNAMI OBSERVATIONS ARE NOTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO DAMAGE THE WARNING REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
KING COVE AK	55.1 N	162.3 W	1715	7.21 FT/2.20 M
SAND POINT AK	55.1 N	160.5 W	1715	9.38 FT/2.86 M
KODIAK AK	57.8 N	152.4 W	1717	7.64 FT/2.33 M
DUTCH HARBOR AK	57.8 N	152.4 W	1722	2.20 FT/0.67 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

19.13 FT/5.83 M WAVES HAVE BEEN REPORTED AT IVANOF BAY AK WHERE ITS REPORTED THAT THREE PEOPLE WERE WASHED OUT TO SEA. DAMAGE TO BOATS AND DOCKS HAVE BEEN REPORTED FROM KING COVE AK - SAND POINT AK - KODIAK AK AND DUTCH HARBOR AK.

PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
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LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-  
002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-  
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CORDOVA-AK	1008 AKDT JUN 23	LA JOLLA-CA	1445 PDT JUN 23
SHEMYA-AK	1030 AKDT JUN 23		

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE  
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### **WCATWC Message #5**

WEPA41 PAAQ 231808  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 5  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
1008 AM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW.

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#### RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO DAMAGE THE  
WARNING REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING  
COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL  
EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY  
RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI  
AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

## Southern California Tsunami Exercise Handbook

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
KING COVE AK	55.1 N	162.3 W	1715	7.21 FT/2.20 M
SAND POINT AK	55.1 N	160.5 W	1715	9.38 FT/2.86 M
KODIAK AK	57.8 N	152.4 W	1717	7.64 FT/2.33 M
DUTCH HARBOR AK	57.8 N	152.4 W	1722	2.20 FT/0.67 M
SEWARD AK	60.2 N	149.4 W	1739	4.17 FT/1.27 M
ADAK AK	51.9 N	176.6 W	1746	1.44 FT/0.44 M
SITKA AK	57.1 N	135.3 W	1748	5.61 FT/1.71 M
LANGARA BC	54.2 N	133.1 W	1758	2.39 FT/0.73 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

FOUR FISHERMEN HAVE BEEN REPORTED DEAD IN SAND POINT AK AFTER THEIR BOAT WAS FLIPPED BY THE TSUNAMI COMING ASHORE. FLOODING HAS BEEN REPORTED ALONG KATLIAN STREET AND F-99 IN SITKA AK

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT [WWW.WEATHER.GOV/PTWC](http://WWW.WEATHER.GOV/PTWC).

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE [WCATWC.ARH.NOAA.GOV](http://WCATWC.ARH.NOAA.GOV) FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-125-121-171-181-185-187-191-231908-  
/T.CON.PAAQ.TS.W.0033.110623T1808Z-110623T1908Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA  
1008 AM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

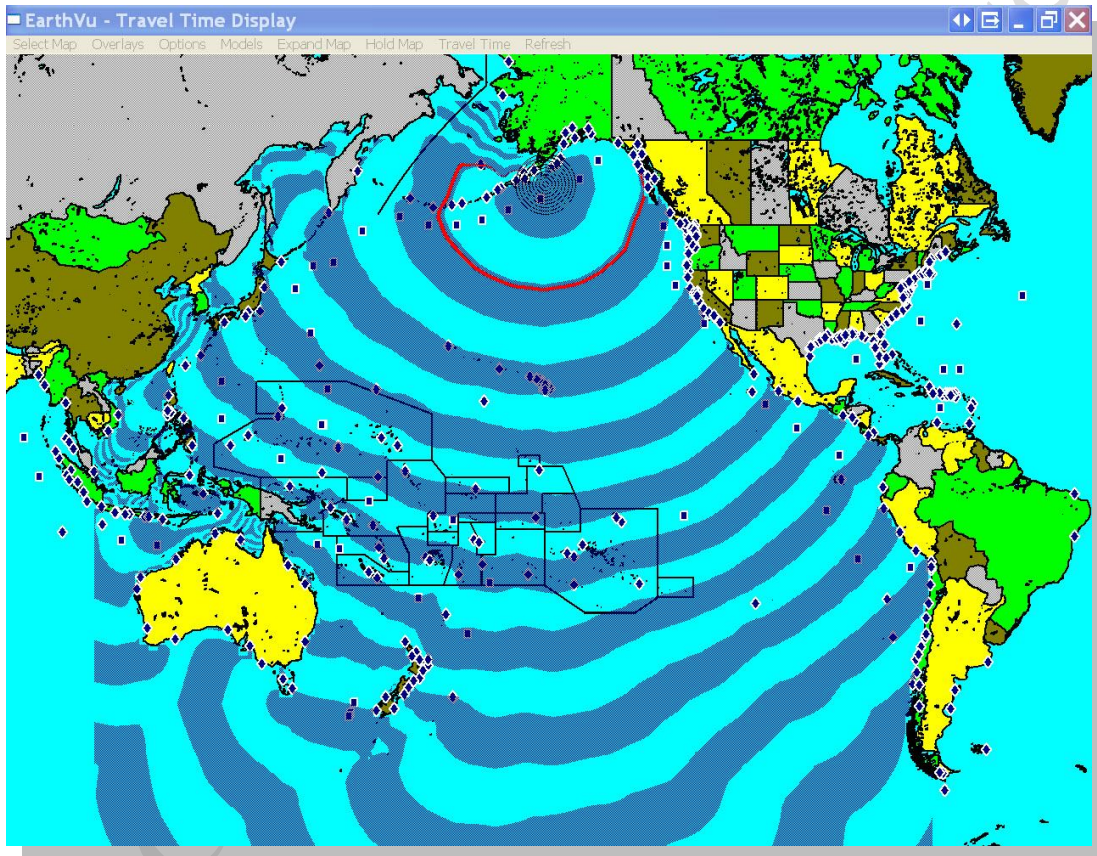
ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

## Southern California Tsunami Exercise Handbook

SAND PT.-AK	0915 AKDT JUN 23	HOMER-AK	1032 AKDT JUN 23
KODIAK-AK	0917 AKDT JUN 23	CRAIG-AK	1049 AKDT JUN 23
DUTCH HARBOR-AK	0922 AKDT JUN 23	TOFINO-BC	1226 PDT JUN 23
SEWARD-AK	0939 AKDT JUN 23	NEAH BAY-WA	1238 PDT JUN 23
ELFIN COVE-AK	0940 AKDT JUN 23	SEASIDE-OR	1254 PDT JUN 23
ADAK-AK	0946 AKDT JUN 23	CHARLESTON-OR	1254 PDT JUN 23
YAKUTAT-AK	0948 AKDT JUN 23	WESTPORT-WA	1254 PDT JUN 23
SITKA-AK	0948 AKDT JUN 23	CRESCENT CITY-CA	1305 PDT JUN 23
COLD BAY-AK	0950 AKDT JUN 23	SAN FRANCISCO-CA	1401 PDT JUN 23
VALDEZ-AK	0958 AKDT JUN 23	SANTA BARBARA-CA	1418 PDT JUN 23
LANGARA-BC	1058 PDT JUN 23	SAN PEDRO-CA	1434 PDT JUN 23
CORDOVA-AK	1008 AKDT JUN 23	LA JOLLA-CA	1445 PDT JUN 23
SHEMYA-AK	1030 AKDT JUN 23		

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE  
WCATWC.ARH.NOAA.GOV

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**Figure C5: Modelled wave location at Message #5.**

### **WCATWC Message #6**

WEPA41 PAAQ 231835  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 6  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
1035 AM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH  
COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO  
ATTU ALASKA...

#### RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO DAMAGE THE

## Southern California Tsunami Exercise Handbook

WARNING REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
KING COVE AK	55.1 N	162.3 W	1715	7.21 FT/2.20 M
SAND POINT AK	55.1 N	160.5 W	1715	9.38 FT/2.86 M
KODIAK AK	57.8 N	152.4 W	1717	7.64 FT/2.33 M
DUTCH HARBOR AK	57.8 N	152.4 W	1722	2.20 FT/0.67 M
SEWARD AK	60.2 N	149.4 W	1739	4.17 FT/1.27 M
ADAK AK	51.9 N	176.6 W	1746	1.44 FT/0.44 M
SITKA AK	57.1 N	135.3 W	1748	5.61 FT/1.71 M
LANGARA BC	54.2 N	133.1 W	1758	2.39 FT/0.73 M
CORDOVA AK	60.5 N	145.7 W	1808	0.85 FT/0.26 M
SHEMYA AK	52.7 N	174.1 W	1830	0.30 FT/0.09 M

LAT - LATITUDE (N-NORTH, S-SOUTH)

LON - LONGITUDE (E-EAST, W-WEST)

TIME - TIME OF THE MEASUREMENT

AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.

IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.

VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

A COMBINED ESTIMATE OF 14 MILLION DOLLARS IN DAMAGE HAS BEEN REPORTED FROM KING COVE AK - SAND POINT AK - KODIAK AK AND DUTCH HARBOR AK. ADAK AK REPORTS MINOR FLOODING ALONG FINGER BAY ROAD.

PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2

TIME - 0800 AKDT JUN 23 2011

0900 PDT JUN 23 2011

1600 UTC JUN 23 2011

LOCATION - 54.5 NORTH 155.8 WEST

160 MILES/257 KM SE OF CHIGNIK ALASKA

510 MILES/821 KM SW OF ANCHORAGE ALASKA

DEPTH - 25 MILES/40 KM

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT [WWW.WEATHER.GOV/PTWC](http://WWW.WEATHER.GOV/PTWC).

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE [WCATWC.ARH.NOAA.GOV](http://WCATWC.ARH.NOAA.GOV) FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-125-121-171-181-185-187-191-231935-  
/T.CON.PAAQ.TS.W.0033.110623T1835Z-110623T1935Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA  
1035 AM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA...

## Southern California Tsunami Exercise Handbook

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

SEWARD-AK	0939 AKDT JUN 23	CRAIG-AK	1049 AKDT JUN 23
ELFIN COVE-AK	0940 AKDT JUN 23	TOFINO-BC	1226 PDT JUN 23
ADAK-AK	0946 AKDT JUN 23	NEAH BAY-WA	1238 PDT JUN 23
YAKUTAT-AK	0948 AKDT JUN 23	SEASIDE-OR	1254 PDT JUN 23
SITKA-AK	0948 AKDT JUN 23	CHARLESTON-OR	1254 PDT JUN 23
COLD BAY-AK	0950 AKDT JUN 23	WESTPORT-WA	1254 PDT JUN 23
VALDEZ-AK	0958 AKDT JUN 23	CRESCENT CITY-CA	1305 PDT JUN 23
LANGARA-BC	1058 PDT JUN 23	SAN FRANCISCO-CA	1401 PDT JUN 23
CORDOVA-AK	1008 AKDT JUN 23	SANTA BARBARA-CA	1418 PDT JUN 23
SHEMYA-AK	1030 AKDT JUN 23	SAN PEDRO-CA	1434 PDT JUN 23
HOMER-AK	1032 AKDT JUN 23	LA JOLLA-CA	1445 PDT JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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### **WCATWC Message #7**

WEPA41 PAAQ 231908  
TSUWCA

BULLETIN

TSUNAMI MESSAGE NUMBER 7

NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
1108 AM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO DAMAGE THE WARNING REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
KING COVE AK	55.1 N	162.3 W	1715	7.21 FT/2.20 M
SAND POINT AK	55.1 N	160.5 W	1715	9.38 FT/2.86 M
KODIAK AK	57.8 N	152.4 W	1717	7.64 FT/2.33 M
DUTCH HARBOR AK	57.8 N	152.4 W	1722	2.20 FT/0.67 M
SEWARD AK	60.2 N	149.4 W	1739	4.17 FT/1.27 M
ADAK AK	51.9 N	176.6 W	1746	1.44 FT/0.44 M
SITKA AK	57.1 N	135.3 W	1748	5.61 FT/1.71 M
LANGARA BC	54.2 N	133.1 W	1758	2.39 FT/0.73 M
CORDOVA AK	60.5 N	145.7 W	1808	0.85 FT/0.26 M
SHEMYA AK	52.7 N	174.1 W	1830	0.30 FT/0.09 M
ST PAUL AK	57.1 N	170.3 W	1843	0.56 FT/0.17 M
N VANCOUVER I BC	50.8 N	128.4 W	1845	3.38 FT/1.03 M

## Southern California Tsunami Exercise Handbook

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

STRONG CURRENTS HAVE BEEN REPORTED OFF OF SAND POINT AK - IVANOF BAY AK AND PERRYVILLE AK. N VANCOUVER IS CAPE SCOTT PROVINCIAL PARK HAS REPORTED SOME MINOR FLOODING.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
0900 PDT JUN 23 2011  
1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
160 MILES/257 KM SE OF CHIGNIK ALASKA  
510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-125-121-171-181-185-187-191-232008-  
/T.CON.PAAQ.TS.W.0033.110623T1908Z-110623T2008Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA  
1108 AM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

SHEMYA-AK	1030 AKDT JUN 23	WESTPORT-WA	1254	PDT JUN 23
HOMER-AK	1032 AKDT JUN 23	CRESCENT CITY-CA	1305	PDT JUN 23
CRAIG-AK	1049 AKDT JUN 23	SAN FRANCISCO-CA	1401	PDT JUN 23
TOFINO-BC	1226 PDT JUN 23	SANTA BARBARA-CA	1418	PDT JUN 23
NEAH BAY-WA	1238 PDT JUN 23	SAN PEDRO-CA	1434	PDT JUN 23
SEASIDE-OR	1254 PDT JUN 23	LA JOLLA-CA	1445	PDT JUN 23
CHARLESTON-OR	1254 PDT JUN 23			

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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# Southern California Tsunami Exercise Handbook

## WCATWC Message #8

WEPA41 PAAQ 231937  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 8  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
1137 AM AKDT THU JUN 23 2011

AN ADDITIONAL SITE NOTING A TSUNAMI OBSERVATION IS NOTED BELOW. THE TSUNAMI WARNING FROM ATTU ALASKA TO UNIMAK PASS ALASKA HAS BEEN DOWNGRADED TO AN ADVISORY. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

...A TSUNAMI ADVISORY IS NOW IN EFFECT WHICH INCLUDES THE COASTAL AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA...

### RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
SEWARD AK	60.2 N	149.4 W	1739	4.17 FT/1.27 M
ADAK AK	51.9 N	176.6 W	1746	1.44 FT/0.44 M
SITKA AK	57.1 N	135.3 W	1748	5.61 FT/1.71 M
LANGARA BC	54.2 N	133.1 W	1758	2.39 FT/0.73 M
CORDOVA AK	60.5 N	145.7 W	1808	0.85 FT/0.26 M
SHEMYA AK	52.7 N	174.1 W	1830	0.30 FT/0.09 M
ST PAUL AK	57.1 N	170.3 W	1843	0.56 FT/0.17 M
N VANCOUVER I BC	50.8 N	128.4 W	1845	3.38 FT/1.03 M
TOFINO BC	49.1 N	125.8 W	1926	3.61 FT/1.10 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

WAVE ACTIVITY IN THE WESTERN ALEUTIANS HAS BEEN REPORTED AND VERIFIED AS BETWEEN 1.0 FOOT/0.3 METER AND 3.3 FOOT/1.0 METER.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. WARNINGS INDICATE THAT WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR SEVERAL HOURS AFTER THE

## Southern California Tsunami Exercise Handbook

INITIAL WAVE ARRIVAL.

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

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/T.CON.PAAQ.TS.W.0033.110623T1937Z-110623T2037Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/  
1137 AM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

CRAIG-AK	1049	AKDT	JUN 23	CRESCENT CITY-CA	1305	PDT	JUN 23
TOFINO-BC	1226	PDT	JUN 23	SAN FRANCISCO-CA	1401	PDT	JUN 23
NEAH BAY-WA	1238	PDT	JUN 23	SANTA BARBARA-CA	1418	PDT	JUN 23
SEASIDE-OR	1254	PDT	JUN 23	SAN PEDRO-CA	1434	PDT	JUN 23
CHARLESTON-OR	1254	PDT	JUN 23	LA JOLLA-CA	1445	PDT	JUN 23
WESTPORT-WA	1254	PDT	JUN 23				

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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AKZ185-187-191-232037-  
/T.CAN.PAAQ.TS.W.0033.110623T1937Z-110623T2037Z/  
/T.NEW.PAAQ.TS.Y.0033.110623T1937Z-110623T2037Z/  
COASTAL AREAS BETWEEN AND INCLUDING UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA  
1137 AM AKDT THU JUN 23 2011

...A TSUNAMI ADVISORY IS NOW IN EFFECT WHICH INCLUDES THE COASTAL AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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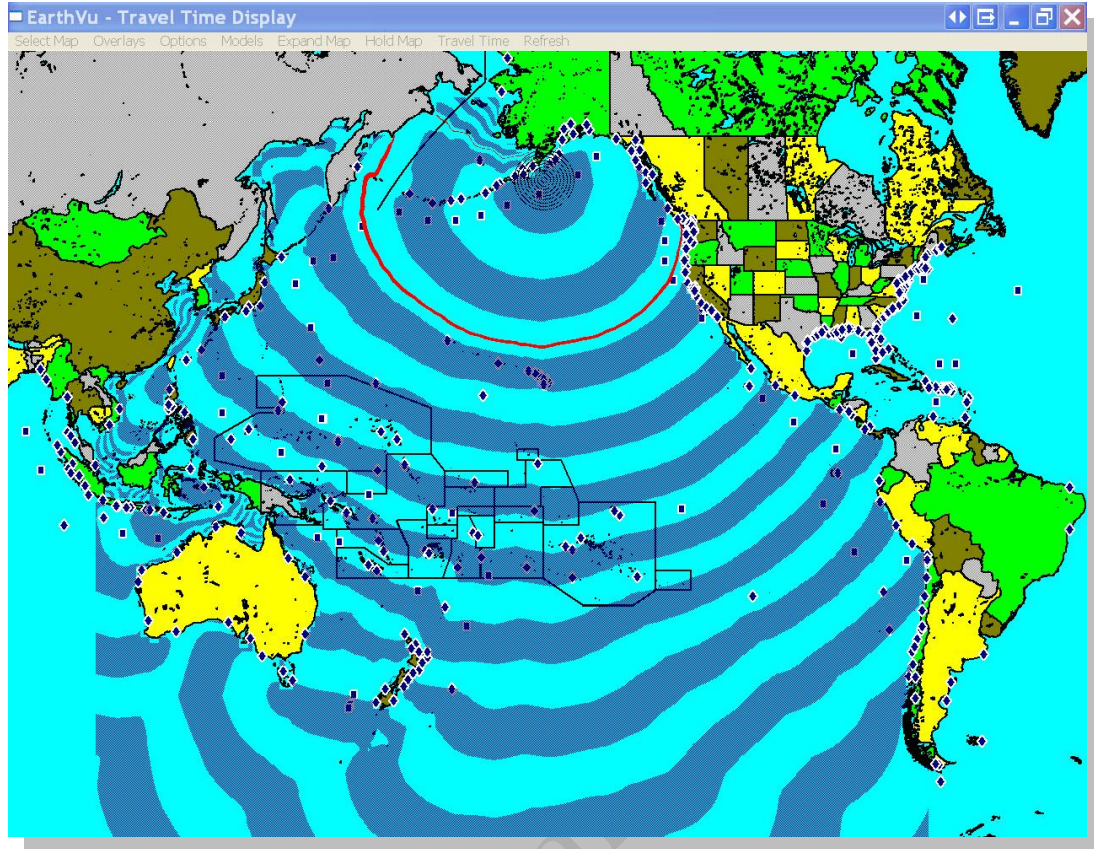


Figure C6: Modelled wave location at Message #8.

SoCal Tsunami



## Southern California Tsunami Exercise Handbook

PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
CORDOVA AK	60.5 N	145.7 W	1808	0.85 FT/0.26 M
SHEMYA AK	52.7 N	174.1 W	1830	0.30 FT/0.09 M
ST PAUL AK	57.1 N	170.3 W	1843	0.56 FT/0.17 M
N VANCOUVER I BC	50.8 N	128.4 W	1845	3.38 FT/1.03 M
TOFINO BC	49.1 N	125.8 W	1926	3.61 FT/1.10 M
NEAH BAY WA	48.4 N	124.6 W	1938	2.49 FT/0.76 M
PORT ORFORD OR	42.8 N	124.5 W	1952	6.53 FT/1.99 M
WESTPORT WA	46.9 N	124.1 W	1954	2.20 FT/0.67 M
NEWPORT OR	44.6 N	124.1 W	1959	8.23 FT/2.51 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS(M) AND FEET(FT).

WAVE ACTIVITY CONTINUES TO DECREASE IN THE WESTERN ALEUTIANS. PORT ORFORD OR REPORTS DAMAGE TO ITS NEWLY RECONSTRUCTED DOCK THAT WAS RECENTLY REBUILT DUE TO DAMAGE CAUSED BY THE HONSHU JAPAN TSUNAMI. STRONG CURRENTS HAVE BEEN REPORTED AROUND NO VANCOUVER I BC.

PRELIMINARY EARTHQUAKE PARAMETERS  
MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
0900 PDT JUN 23 2011  
1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
160 MILES/257 KM SE OF CHIGNIK ALASKA  
510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-232110-  
/T.CON.PAAQ.TS.W.0033.110623T2010Z-110623T2110Z/

## Southern California Tsunami Exercise Handbook

COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO  
BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/  
1210 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH  
COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO  
SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD  
INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A  
SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL  
ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED  
SITES IN THE WARNING ARE PROVIDED BELOW.

TOFINO-BC	1226	PDT JUN 23	CRESCENT CITY-CA	1305	PDT JUN 23
NEAH BAY-WA	1238	PDT JUN 23	SAN FRANCISCO-CA	1401	PDT JUN 23
SEASIDE-OR	1254	PDT JUN 23	SANTA BARBARA-CA	1418	PDT JUN 23
CHARLESTON-OR	1254	PDT JUN 23	SAN PEDRO-CA	1434	PDT JUN 23
WESTPORT-WA	1254	PDT JUN 23	LA JOLLA-CA	1445	PDT JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE  
WCATWC.ARH.NOAA.GOV

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AKZ125-121-171-181-232110-  
/T.CON.PAAQ.TS.W.0033.110623T2010Z-110623T2110Z/  
COASTAL AREAS BETWEEN AND INCLUDING HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES  
NE OF DUTCH HARBOR/  
1210 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES  
E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH  
HARBOR/...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD  
INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A  
SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL  
ARRIVAL TIME.

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AKZ019>022-025-017-131-135-232110-  
/T.CAN.PAAQ.TS.W.0033.110623T2010Z-110623T2110Z/  
/T.EXA.PAAQ.TS.Y.0033.110623T2010Z-110623T2110Z/  
COASTAL AREAS BETWEEN AND INCLUDING SALISBURY SOUND  
ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/  
1210 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL  
AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF  
SITKA/ TO HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF  
SEWARD/...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF  
THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING  
STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR  
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INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE  
A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL  
ARRIVAL TIME.

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## Southern California Tsunami Exercise Handbook

AKZ185-187-191-232110-  
/T.CON.PAAQ.TS.Y.0033.110623T2010Z-110623T2110Z/  
COASTAL AREAS BETWEEN AND INCLUDING UNIMAK PASS ALASKA/80  
MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA  
1210 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF  
DUTCH HARBOR/ TO ATTU ALASKA...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF  
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ARRIVAL TIME.

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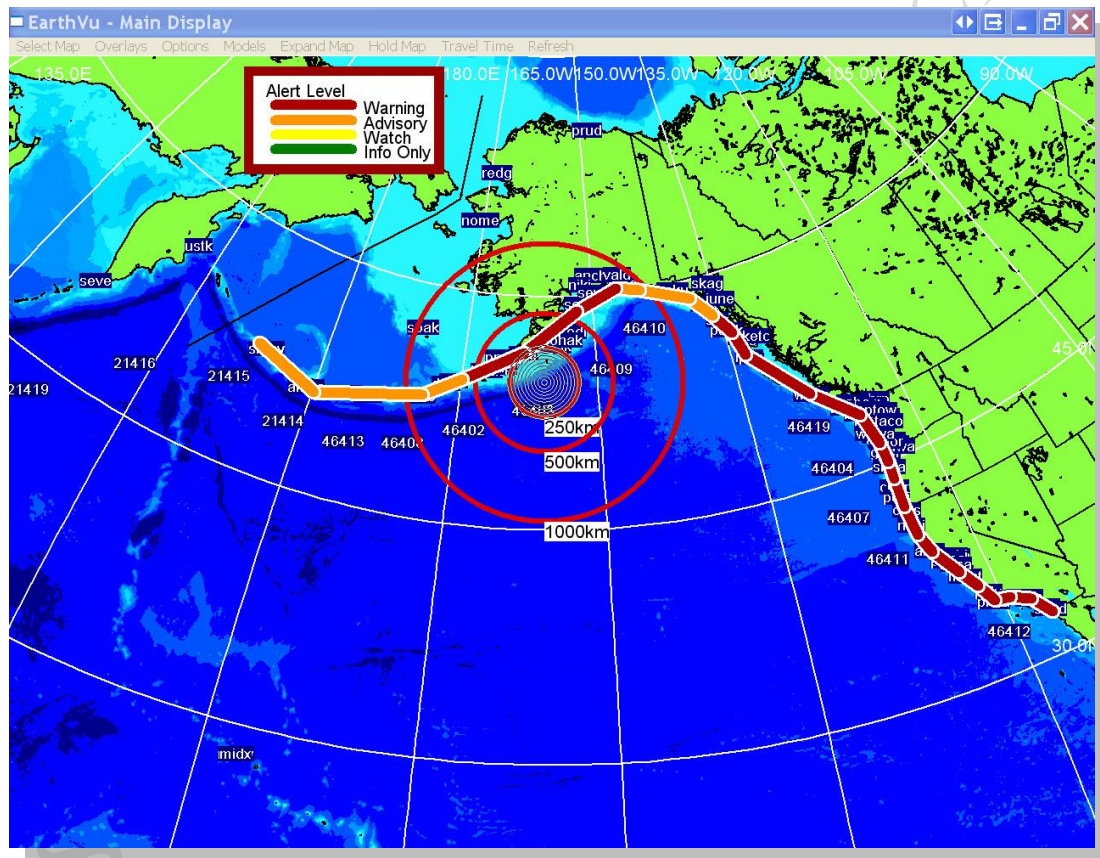


Figure C8: Small-scale map issued with Message #9.

### WCATWC Message #10

WEPA41 PAAQ 232039  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 10  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
1239 PM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW. THE TSUNAMI  
ADVISORY FROM ATTU ALASKA TO UNIMAK PASS ALASKA HAS BEEN CANCELED. MORE  
OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL

## Southern California Tsunami Exercise Handbook

AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/...

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA...

### RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
ST PAUL AK	57.1 N	170.3 W	1843	0.56 FT/0.17 M
N VANCOUVER I BC	50.8 N	128.4 W	1845	3.38 FT/1.03 M
TOFINO BC	49.1 N	125.8 W	1926	3.61 FT/1.10 M
NEAH BAY WA	48.4 N	124.6 W	1938	2.49 FT/0.76 M
PORT ORFORD OR	42.8 N	124.5 W	1952	6.53 FT/1.99 M
WESTPORT WA	46.9 N	124.1 W	1954	2.20 FT/0.67 M
NEWPORT OR	44.6 N	124.1 W	1959	8.23 FT/2.51 M
CRESCENT CITY CA	41.8 N	124.2 W	2005	7.15 FT/2.18 M
PT ARENA CA	38.9 N	123.7 W	2016	7.94 FT/2.42 M

LAT - LATITUDE (N-NORTH, S-SOUTH)

LON - LONGITUDE (E-EAST, W-WEST)

TIME - TIME OF THE MEASUREMENT

AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.

IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.

VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

WAVE ACTIVITY CONTINUES TO DECREASE IN THE WESTERN ALEUTIANS. PORT ORFORD OR REPORTS DAMAGE TO ITS NEWLY RECONSTRUCTED DOCK THAT WAS RECENTLY REBUILT DUE TO DAMAGE CAUSED BY THE HONSHU JAPAN TSUNAMI. STRONG CURRENTS HAVE BEEN REPORTED AROUND NO VANCOUVER I BC.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2

TIME - 0800 AKDT JUN 23 2011

0900 PDT JUN 23 2011

1600 UTC JUN 23 2011

LOCATION - 54.5 NORTH 155.8 WEST

160 MILES/257 KM SE OF CHIGNIK ALASKA

510 MILES/821 KM SW OF ANCHORAGE ALASKA

DEPTH - 25 MILES/40 KM

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

TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING



## Southern California Tsunami Exercise Handbook

STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS UNDER AN ADVISORY. CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR SEVERAL HOURS AFTER THE INITIAL WAVE ARRIVAL.

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THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

AKZ185-187-191-232139-  
/T.CAN.PAAQ.TS.Y.0033.110623T2039Z-110623T2139Z/  
COASTAL AREAS BETWEEN AND INCLUDING UNIMAK PASS ALASKA/80  
MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA  
1239 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS  
OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH  
HARBOR/ TO ATTU ALASKA...

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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-  
002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-  
250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-  
110-AKZ026>029-023-024-232139-  
/T.CON.PAAQ.TS.W.0033.110623T2039Z-110623T2139Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO  
BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/  
1239 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH  
COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO  
SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
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TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD  
INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A  
SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL  
ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED  
SITES IN THE WARNING ARE PROVIDED BELOW.

SEASIDE-OR	1254	PDT	JUN 23	SAN FRANCISCO-CA	1401	PDT	JUN 23
CHARLESTON-OR	1254	PDT	JUN 23	SANTA BARBARA-CA	1418	PDT	JUN 23
WESTPORT-WA	1254	PDT	JUN 23	SAN PEDRO-CA	1434	PDT	JUN 23
CRESCENT CITY-CA	1305	PDT	JUN 23	LA JOLLA-CA	1445	PDT	JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE  
WCATWC.ARH.NOAA.GOV

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AKZ125-121-171-181-232139-  
/T.CON.PAAQ.TS.W.0033.110623T2039Z-110623T2139Z/  
COASTAL AREAS BETWEEN AND INCLUDING HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES  
NE OF DUTCH HARBOR/  
1239 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES  
E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH  
HARBOR/...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.

# Southern California Tsunami Exercise Handbook

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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AKZ019>022-025-017-131-135-232139-  
/T.CON.PAAQ.TS.Y.0033.110623T2039Z-110623T2139Z/  
COASTAL AREAS BETWEEN AND INCLUDING SALISBURY SOUND  
ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/  
1239 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF  
SITKA/ TO HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF  
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WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD  
INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE  
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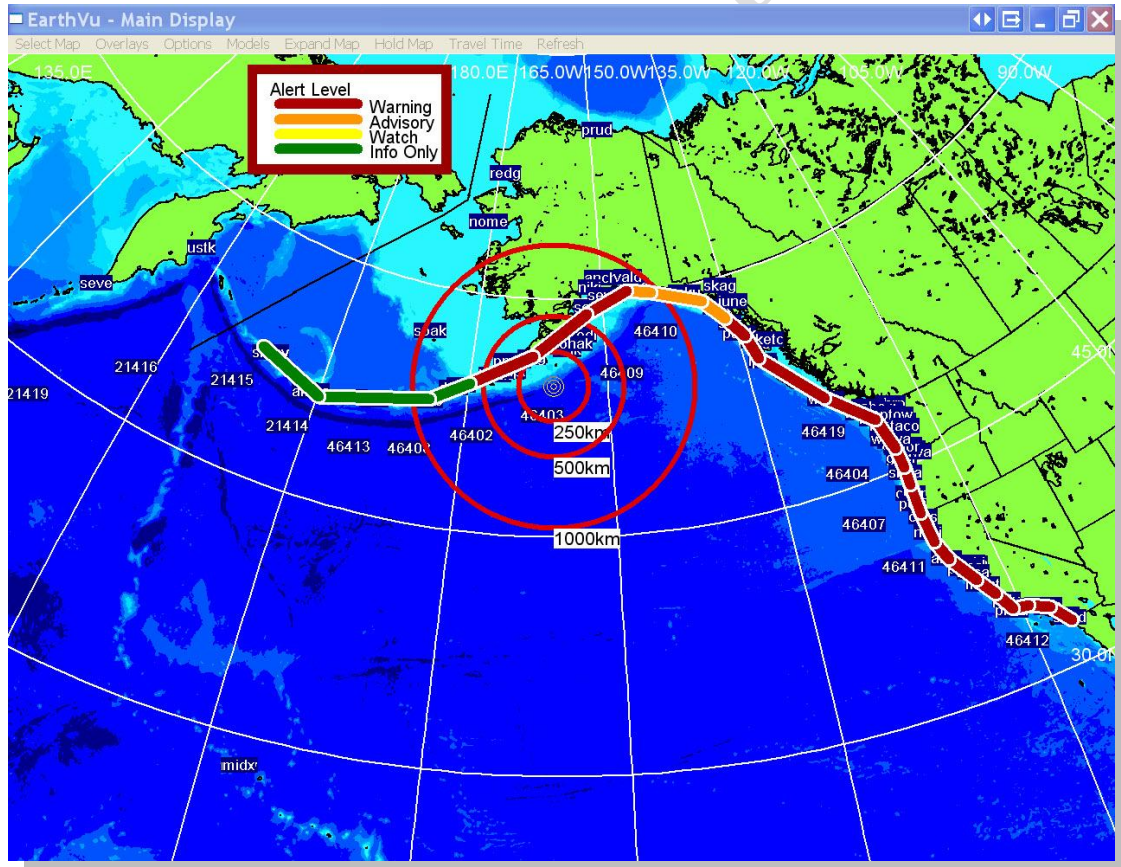


Figure C9: Small-scale map issued with Message #10.

## WCATWC Message #11

WEPA41 PAAQ 232105  
TSUWCA

# Southern California Tsunami Exercise Handbook

## BULLETIN

TSUNAMI MESSAGE NUMBER 11  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
105 PM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW.

- ...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...
- ...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...
- ...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/...
- ...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA...

## RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
TOFINO BC	49.1 N	125.8 W	1926	3.61 FT/1.10 M
NEAH BAY WA	48.4 N	124.6 W	1938	2.49 FT/0.76 M
PORT ORFORD OR	42.8 N	124.5 W	1952	6.53 FT/1.99 M
WESTPORT WA	46.9 N	124.1 W	1954	2.20 FT/0.67 M
NEWPORT OR	44.6 N	124.1 W	1959	8.23 FT/2.51 M
CRESCENT CITY CA	41.8 N	124.2 W	2005	7.15 FT/2.18 M
PT ARENA CA	38.9 N	123.7 W	2016	7.94 FT/2.42 M
MONTEREY CA	36.6 N	121.9 W	2040	5.41 FT/1.65 M
SAN FRANCISCO CA	37.8 N	122.4 W	2101	3.64 FT/1.11 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

CRESCENT CITY CA REPORTS DAMAGE TO ITS NEWLY REBUILT DOCK THAT WAS DAMAGED DURING THE HONSHU JAPAN TSUNAMI. PT ARENA CA REPORTS FLOODING IN THE ARENA ROCK MARINE NATURAL PRESERVE WITH DAMAGE TO LIGHTHOUSE ROAD. MONTEREY CA REPORTS HEAVY BOAT DAMAGE ALONG FISHERMANS WHARF AND THE DEATH OF TWO PEOPLE WHO FELL OFF THEIR BOAT WHEN IT WAS CAPSIZED. WAVES IN THE WESTERN ALEUTIANS ARE REPORTED TO BE LESS THAN 1.0 FOOT/0.3 METER.

## PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA

## Southern California Tsunami Exercise Handbook

510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-232205-  
/T.CON.PAAQ.TS.W.0033.110623T2105Z-110623T2205Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/  
105 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

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ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

SAN FRANCISCO-CA 1401	PDT JUN 23	SAN PEDRO-CA	1434	PDT JUN 23
SANTA BARBARA-CA 1418	PDT JUN 23	LA JOLLA-CA	1445	PDT JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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AKZ125-121-171-181-232205-  
/T.CON.PAAQ.TS.W.0033.110623T2105Z-110623T2205Z/  
COASTAL AREAS BETWEEN AND INCLUDING HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/  
105 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

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## Southern California Tsunami Exercise Handbook

ARRIVAL TIME.

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AKZ019>022-025-017-131-135-232205-  
/T.CON.PAAQ.TS.Y.0033.110623T2105Z-110623T2205Z/  
COASTAL AREAS BETWEEN AND INCLUDING SALISBURY SOUND  
ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/  
105 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF  
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SEWARD/...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF  
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STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR  
WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD  
INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE  
A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL  
ARRIVAL TIME.

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### **WCATWC Message #12**

WEPA41 PAAQ 232137  
TSUWCA

BULLETIN

TSUNAMI MESSAGE NUMBER 12  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
137 PM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW. THE TSUNAMI  
WARNING FROM UNIMAK PASS ALASKA TO HINCHINBROOK ENTRANCE ALASKA HAS BEEN  
DOWNGRADED TO AN ADVISORY. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH  
COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO  
SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF  
SITKA/ TO HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF  
SEWARD/...

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL  
AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES  
E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH  
HARBOR/...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF  
ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/  
TO ATTU ALASKA...

#### RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE  
TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE.  
PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO  
INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS  
ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF  
THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI

## Southern California Tsunami Exercise Handbook

AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
NEAH BAY WA	48.4 N	124.6 W	1938	2.49 FT/0.76 M
PORT ORFORD OR	42.8 N	124.5 W	1952	6.53 FT/1.99 M
WESTPORT WA	46.9 N	124.1 W	1954	2.20 FT/0.67 M
NEWPORT OR	44.6 N	124.1 W	1959	8.23 FT/2.51 M
CRESCENT CITY CA	41.8 N	124.2 W	2005	7.15 FT/2.18 M
PT ARENA CA	38.9 N	123.7 W	2016	7.94 FT/2.42 M
MONTEREY CA	36.6 N	121.9 W	2040	5.41 FT/1.65 M
SAN FRANCISCO CA	37.8 N	122.4 W	2101	3.64 FT/1.11 M
PORT SAN LUIS CA	35.1 N	120.8 W	2103	6.82 FT/2.08 M
SANTA BARBARA CA	34.4 N	119.7 W	2118	3.58 FT/1.09 M

LAT - LATITUDE (N-NORTH, S-SOUTH)

LON - LONGITUDE (E-EAST, W-WEST)

TIME - TIME OF THE MEASUREMENT

AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.

IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.

VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT) .

STRONG CURRENTS ARE REPORTED TO BE DIMINISHING BETWEEN THE EASTERN ALEUTIANS AND SITKA. WAVES IN THIS AREA ARE REPORTED TO BE BETWEEN 1.0 FOOT/0.3 METER AND 3.3 FOOT/1.0 METER. STRONG CURRENTS AND WAVES GREATER THAN 3.3 FOOT/1.0 METER HAVE BEEN REPORTED FROM SOUTH OF SITKA TO THE CAL-MEX BORDER. DOLLAR ESTIMATES OF DAMAGE ALONG THE WEST COAST ARE NOW CLOSE TO 35 MILLION AND THUS FAR 34 PEOPLE HAVE LOST THEIR LIVES DUE TO THIS EVENT.

PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2

TIME - 0800 AKDT JUN 23 2011

0900 PDT JUN 23 2011

1600 UTC JUN 23 2011

LOCATION - 54.5 NORTH 155.8 WEST

160 MILES/257 KM SE OF CHIGNIK ALASKA

510 MILES/821 KM SW OF ANCHORAGE ALASKA

DEPTH - 25 MILES/40 KM

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

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PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT [WWW.WEATHER.GOV/PTWC](http://WWW.WEATHER.GOV/PTWC).

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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-232237-  
/T.CON.PAAQ.TS.W.0033.110623T2137Z-110623T2237Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/  
137 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

## Southern California Tsunami Exercise Handbook

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

SAN FRANCISCO-CA 1401	PDT JUN 23	SAN PEDRO-CA	1434	PDT JUN 23
SANTA BARBARA-CA 1418	PDT JUN 23	LA JOLLA-CA	1445	PDT JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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AKZ019>022-025-017-131-135-232237-  
/T.CON.PAAQ.TS.Y.0033.110623T2137Z-110623T2237Z/  
COASTAL AREAS BETWEEN AND INCLUDING SALISBURY SOUND  
ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/  
137 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/ TO HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/...

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AKZ125-121-171-181-232237-  
/T.CAN.PAAQ.TS.W.0033.110623T2137Z-110623T2237Z/  
/T.EXA.PAAQ.TS.Y.0033.110623T2137Z-110623T2237Z/  
COASTAL AREAS BETWEEN AND INCLUDING HINCHINBROOK ENTRANCE  
ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES  
NE OF DUTCH HARBOR/  
137 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL AREAS OF ALASKA FROM HINCHINBROOK ENTRANCE ALASKA/90 MILES E OF SEWARD/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

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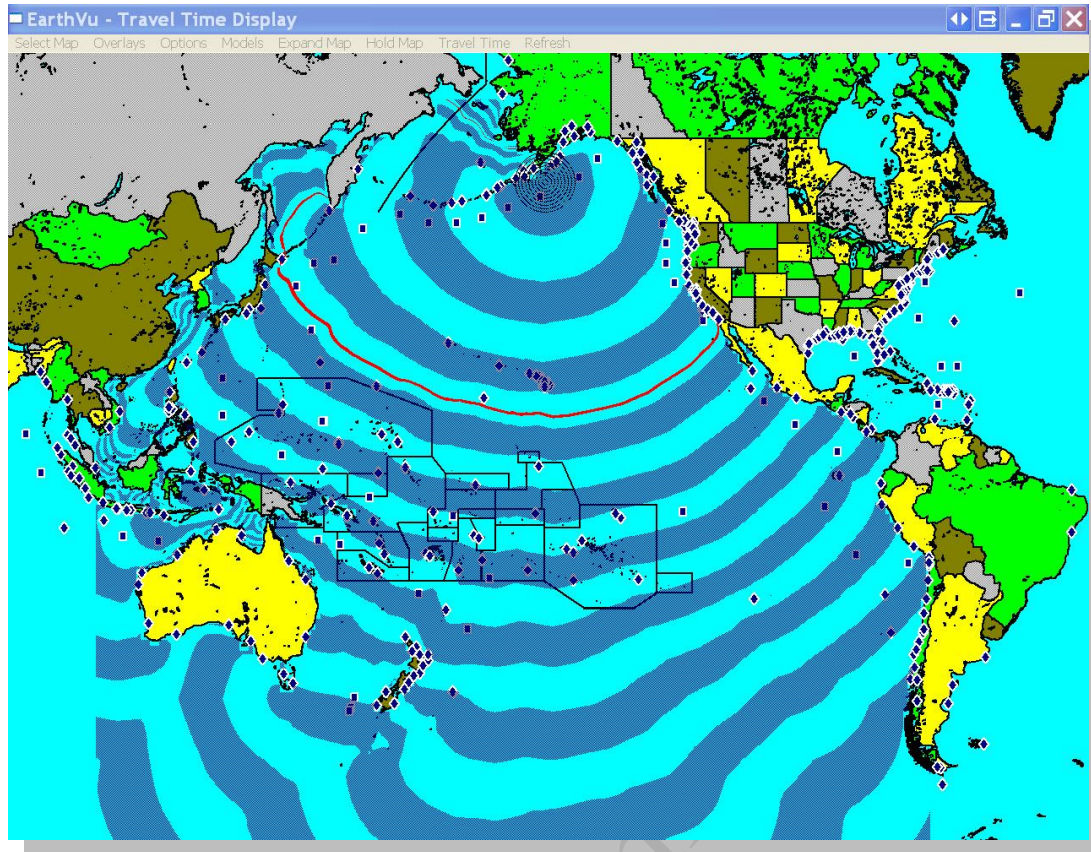


Figure C10: Modelled wave location at Message #12.

