Exercise PACIFEX 13 Participant Handbook

A Pacific tsunami warning exercise: March 27, 2013

National Tsunami Hazard Mitigation Program Warning Coordination Subcommittee





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 PACIFEX12 handbook.

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1. Background

This tsunami exercise is being conducted to assist tsunami preparedness efforts along the U.S. and Canadian Pacific coasts. 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.

The PACIFEX13 exercise simulates a tsunami generated by a major earthquake located in the Mariana Trench subduction zone near the island of Guam in the Western Pacific.

The **Mariana Trench** or **Marianas Trench** is the <u>deepest</u> part of the world's oceans. It is located in the western Pacific Ocean, to the east of the <u>Mariana</u> <u>Islands</u>. The trench is about 2,550 kilometers (1,580 mi) long but has a mean width of only 69 kilometers (43 mi). It reaches a maximum-known depth of 10.994 km (10,994 \pm 40 m) or 6.83 mi (36,069 \pm 131 ft) at the <u>Challenger</u> <u>Deep</u>, a small slot-shaped valley in its floor, at its southern end, although some unrepeated measurements place the deepest portion at 11.03 kilometers (6.85 mi).

At the bottom of the trench the <u>water column</u> above exerts a pressure of 1,086 bars (15,750 psi), over one thousand times the <u>standard atmospheric</u> <u>pressure</u> at sea level. At this pressure the density of water is increased by 4.96%, making ninety-five liters of water under the pressure of the Challenger Deep contain the same mass as a hundred liters at the surface.

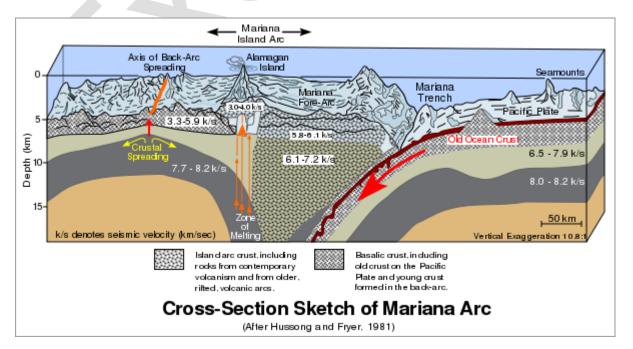


Figure 1a. Cross section of Mariana Arc subduction zone.

The Mariana Trench is part of the <u>Izu-Bonin-Mariana Arc</u> geological boundary system that forms the boundary between two <u>tectonic plates</u>. In this system, the western edge of one plate, the <u>Pacific Plate</u>, is <u>subducted</u> beneath the smaller <u>Mariana Plate</u> that lies to the west. Because the Pacific plate is the largest of all the tectonic plates on Earth, crustal material at its western edge has had a long time since formation (up to 170 million years) to compact and become very dense; hence its great height-difference relative to the higher-riding Mariana Plate, at the point where the Pacific Plate crust is subducted. This deep area is the Mariana Trench proper. The movement of these plates is also indirectly responsible for the formation of the <u>Mariana Islands</u> (which are caused by volcanism as a result of subduction).

Contributing articles and sources for the above summary can be found at http://en.wikipedia.org/wiki/Mariana_Trench.

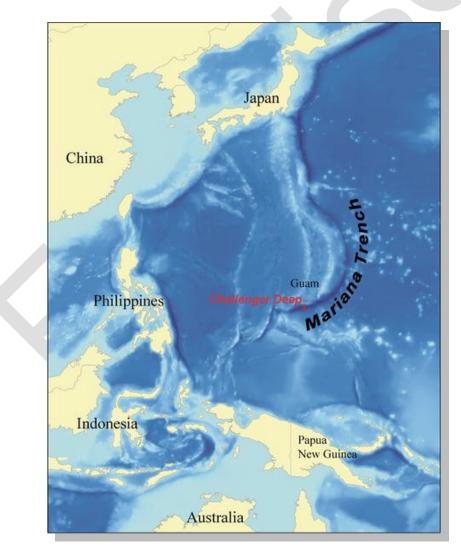


Figure 1b. Mariana Trench.

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.

NOAA and the National Tsunami Hazard Mitigation Program (NTHMP) are providing the framework for this exercise as a means for emergency responders along Pacific coasts to test and update tsunami response plans. High levels of vulnerability along the Pacific coast and the well known tsunami threat in the Pacific should provide a strong incentive for local jurisdictions to prepare for a tsunami.

This exercise will provide simulated tsunami warning messages from the WCATWC and PTWC triggered by a hypothetical earthquake located near the Marianas Trench. 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 along U.S. and Canadian Pacific coasts. The exercise provides an opportunity for emergency management organizations along these coasts 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. Every U.S. and Canadian Pacific emergency management organization (EMO) is encouraged to participate.

2.2 Objectives

Each organization can develop their objectives for the exercise depending on their level of involvement in the scenario. The following are the exercise's overarching objectives.

- Ensure message transmission from the TWCs through primary contacts to coastal EMOs.
- Test tsunami response plans for those Pacific EMOs that have developed plans, and provide a catalyst for EMOs that have not developed one.
- Coastal EMOs review, discuss, and evaluate the various communication alternatives for receiving and disseminating tsunami messages.
- Coastal EMOs review, discuss, and evaluate potential response actions and challenges.
- Identify processes to issue local all-clear notices.
- Provide an opportunity for EMOs to conduct outreach on earthquake and tsunami response.

2.3 Type of Exercise

The exercise should be carried out such that communications and decision making at various organizational levels are exercised and conducted without disrupting or alarming the general public. Individual localities, however, may at their discretion elect to extend the exercise down to the level of testing local notification systems such as sirens or loudspeakers.

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 PACIFEX 13.

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. А 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.

Style	Planning Period	Duration	Comments
Orientation Exercise	2 weeks	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	1-2	1-5 days	Multiple Agency participation

Example Time Frames for Different Exercise Types

Exercise	months		
Full-scale	2-6	1 day/	Multiple Agency participation
Exercise	months	week	

3. Exercise Outline

3.1 General

The scenario will start with a magnitude 8.3 earthquake located in the Mariana Islands Region at 20.2°N, 146.8°E. It increases to magnitude 9.0 by the third message. The earthquake occurs at 1800 UTC on March 27, 2013, though participants can exercise the scenario at any time and compress the timeline as necessary. The tsunami generated by this earthquake significantly impacts many areas near the source and later impacts other U.S. and Canadian coasts in the Pacific. The scenario is further described in Appendix B.

The TWCs will not issue live messages during the exercise other than to issue an initial "dummy" message over standard communication routes to start the exercise at 1805 UTC on March 27, 2013. The content of the dummy messages is given in Appendix C. The dummy message will indicate that exercise participants should refer to the first message provided in this handbook. From then on, 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 the TWCs if this were a real event and should be used by EMOs to drive the exercise timing. The warning messages (as shown in Appendix D) cover a 14-hour period, though in an actual event they would likely continue longer. World Meteorological Organization (WMO) and Advanced Weather Interactive Processing System (AWIPS) headers used in the dummy message are listed in Table 2.

The WCATWC issues two official products each time a message is issued. One is known as the segmented message. This message is segmented and includes encoded NWS zones and their level of threat. The segmentation is used for automated processing systems which parse NWS products. The other products are known as public messages, and are provided in Appendix D. This message has no segmentation and is written in an easier-to-read format. EMOs generally use the public product for warning response as it has more complete information. Graphical products are also issued to the web site. Examples of these are shown in Appendix E.

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. Both types of products for this exercise are provided in Appendix D.

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 D, will facilitate this approach.

Estimated tsunami arrival times to several U.S. and Canadian Pacific locations are included in the TWC messages. EMOs are welcome to modify the timeline and/or wave amplitudes to suit their exercise – for example, to compress the timeline and use larger amplitudes. 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 9.0 earthquake with epicenter at 20.2°N, 146.8°E occurring on March 27, 2013 at 1800 UTC.

WCAT		wc		PTW	-		PTW	-		
Date	Time		Messa			Pacific		Hawaii		
(UTC)	(UTC)		-	lec lec		Prod	uct		Produ	ct
		#	Туре	Dummy	#	Туре	Dummy	#	Туре	Dummy
03/27/2013					Ea	rthquake	e occurs			
03/27/2013	1807	01	WWA	Yes	01	EWW	No	01	WCH	Yes
03/27/2013	1902	02	WWA	No	02	EWW	No	02	WCH	No
03/27/2013	2006	03	WWA	No	03	EWW	No	03	WCH	No
03/27/2013	2104	04	WWA	No	04	PWW	No	04	WRN	No
03/27/2013	2202	05	WWA	No	05	PWW	No	05	WRN	No
03/28/2013	2302	06	WWA	No	06	PWW	No	06	WRN	No
03/28/2013	0002	07	WWA	No	07	PWW	No	07	WRN	No
03/28/2013	0103	08	WWA	No	08	PWW	No	08	WRN	No
03/28/2013	0202	09	WWA	No	09	PWW	No	09	WRN	No
03/28/2013	0302	10	WWA	No	10	PWW	No	10	ADV	No
03/28/2013	0401	11	WWA	No	11	PWW	No	11	ADV	No
03/28/2013	0502	12	WWA	No	12	PWW	No	12	ADV	No
03/28/2013	0602	13	WWA	No	13	PWW	No	13	ADV	No
03/28/2013	0702	14	WWA	No	14	PWW	No	14	ADV	No
03/28/2013	0802	15	Can	No	15	Can	No	15	Can	No

WCATWC Message Types:

- WWA Warning/Watch/Advisory
- Can WWA Cancellation
- PTWC Pacific Message Types:
 - EWW Expanding Warning/Watch
 - PWW Pacific-wide Warning
 - Can Warning Cancellation
- PTWC Hawaii Message Types:
 - WCH Tsunami Watch
 - WRN Tsunami Warning
 - ADV Tsunami Advisory
 - Can Advisory Cancellation

Dummy:

Yes Dummy Issued No Dummy Not Issued

Table 2: Product Types

Product Types Issued for Dummy Message with Transmission Methods

Center	WMO ID	AWIPS ID	NWWS	GTS	EMWIN	Fax	Email
WCATWC	WEAK51 PAAQ	TSUAK1	Yes	Yes	Yes	Yes	Yes
PTWC	WEHW40 PHEB	TSUHWX	Yes	Yes	Yes	No	No

NWWS NOAA Weather Wire Service

GTS Global Telecommunications System

EMWIN Emergency Manager's Weather Information Network

3.3 Actions in Case of a Real Event

In the case of a real event occurring during the exercise, TWCs will issue their normal message products for the event. Such messages will be given full priority and a decision will be made by the Centers whether to issue the dummy message and to continue providing telephone support for the exercise. Smaller earthquakes that only trigger a Tsunami Information Statement will not disrupt the exercise. All documentation and correspondence relating to this exercise is to be clearly identified as "PACIFEX 13" and "Exercise."

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:

Kevin Miller	CA EMA, Tsunami PM	626-356-3810	kevin.miller@calema.ca.gov
Althea Turner	OR OEM Tsunami PM	503-378-2911	Althea.Rizzo@state.or.us
John Schelling	WA EMD Tsunami PM	253-512-7084	j.schelling@emd.wa.gov
Teron Moore	BC PEP Tsunami PM	250-952-4989	teron.moore@gov.bc.ca
Erv Petty	AK DHS&EM Tsunami PM	907-428-7015	ervin.petty@alaska.gov
Kevin Richards	HI CD Tsunami PM	808-733-4301	krichards@scd.hawaii.gov
Paul Whitmore	WCATWC Director	907-745-4212	paul.whitmore@noaa.gov
Paul Whitmore	WCATWC Director		paul.whitmore@noaa.gov
Paul Huang	WCATWC TWSO		paul.huang@noaa.gov

James WaddellWCATWC Exercise Rep.Chip McCreeryPTWC DirectorStuart WeinsteinPTWC TWSOGerard FryerPTWC Exercise Rep.

907-745-4212 808-689-8207 808-689-8207 808-689-8207 james.waddell@noaa.gov charles.mccreery@noaa.gov stuart.weinstein@noaa.gov gerard.fryer@noaa.gov

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 F contains a sample press release which can be adapted as necessary.

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 it 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: Exercise Activities Agencies Involved Hazard Type Geographic Impact Area

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

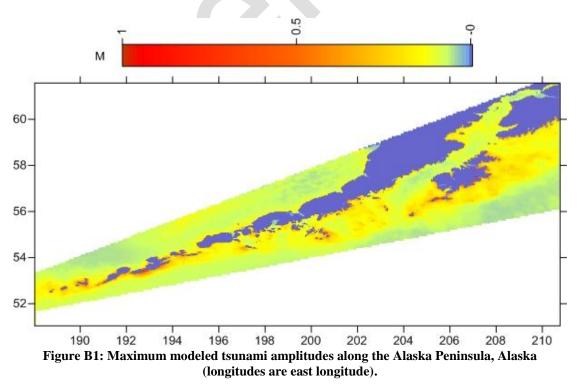
The Alaska Tsunami Forecast Model (ATFM) was used to simulate the tsunami generated by a magnitude 9.0 earthquake located in the Mariana Islands Region at 20.2N, 146.8E. Other fault parameters are:

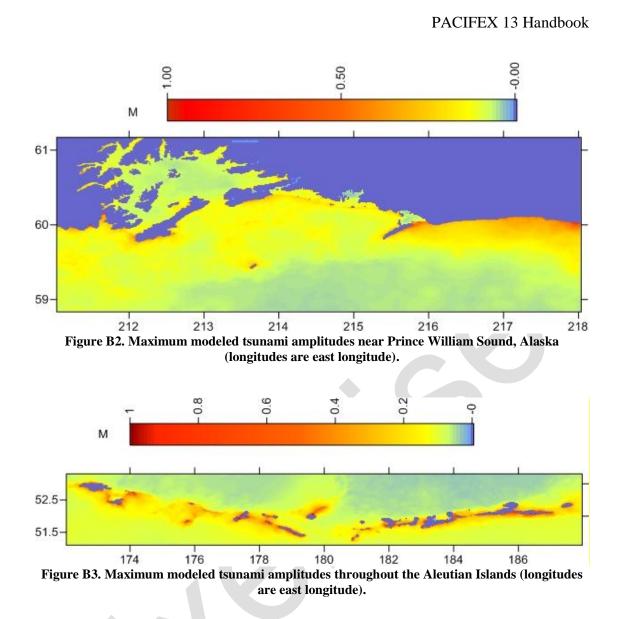
Length:	650km
Width:	200km
Depth:	5km
Strike:	179 [°]
Dip:	18 [°]
Slip:	90 [°]
Moment:	4.0x10 ²⁹ dyne-cm

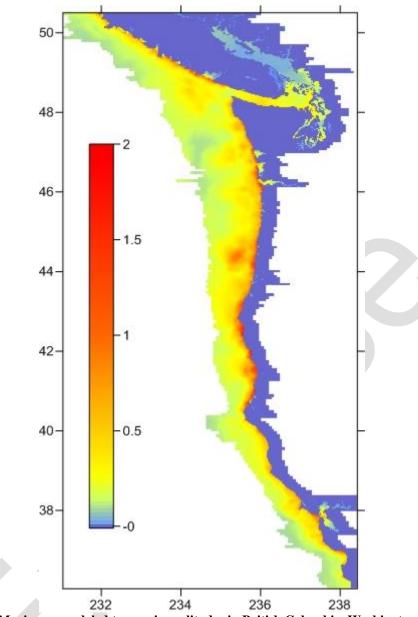
The fault was not angled and it ruptured simultaneously across the full rupture.

The model was computed using a 4-minute resolution grid in the open ocean and additional 15-second resolution grids along the U.S./Canadian Pacific coasts region along with finer grids in certain regions.

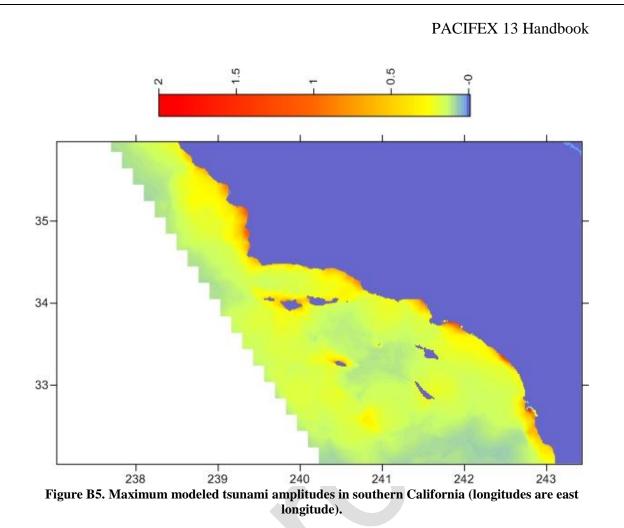
The following figures display the maximum modeled tsunami amplitude throughout the Pacific and in various regions along the U.S. coast. The amplitude represents the highest level of the tsunami above normal sea level. Tsunami model results are provided to better understand the scenario and are not intended for evacuation planning.







232234236238Figure B4. Maximum modeled tsunami amplitudes in British Columbia, Washington, Oregon,
and northern California (longitudes are east longitude).



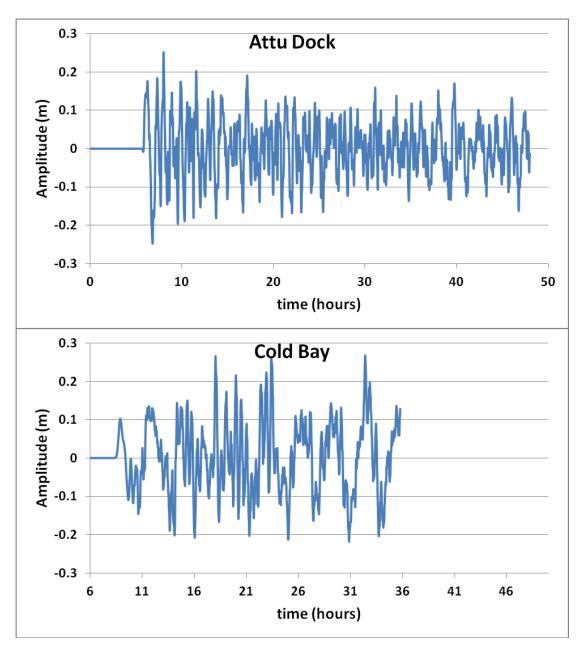
The following table provides maximum modeled amplitudes at many points throughout the exercise area. Amplitude indicates the level of the tsunami above normal sea level at the coast. Coastal amplitudes may induce vertical runups along shore that exceed the forecast amplitude by double or more due to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

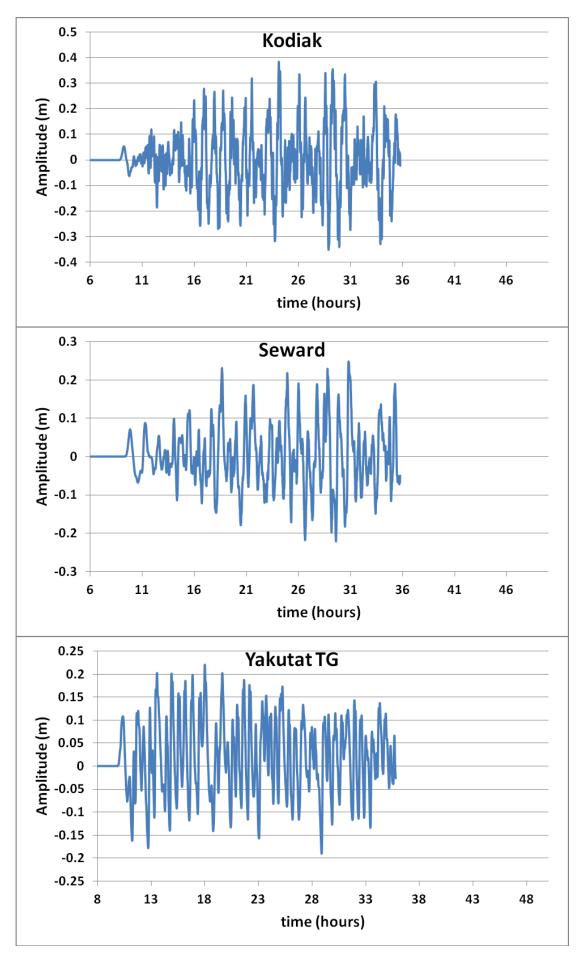
Location	Amplitude (m)	Location	Amplitude (m)
Attu, AK	0.95	Necanium R. Mouth, OR	1.28
Karab Cove, AK	0.52	Cannon Beach, OR	1.25
Alaid I., AK	0.60	Manzanita, OR	0.79
Nizki I., AK	1.12	Rockaway Beach, OR	1.03
Shemya, AK	0.70	Bayocean Peninsula, OR	0.82
False Bay, AK	0.84	Netarts, OR	1.30
Adak Dock, AK	0.58	Nestucca Bay, OR	1.06
Agony Point, AK	0.42	Neskowin, OR	1.20
West Atka I., AK	0.56	Siletz Bay, OR	2.18
Samalga I., AK	0.51	Depoe Bay, OR	0.90
St. Paul, AK	0.20	Newport, OR	0.83
Nikolski, AK	0.59	Yaquina John Point, OR	0.84
Unalaska, AK	0.42	Yachats, OR	1.09
Sedanka I., AK	0.50	Siuslaw River Mouth, OR	1.16
Akutan, AK	0.45	Umpqua River Mouth, OR	1.40
Avatanak I., AK	0.66	Empire, OR	0.35
False Pass, AK	0.11	Coos Bay, OR	0.16
Sanak, AK	0.31	Charleston, OR	0.49

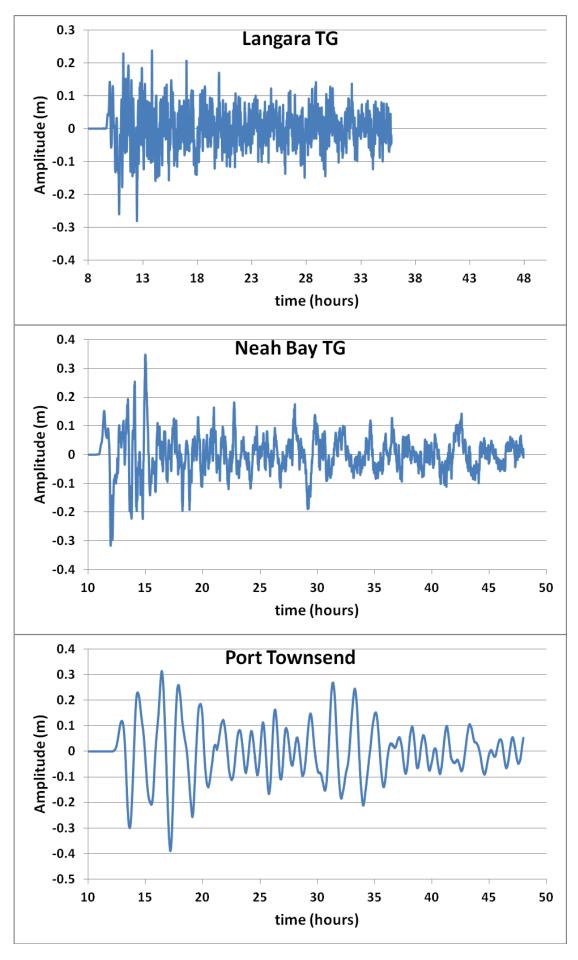
Cold Bay, AK	0.24	Port Orford, OR	1.52
King Cove, AK	0.31	Brookings, OR	1.37
Belkofski, AK	0.34	Crescent City TG, CA	1.85
Sand Pt., AK	0.29	Klamath River Mouth, CA	2.17
Ivanof Bay, AK	0.23	Trinidad, CA	1.68
	0.23	Humboldt Bay, CA	0.97
Perryville, AK	0.18	Eureka, CA	0.97
Gull Point, AK			
Kodiak, AK Port Lions, AK	0.29	South Spit, CA	1.15
	0.14	Ten Mile River, CA	0.99
Ouzinki, AK	0.14	Mendocino, CA	0.60
Selezen Pt., AK	0.11	Elk, CA	0.91
English Bay, AK	0.03	Arena Cove, CA	0.83
Seldovia, AK	0.05	Bodega Bay, CA	0.88
Homer Spit, AK	0.04	Point Reyes Beach, CA	0.71
Halibut Cove, AK	0.03	Fort Point, CA	0.58
Seward, AK	0.11	Sausalito, CA	0.40
Whittier, AK	0.05	Alameda, CA	0.27
Montague I., AK	0.11	Pacifica, CA	0.83
Cape Hinchinbrook, AK	0.09	Half Moon Bay, CA	1.31
Tatitlek, AK	0.07	Rio Del Mar, CA	1.71
Valdez, AK	0.07	Santa Cruz, CA	1.57
Cordova, AK	0.06	Moss Landing, CA	0.41
Icy Bay, AK	0.39	Monterey, CA	0.54
Schooner Beach, AK	0.30	Carmel, CA	0.27
Yakutat dock, AK	0.46	Point Sur, CA	0.70
Situk River Mouth, AK	0.78	Morro Bay, CA	1.02
Gustavus, AK	0.21	Pt. San Luis, CA	0.68
Auke Bay, AK	0.16	Pismo Beach, CA	1.14
Hoonah, AK	0.18	Lions Head, CA	0.95
Elfin Cove, AK	0.34	Surf, CA	0.86
Cape Bingham, AK	0.16	Gaviota, CA	0.30
Kruzof I., AK	0.91	Naples, CA	0.26
Krestof I., AK	0.79	Santa Barbara, CA	0.33
Sitka Dock, AK	1.12	Carpinteria, CA	0.69
Povorotni Point, AK	0.91	Santa Cruz I., CA	0.23
Biorka I, AK	0.88	Vantura, CA	1.10
Langara, BC	0.22	Malibu, CA	0.64
White Point, BC	0.69	Santa Monica, CA	1.34
Cape Scott, BC	0.48	Redondo Beach, CA	0.45
Matlahaw Point, BC	0.60	LA, CA	0.43
Tofino, BC	0.84	Middle Harbor, CA	1.01
Neah Bay, WA	0.35	Seal Beach, CA	1.01
Port Angeles, WA	0.19	Huntington Beach, CA	1.15
Bellingham, WA	0.15	Laguna Beach, CA	0.33
Everett, WA	0.06	Oceanside, CA	0.68
Seattle – Pier 48	0.06	Encinitas, CA	0.59
Moclips, WA	0.92	La Jolla, CA	0.73
Westport, WA	0.92	Ballast Point, CA	0.73
•		S. D. Navy Pier TG, CA	
Long Beach, WA	1.21		0.43
East Astoria, OR	0.16	North Imperial Beach, CA	0.71
Clatsop Spit, OR	1.32	Midway I.	0.72
Bastendorf Beach, OR	0.93	Hanalei, HI	0.82
Coquille Point, OR	1.35	Nawiliwili TG, HI	0.59