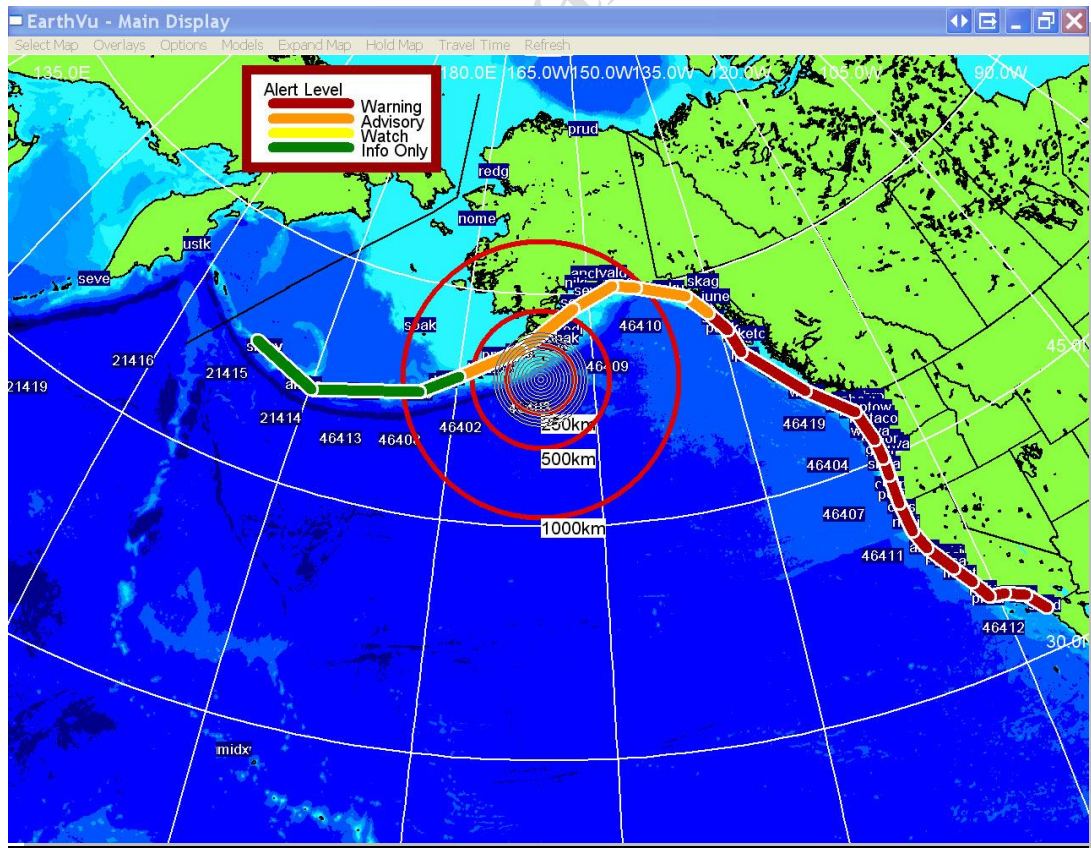


Figure C11: Small-scale map issued with Message #12.



**WCATWC Message #13**

WEPA41 PAAQ 232208  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 13  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
208 PM AKDT THU JUN 23 2011

ADDITIONAL SITES NOTING TSUNAMI OBSERVATIONS ARE NOTED BELOW. THE TSUNAMI WARNING FROM SALISBURY SOUND ALASKA TO THE WASHINGTON-BRITISH COLUMBIA BORDER HAS BEEN DOWNGRADED TO AN ADVISORY. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON AND WASHINGTON FROM THE CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/...

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
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THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
PT ARENA CA	38.9 N	123.7 W	2016	7.94 FT/2.42 M
MONTEREY CA	36.6 N	121.9 W	2040	5.41 FT/1.65 M
SAN FRANCISCO CA	37.8 N	122.4 W	2101	3.64 FT/1.11 M
PORT SAN LUIS CA	35.1 N	120.8 W	2103	6.82 FT/2.08 M
SANTA BARBARA CA	34.4 N	119.7 W	2118	3.58 FT/1.09 M
SANTA MONICA CA	34.0 N	118.5 W	2134	3.51 FT/1.07 M
SAN PEDRO CA	33.7 N	118.3 W	2134	2.89 FT/0.88 M
LA JOLLA CA	32.8 N	117.3 W	2145	6.50 FT/1.98 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
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AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

WAVES ARE CURRENTLY REPORTED OFF N VANCOUVER IS BC AS BEING BETWEEN 1.0 FOOT/0.3 METER AND 3.3 FOOT/1.0 METER. THE NAVY IN SAN DIEGO REPORTS DAMAGE TO ITS PIERS AND SMALL BOAT PIERS CLOSE BY. LA JOLLA IS REPORTING THE DEATHS OF TWO SURFERS WHO TRIED TO SURF THE WAVE IN. THEY UNDERESTIMATED THE WATERS DRAWDOWN AND WERE SWEEPED BACK OUT TO SEA.

## Southern California Tsunami Exercise Handbook

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-232308-/T.CON.PAAQ.TS.W.0033.110623T2208Z-110623T2308Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER  
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ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

SANTA BARBARA-CA 1418 PDT JUN 23 LA JOLLA-CA 1445 PDT JUN 23  
SAN PEDRO-CA 1434 PDT JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-232308-/T.CAN.PAAQ.TS.W.0033.110623T2208Z-110623T2308Z/  
/T.EXA.PAAQ.TS.Y.0033.110623T2208Z-110623T2308Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE WASHINGTON-BRITISH COLUMBIA BORDER TO SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/  
208 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO SALISBURY SOUND

# Southern California Tsunami Exercise Handbook

ALASKA/25 MILES NW OF SITKA/...

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AKZ019>022-025-017-131-135-125-121-171-181-232308-  
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COASTAL AREAS BETWEEN AND INCLUDING SALISBURY SOUND  
ALASKA/25 MILES NW OF SITKA/ TO UNIMAK PASS ALASKA/80 MILES  
NE OF DUTCH HARBOR/  
208 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF ALASKA FROM SALISBURY SOUND ALASKA/25 MILES NW OF SITKA/ TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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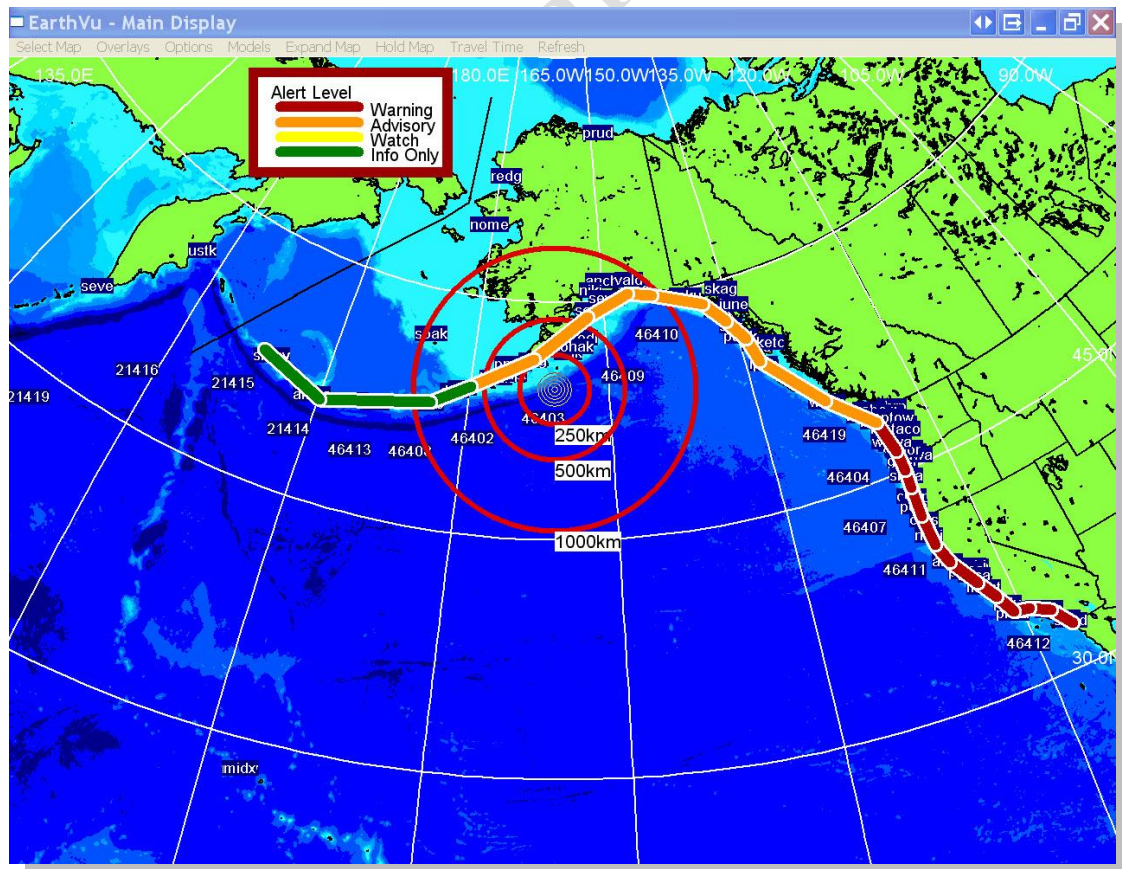


Figure C12: Small-scale map issued with Message #13.

**WCATWC Message #14**

WEPA41 PAAQ 232233  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 14  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
233 PM AKDT THU JUN 23 2011

NO NEW UPDATES SINCE LAST MESSAGE.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF CALIFORNIA - OREGON AND WASHINGTON FROM THE  
CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA  
BORDER...

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE  
WASHINGTON-BRITISH COLUMBIA BORDER TO UNIMAK PASS ALASKA/80  
MILES NE OF DUTCH HARBOR/...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF  
ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/  
TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE  
TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE.  
PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO  
INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS  
ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF  
THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI  
AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
MONTEREY CA	36.6 N	121.9 W	2040	5.41 FT/1.65 M
SAN FRANCISCO CA	37.8 N	122.4 W	2101	3.64 FT/1.11 M
PORT SAN LUIS CA	35.1 N	120.8 W	2103	6.82 FT/2.08 M
SANTA BARBARA CA	34.4 N	119.7 W	2118	3.58 FT/1.09 M
SANTA MONICA CA	34.0 N	118.5 W	2134	3.51 FT/1.07 M
SAN PEDRO CA	33.7 N	118.3 W	2134	2.89 FT/0.88 M
LA JOLLA CA	32.8 N	117.3 W	2145	6.50 FT/1.98 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

## Southern California Tsunami Exercise Handbook

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-WAZ001-021-510-514>517-232333- /T.CON.PAAQ.TS.W.0033.110623T2233Z-110623T2333Z/ COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER  
233 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA - OREGON AND WASHINGTON FROM THE CALIFORNIA-MEXICO BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

ESTIMATED TIMES OF INITIAL WAVE ARRIVAL FOR SELECTED SITES IN THE WARNING ARE PROVIDED BELOW.

SAN PEDRO-CA 1434 PDT JUN 23 LA JOLLA-CA 1445 PDT JUN 23

FOR ARRIVAL TIMES AT ADDITIONAL LOCATIONS SEE WCATWC.ARH.NOAA.GOV

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BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-125-121-171-181-232333- /T.CON.PAAQ.TS.Y.0033.110623T2233Z-110623T2333Z/ COASTAL AREAS BETWEEN AND INCLUDING THE WASHINGTON-BRITISH COLUMBIA BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/  
233 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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### **WCATWC Message #15**

WEPA41 PAAQ 232306  
TSUWCA

# Southern California Tsunami Exercise Handbook

## BULLETIN

TSUNAMI MESSAGE NUMBER 15

NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK

306 PM AKDT THU JUN 23 2011

THE TSUNAMI WARNING FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO THE OREGON-WASHINGTON BORDER HAS BEEN DOWNGRADED TO AN ADVISORY. THE TSUNAMI ADVISORY FROM UNIMAK PASS ALASKA TO THE WASHINGTON-BRITISH COLUMBIA BORDER HAS BEEN CANCELED. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-WASHINGTON BORDER...

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL AREAS OF WASHINGTON FROM THE OREGON-WASHINGTON BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF ALASKA FROM UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/ TO ATTU ALASKA...

## RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
SANTA BARBARA CA	34.4 N	119.7 W	2118	3.58 FT/1.09 M
SANTA MONICA CA	34.0 N	118.5 W	2134	3.51 FT/1.07 M
SAN PEDRO CA	33.7 N	118.3 W	2134	2.89 FT/0.88 M
LA JOLLA CA	32.8 N	117.3 W	2145	6.50 FT/1.98 M

LAT - LATITUDE (N-NORTH, S-SOUTH)

LON - LONGITUDE (E-EAST, W-WEST)

TIME - TIME OF THE MEASUREMENT

AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.

IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.

VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT).

WAVES BETWEEN THE WESTERN ALEUTIANS AND THE US-CAN BORDER ARE REPORTED TO BE LESS THAN 1.0 FOOT/0.3 METER. WAVES ARE NOW REPORTED BETWEEN 1.0 FOOT/0.3 METER AND 3.3 FOOT/1.0 METER OFF THE COAST OF WASHINGTON. STRONG CURRENTS AND WAVES GREATER THAN 3.3 FOOT/1.0 METER CONTINUE TO BE REPORTED BETWEEN THE WASHINGTON-OREGON BORDER AND THE CAL-MEX BORDER. CALIFORNIA'S DEATH TOLL HAS NOW RISEN TO 46 PEOPLE WHO HAVE DIED DUE TO THIS TSUNAMI. THE DOLLAR DAMAGE FOR CALIFORNIA ALONE IS CURRENTLY ESTIMATED AT 63 MILLION DOLLARS.

## PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2

TIME - 0800 AKDT JUN 23 2011

0900 PDT JUN 23 2011

1600 UTC JUN 23 2011

LOCATION - 54.5 NORTH 155.8 WEST

160 MILES/257 KM SE OF CHIGNIK ALASKA

510 MILES/821 KM SW OF ANCHORAGE ALASKA

## Southern California Tsunami Exercise Handbook

DEPTH - 25 MILES/40 KM

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

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

BCZ130-230-250-260-280-160-142-141-150-121-122-220-210-922-912-921-911-110-AKZ026>029-023-024-019>022-025-017-131-135-125-121-171-181-240006-  
/T.CAN.PAAQ.TS.Y.0033.110623T2306Z-110624T0006Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE WASHINGTON-BRITISH COLUMBIA BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/  
306 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO UNIMAK PASS ALASKA/80 MILES NE OF DUTCH HARBOR/...

\$\$

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-ORZ021-022-002-001-240006-  
/T.CON.PAAQ.TS.W.0033.110623T2306Z-110624T0006Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO THE OREGON-WASHINGTON BORDER  
306 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-WASHINGTON BORDER...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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WAZ001-021-510-514>517-240006-  
/T.CAN.PAAQ.TS.W.0033.110623T2306Z-110624T0006Z/  
/T.EXA.PAAQ.TS.Y.0033.110623T2306Z-110624T0006Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE OREGON-WASHINGTON BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER  
306 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL AREAS OF WASHINGTON FROM THE OREGON-WASHINGTON BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

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STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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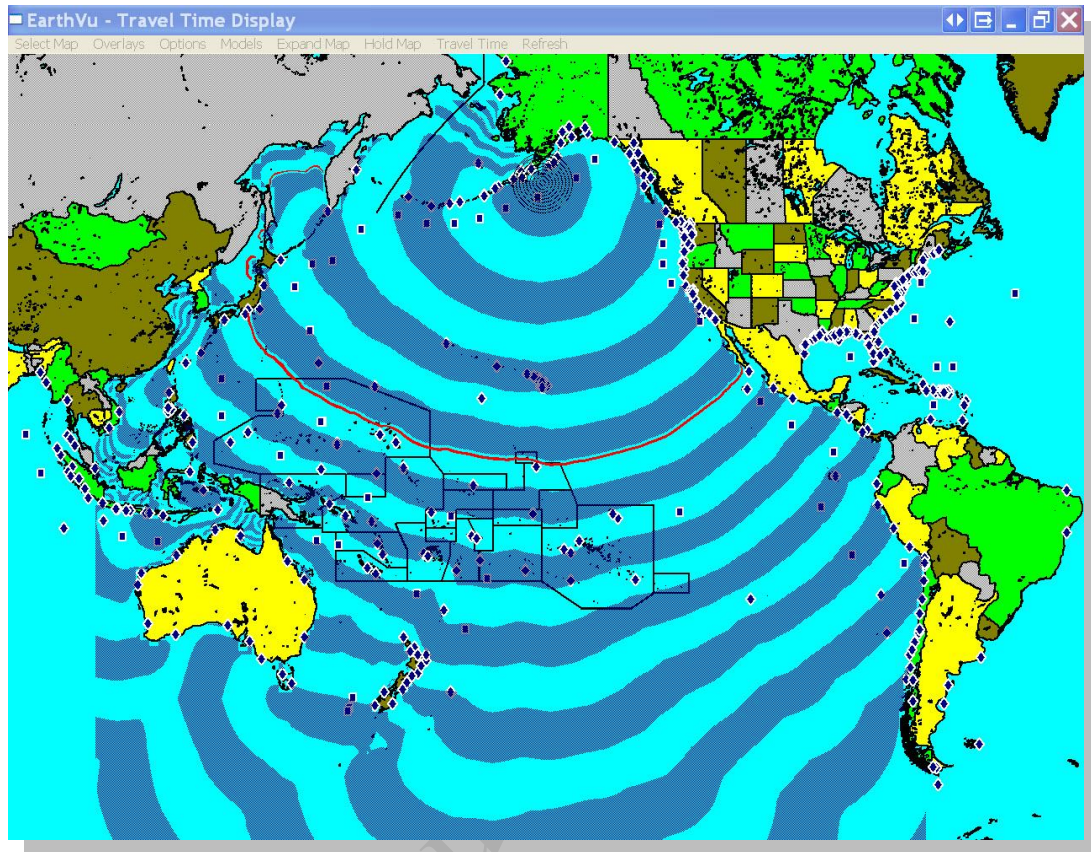


Figure C13: Modelled wave location at Message #15.

SoCal Tsunami



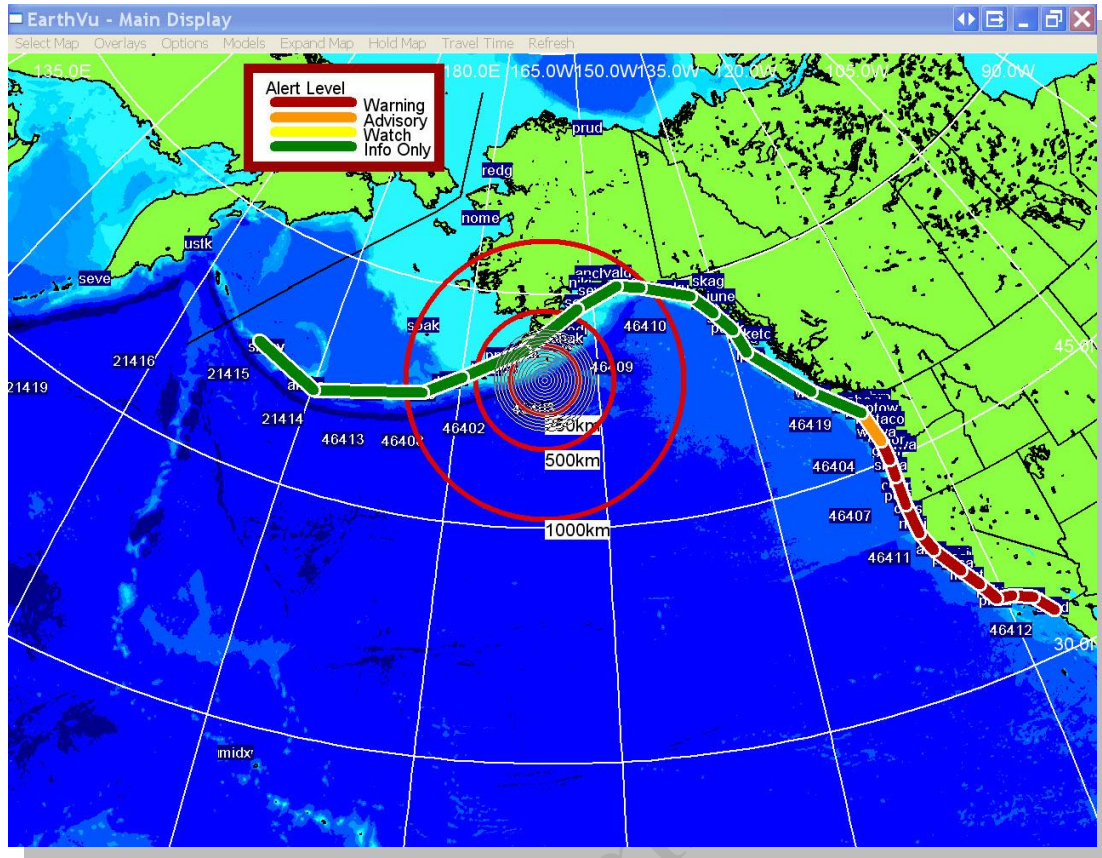


Figure C14: Small-scale map issued with Message #15.

**WCATWC Message #16**

WEPA41 PAAQ 232334  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 16  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
334 PM AKDT THU JUN 23 2011

THE TSUNAMI WARNING FROM THE OREGON-WASHINGTON BORDER TO THE OREGON-CALIFORNIA BORDER HAS BEEN DOWNGRADED TO AN ADVISORY. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER...

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL AREAS OF OREGON FROM THE OREGON-CALIFORNIA BORDER TO THE OREGON-WASHINGTON BORDER...

...THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE COASTAL AREAS OF WASHINGTON FROM THE OREGON-WASHINGTON BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

## Southern California Tsunami Exercise Handbook

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.
- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A TSUNAMI HAS BEEN OBSERVED AT THE FOLLOWING SITES -

LOCATION	LAT	LON	TIME	AMPL
SANTA MONICA CA	34.0 N	118.5 W	2134	3.51 FT/1.07 M
SAN PEDRO CA	33.7 N	118.3 W	2134	2.89 FT/0.88 M
LA JOLLA CA	32.8 N	117.3 W	2145	6.50 FT/1.98 M

LAT - LATITUDE (N-NORTH, S-SOUTH)  
LON - LONGITUDE (E-EAST, W-WEST)  
TIME - TIME OF THE MEASUREMENT  
AMPL - TSUNAMI AMPLITUDE MEASURED RELATIVE TO NORMAL SEA LEVEL.  
IT IS ...NOT... CREST-TO-TROUGH WAVE HEIGHT.  
VALUES ARE GIVEN IN BOTH METERS (M) AND FEET (FT) .

WAVES OFF THE OREGON COAST HAVE BEEN REPORTED TO HAVE DECREASED TO BETWEEN 1.0 FOOT/0.3 METER AND 3.3 FOOT/1.0 METER. STRONG CURRENTS CONTINUE FROM THE CAL-OR BORDER TO THE CAL-MEX BORDER.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
0900 PDT JUN 23 2011  
1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
160 MILES/257 KM SE OF CHIGNIK ALASKA  
510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT [WWW.WEATHER.GOV/PTWC](http://WWW.WEATHER.GOV/PTWC).

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PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-240034-  
/T.CON.PAAQ.TS.W.0033.110623T2334Z-110624T0034Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER  
334 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A

## Southern California Tsunami Exercise Handbook

SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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ORZ021-022-002-001-240034-  
/T.CAN.PAAQ.TS.W.0033.110623T2334Z-110624T0034Z/  
/T.EXA.PAAQ.TS.Y.0033.110623T2334Z-110624T0034Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE OREGON-CALIFORNIA  
BORDER TO THE OREGON-WASHINGTON BORDER  
334 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS MODIFIED TO INCLUDE THE COASTAL  
AREAS OF OREGON FROM THE OREGON-CALIFORNIA BORDER TO THE  
OREGON-WASHINGTON BORDER...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF  
THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING  
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ARRIVAL TIME.

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WAZ001-021-510-514>517-240034-  
/T.CON.PAAQ.TS.Y.0033.110623T2334Z-110624T0034Z/  
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ARRIVAL TIME.

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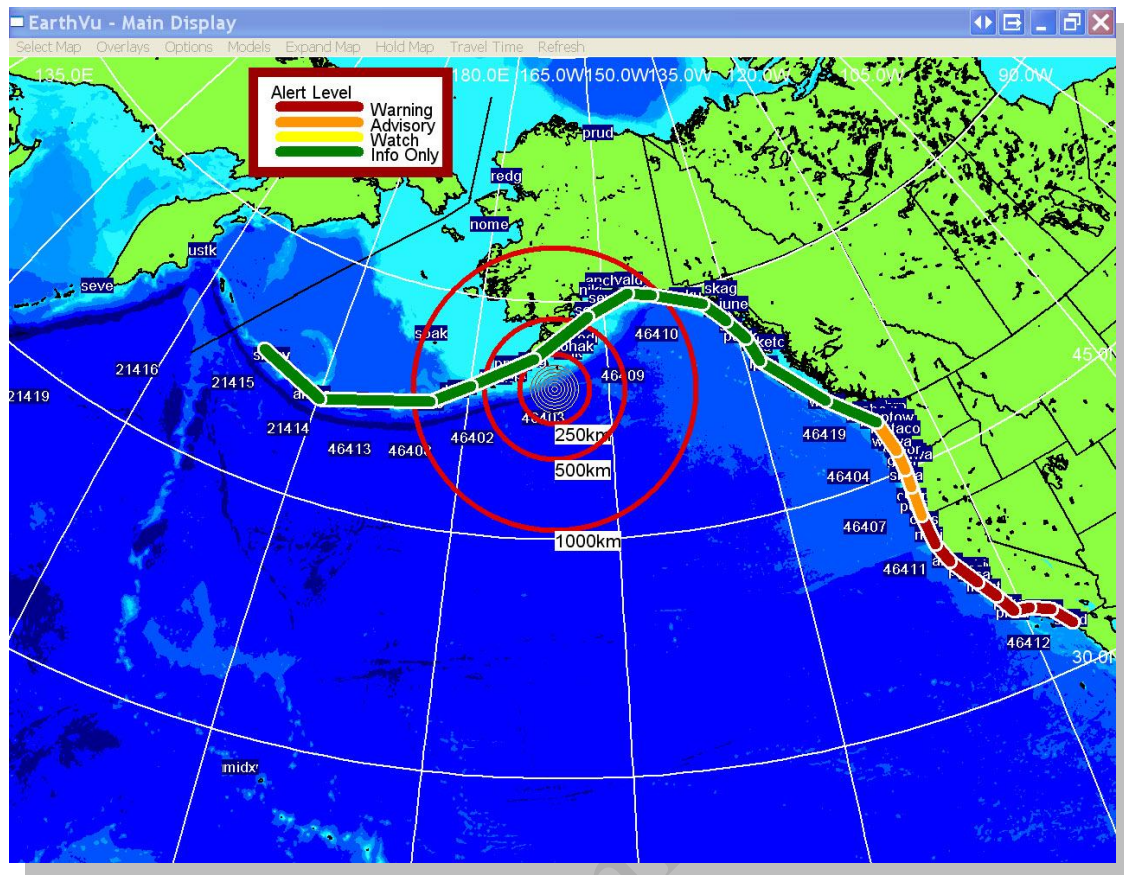


Figure C15: Small-scale map issued with Message #16.

**WCATWC Message #17**

WEPA41 PAAQ 240004  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 17  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
404 PM AKDT THU JUN 23 2011

THE TSUNAMI ADVISORY FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO THE OREGON-CALIFORNIA BORDER HAS BEEN CANCELED. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER...

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS OF OREGON AND WASHINGTON FROM THE OREGON-CALIFORNIA BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF BRITISH COLUMBIA AND ALASKA FROM THE WASHINGTON-BRITISH COLUMBIA BORDER TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO DAMAGE THE WARNING REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI

## Southern California Tsunami Exercise Handbook

AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

WAVES HAVE DECREASED TO LESS THAN 1.0 FOOT/0.3 METER FROM THE CAL-OR BORDER NORTH TO ATTU AK.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

ORZ021-022-002-001-WAZ001-021-510-514>517-240104-  
/T.CAN.PAAQ.TS.Y.0033.110624T0004Z-110624T0104Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE OREGON-CALIFORNIA  
BORDER TO THE WASHINGTON-BRITISH COLUMBIA BORDER  
404 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS  
OF OREGON AND WASHINGTON FROM THE OREGON-CALIFORNIA BORDER  
TO THE WASHINGTON-BRITISH COLUMBIA BORDER...

\$\$

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-  
002-001-240104-  
/T.CON.PAAQ.TS.W.0033.110624T0004Z-110624T0104Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO  
BORDER TO THE OREGON-CALIFORNIA BORDER  
404 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL  
AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO  
THE OREGON-CALIFORNIA BORDER...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO  
HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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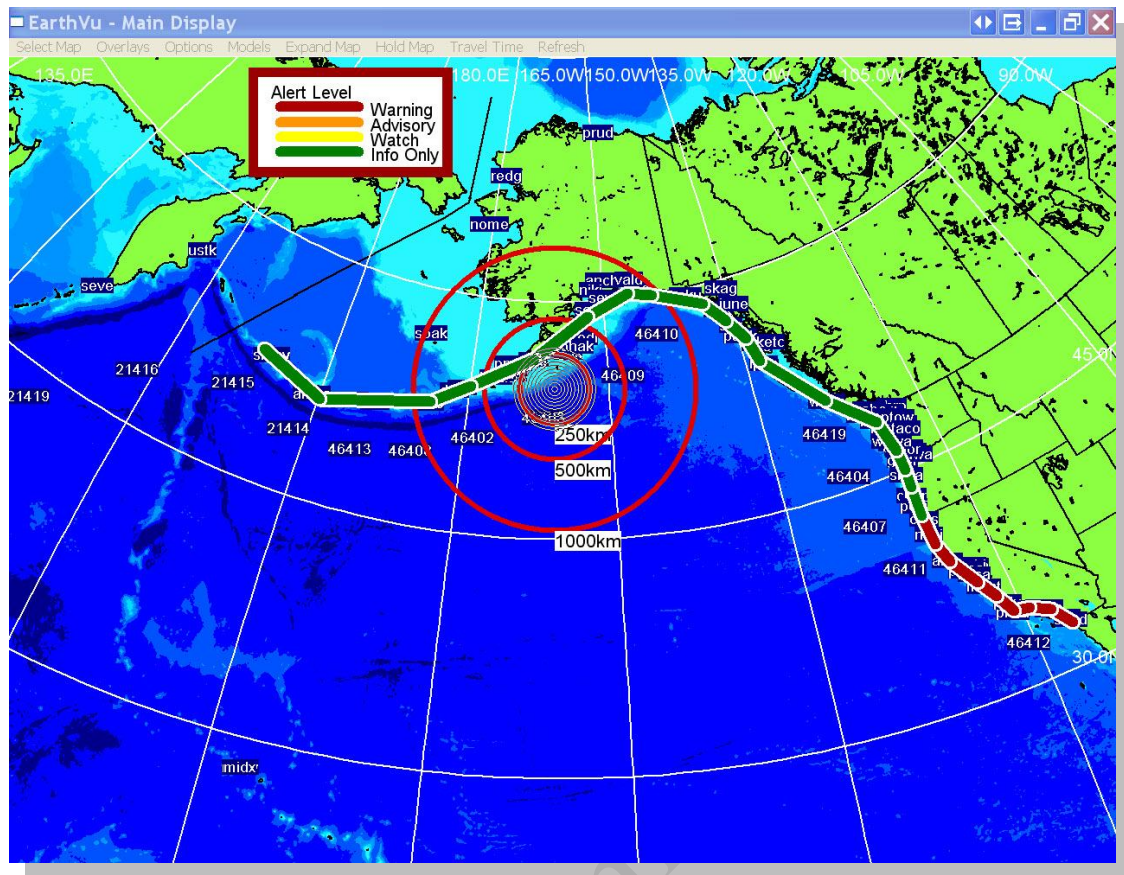


Figure C16: Small-scale map issued with Message #17.

**WCATWC Message #18**

WEPA41 PAAQ 240035  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 18  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
435 PM AKDT THU JUN 23 2011

NO NEW UPDATES SINCE LAST MESSAGE.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-CALIFORNIA BORDER TO ATTU ALASKA...

RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO DAMAGE THE WARNING REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

PRELIMINARY EARTHQUAKE PARAMETERS  
MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
0900 PDT JUN 23 2011

## Southern California Tsunami Exercise Handbook

1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
160 MILES/257 KM SE OF CHIGNIK ALASKA  
510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

PZZ530-CAZ042-043-040-041-087-039-034-035-529-530-006-505>509-002-001-240135-  
/T.CON.PAAQ.TS.W.0033.110624T0035Z-110624T0135Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER  
435 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO THE OREGON-CALIFORNIA BORDER...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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### **WCATWC Message #19**

WEPA41 PAAQ 240105  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 19  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
505 PM AKDT THU JUN 23 2011

THE TSUNAMI WARNING FROM POINT CONCEPTION CALIFORNIA TO THE CALIFORNIA-MEXICO BORDER HAS BEEN DOWNGRADED TO AN ADVISORY. MORE OBSERVATIONS ARE LISTED BELOW.

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-CALIFORNIA BORDER...

...A TSUNAMI ADVISORY IS NOW IN EFFECT WHICH INCLUDES THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA...

...THIS MESSAGE IS INFORMATION ONLY FOR COASTAL AREAS OF OREGON - WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-CALIFORNIA BORDER TO ATTU ALASKA...

#### RECOMMENDED ACTIONS

A TSUNAMI HAS BEEN GENERATED WHICH IS EXPECTED TO CAUSE DAMAGE TO THE WARNING AND/OR ADVISORY REGIONS LISTED IN THE HEADLINE. PERSONS IN LOW-LYING COASTAL AREAS SHOULD BE ALERT TO INSTRUCTIONS FROM THEIR LOCAL EMERGENCY OFFICIALS. EVACUATIONS ARE ONLY ORDERED BY EMERGENCY RESPONSE AGENCIES.

- PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO

## Southern California Tsunami Exercise Handbook

HIGHER GROUND.

- PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

WAVES HAVE DECREASED TO BETWEEN 1.0 FOOT/0.3 METER AND 3.3 FOOT/1.0 METER FROM POINT CONCEPTION CA TO THE CAL-MEX BORDER.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

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

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

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS MESSAGE WILL BE UPDATED IN 30 MINUTES OR SOONER IF THE SITUATION WARRANTS. THE TSUNAMI MESSAGE WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

PZZ530-CAZ034-035-529-530-006-505>509-002-001-240205-  
/T.CON.PAAQ.TS.W.0033.110624T0105Z-110624T0205Z/  
COASTAL AREAS BETWEEN AND INCLUDING POINT CONCEPTION  
CALIFORNIA TO THE OREGON-CALIFORNIA BORDER  
505 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE COASTAL AREAS OF CALIFORNIA FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-CALIFORNIA BORDER...

PERSONS IN TSUNAMI WARNING COASTAL AREAS SHOULD MOVE INLAND TO HIGHER GROUND.

TSUNAMI WARNINGS MEAN THAT A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION IS IMMINENT... EXPECTED OR OCCURRING. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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CAZ042-043-040-041-087-039-240205-  
/T.CAN.PAAQ.TS.W.0033.110624T0105Z-110624T0205Z/  
/T.NEW.PAAQ.TS.Y.0033.110624T0105Z-110624T0205Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO  
BORDER TO POINT CONCEPTION CALIFORNIA  
505 PM AKDT THU JUN 23 2011

...A TSUNAMI ADVISORY IS NOW IN EFFECT WHICH INCLUDES THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA...

PERSONS IN TSUNAMI ADVISORY COASTAL AREAS SHOULD MOVE OUT OF THE WATER... OFF THE BEACH AND OUT OF HARBORS AND MARINAS.



TSUNAMI ADVISORIES MEAN THAT A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR WATER IS IMMINENT... EXPECTED OR OCCURRING. SIGNIFICANT WIDESPREAD INUNDATION IS NOT EXPECTED FOR AREAS IN AN ADVISORY. TSUNAMIS ARE A SERIES OF WAVES POTENTIALLY DANGEROUS SEVERAL HOURS AFTER INITIAL ARRIVAL TIME.

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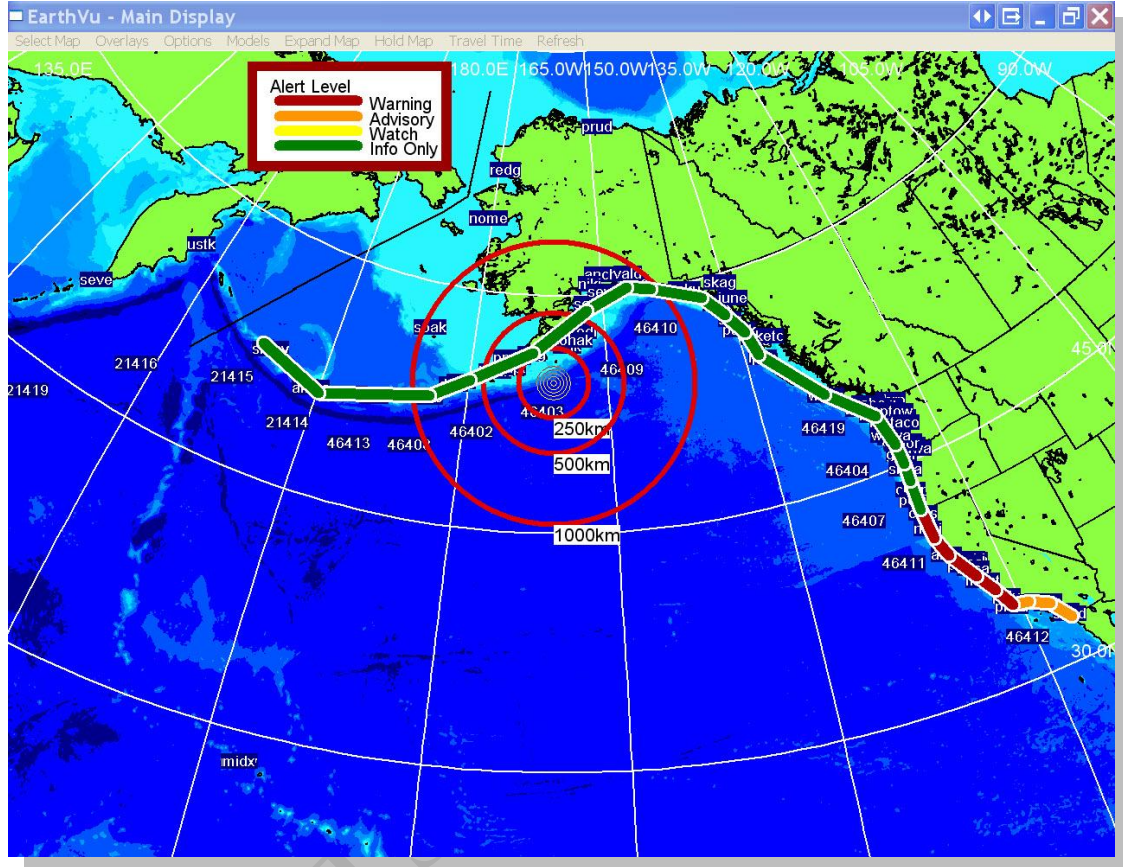


Figure C17: Small-scale map issued with Message #19.

**WCATWC Message #20**

WEPA41 PAAQ 240133  
TSUWCA

BULLETIN  
TSUNAMI MESSAGE NUMBER 20  
NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK  
533 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA...

...THE TSUNAMI WARNING IS CANCELED FOR THE COASTAL AREAS OF CALIFORNIA FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-CALIFORNIA BORDER...

EVALUATION  
DAMAGING TSUNAMIS ARE NO LONGER EXPECTED ALONG THE COASTS OF THE U.S. WEST COAST STATES - ALASKA AND BRITISH COLUMBIA. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI WAVE ACTION THE ALL CLEAR DETERMINATIONS MUST BE MADE BY LOCAL AUTHORITIES.

TSUNAMI AMPLITUDES HAVE DROPPED BELOW DANGEROUS LEVELS AT MOST LOCATIONS ALONG THE U.S. WEST COAST - CANADA AND ALASKA. SEA

## Southern California Tsunami Exercise Handbook

LEVEL CONDITIONS STILL VARY GREATLY FROM LOCATION TO LOCATION ALONG THE COAST. DECISIONS RELATING TO REOCCUPATION OF COASTAL ZONES MUST BE MADE BY LOCAL AUTHORITIES.