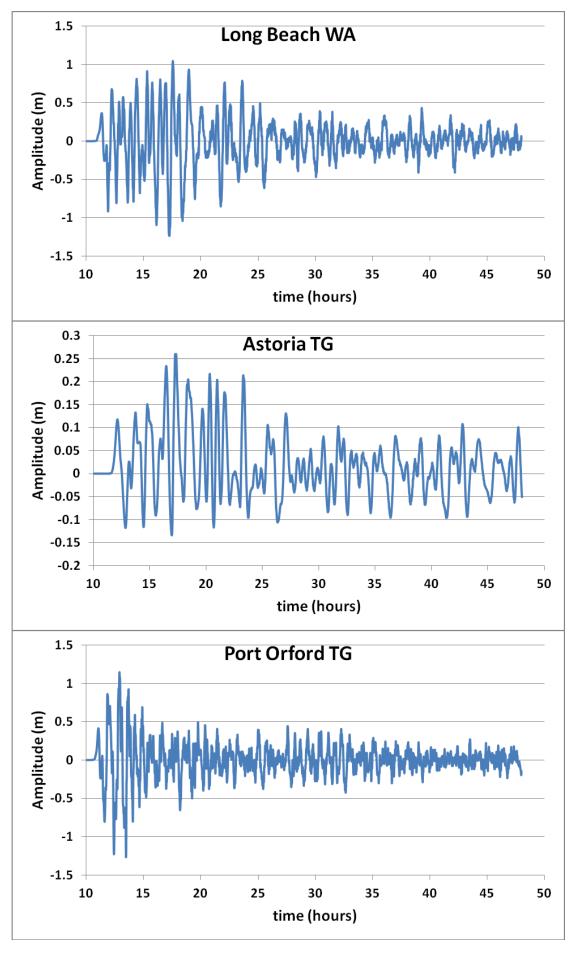
Haleiwa, HI	0.84	Kahului TG, HI	2.66
Moku O Loe I. TG, HI	0.68	Kihei, HI	3.78
Honolulu TG, HI	0.87	Kawaihae TG, HI	1.65
Kalaupapa, HI	0.45	Hilo TG, HI	0.87

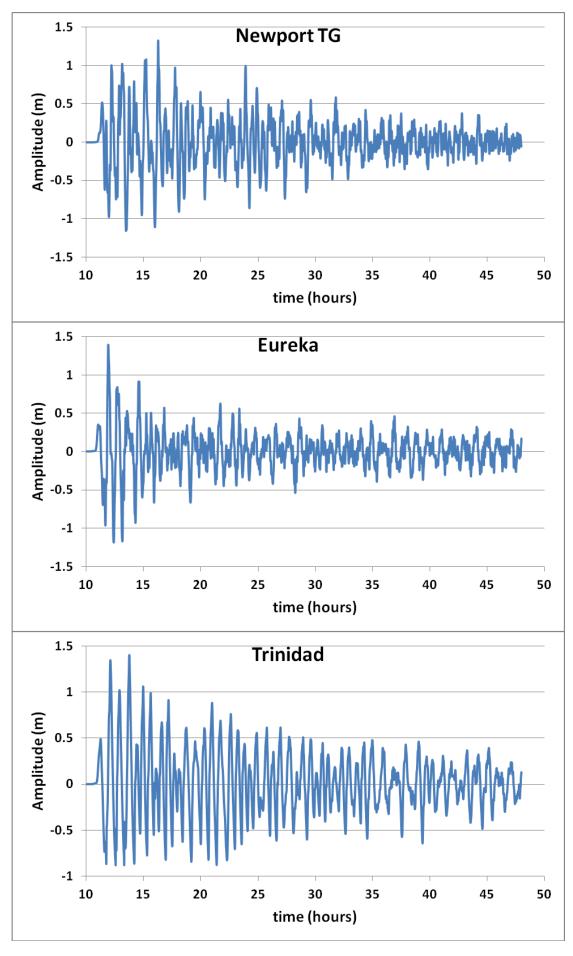
Graphs showing the tsunami variation over time (known as marigrams) are provided below for several sites along the U.S. Pacific coast. Note that the tsunami persists for many hours after initial arrival and that the maximum amplitude often occurs several hours after first arrival.











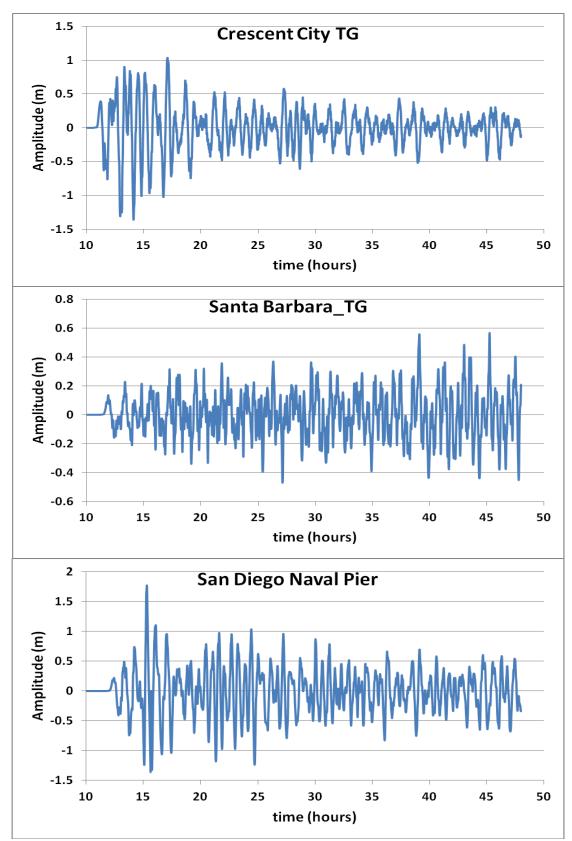


Figure B6. Modeled tsunami heights over time due to the scenario earthquake. TG is an abbreviation for tide gauge. Note that the horizontal and vertical scales are not consistent throughout all graphs. Time on the graphs is measured in hours since the earthquake occurred.

Appendix C. WCATWC and PTWC Dummy Messages

WCATWC Dummy Message

WEAK51 PAAQ 271805 TSUAK1

TEST...TSUNAMI MESSAGE NUMBER 1...TEST NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 1105 AM PDT WED MAR 27 2013

... PACIFEX 13 TSUNAMI EXERCISE MESSAGE. REFER TO WCATWC MESSAGE 1 IN THE EXERCISE HANDBOOK. THIS IS AN EXERCISE ONLY...

THIS MESSAGE IS BEING USED TO START OFF THE PACIFEX 13 PACIFIC TSUNAMI EXERCISE. THIS WILL BE THE ONLY EXERCISE MESSAGE TRANSMITTED FROM THE WEST COAST/ALASKA TSUNAMI WARNING CENTER. EXERCISE PARTICPANTS SHOULD REFER TO THE SCENARIO TIMELINE IN THE HANDBOOK FOR FUTURE MESSAGES. THE HANDBOOK IS AVAILABLE AT THE WEB SITE WCATWC.ARH.NOAA.GOV. THE EXERCISE PURPOSE IS TO PROVIDE EMERGENCY MANAGEMENT A REALISTIC SCENARIO TO TEST TSUNAMI RESPONSE PLANS.

THIS IS ONLY AN EXERCISE.

\$\$

PTWC Dummy Message

WEHW40 PHEB 271805 TSUHWX

TEST...TSUNAMI MESSAGE NUMBER 1...TEST NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 805 AM HST WED MAR 27 2013

 \ldots pacifex 13 tsunami exercise message. Refer to ptwc message 1 in the exercise handbook. This is an exercise only \ldots

THIS MESSAGE IS BEING USED TO START OFF THE PACIFEX 13 PACIFIC TSUNAMI EXERCISE. THIS WILL BE THE ONLY EXERCISE MESSAGE TRANSMITTED FROM THE PACIFIC TSUNAMI WARNING CENTER. EXERCISE PARTICIPANTS SHOULD REFER TO THE SCENARIO TIMELINE IN THE HANDBOOK FOR FUTURE MESSAGES. THE HANDBOOK IS AVAILABLE AT THE WEB SITE WCATWC.ARH.NOAA.GOV. THE EXERCISE PURPOSE IS TO PROVIDE EMERGENCY MANAGEMENT A REALISTIC SCENARIO TO TEST TSUNAMI RESPONSE PLANS.

THIS IS ONLY AN EXERCISE.

\$\$

Appendix D. WCATWC and PTWC Exercise Messages

WCATWC Messages

The following messages, created for the PACIFEX 13 tsunami exercise, are representative of the official public products issued by the West Coast and Alaska Tsunami Warning Center during a large magnitude 9.0 earthquake and tsunami originating at 20.2°N, 146.8°E.

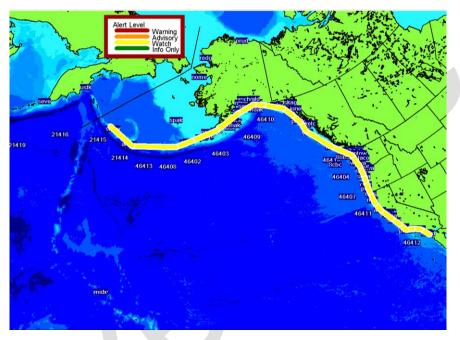


Figure D1. Alert Level after WCATWC bulletin 1 is issued.

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WCATWC Message #1
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*	ORIGIN TIME	1000 AKDT MAR 27 2013	AKDT MAR 27 2013	
		1100 PDT MAR 27 2013	PDT MAR 27 2013	
		1800 UTC MAR 27 2013	UTC MAR 27 2013	
*	COORDINATES	20.2 NORTH 146.8 EAST	NORTH 146.8 EAST	
*		10 MTTEC	TTEC	

* DEPTH 19 MILES * LOCATION MARIANA ISLANDS REGION

IMPACTS FOR TSUNAMI WATCH AREAS

- * EXPECTED IMPACT IS UNKNOWN AT THIS TIME.
- * THE WATCH WILL BE UPGRADED OR CANCELED AT LEAST TWO HOURS BEFORE EXPECTED IMPACT.