THIS MESSAGE IS BASED ON EARTHQUAKE DATA... OBSERVED TSUNAMI AMPLITUDES... HISTORICAL INFORMATION AND FORECAST MODELS.

A SUMMARY OF DAMAGES AND DEATHS REPORTED THUS FAR BY EACH STATE IS AS FOLLOWS: CALIFORNIA \$51 MILLION 83 DEATHS - OREGON \$32 MILLION 34 DEATHS - WASHINGTON \$38 MILLION 45 DEATHS - BRITISH COLUMBIA \$12 MILLION 7 DEATHS - ALASKA \$31 MILLION 23 DEATHS. ALL WAVES ALONG THE US AND CANADA WEST COAST AND ALASKA ARE REPORTED TO BE 1.0 FOOT/0.3 METER OR LESS IN HEIGHT.

### PRELIMINARY EARTHQUAKE PARAMETERS

MAGNITUDE - 9.2  
TIME - 0800 AKDT JUN 23 2011  
          0900 PDT JUN 23 2011  
          1600 UTC JUN 23 2011  
LOCATION - 54.5 NORTH 155.8 WEST  
          160 MILES/257 KM SE OF CHIGNIK ALASKA  
          510 MILES/821 KM SW OF ANCHORAGE ALASKA  
DEPTH - 25 MILES/40 KM

PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA/ OREGON/ WASHINGTON/ BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT WWW.WEATHER.GOV/PTWC.

THIS WILL BE THE LAST WEST COAST/ALASKA TSUNAMI WARNING CENTER MESSAGE ISSUED FOR THIS EVENT. THIS INFORMATION IS ALSO POSTED AT WCATWC.ARH.NOAA.GOV.

CAZ042-043-040-041-087-039-240333-  
/T.CAN.PAAQ.TS.Y.0033.110624T0133Z-110624T0333Z/  
COASTAL AREAS BETWEEN AND INCLUDING THE CALIFORNIA-MEXICO  
BORDER TO POINT CONCEPTION CALIFORNIA  
533 PM AKDT THU JUN 23 2011

...THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS  
OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT  
CONCEPTION CALIFORNIA...

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PZZ530-CAZ034-035-529-530-006-505>509-002-001-240333-  
/T.CAN.PAAQ.TS.W.0033.110624T0133Z-110624T0333Z/  
COASTAL AREAS BETWEEN AND INCLUDING POINT CONCEPTION  
CALIFORNIA TO THE OREGON-CALIFORNIA BORDER  
533 PM AKDT THU JUN 23 2011

...THE TSUNAMI WARNING IS CANCELED FOR THE COASTAL AREAS OF  
CALIFORNIA FROM POINT CONCEPTION CALIFORNIA TO THE  
OREGON-CALIFORNIA BORDER...

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## Appendix D. Web-based WCATWC Products

[Link to Standard Warning Message](#)

[Link to Public Warning Message](#)

[Link to XML/CAP Message](#)

[Link to Printable Message](#)

To: U.S. West Coast, Alaska, and British Columbia coastal regions

From: [NOAA/NWS/West Coast and Alaska Tsunami Warning Center](#)

Subject: [Tsunami Warning and Watch](#) #1 issued 06/23/2011 at 8:04AM AKDT

A **[Tsunami Warning](#)** is now in effect which includes the coastal areas of British Columbia and Alaska from the Washington-British Columbia border to Attu, Alaska.

A **[Tsunami Watch](#)** is now in effect which includes the coastal areas of California, Oregon and Washington from the California-Mexico border to the Washington-British Columbia border.

A **Tsunami Warning** means that all coastal residents in the [warning area](#) who are near the beach or in low-lying regions should move immediately inland to higher ground and away from all harbors and inlets including those sheltered directly from the sea. Those feeling the earth shake, seeing unusual wave action, or the water level rising or receding may have only a few minutes before the tsunami arrival and should move immediately. Homes and small buildings are not designed to withstand tsunami impacts. Do not stay in these structures.

All residents within the warned area should be alert for instructions broadcast from their local civil authorities. Earthquakes of this magnitude are known to generate tsunamis.

A **Tsunami Watch** means that all coastal residents in the [watch area](#) should prepare for possible evacuation. A tsunami watch is issued to areas which will not be immediately impacted by the tsunami. Watch areas will either be upgraded to warning or advisory status, or cancelled.

At 8:00 AM Alaskan Daylight Time on June 23, an [earthquake](#) with preliminary magnitude 9.2 [occurred 160 miles/257 Km southeast of Chignik, Alaska](#). (Refer to the [United States Geological Survey](#) for official earthquake parameters.) Earthquakes of this size are known to generate tsunamis. If a tsunami has been generated, the waves will first reach Sand Point, Alaska at 9:15 AM AKDT on June 23. Estimated [tsunami arrival times](#) and [maps](#) along with [safety rules](#) and [other information](#) can be found on the [WCATWC](#) web site.

[Tsunamis](#) can be dangerous waves that are not survivable. Wave heights are amplified by irregular shoreline and are difficult to forecast. Tsunamis often appear as a strong surge and may be preceded by a receding water level.

Mariners in water deeper than 600 feet should not be affected by a tsunami. Wave heights will increase rapidly as water shallows. Tsunamis are a series of ocean waves which can be dangerous for several hours after the initial wave arrival. DO NOT return to evacuated areas until an all clear is given by local civil authorities.

Pacific coastal regions outside California, Oregon, Washington, British Columbia, and Alaska should refer to the [Pacific Tsunami Warning Center](#) messages for information on the event.

This message will be updated in 30 minutes or sooner if the situation warrants. The tsunami message will remain in effect until further notice. For further information stay tuned to NOAA Weather Radio, your local TV or radio stations, or see the [WCATWC](#) web site.

## Tsunami Travel Times

Tsunami travel time contours in hours, beginning from the earthquake origin time.

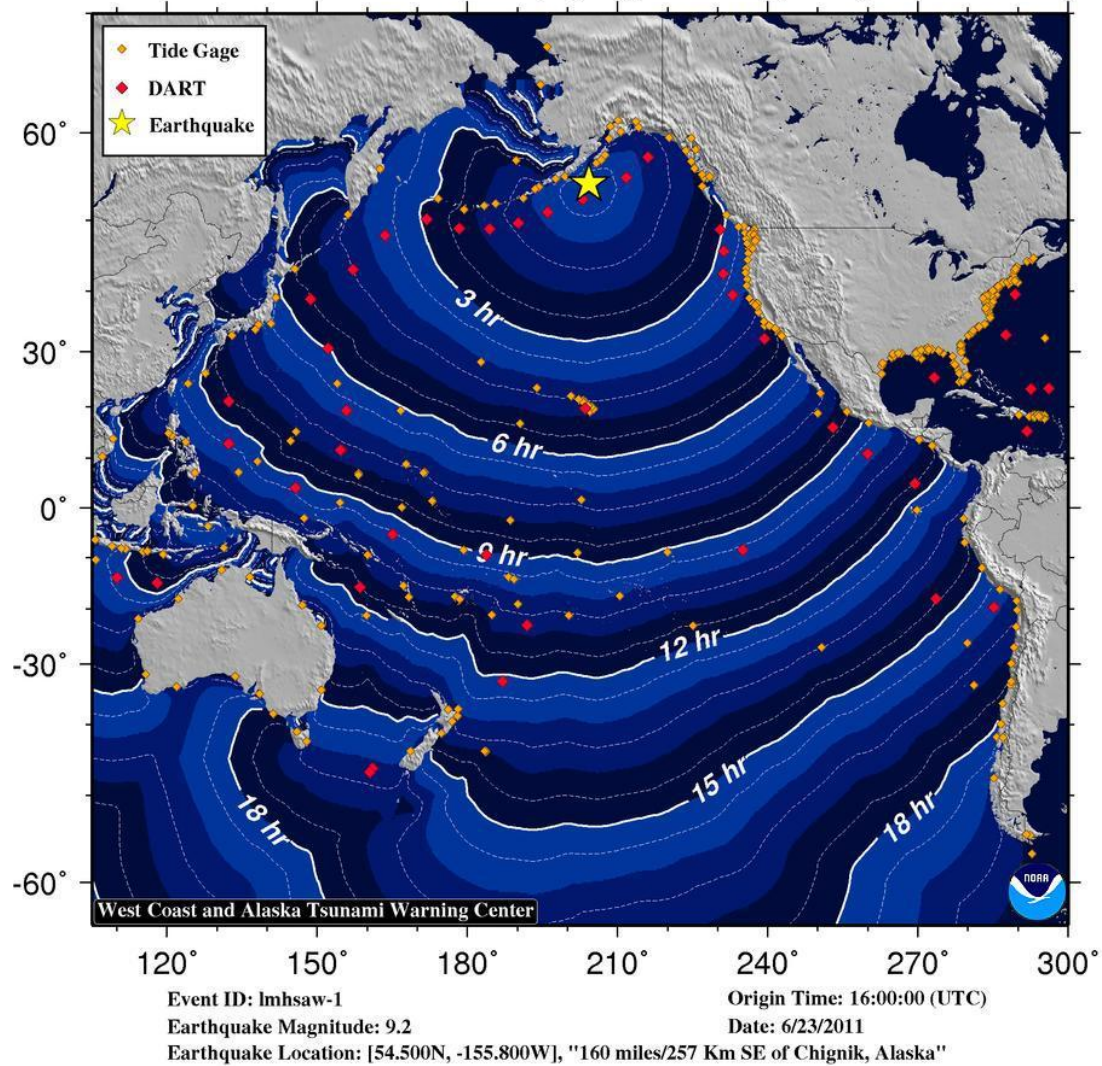


Figure D1: Tsunami Travel Time Map generated after issuing Message #1.

## Southern California Tsunami Exercise Handbook

### Tsunami travel time list example below.

The following list gives estimated times of arrival for locations along the North American Pacific coast from a tsunami generated at the given source location. The list is ordered by arrival time starting with the earliest. Since tsunami speed is directly related to water depth, tsunami ETAs can be computed independent of tsunami amplitude. THE LISTING OF A TSUNAMI ARRIVAL TIME BELOW DOES NOT INDICATE A WAVE IS IMMINENT. The listed arrival time is the initial wave arrival. Tsunamis can be dangerous for many hours after arrival, and the initial wave is not necessarily the largest.

Source:  
 Lat: 54.5N  
 Lng: 155.8W  
 Mag: 9.2  
 O-time: 1600UTC  
 Date: JUN 23

Estimated times of initial tsunami arrival:

DART 46403	0816 AKDT JUN 23	1616 UTC JUN 23
DART 46409	0816 AKDT JUN 23	1616 UTC JUN 23
DART 46402	0827 AKDT JUN 23	1627 UTC JUN 23
DART 46410	0841 AKDT JUN 23	1641 UTC JUN 23
DART 46408	0857 AKDT JUN 23	1657 UTC JUN 23
Akutan, Alaska	0908 AKDT JUN 23	1708 UTC JUN 23
Unimak Pass, Alaska (80 miles NE of Dutch Harbo	0911 AKDT JUN 23	1711 UTC JUN 23
King Cove, Alaska	0915 AKDT JUN 23	1715 UTC JUN 23
Sand Point, Alaska	0915 AKDT JUN 23	1715 UTC JUN 23
Cape Suckling, Alaska (75 miles SE of Cordova)	0915 AKDT JUN 23	1715 UTC JUN 23
Nikolski, Alaska	0916 AKDT JUN 23	1716 UTC JUN 23
Kodiak, Alaska	0917 AKDT JUN 23	1717 UTC JUN 23
DART 46413	0919 AKDT JUN 23	1719 UTC JUN 23
Dutch Harbor, Alaska	0922 AKDT JUN 23	1722 UTC JUN 23
Perryville, Alaska	0924 AKDT JUN 23	1724 UTC JUN 23
Hinchinbrook Entrance, Alaska (90 miles E of Se	0925 AKDT JUN 23	1725 UTC JUN 23
Atka, Alaska	0925 AKDT JUN 23	1725 UTC JUN 23
Old Harbor, Alaska	0930 AKDT JUN 23	1730 UTC JUN 23
Amchitka Pass, Alaska (125 miles W of Adak)	0936 AKDT JUN 23	1736 UTC JUN 23
Chignik Bay, Alaska	0938 AKDT JUN 23	1738 UTC JUN 23
Seward, Alaska	0939 AKDT JUN 23	1739 UTC JUN 23
Elfin Cove, Alaska	0940 AKDT JUN 23	1740 UTC JUN 23
Kennedy Entrance, Alaska (40 miles SW of Homer)	0944 AKDT JUN 23	1744 UTC JUN 23
DART 21414	0946 AKDT JUN 23	1746 UTC JUN 23
Adak, Alaska	0946 AKDT JUN 23	1746 UTC JUN 23
Amchitka, Alaska	0947 AKDT JUN 23	1747 UTC JUN 23
Yakutat, Alaska	0948 AKDT JUN 23	1748 UTC JUN 23
Sitka, Alaska	0948 AKDT JUN 23	1748 UTC JUN 23
Cape Fairweather, Alaska (80 miles SE of Yakuta	0949 AKDT JUN 23	1749 UTC JUN 23
Salisbury Sound, Alaska (25 miles NW of Sitka)	0949 AKDT JUN 23	1749 UTC JUN 23
Port Alexander, Alaska	0949 AKDT JUN 23	1749 UTC JUN 23
Cold Bay, Alaska	0950 AKDT JUN 23	1750 UTC JUN 23
the Alaska/British Columbia border	1054 PDT JUN 23	1754 UTC JUN 23
Valdez, Alaska	0958 AKDT JUN 23	1758 UTC JUN 23
Langara Island, British Columbia	1058 PDT JUN 23	1758 UTC JUN 23
Alitak, Alaska	1003 AKDT JUN 23	1803 UTC JUN 23
Cordova, Alaska	1008 AKDT JUN 23	1808 UTC JUN 23
Cape Decision, Alaska (85 miles SE of Sitka)	1009 AKDT JUN 23	1809 UTC JUN 23
DART 21415	1014 AKDT JUN 23	1814 UTC JUN 23
DART 46419	1128 PDT JUN 23	1828 UTC JUN 23
Shemya, Alaska	1030 AKDT JUN 23	1830 UTC JUN 23
Homer, Alaska	1032 AKDT JUN 23	1832 UTC JUN 23
Attu, Alaska	1036 AKDT JUN 23	1836 UTC JUN 23
St. Paul, Alaska	1043 AKDT JUN 23	1843 UTC JUN 23
the north tip of Vancouver Island, British Colu	1145 PDT JUN 23	1845 UTC JUN 23
Craig, Alaska	1049 AKDT JUN 23	1849 UTC JUN 23
DART 46404	1151 PDT JUN 23	1851 UTC JUN 23
Ketchikan, Alaska	1056 AKDT JUN 23	1856 UTC JUN 23
Juneau, Alaska	1058 AKDT JUN 23	1858 UTC JUN 23
DART 46407	1208 PDT JUN 23	1908 UTC JUN 23
Tofino, British Columbia	1226 PDT JUN 23	1926 UTC JUN 23
Prince Rupert, British Columbia	1227 PDT JUN 23	1927 UTC JUN 23
the Washington-British Columbia border	1232 PDT JUN 23	1932 UTC JUN 23