RECOMMENDED ACTIONS - UPDATED

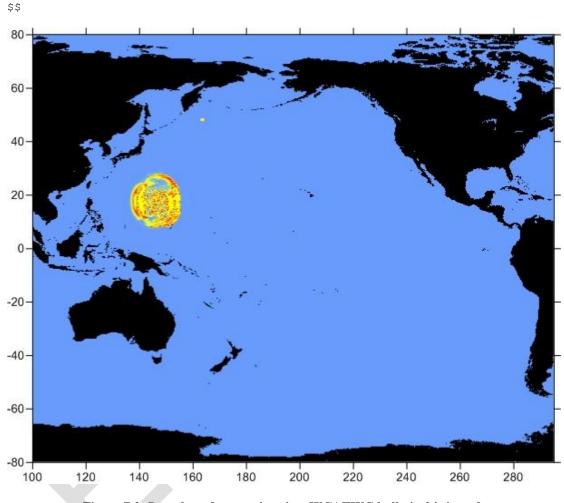
- * IF YOU ARE IN A WATCH AREA STAY ALERT FOR FURTHER INSTRUCTIONS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

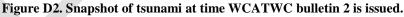
FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

FORECASTS A	AND/OR	OBSEI	RVATIO	ONS (OF	TS
		FORE	CAST			
		STAR	r of			
SITE		OF TS	SUNAM	Ι		
				-		
+ > T > C 12 >						
* ALASKA SHEMYA		1523	AKDT	MAD	27	
ADAK			AKDI			
DUTCH HARB	ЛR		AKDI			
SAND POINT			AKDT			
COLD BAY			AKDT			
KODIAK			AKDT			
SEWARD			AKDT			
ELFIN COVE		1908	AKDT	MAR	27	
YAKUTAT		1916	AKDT	MAR	27	
SITKA		1916	AKDT	MAR	27	
VALDEZ		1926	AKDT	MAR	27	
CORDOVA		1936	AKDT	MAR	27	
HOMER		1959	AKDT	MAR	27	
CRAIG		2017	AKDT	MAR	27	
* BRITISH	COLUME	RTA				
LANGARA	COLOIN		PDT	MAR	27	
TOFINO			PDT			
* OREGON		0140			~ 7	
CHARLESTON			PDT			
SEASIDE		2128	PDT	MAR	21	
* CALIFOR	AIN					
CRESCENT C	ITY	2147		MAR		
SAN FRANCIS	SCO	2216	PDT	MAR	27	
SANTA BARB	ARA	2223		MAR		
SAN PEDRO		2237		MAR		
LA JOLLA		2246	PDT	MAR	27	
* WASHING	TON					
NEAH BAY		2149	PDT	MAR	27	
WESTPORT		2159		MAR	27	

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.





WCATWC Message #2

WEAK51 PAAQ 271902 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 2 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 1202 PM PDT WED MAR 27 2013

THE EARTHQUAKE MAGNITUDE HAS INCRESED TO 8.8.

... A TSUNAMI WATCH IS NOW IN EFFECT...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WATCH IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON -BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WATCH AREAS

- * EXPECTED IMPACT IS UNKNOWN AT THIS TIME.
- * THE WATCH WILL BE UPGRADED OR CANCELED AT LEAST TWO HOURS BEFORE EXPECTED IMPACT.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WATCH AREA STAY ALERT FOR FURTHER INSTRUCTIONS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

SITE							
* ALASKA							
SHEMYA	1519	AKDT	MAR	27			
ADAK		AKDT					
DUTCH HARBOR		AKDT					
SAND POINT	1744	AKDT	MAR	27			
COLD BAY	1816						
KODIAK		AKDT					
SEWARD	1903	AKDT	MAR	27			
ELFIN COVE	1905	AKDT	MAR	27			
YAKUTAT	1912	AKDT	MAR	27			
SITKA	1912	AKDT	MAR	27			
VALDEZ	1922	AKDT	MAR	27			
CORDOVA	1932	AKDT	MAR	27			
HOMER		AKDT					
CRAIG	2013	AKDT	MAR	27			
* BRITISH COLUME	BIA						
LANGARA	2022	PDT	MAR	27			
TOFINO	2137	PDT	MAR	27			
* OREGON							
CHARLESTON	2141	PDT	MAR	27			
SEASIDE	2156	PDT	MAR	27			
* CALIFORNIA							
CRESCENT CITY	2146 2216	PDT	MAR	27			
SAN FRANCISCO	2216	PDT	MAR	27			
	2223						
SAN PEDRO	2237	PDT	MAR	27			
LA JOLLA	2246	PDT	MAR	27			
* WASHINGTON							
NEAH BAY	2147	PDT	MAR	27			
WESTPORT	2157	PDT	MAR	27			
PRELIMINARY EARTH	IQUAKE	E PARA	AMETE	IRS	- UI	PDAI	ED
* MAGNITUDE	8.8						

*	ORIGIN TIME	1000	AKDT	MAR	27	2013	
		1100	PDT	MAR	27	2013	
		1800	UTC	MAR	27	2013	
*	COORDINATES	20.2	NORTH	H 146	5.8	EAST	
*	DEPTH	19 M	ILES				

* LOCATION MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #3

WEAK51 PAAQ 272003 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 3 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 103 PM PDT WED MAR 27 2013

THE EARTHQUAKE MAGNITUDE HAS INCRESED TO 9.0.

... A TSUNAMI WATCH IS NOW IN EFFECT...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WATCH IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA - OREGON - WASHINGTON -BRITISH COLUMBIA AND ALASKA FROM THE CALIFORNIA-MEXICO BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WATCH AREAS

- * EXPECTED IMPACT IS UNKNOWN AT THIS TIME.
- * THE WATCH WILL BE UPGRADED OR CANCELED AT LEAST TWO HOURS BEFORE EXPECTED IMPACT.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WATCH AREA STAY ALERT FOR FURTHER INSTRUCTIONS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

	FORECAST
	START OF
SITE	OF TSUNAMI

ADAK DUTCH HARBOR SAND POINT COLD BAY KODIAK	1820 AKDT MA 1841 AKDT MA 1906 AKDT MA	AR 27 AR 27 AR 27 AR 27 AR 27 AR 27 AR 27	
YAKUTAT SITKA VALDEZ CORDOVA HOMER CRAIG	1916 AKDT MA 1916 AKDT MA 1926 AKDT MA 1936 AKDT MA 1959 AKDT MA 2017 AKDT MA	AR 27 AR 27 AR 27 AR 27 AR 27 AR 27	
* BRITISH COLUME LANGARA TOFINO * OREGON	3IA 2026 pdt M# 2139 pdt M#		
CHARLESTON	2143 PDT MA 2158 PDT MA		G
CRESCENT CITY SAN FRANCISCO SANTA BARBARA SAN PEDRO	2216 PDT MA 2223 PDT MA	AR 27 AR 27 AR 27	
	2149 PDT MA 2159 PDT MA		
			Y 4 NEAR MERIZO PIER PARK DR DAMAGE AT THIS TIME.
FORECAST MAX TSUN ABOVE THE TIDE.	JAMI HEIGHT I	IS THE HIGHEST EXPECTE	D WATER LEVEL
		THE APPROXIMATE LENGT EROUS CURRENTS AND WAV	
OBSERVED TSUNAMI TIDE LEVEL AT THE		HE HIGHEST WATER LEVEL ASUREMENT.	ABOVE THE
ADDITIONAL OBSERV		SUNAMI ACTIVITY - UPDA	
SITE		TIME OF MEASUREMENT	
GUAM		1856 UTC 3-27	
		41 HEIGHT IS THE WATER FIME OF MEASUREMENT.	R LEVEL ABOVE THE
DEEP OCEAN PRESS	SURE SENSOR I	DATA INDICATES A TSUNA	MI WAS GENERATED.
 * MAGNITUDE * ORIGIN TIME * COORDINATES * DEPTH 	1100 PDT M 1800 UTC M	MAR 27 2013 MAR 27 2013	

* LOCATION MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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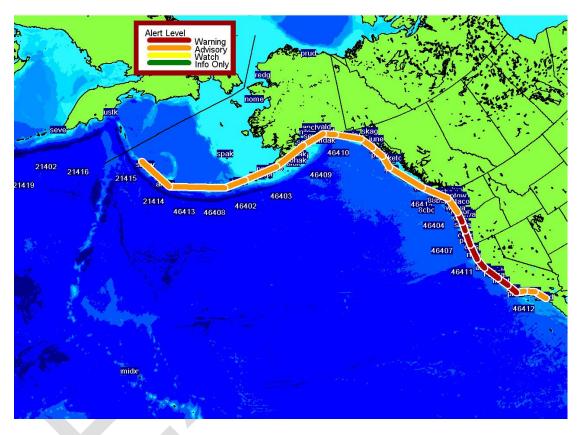


Figure D3. Alert Level after WCATWC bulletin 4 is issued.

WCATWC Message #4

WEAK51 PAAQ 272104 TSUAK1

BULLETIN

PUBLIC TSUNAMI MESSAGE NUMBER 4 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 204 PM PDT WED MAR 27 2013

THE TSUNAMI WATCH HAS BEEN UPGRADED TO A WARNING AND ADVISORY AS LISTED BELOW. NEW FORECASTS AND OBSERVATIONS ARE LISTED BELOW.

...A TSUNAMI WARNING IS NOW IN EFFECT...

...A TSUNAMI ADVISORY IS NOW IN EFFECT...

WARNINGS/ADVISORIES/WATCHES - UPDATED

TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS - UPDATED

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	FORECAST START OF OF TSUNAMI	FORECAST TSUNAMI DURATION		OBSERVED TSUNAMI HEIGHT
* ALASKA SHEMYA ADAK DUTCH HARBOR SAND POINT COLD BAY KODIAK SEWARD ELFIN COVE	1517 AKDT MAR 27 1557 AKDT MAR 27 1706 AKDT MAR 27 1742 AKDT MAR 27 1814 AKDT MAR 27 1836 AKDT MAR 27 1901 AKDT MAR 27 1903 AKDT MAR 27	6 HRS	1.5FT +/- 0.5	

YAKUTAT SITKA VALDEZ CORDOVA HOMER CRAIG	1910 1920 1930 1953	AKDT AKDT AKDT AKDT AKDT AKDT	MAR MAR MAR MAR	27 27 27 27	12	-	
* BRITISH COLUM	BIA						
LANGARA	2020	PDT	MAR	27			Less than 1 FT
TOFINO	2136	PDT	MAR	27	9	HRS	2.2FT +/- 0.7
* OREGON CHARLESTON SEASIDE							1.3FT +/- 0.4 3.3FT +/- 1.0
* CALIFORNIA							
CRESCENT CITY	2145	PDT	MAR	27	21	HRS	4.8FT +/- 1.4
SAN FRANCISCO	2215	PDT	MAR	27	6	HRS	1.5FT +/- 0.5
SANTA BARBARA	2223	PDT	MAR	27			Less than 1 FT
SAN PEDRO			MAR	27	6	HRS	1.1FT +/- 0.3
LA JOLLA	2245	PDT	MAR	27	9	HRS	1.9FT +/- 0.6
	2146						Less than 1 FT
WESTPORT	2156	PDT	MAR	27	6	HRS	1.3FT +/- 0.4

POHNPEI ISLAND MICRONESIA IS REPORTING SOME FLOODING ALONG DEKETIK CAUSEWAY THAT IS SLOWING TRAFFIC IN THE AREA. THE PUBLIC MARKET AND THE JAPANESE EMBASSY IN THIS IMMEDIATE AREA WERE FLOODED AND FIRST REPORTS NOTE DAMAGE AS HIGH. WAKE ISLAND REPORTS APPROXIMATELY 1.50 FEET OF WATER FLOODING PORTIONS OF THE RUNWAY. FIGHTER PLANES HAVE BEEN MOVED TO REDUCE THE LIKELIHOOD OF CORROSION ON THE LANDING GEAR.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT			
GUAM POHNPEI IS WAKE IS KUSHIRO JAPAN KWAJALEIN	2002 2028	UTC UTC UTC	3-27 3-27 3-27 3-27 3-27 3-27	0.81 FT 1.56 FT 1.47 FT 0.68 FT 0.73 FT			

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1000 AKDT MAR 27 2013
		1100 PDT MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #5

WEAK51 PAAQ 272202 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 5 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 302 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

 \star the coastal areas of california from the california-mexico border to point conception california

* THE COASTAL AREAS OF WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

* A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED. * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.

* THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

* A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.

* CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL

STRUCTURES AND M ARRIVAL.	MAY CONTINUE FOR	MANY HOURS AFTER THE TSUN	JAMI
* THE FIRST WAV	VE MAY NOT BE THE	LARGEST.	
RECOMMENDED ACTI			
		- MOVE INLAND TO HIGHER G	GROUND.
HARBORS AND M		CA - MOVE OFF THE BEACH AN EAD INUNDATION OF LAND IS	
* BE ALERT TO I	INSTRUCTIONS FROM	I YOUR LOCAL EMERGENCY OFF	FICIALS.
* DO NOT GO TO	THE COAST TO OBS	ERVE THE TSUNAMI.	
INDICATE IT I	IS SAFE TO DO SO.	TIL LOCAL EMERGENCY OFFIC	CIALS
SITE		FORECAST FORECAST TSUNAMI MAX TSUNAMI DURATION HEIGHT	
ADAK DUTCH HARBOR SAND POINT COLD BAY KODIAK SEWARD ELFIN COVE YAKUTAT SITKA VALDEZ CORDOVA HOMER CRAIG	1706 AKDT MAR 2 1742 AKDT MAR 2 1814 AKDT MAR 2 1836 AKDT MAR 2 1901 AKDT MAR 2 1903 AKDT MAR 2 1910 AKDT MAR 2 1910 AKDT MAR 2 1920 AKDT MAR 2 1930 AKDT MAR 2 1953 AKDT MAR 2 2011 AKDT MAR 2	76HRS $1.5FT +/- 0.5$ 76HRS $1.1FT +/- 0.3$ 7Less than 1H7Less than 1H712HRS $2.9FT +/- 0.4$ 7Less than 1H7Less than 1H7Less than 1H7Less than 1H7Less than 1H7Less than 1H	5 3 7T 7T 7T 4 9 7T 7T
* BRITISH COLUM LANGARA TOFINO		27 Less than 1 E 27 9 HRS 2.2FT +/- 0.7	יד ז
* OREGON CHARLESTON SEASIDE		27 6 HRS 1.3FT +/- 0.4 27 15 HRS 3.3FT +/- 1.0	
SAN FRANCISCO	2215 PDT MAR 2 2223 PDT MAR 2	27 Less than 1 E 27 6 HRS 1.1FT +/- 0.3	5 "T 3
* WASHINGTON NEAH BAY WESTPORT	2146 PDT MAR 2 2156 PDT MAR 2	7 Less than 1 E 7 6 HRS 1.3FT +/- 0.4	

KWAJALEIN ATOLL HAS REPORTED A WAVE APPROXIMATELY 0.8 FEET THAT CAME ASHORE FAR ENOUGH TO FLOOD PORTIONS OF THE KWAJ LODGE. RABAUL PAPUA NEW GUINEA HAS REPORTED THAT ONE PERSON WAS KILLED WHEN A 1.40 FOOT WAVE SURGED A BOAT ONTO A PERSON STANDING NEXT TO A CONCRETE WALL. THIS WAVE WAS REPORTED TO HAVE CAUSED SOME DAMAGE TO BUILDINGS ALONG THE WATERFRONT. MAJURO MARSHALL IS

REPORTS THAT A ONE-FOOT HIGH WAVE CAME ASHORE AND CAUSED SOME FLOODING AT LAURA PUBLIC ELEMENTARY SCHOOL AND JAPANESE MEMORIAL BEACH PARK.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TIME OF MEASUREM	IENT	OBSERVE TSUNAMI	D MAX HEIGHT
POHNPEI IS WAKE IS KUSHIRO JAPAN KWAJALEIN		3-27 3-27	1.56 1.47 0.68 0.73	FT FT FT FT
RABAUL PAPUA NEW GUINEA MAJURO MARSHALL IS		3-27 3-27	1.32 0.98	FT FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

* MAGNITUDE	9.0
* ORIGIN TIME	1000 AKDT MAR 27 2013
	1100 PDT MAR 27 2013
	1800 UTC MAR 27 2013
* COORDINATES	20.2 NORTH 146.8 EAST
* DEPTH	19 MILES
* LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

* THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.

* REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

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

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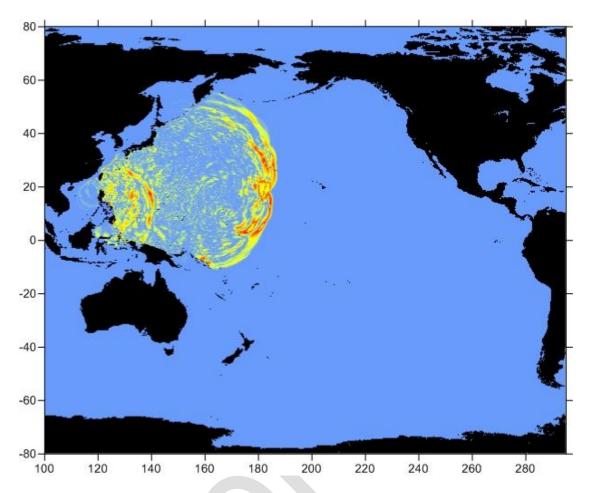


Figure D4. Snapshot of tsunami at time WCATWC bulletin 6 is issued.

WCATWC Message #6

WEAK51 PAAQ 272302 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 6 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 402 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA

* THE COASTAL AREAS OF WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- _____
- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

	FORECAST	FORECAST	FORECAST	OBSERVED
	START OF	TSUNAMI	MAX TSUNAMI	TSUNAMI
SITE	OF TSUNAMI	DURATION	HEIGHT	HEIGHT
* ALASKA				
SHEMYA	1517 AKDT MAR 27	9 HRS	1.8FT +/- 0.6	
ADAK	1557 AKDT MAR 27	6 HRS	1.5FT +/- 0.5	
DUTCH HARBOR	1706 AKDT MAR 27	6 HRS	1.1FT +/- 0.3	
SAND POINT	1742 AKDT MAR 27		Less than 1 FT	
COLD BAY	1814 AKDT MAR 27		Less than 1 FT	
KODIAK	1836 AKDT MAR 27		Less than 1 FT	
SEWARD	1901 AKDT MAR 27		Less than 1 FT	
ELFIN COVE	1903 AKDT MAR 27		Less than 1 FT	
YAKUTAT	1910 AKDT MAR 27	6 HRS	1.2FT +/- 0.4	
SITKA	1910 AKDT MAR 27	12 HRS	2.9FT +/- 0.9	
VALDEZ	1920 AKDT MAR 27		Less than 1 FT	
CORDOVA	1930 AKDT MAR 27		Less than 1 FT	
HOMER	1953 AKDT MAR 27		Less than 1 FT	
CRAIG	2011 AKDT MAR 27			
* BRITISH COLUM	IBIA			
LANGARA	2020 PDT MAR 27		Less than 1 FT	
TOFINO	2136 PDT MAR 27	9 HRS	2.2FT +/- 0.7	

* OREGON CHARLESTON SEASIDE	2140 2155	PDT PDT	MAR MAR			HRS HRS	1.3FT +/- 0.4 3.3FT +/- 1.0
* CALIFORNIA							
CRESCENT CITY	2145	PDT	MAR	27	21	HRS	4.8FT +/- 1.4
SAN FRANCISCO	2215	PDT	MAR	27	6	HRS	1.5FT +/- 0.5
SANTA BARBARA	2223	PDT	MAR	27			Less than 1 FT
SAN PEDRO	2237	PDT	MAR	27	6	HRS	1.1FT +/- 0.3
LA JOLLA	2245	PDT	MAR	27	9	HRS	1.9FT +/- 0.6
* WASHINGTON							
NEAH BAY	2146	PDT	MAR	27			Less than 1 FT
WESTPORT	2156	PDT	MAR	27	6	HRS	1.3FT +/- 0.4

MIDWAY ISLAND REPORTS THAT A ONE-FOOT SURGE FLOODED THE SOUTHWEST PORTION OF THE RUNWAY. POHNPEI ISLAND HAS REPORTED AN INITIAL DAMAGE ESTIMATE OF \$200,00 FROM FLOODING.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
2002 UTC 3-27	1.56 FT
2028 UTC 3-27	1.47 FT
2045 UTC 3-27	0.68 FT
2057 UTC 3-27	0.73 FT
2122 UTC 3-27	1.32 FT
2133 UTC 3-27	0.98 FT
2231 UTC 3-27	1.02 FT
	OF MEASUREMENT 2002 UTC 3-27 2028 UTC 3-27 2045 UTC 3-27 2057 UTC 3-27 2122 UTC 3-27 2133 UTC 3-27

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1000 AKDT MAR 27 2013
		1100 PDT MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #7

WEAK51 PAAQ 280002 TSUAK1

BUILLETIN PUBLIC TSUNAMI MESSAGE NUMBER 7 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 502 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT ...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WARNING IN EFFECT FOR ...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.

* DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

SITE	FORECAST START OF OF TSUNAMI	TSUNAMI	HEIGHT	OBSERVED TSUNAMI HEIGHT
* ALASKA SHEMYA ADAK DUTCH HARROR	1517 AKDT MAR 27 1557 AKDT MAR 27 1706 AKDT MAR 27	6 HRS	1.5FT +/- 0.5	0.7FT
SAND POINT COLD BAY KODIAK SEWARD	1742 AKDT MAR 27 1814 AKDT MAR 27 1836 AKDT MAR 27 1901 AKDT MAR 27	7 7 7		
SITKA	1903 AKDT MAR 27 1910 AKDT MAR 27 1910 AKDT MAR 27 1920 AKDT MAR 27 1930 AKDT MAR 27 1953 AKDT MAR 27	7 6 HRS 7 12 HRS	1.2FT +/- 0.4 2.9FT +/- 0.9	
CRAIG * BRITISH COLU	2011 AKDT MAR 27 MBIA	1		
TOFINO * OREGON	2020 PDT MAR 27 2136 PDT MAR 27	9 HRS		
CHARLESTON SEASIDE	2140 PDT MAR 27 2155 PDT MAR 27	7 6 HRS 7 15 HRS	1.3FT +/- 0.4 3.3FT +/- 1.0	
SANTA BARBARA	2145 PDT MAR 27 2215 PDT MAR 27 2223 PDT MAR 27 2237 PDT MAR 27	7	Less than 1 FT	
LA JOLLA * WASHINGTON NEAH BAY	2245 PDT MAR 27 2146 PDT MAR 27	9 HRS	1.9FT +/- 0.6	
WESTPORT RABUL PAPUA NEW FLOODING.	2156 PDT MAR 27	6 HRS	1.3FT +/- 0.4	OF \$157,000 FROM
	UNAMI HEIGHT IS TH	HE HIGHEST	EXPECTED WATER	LEVEL
	I DURATION IS THE PRODUCE DANGEROUS			
TIDE LEVEL AT T	I HEIGHT IS THE HI HE TIME OF MEASURE	EMENT.		HE
	RVATIONS OF TSUNAN	 TIME	 OBSERVE	
SITE 	OF		NT TSUNAMI	
	EW GUINEA 212 L IS 213 223 234		27 0.98 27 1.02	FT FT

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0					
*	ORIGIN TIME	1000	AKDT	MAR	27	2013	
		1100	PDT	MAR	27	2013	
		1800	UTC	MAR	27	2013	
*	COORDINATES	20.2	NORTH	H 140	5.8	EAST	
*	DEPTH	19 M.	ILES				
*	LOCATION	MARIA	ANA IS	SLANI	DS I	REGION	í.

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #8

WEAK51 PAAQ 280103 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 8 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 603 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- _____
- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

	FORECAST	FORECAST	FORECAST	OBSERVED
	START OF	TSUNAMI	MAX TSUNAMI	TSUNAMI
SITE	OF TSUNAMI	DURATION	HEIGHT	HEIGHT
* ALASKA				
SHEMYA	1517 AKDT MAR 27	9 HRS	1.8FT +/- 0.6	0.7FT
ADAK	1557 AKDT MAR 27	6 HRS	1.5FT +/- 0.5	
DUTCH HARBOR	1706 AKDT MAR 27	6 HRS	1.1FT +/- 0.3	
SAND POINT	1742 AKDT MAR 27		Less than 1 FT	
COLD BAY	1814 AKDT MAR 27		Less than 1 FT	
KODIAK	1836 AKDT MAR 27		Less than 1 FT	
SEWARD	1901 AKDT MAR 27		Less than 1 FT	
ELFIN COVE	1903 AKDT MAR 27		Less than 1 FT	
YAKUTAT	1910 AKDT MAR 27	6 HRS	1.2FT +/- 0.4	
SITKA	1910 AKDT MAR 27	12 HRS	2.9FT +/- 0.9	
VALDEZ	1920 AKDT MAR 27		Less than 1 FT	
CORDOVA	1930 AKDT MAR 27		Less than 1 FT	
HOMER	1953 AKDT MAR 27		Less than 1 FT	
CRAIG	2011 AKDT MAR 27			
* BRITISH COLUM	IBIA			
LANGARA	2020 PDT MAR 27		Less than 1 FT	
TOFINO	2136 PDT MAR 27	9 HRS	2.2FT +/- 0.7	
* OREGON				
	2140 PDT MAR 27			
SEASIDE	2155 PDT MAR 27	15 HRS	3.3FT +/- 1.0	

* CALIFORNIA CRESCENT CITY SAN FRANCISCO SANTA BARBARA SAN PEDRO	2145 2215 2223 2237	PDT MAR 27 PDT MAR 27 PDT MAR 27 PDT MAR 27	21 HRS 6 HRS 6 HRS	4.8FT +/- 1.4 1.5FT +/- 0.5 Less than 1 FT 1.1FT +/- 0.3
LA JOLLA * WASHINGTON	2245	pdt mar 27	9 HRS	1.9FT +/- 0.6
NEAH BAY WESTPORT	2146 2156	pdt mar 27 pdt mar 27	6 HRS	Less than 1 FT 1.3FT +/- 0.4

SHEMYA HAS REPORTED THAT A 0.7-FOOT SURGE CAME ASHORE AND THERE HAS BEEN NO KNOWN DAMAGE THUS FAR. NAWILIWILI HAWAII REPORTED THAT A 0.8-FOOT SURGE FLOODED PORTIONS OF THE KAUAI MARRIOTT RESORT AND BEACH CLUB, AND RESULTED IN SMALL-BOAT DAMAGE IN THE NAWILIWILI YACHT CLUB.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TII OF MEA:	ME SUREMENT		OBSERVED MAX TSUNAMI HEIGHT		
MIDWAY IS JOHNSTON IS SHEMYA AK WEST ATKA AK NAWILIWILI HI	2341 U 0000 U 0012 U	PTC 3-27 PTC 3-27 PTC 3-28 PTC 3-28 PTC 3-28	1.12 0.66 0.79	FT FT FT FT FT		

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0				
*	ORIGIN TIME	1000	AKDT	MAR	27	2013
		1100	PDT	MAR	27	2013
		1800	UTC	MAR	27	2013
*	COORDINATES	20.2	NORTH	H 146	5.8	EAST
*	DEPTH	19 MI	LES			
*	LOCATION	MARIA	NA IS	SLANI	DS E	REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #9

WEAK51 PAAQ 280202 TSUAK1 BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 9 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 702 PM PDT WED MAR 27 2013 TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME. ... THE TSUNAMI WARNING REMAINS IN EFFECT... ... THE TSUNAMI ADVISORY REMAINS IN EFFECT... WARNINGS/ADVISORIES/WATCHES _____ TSUNAMI WARNING IN EFFECT FOR... * THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER TSUNAMI ADVISORY IN EFFECT FOR... * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA * THE COASTAL AREAS OF WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA IMPACTS FOR TSUNAMI WARNING AREAS _____ _____ * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED. * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL. * THE FIRST WAVE MAY NOT BE THE LARGEST. IMPACTS FOR TSUNAMI ADVISORY AREAS ____ * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED. * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL

- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- -----
- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	FORECAS START C OF TSUN	F		TSU	IMAN	FORECAST MAX TSUNAN HEIGHT	II	OBSERVED TSUNAMI HEIGHT
* ALASKA								
SHEMYA	1517 AK 1557 AK	DT MAR	27	9	HRS	1.8FT +/-		1.4FT
ADAK	1557 AK	DT MAR	27	6	HRS	1.5FT +/-		
DUTCH HARBOR					HRS	1.1FT +/-	0.3	0.5FT
SAND POINT						Less than	1 FT	
COLD BAY						Less than	1 FT	
KODIAK	1836 AK	DT MAR	27			Less than		
SEWARD	1901 AK	DT MAR	27			Less than		
ELFIN COVE	1901 AK	DT MAR	27			Less than		
IAKUTAT	I9IU AK	UT MAR	27			1.2FT +/-		
SITKA	1910 AK	DT MAR	27	12	HRS	2.9FT +/-	0.9	
	1920 AK					Less than		
CORDOVA						Less than	1 FT	
	1953 AK					Less than	1 FT	
CRAIG	2011 AK	DT MAR	27		Ť			
* BRITISH COLUM			-					
	2020 F					Less than		
TOFINO	2136 F	DT MAR	27	9	HRS	2.2FT +/-	0.7	
* OREGON								
CHARLESTON						1.3FT +/-		
SEASIDE	2155 F	DT MAR	27	15	HRS	3.3FT +/-	1.0	
* CALIFORNIA	0145 -		0.7	0.1		4 0 /		
CRESCENT CITY								
SAN FRANCISCO								
SANTA BARBARA						Less than		
SAN PEDRO	2237 F	D'I MAR	27	6	HRS	1.1FT +/-	0.3	
LA JOLLA	2245 F	'D'I' MAR	27	9	HRS	1.9E"I +/-	0.6	
* WACUINCHON								
* WASHINGTON NEAH BAY	2146 -		27			Togo them	1 നന	
						Less than		
WESTPORT	2130 F	UT MAR	21	6	HKS	1.3ET +/-	0.4	

KAWAIHAE HAWAII REPORTED A TIDAL SURGE OF 4.5 FEET THAT RESULTED IN MUCH FLOODING AS FAR INLAND AS AKONI PULE HIGHWAY. THREE PEOPLE DIED WHEN THEIR SMALL BOAT WAS FLIPPED BY THE TIDAL SURGE AND PREVENTED THEIR ESCAPE TO THE SURFACE. KAHULHI HAWAII REPORTED A SEVEN-FOOT SURGE WHICH CAUSED DAMAGE TO SEVERAL STORAGE CONTAINERS LOCATED ON HOBRON AVE AND WHARF STREET. KAHULUI BEACH ROAD WAS FLOODED IN MANY AREAS AS WERE MANY HOMES WITHIN 50 FEET OF THE WATER. HILO HAWAII HAS REPORTED A TWO-FOOT SURGE THAT FLOODED BAYFRONT PARK AND THE PACIFIC TSUNAMI MUSEUM.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL

ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TIME OF MEASUREN	1ENT	OBSERVED MAX TSUNAMI HEIGHT		
JOHNSTON IS	2341 UTC	3-27	1.12	FT	
NAWILIWILI HI	0056 UTC	3-28	0.75	FT	
HONOLULU HI	0108 UTC	3-28	1.14	FT	
SHEMYA AK	0109 UTC	3-28	1.35	FT	
KAWAIHAE HI	0128 UTC	3-28	4.33	FT	
NIKOLSKI AK	0129 UTC	3-28	0.56	FT	
AKUTAN ISLAND AK	0130 UTC	3-28	0.62	FT	
KAHULUI HI	0135 UTC	3-28	6.96	FT	
DUTCH HARBOR AK	0142 UTC	3-28	0.52	FT	
HILO HI	0146 UTC	3-28	2.30	FT	
WEST ATKA AK	0148 UTC	3-28	1.54	FT	

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1000 AKDT MAR 27 2013
		1100 PDT MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- \star This message will be updated in 60 minutes.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #10

WEAK51 PAAQ 280302 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 10 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 802 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	FORECAST START OF OF TSUNAMI	TSUNAMI I	FORECAST MAX TSUNAMI HEIGHT	OBSERVED TSUNAMI HEIGHT
* ALASKA				
SHEMYA	1517 AKDT MAR 27	9 HRS	1.8FT +/- 0.6	1.4FT
ADAK	1557 AKDT MAR 27	6 HRS	1.5FT +/- 0.5	
DUTCH HARBOR	1706 AKDT MAR 27	6 HRS	1.1FT +/- 0.3	0.5FT

1742 AKDT MAR 27 Less than 1 FT 0.3FT SAND POINT COLD BAY 1814 AKDT MAR 27 Less than 1 FT 0.3FT KODIAK 1836 AKDT MAR 27 Less than 1 FT 1901 AKDT MAR 27 1903 AKDT MAR 27 Less than 1 FT SEWARD ELFIN COVE Less than 1 FT 1910 AKDT MAR 27 6 HRS 1.2FT +/- 0.4 YAKUTAT 1910 AKDT MAR 27 12 HRS 2.9FT +/- 0.9 SITKA 1920 AKDT MAR 27 Less than 1 FT VALDEZ CORDOVA 1930 AKDT MAR 27 Less than 1 FT HOMER 1953 AKDT MAR 27 Less than 1 FT CRAIG 2011 AKDT MAR 27 * BRITISH COLUMBIA 2020 PDT MAR 27 LANGARA Less than 1 FT TOFINO 2136 PDT MAR 27 9 HRS 2.2FT +/- 0.7 * OREGON 2140 PDT MAR 27 6 HRS 1.3FT +/- 0.4 CHARLESTON 2155 PDT MAR 27 15 HRS 3.3FT +/- 1.0 SEASIDE * CALIFORNIA 2145 PDT MAR 27 21 HRS 4.8FT +/- 1.4 CRESCENT CITY SAN FRANCISCO 2215 PDT MAR 27 6 HRS 1.5FT +/- 0.5 Less than 1 FT 1.1FT +/- 0.3 SANTA BARBARA 2223 PDT MAR 27 SAN PEDRO 2237 PDT MAR 27 6 HRS 2245 PDT MAR 27 9 HRS 1.9FT +/- 0.6 LA JOLLA * WASHINGTON 2146 PDT MAR 27 Less than 1 FT NEAH BAY 2156 PDT MAR 27 6 HRS 1.3FT +/- 0.4 WESTPORT

ATKA ALASKA HAS REPORTED A 1.5-FOOT SURGE THAT HAS FLOODED PORTIONS OF ALXAX WAY THAT LEADS TO THE AIRPORT.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT
NAWILIWILI HI	0056	UTC	3-28	0.75 FT
HONOLULU HI	0108	UTC	3-28	1.14 FT
SHEMYA AK	0109	UTC	3-28	1.35 FT
KAWAIHAE HI	0128	UTC	3-28	4.33 FT
NIKOLSKI AK	0129	UTC	3-28	0.56 FT
KAHULUI HI	0135	UTC	3-28	6.96 FT
DUTCH HARBOR AK	0142	UTC	3-28	0.52 FT
HILO HI	0146	UTC	3-28	2.30 FT
WEST ATKA AK	0148	UTC	3-28	1.54 FT
SAND POINT AK	0224	UTC	3-28	0.30 FT
AKUTAN ISLAND AK	0240	UTC	3-28	0.89 FT
COLD BAY AK	0254	UTC	3-28	0.33 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

* MAGNITUDE 9.0

* ORIGIN TIME	1000 AKDT MAR 27 2013
	1100 PDT MAR 27 2013
	1800 UTC MAR 27 2013
* COORDINATES	20.2 NORTH 146.8 EAST
* DEPTH	19 MILES

* LOCATION MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #11

WEAK51 PAAQ 280401 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 11 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 901 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.

* THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- \star do not go to the coast to observe the tsunami.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

	START OF	TSUNAMI	FORECAST MAX TSUNAMI	TSUNAMI
SITE	OF TSUNAMI	DURATION	HEIGHT	HEIGHT
* ALASKA				
SHEMYA	1517 AKDT MAR	27 9 HRS	1.8FT +/- 0.6	1.4FT
ADAK	1557 AKDT MAR	27 6 HRS	1.5FT +/- 0.5	
DUTCH HARBOR	1706 AKDT MAR	27 6 HRS	1.1FT +/- 0.3	0.5FT
SAND POINT COLD BAY KODIAK	1742 AKDT MAR	27	Less than 1 FT	0.3FT
COLD BAY	1814 AKDT MAR	27	Less than 1 FT	0.3FT
			Less than 1 FT	
SEWARD	1901 AKDT MAR		Less than 1 FT	
ELFIN COVE	1903 AKDT MAR		Less than 1 FT	
YAKUTAT			1.2FT +/- 0.4	
SITKA	1910 AKDT MAR	27 12 HRS	2.9FT +/- 0.9	
VALDEZ	1920 AKDT MAR	27	Less than 1 FT	
CORDOVA	1930 AKDT MAR	27	Less than 1 FT	
HOMER			Less than 1 FT	
CRAIG	2011 AKDT MAR	27		
* BRITISH COLUM	IBIA			
LANGARA		27	Less than 1 FT	0.5FT
TOFINO	2136 PDT MAR	27 9 HRS	Less than 1 FT 2.2FT +/- 0.7	
* ODECON				
* OREGON CHARLESTON	סגא ייחס 2140	27 6 HPS	1 3 5 7 +/- 0 /	
SEASIDE				
	2100 101 1011	27 10 1110	5.511 1/ 1.0	
* CALIFORNIA				
CRESCENT CITY				
SAN FRANCISCO			,	
SANTA BARBARA	2223 PDT MAR	27	Less than 1 FT	
SAN PEDRO	2237 PDT MAR	27 6 HRS	1.1FT +/- 0.3	
la jolla	2245 PDT MAR	27 9 HRS	1.9FT +/- 0.6	
* WASHINGTON				
NEAH BAY	2146 PDT MAR	27	Less than 1 FT	
WESTPORT				
	2100 IDI MAR	_, 0 11100	1.011 // 0.4	

NIKOLSKI ALASKA HAS REPORTED SOME FLOODING ALONG BEACHMASTER STREET FROM A 1.2-FOOT TIDAL SURGE. BUILDINGS SEAWARD OF BEACHMASTER STREET WERE FLOODED BUT IT IS BELIEVE THAT MINIMAL DAMAGE OCCURED. A 0.5-FOOT TIDAL SURGE WAS NOTED IN LANGARA BRITISH COLUMBIA. THE WATER DID NOT CAUSE ANY DAMAGE BECAUSE OF THE SHOALS SEAWARD OF SW MARINE DRIVE.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TIME OF MEASUREMENT	
HONOLULU HI SHEMYA AK KAWAIHAE HI KAHULUI HI DUTCH HARBOR AK HILO HI WEST ATKA AK SAND POINT AK AKUTAN ISLAND AK COLD BAY AK KODIAK AK NIKOLSKI AK SEWARD AK ELFIN COVE AK LANGARA TG BC	0108 UTC 3-2 0109 UTC 3-2 0128 UTC 3-2 0135 UTC 3-2 0142 UTC 3-2 0146 UTC 3-2 0146 UTC 3-2 0244 UTC 3-2 0224 UTC 3-2 0254 UTC 3-2 0316 UTC 3-2 0322 UTC 3-2 0322 UTC 3-2 0348 UTC 3-2 0351 UTC 3-2 0355 UTC 3-2	8 1.35 FT 8 4.33 FT 8 6.96 FT 8 0.52 FT 8 2.30 FT 8 1.54 FT 8 0.30 FT 8 0.30 FT 8 0.33 FT 8 0.16 FT 8 0.23 FT 8 0.39 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

* M	AGNITUDE	9.0				
* 0	RIGIN TIME	1000	AKDT	MAR	27	2013
		1100	PDT	MAR	27	2013
		1800	UTC	MAR	27	2013
* C	OORDINATES	20.2	NORTH	H 146	5.8	EAST
* D	EPTH	19 MI	ILES			
* L	OCATION	MARIA	ANA IS	SLANI	DS F	REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- \star THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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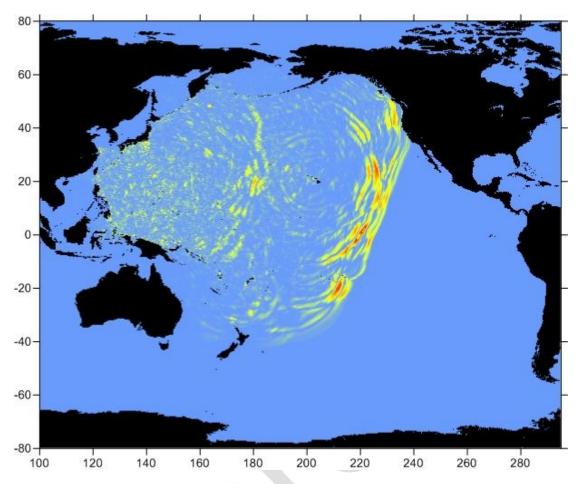


Figure D5. Snapshot of tsunami at time WCATWC bulletin 12 is issued.

WCATWC Message #12

WEAK51 PAAQ 280502 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 12 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 1002 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA

* THE COASTAL AREAS OF WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	START OF		TSUNAMI	FORECAST MAX TSUNAMI HEIGHT	OBSERVED TSUNAMI HEIGHT
		-			
* ALASKA					
SHEMYA	1517 AKDI	' MAR 27	9 HRS	1.8FT +/- 0.6	1.4FT
ADAK	1557 AKDI	' MAR 27	6 HRS	1.5FT +/- 0.5	
DUTCH HARBOR	1706 AKD1	' MAR 27	6 HRS	1.1FT +/- 0.3	0.5FT
SAND POINT	1742 AKDI	' MAR 27		Less than 1 FT	0.3FT
COLD BAY	1814 AKDI	' MAR 27		Less than 1 FT	0.3FT
KODIAK	1836 AKDI	' MAR 27		Less than 1 FT	0.2FT
SEWARD	1901 AKDI	' MAR 27		Less than 1 FT	0.2FT
ELFIN COVE	1903 AKDI	' MAR 27		Less than 1 FT	0.4FT
YAKUTAT	1910 AKDI	' MAR 27	6 HRS	1.2FT +/- 0.4	0.4FT
SITKA	1910 AKDI	' MAR 27	12 HRS	2.9FT +/- 0.9	0.1FT
VALDEZ	1920 AKDI	' MAR 27		Less than 1 FT	
CORDOVA	1930 AKDI	' MAR 27		Less than 1 FT	0.2FT
HOMER	1953 AKDI	' MAR 27		Less than 1 FT	
CRAIG	2011 AKDI	' MAR 27			
* BRITISH COLUM					
				Tasa than 1 mm	0 5 7 7 7
				Less than 1 FT	U.SET
TOFINO	2136 PD1	MAR 27	9 HRS	2.2FT +/- 0.7	

* OREGON

CHARLESTON SEASIDE	2140 2155		MAR MAR		-	HRS HRS	1.3FT +/- 0.4 3.3FT +/- 1.0
* CALIFORNIA CRESCENT CITY SAN FRANCISCO SANTA BARBARA SAN PEDRO LA JOLLA	2145 2215 2223 2237 2245	PDT PDT PDT	MAR MAR MAR MAR MAR	27 27 27 27	6	HRS HRS HRS HRS	4.8FT +/- 1.4 1.5FT +/- 0.5 Less than 1 FT 1.1FT +/- 0.3 1.9FT +/- 0.6
* WASHINGTON NEAH BAY WESTPORT	2146 2156	PDT PDT	MAR MAR	- /	6	HRS	Less than 1 FT 1.3FT +/- 0.4

A 1.4-FOOT TIDAL SURGE WAS REPORTED IN AKUTAN ALASKA. IT REPORTLY FLOODED PORTIONS OF THE BOARDWAY AND KILLED ONE PERSON WHEN THE BOAT THEY WERE IN WAS FLIPPED OVER BY THE WAVE. DUTCH HARBOR ALASKA ALSO REPORTED A 1.4-FOOT TIDAL SURGE, BUT ACCURED NO DAMAGE. SOUTH SPIT CALIFORNIA REPORTED A 1.2-FOOT TIDAL SURGE THAT FLOODED A PORTION OF HIGHWAY 255 CLOSING EUREKA MUNICIPAL AIRPORT UNTIL FURTHER NOTICE.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	TIME OF MEASUREMENT	OBSERVED MAX TSUNAMI HEIGHT
SAND POINT AK AKUTAN ISLAND AK COLD BAY AK KODIAK AK NIKOLSKI AK KING COVE AK SEWARD AK ELFIN COVE AK LANGARA TG BC CORDOVA AK YAKUTAT TG AK SITKA DOCK TG AK SELDOVIA AK AKUTAN ISLAND AK HOMER AK DUTCH HARBOR AK WHITTIER AK EUREKA CA SOUTH SPIT CA	0224 UTC 3-28 0240 UTC 3-28 0254 UTC 3-28 0316 UTC 3-28 0322 UTC 3-28 0344 UTC 3-28 0351 UTC 3-28 0351 UTC 3-28 0414 UTC 3-28 0418 UTC 3-28 0418 UTC 3-28 0414 UTC 3-28 0415 UTC 3-28 0417 UTC 3-28 0418 UTC 3-28 0419 UTC 3-28 0419 UTC 3-28 0410 UTC 3-28 0411 UTC 3-28 0442 UTC 3-28 0444 UTC 3-28 0447 UTC 3-28 0456 UTC 3-28 0458 UTC 3-28	0.30 FT 0.89 FT 0.33 FT 0.16 FT 1.15 FT 0.43 FT 0.23 FT 0.39 FT 0.46 FT 0.16 FT 0.36 FT 0.36 FT 0.09 FT 1.35 FT 0.07 FT 1.41 FT 0.10 FT 0.94 FT 1.17 FT
DODIII DI II CA	0400 010 020	I.I. I.I.

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1000 AKDT MAR 27 2013
		1100 PDT MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #13

WEAK51 PAAQ 280602 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 13 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 1102 PM PDT WED MAR 27 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT...

WARNINGS/ADVISORIES/WATCHES TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.

* THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.
- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

	FORECAS	ST		FORI	ECAST	FORECAST	OBSERVED				
					IMAN	MAX TSUNA	IN	TSUNAMI			
SITE	OF TSUN	IMAN		DURA	ATION	HEIGHT	HEIGHT				
* ALASKA											
SHEMYA	1517 AH	kdt maf	27	9	HRS	1.8FT +/-	0.6	1.4FT			
ADAK	1557 AH					1.5FT +/-					
DUTCH HARBOR	1706 AH	kdt maf	27	6	HRS	1.1FT +/-	0.3	1.4FT			
SAND POINT	1742 AH	kdt maf	27			Less than	1 FT	0.5FT			
COLD BAY	1814 AH	KDT MAF	27			Less than	1 FT	0.4FT			
KODIAK	1836 AH	KDT MAF	27			Less than	1 FT	0.4FT			
SEWARD	1901 AH	KDT MAF	27			Less than	1 FT	0.3FT			
ELFIN COVE	1903 AH	KDT MAF	27			Less than	1 FT	0.8FT			
YAKUTAT	1910 AH	KDT MAF	27	6	HRS	1.2FT +/-	0.4	0.4FT			
SITKA	1910 AF	KDT MAF	27	12	HRS	2.9FT +/-	0.9	0.1FT			
VALDEZ	1920 AH	KDT MAF	27			Less than	1 FT				
CORDOVA	1930 AH	KDT MAF	27			Less than	1 FT	2.8FT			
HOMER	1953 AH	KDT MAF	27			Less than	1 FT	0.1FT			
CRAIG	2011 AF	KDT MAF	27								
* BRITISH COLUM	BIA										
LANGARA	2020	PDT MAF	27			Less than	1 FT	0.8FT			
TOFINO	2136	PDT MAF	27	9	HRS	2.2FT +/-	0.7	1.4FT			
* OREGON											
CHARLESTON	2140 1	PDT MAF	27	6	HRS	1.3FT +/-	0.4	2.2FT			
SEASIDE	2155 I										
* CALIFORNIA											
CRESCENT CITY	2145 1	PDT MAF	27	21	HRS	4.8FT +/-	1.4	1.2FT			
SAN FRANCISCO	2215 I				HRS	1.5FT +/-					
SANTA BARBARA						Less than		0.5FT			
SAN PEDRO					HRS			0.011			
LA JOLLA											
			/	2			5.0				
* WASHINGTON											
NEAH BAY	2146 1	PDT MAF	27			Less than	1 FT	0.5FT			
WESTPORT					HRS						
				Ũ							

CORDOVA ALASKA REPORTED A 2.9-FOOT TIDAL SURGE THAT CAUSED SMALL BOAT DAMAGE IN THE HARBOR. LARGE WAVES WERE NOTED NEAR BOSWELL BAY BEACHES STATE MARINE PARK. PORTIONS OF DOCK ROAD IN PORT ORFORD OREGON FLOODED WHEN A 2.8-FOOT TIDAL SURGE CAME ASHORE. ONE PERSON WAS INJURED WHEN THE SURGE KNOCKED HIM ONTO THE ROCKS ON WHICH HE STOOD. A 2.2-FOOT TIDAL SURGE WENT ASHORE IN CHARLESTON OREGON AND CAUSED MUCH DAMAGE TO SMALL BOATS NEAR THE ALASKA PACKERS ROAD. FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