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Neah Bay, Washington	1238	PDT	JUN 23	1938	UTC	JUN 23
La Push, Washington	1239	PDT	JUN 23	1939	UTC	JUN 23
DART 46411	1241	PDT	JUN 23	1941	UTC	JUN 23
the Oregon-Washington border	1242	PDT	JUN 23	1942	UTC	JUN 23
Point Grenville, Washington	1242	PDT	JUN 23	1942	UTC	JUN 23
Clatsop Spit, Oregon	1242	PDT	JUN 23	1942	UTC	JUN 23
Cascade Head, Oregon (70 miles SW of Portland)	1249	PDT	JUN 23	1949	UTC	JUN 23
Tillamook Bay, Oregon	1250	PDT	JUN 23	1950	UTC	JUN 23
Cape Blanco, Oregon	1252	PDT	JUN 23	1952	UTC	JUN 23
Seaside, Oregon	1254	PDT	JUN 23	1954	UTC	JUN 23
Charleston, Oregon	1254	PDT	JUN 23	1954	UTC	JUN 23
Douglas/Lane County Line, Oregon (10 miles SW o	1254	PDT	JUN 23	1954	UTC	JUN 23
Westport, Washington	1254	PDT	JUN 23	1954	UTC	JUN 23
Newport, Oregon	1259	PDT	JUN 23	1959	UTC	JUN 23
Cape Mendocino, California	1300	PDT	JUN 23	2000	UTC	JUN 23
Humboldt Bay, California	1304	PDT	JUN 23	2004	UTC	JUN 23
the Oregon-California border	1305	PDT	JUN 23	2005	UTC	JUN 23
Crescent City, California	1305	PDT	JUN 23	2005	UTC	JUN 23
Horse Mountain, California (50 miles SW of Eure	1307	PDT	JUN 23	2007	UTC	JUN 23
Fort Bragg, California	1310	PDT	JUN 23	2010	UTC	JUN 23
Astoria, Oregon	1314	PDT	JUN 23	2014	UTC	JUN 23
Point Arena, California	1316	PDT	JUN 23	2016	UTC	JUN 23
Port Angeles, Washington	1316	PDT	JUN 23	2016	UTC	JUN 23
Gualala Point, California (80 miles NW of San F	1318	PDT	JUN 23	2018	UTC	JUN 23
Point Reyes, California	1331	PDT	JUN 23	2031	UTC	JUN 23
Bella Bella, British Columbia	1331	PDT	JUN 23	2031	UTC	JUN 23
Davenport, California (10 miles NW of Santa Cru	1334	PDT	JUN 23	2034	UTC	JUN 23
Point Sur, California	1337	PDT	JUN 23	2037	UTC	JUN 23
Port Moller, Alaska	1239	AKDT	JUN 23	2039	UTC	JUN 23
Monterey, California	1340	PDT	JUN 23	2040	UTC	JUN 23
Ragged Point, California (45 miles NW of San Lu	1347	PDT	JUN 23	2047	UTC	JUN 23
DART 46412	1356	PDT	JUN 23	2056	UTC	JUN 23
Point Conception, California	1358	PDT	JUN 23	2058	UTC	JUN 23
San Francisco, California	1401	PDT	JUN 23	2101	UTC	JUN 23
Port San Luis, California	1403	PDT	JUN 23	2103	UTC	JUN 23
Seattle, Washington	1411	PDT	JUN 23	2111	UTC	JUN 23
Santa Barbara, California	1418	PDT	JUN 23	2118	UTC	JUN 23
Saint Matthew Island, Alaska	1322	AKDT	JUN 23	2122	UTC	JUN 23
Rincon Point, California (15 miles SE of Santa	1429	PDT	JUN 23	2129	UTC	JUN 23
Santa Monica, California	1434	PDT	JUN 23	2134	UTC	JUN 23
San Pedro, California	1434	PDT	JUN 23	2134	UTC	JUN 23
Newport Beach, California	1440	PDT	JUN 23	2140	UTC	JUN 23
La Jolla, California	1445	PDT	JUN 23	2145	UTC	JUN 23
Alamitos Bay, California (20 miles SE of L.A.)	1449	PDT	JUN 23	2149	UTC	JUN 23
the California-Mexico border	1451	PDT	JUN 23	2151	UTC	JUN 23
Cape Newenham, Alaska	1414	AKDT	JUN 23	2214	UTC	JUN 23
Gambell, Alaska	1541	AKDT	JUN 23	2341	UTC	JUN 23
Dillingham, Alaska	1604	AKDT	JUN 23	0004	UTC	JUN 24
Hooper Bay, Alaska	1736	AKDT	JUN 23	0136	UTC	JUN 24
Little Diomed Island, Alaska	1838	AKDT	JUN 23	0238	UTC	JUN 24
Nome, Alaska	2033	AKDT	JUN 23	0433	UTC	JUN 24
Unalakleet, Alaska	2323	AKDT	JUN 23	0723	UTC	JUN 24

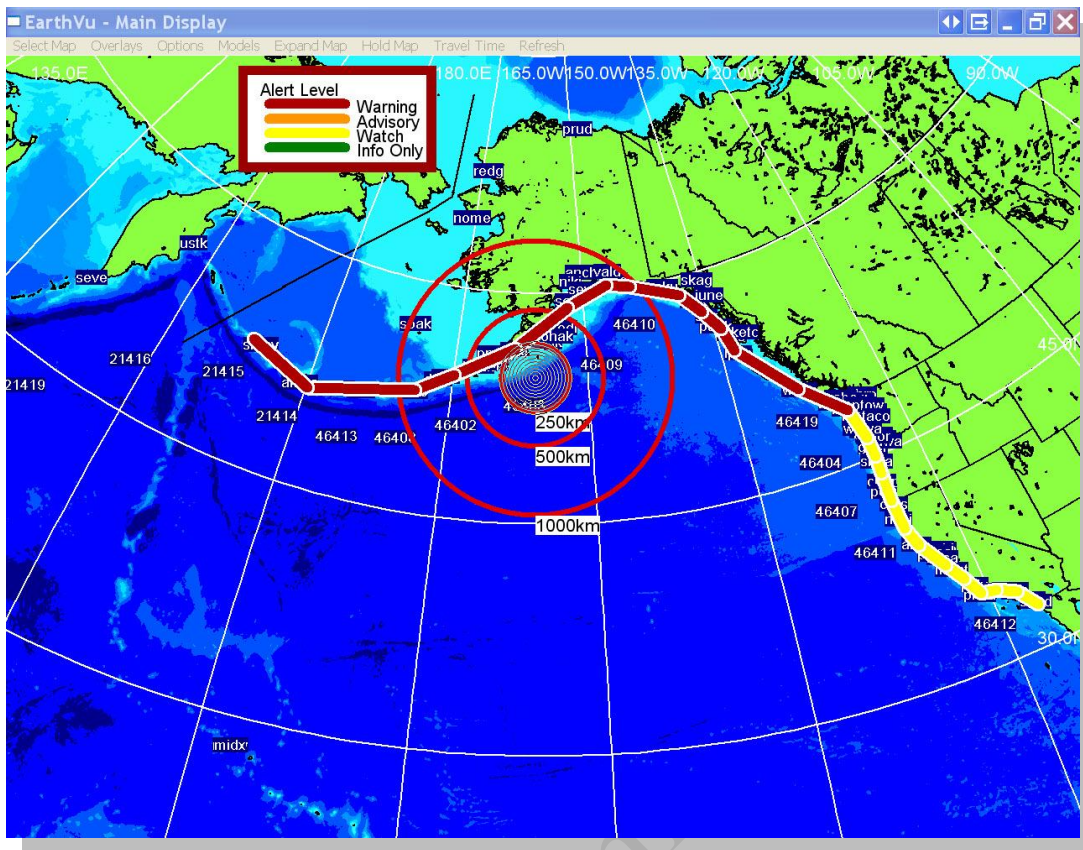


Figure D2: Small-scale map issued with Message #1.

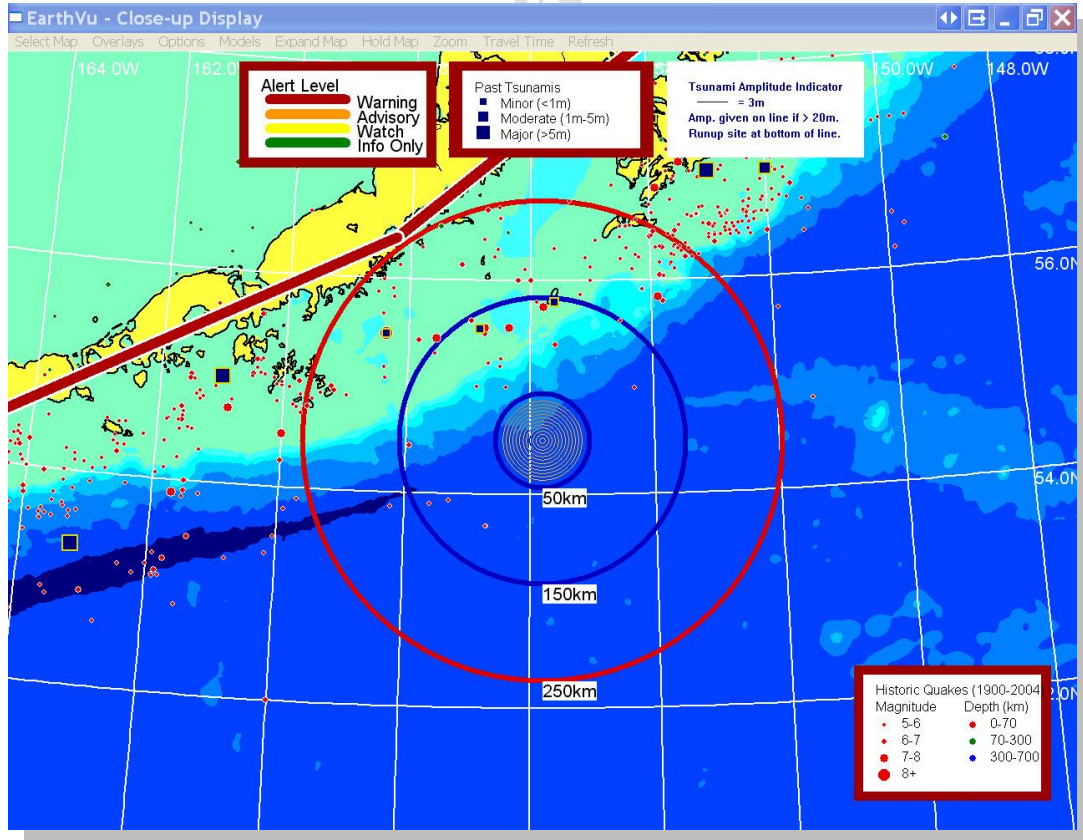


Figure D3: Large-scale map issued with Message #1.



## Appendix E. Sample Press Release for Local Media

### TEMPLATE FOR NEWS RELEASE

#### USE AGENCY MASTHEAD

Contact: (insert name)  
(insert phone number)  
(insert email address)

**FOR IMMEDIATE RELEASE**  
(insert date)

### **SOUTHERN CALIFORNIA TSUNAMI EXERCISE TO BE CONDUCTED June 23, 2011**

*(insert community/county/state name)* will take part in a tsunami response exercise on June 23, 2011. The purpose of this exercise is to evaluate local tsunami response plans, increase tsunami preparedness, and improve coordination throughout the region.

*(insert a promotional comment from a local official, such as "The 2011 Japan earthquake and tsunami reminded the world again of the urgent need to be more prepared for such events," said (insert name of appropriate official). "This important exercise will test the current procedures of the Tsunami Warning System and help identify operational strengths and weaknesses in each community." (Please modify for uniqueness.))*

The exercise, titled SoCal 2011, will simulate a widespread Tsunami Warning, Watch, and Advisory situation along U.S. and Canadian west coasts requiring implementation of local tsunami response plans. It is the second such exercise including all Pacific states, provinces, territories, and commonwealths. The exercise will *(insert "include" or "not include")* public notification.

The exercise will simulate a major earthquake and tsunami generated 160 miles southeast of Chignik, Alaska at 09:00 am Pacific Daylight Time *(or appropriate local time)* on June 23, 2011. Exercise participants will be provided with a handbook which describes the scenario and contains tsunami messages from the West Coast/Alaska Tsunami Warning Center (WCATWC).

*Insert paragraph tailored for specific community. Could identify participating agencies and specific plans. Could describe current early warning program, past tsunami exercises (if any), ongoing mitigation and public education programs, etc. Could describe tsunami threat, history of tsunami hazards, if any.*

The exercise is sponsored by the State of California and U.S. National Oceanic and Atmospheric Administration (NOAA). For more information on the U.S. tsunami warning system, see [www.tsunami.gov](http://www.tsunami.gov).

###

On the Web:

West Coast/Alaska Tsunami Warning Center <http://wcatwc.arh.noaa.gov>

NOAA Tsunami Program <http://www.tsunami.gov>

*Insert state/local emergency response URLs*

SoCal Tsunami Exercise