NIKOLSKI AK 0322 UTC 3-28 1.15 FT KING COVE AK 0344 UTC 3-28 0.43 FT YAKUTAT TG AK 0418 UTC 3-28 0.36 FT SELDOVIA AK 0432 UTC 3-28 0.36 FT AKUTAN ISLAND AK 0441 UTC 3-28 0.08 FT HOMER AK 0442 UTC 3-28 0.07 FT WHITTIER AK 0442 UTC 3-28 0.10 FT EUREKA CA 0447 UTC 3-28 0.10 FT CRESCENT CITY TG CA 0456 UTC 3-28 0.94 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT SAND POINT AK 0508 UTC 3-28 0.49 FT	SITE		FIME EASURE	MENT	OBSERVED MAX TSUNAMI HEIGHT				
KING COVE AK0344UTC3-280.43FTYAKUTAT TG AK0418UTC3-280.36FTSELDOVIA AK0432UTC3-280.08FTAKUTAN ISLAND AK0441UTC3-281.35FTHOMER AK0442UTC3-280.07FTWHITTIER AK0447UTC3-280.10FTEUREKA CA0456UTC3-280.94FTCRESCENT CITY TG CA0506UTC3-281.16FTMONTEREY CA0508UTC3-280.69FTSAND POINT AK0508UTC3-280.49FT					1 1 5 50				
YAKUTAT TG AK0418UTC3-280.36FTSELDOVIA AK0432UTC3-280.08FTAKUTAN ISLAND AK0441UTC3-281.35FTHOMER AK0442UTC3-280.07FTWHITTIER AK0447UTC3-280.10FTEUREKA CA0456UTC3-280.94FTCRESCENT CITY TG CA0506UTC3-281.16FTMONTEREY CA0508UTC3-280.69FTSAND POINT AK0508UTC3-280.49FT									
SELDOVIA AK 0432 UTC 3-28 0.08 FT AKUTAN ISLAND AK 0441 UTC 3-28 1.35 FT HOMER AK 0442 UTC 3-28 0.07 FT WHITTIER AK 0447 UTC 3-28 0.10 FT EUREKA CA 0456 UTC 3-28 0.94 FT CRESCENT CITY TG CA 0506 UTC 3-28 1.16 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT	KING COVE AR								
AKUTAN ISLAND AK 0441 UTC 3-28 1.35 FT HOMER AK 0442 UTC 3-28 0.07 FT WHITTIER AK 0447 UTC 3-28 0.10 FT EUREKA CA 0456 UTC 3-28 0.94 FT CRESCENT CITY TG CA 0506 UTC 3-28 1.16 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT			UTC	3-28					
HOMER AK 0442 UTC 3-28 0.07 FT WHITTIER AK 0447 UTC 3-28 0.10 FT EUREKA CA 0456 UTC 3-28 0.94 FT CRESCENT CITY TG CA 0506 UTC 3-28 1.16 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT			UTC	3-20					
WHITTIER AK 0447 UTC 3-28 0.10 FT EUREKA CA 0456 UTC 3-28 0.94 FT CRESCENT CITY TG CA 0506 UTC 3-28 1.16 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT									
EUREKA CA 0456 UTC 3-28 0.94 FT CRESCENT CITY TG CA 0506 UTC 3-28 1.16 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT									
CRESCENT CITY TG CA 0506 UTC 3-28 1.16 FT MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT									
MONTEREY CA 0508 UTC 3-28 0.69 FT SAND POINT AK 0508 UTC 3-28 0.49 FT									
SAND POINT AK 0508 UTC 3-28 0.49 FT									
		0509		3-28	0.75 FT				
LANGARA TG BC 0510 UTC 3-28 0.75 FT									
CRESCENT CITY CA 0511 UTC 3-28 1.24 FT									
TOFINO BC 0512 UTC 3-28 1.38 FT									
TRINIDAD CA 0512 UTC 3-28 1.61 FT									
ELFIN COVE AK 0513 UTC 3-28 0.85 FT					0.85 FT				
LONG BEACH WA 0518 UTC 3-28 1.20 FT	LONG BEACH WA	0518	UTC		1.20 FT				
POINT REYES TG CA 0518 UTC 3-28 0.88 FT	POINT REYES TG CA	0518	UTC	3-28	0.88 FT				
SEWARD AK 0518 UTC 3-28 0.30 FT	SEWARD AK	0518	UTC	3-28	0.30 FT				
NEAH BAY TG WA 0521 UTC 3-28 0.50 FT	NEAH BAY TG WA	0521	UTC	3-28	0.50 FT				
COLD BAY AK 0531 UTC 3-28 0.43 FT	COLD BAY AK	0531	UTC	3-28	0.43 FT				
WESTPORT WA 0531 UTC 3-28 0.90 FT	WESTPORT WA	0531	UTC	3-28	0.90 FT				
PORT SAN LUIS CA 0534 UTC 3-28 0.71 FT	PORT SAN LUIS CA	0534	UTC	3-28	0.71 FT				
CORDOVA AK 0540 UTC 3-28 2.85 FT	CORDOVA AK	0540	UTC	3-28	2.85 FT				
SITKA DOCK TG AK 0542 UTC 3-28 0.10 FT	SITKA DOCK TG AK	0542	UTC	3-28	0.10 FT				
PORT ORFORD OR 0548 UTC 3-28 2.82 FT	PORT ORFORD OR	0548	UTC	3-28	2.82 FT				
DUTCH HARBOR AK 0550 UTC 3-28 1.44 FT	DUTCH HARBOR AK	0550	UTC	3-28	1.44 FT				
SANTA BARBARA CA 0550 UTC 3-28 0.45 FT	SANTA BARBARA CA	0550	UTC	3-28	0.45 FT				
SOUTH SPIT CA 0551 UTC 3-28 4.13 FT	SOUTH SPIT CA	0551			4.13 FT				
KODIAK AK 0553 UTC 3-28 0.39 FT	KODIAK AK	0553	UTC	3-28	0.39 FT				
CHARLESTON OR 0557 UTC 3-28 2.20 FT	CHARLESTON OR	0557	UTC	3-28	2.20 FT				

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

* MAGNITUDE	9.0
* ORIGIN TIME	1000 AKDT MAR 27 2013
	1100 PDT MAR 27 2013
	1800 UTC MAR 27 2013
* COORDINATES	20.2 NORTH 146.8 EAST
* DEPTH	19 MILES
* LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS MESSAGE WILL BE UPDATED IN 60 MINUTES.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.

* PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON...

WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #14

WEAK51 PAAQ 280702 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 14 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 1202 AM PDT THU MAR 28 2013

TSUNAMI OBSERVATIONS ARE UPDATED IN THIS MESSAGE. THE WARNING AND ADVISORY REGIONS ARE THE SAME.

... THE TSUNAMI WARNING REMAINS IN EFFECT...

... THE TSUNAMI ADVISORY REMAINS IN EFFECT ...

WARNINGS/ADVISORIES/WATCHES

TSUNAMI WARNING IN EFFECT FOR...

* THE COASTAL AREAS OF CALIFORNIA AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER

TSUNAMI ADVISORY IN EFFECT FOR...

- * THE COASTAL AREAS OF CALIFORNIA FROM THE CALIFORNIA-MEXICO BORDER TO POINT CONCEPTION CALIFORNIA
- * THE COASTAL AREAS OF WASHINGTON BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS FOR TSUNAMI WARNING AREAS

- * A TSUNAMI WITH SIGNIFICANT WIDESPREAD INUNDATION OF LAND IS EXPECTED.
- * WIDESPREAD DANGEROUS COASTAL FLOODING ACCOMPANIED BY POWERFUL CURRENTS IS POSSIBLE AND MAY CONTINUE FOR MANY HOURS AFTER TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

IMPACTS FOR TSUNAMI ADVISORY AREAS

- * A TSUNAMI CAPABLE OF PRODUCING STRONG CURRENTS OR WAVES DANGEROUS TO PERSONS IN OR VERY NEAR THE WATER IS EXPECTED.
- * CURRENTS MAY BE HAZARDOUS TO SWIMMERS... BOATS... AND COASTAL STRUCTURES AND MAY CONTINUE FOR MANY HOURS AFTER THE TSUNAMI ARRIVAL.
- * THE FIRST WAVE MAY NOT BE THE LARGEST.

RECOMMENDED ACTIONS

- * IF YOU ARE IN A WARNING AREA MOVE INLAND TO HIGHER GROUND.
- * IF YOU ARE IN AN ADVISORY AREA MOVE OFF THE BEACH AND OUT OF HARBORS AND MARINAS. WIDESPREAD INUNDATION OF LAND IS NOT EXPECTED FOR ADVISORY AREAS.

- * BE ALERT TO INSTRUCTIONS FROM YOUR LOCAL EMERGENCY OFFICIALS.
- * DO NOT GO TO THE COAST TO OBSERVE THE TSUNAMI.
- * DO NOT RETURN TO THE COAST UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

FORECASTS AND/OR OBSERVATIONS OF TSUNAMI ACTIVITY

					FORI	ECAST	FORECAST	OBSERVED		
	STAR	r of			TSUI	NAMI	MAX TSUNAMI	TSUNAMI		
SITE	OF TS	SUNAM	Ι		DUR	ATION	HEIGHT	HEIGHT		
			-							
* ALASKA										
SHEMYA	1517	AKDT	MAR	27	9	HRS	1.8FT +/- 0.6	1.4FT		
ADAK	1557	AKDT	MAR	27	6	HRS	1.5FT +/- 0.5			
DUTCH HARBOR	1706	AKDT	MAR	27	6	HRS	1.1FT +/- 0.3	1.4FT		
SAND POINT	1742	AKDT	MAR	27			Less than 1 F	r 0.9FT		
COLD BAY	1814	AKDT	MAR	27			Less than 1 F	r 0.4FT		
KODIAK	1836	AKDT	MAR	27			Less than 1 F	r 0.4FT		
SEWARD	1901	AKDT	MAR	27			Less than 1 F	r 0.3FT		
ELFIN COVE	1903	AKDT	MAR	27			Less than 1 F	I 0.8FT		
YAKUTAT	1910	AKDT	MAR	27	6	HRS	1.2FT +/- 0.4	0.4FT		
SITKA	1910	AKDT	MAR	27	12	HRS	2.9FT +/- 0.9	0.1FT		
VALDEZ	1920	AKDT	MAR	27			Less than 1 F	Г		
CORDOVA	1930	AKDT	MAR	27			Less than 1 F	r 0.2FT		
HOMER	1953	AKDT	MAR	27			Less than 1 F	r 0.1FT		
CRAIG	2011	AKDT	MAR	27						
* BRITISH COLUM	BIA									
LANGARA	2020	PDT	MAR	27			Less than 1 F	r 0.8FT		
TOFINO	2136	PDT	MAR	27	9	HRS	2.2FT +/- 0.7	2.6FT		
* OREGON										
CHARLESTON	2140					HRS	1.3FT +/- 0.4	2.2FT		
SEASIDE	2155	PDT	MAR	27	15	HRS	3.3FT +/- 1.0			
* CALIFORNIA										
CRESCENT CITY	2145	PDT	MAR	27	21	HRS	4.8FT +/- 1.4	2.4FT		
SAN FRANCISCO	2215	PDT	MAR	27	6	HRS	1.5FT +/- 0.5			
SANTA BARBARA	2223	PDT	MAR	27			Less than 1 F	r 0.5FT		
SAN PEDRO	2237	PDT	MAR	27	6	HRS	1.1FT +/- 0.3			
LA JOLLA	2245	PDT	MAR	27	9	HRS	1.9FT +/- 0.6	0.5FT		
* WASHINGTON										
NEAH BAY	2146		MAR				Less than 1 F			
WESTPORT	2156	PDT	MAR	27	6	HRS	1.3FT +/- 0.4	0.9FT		

TRINIDAD CALIFORNIA REPORTED A 4.4-FOOT TIDAL SURGE WHICH FLOODED THE BUILDINGS NEAR THE CITY PIER. A PORTION OF BAY STREET LOCATED NEAR THE SHORE WAS ALSO FLOODED. CRESCENT CITY CALIFORNIA REPORTED A 2.4-FOOT TIDAL SURGE WHICH INUNDATED PORTIONS OF BOTH A AND B STREETS. BATTERY STREET WAS ALSO FLOODED AND SMALL BOAT DAMAGE WAS REPORTED IN THE CRESCENT CITY SMALL BOAT HARBOR. TWO PEOPLE WERE INJURED IN THE HARBOR WHEN THE TIDAL SURGE PINNED THEIR LEGS BETWEEN A BOAT AND THE DOCK.

FORECAST MAX TSUNAMI HEIGHT IS THE HIGHEST EXPECTED WATER LEVEL ABOVE THE TIDE.

FORECAST TSUNAMI DURATION IS THE APPROXIMATE LENGTH OF TIME WHICH THE TSUNAMI MAY PRODUCE DANGEROUS CURRENTS AND WAVE ACTIVITY.

OBSERVED TSUNAMI HEIGHT IS THE HIGHEST WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

SITE		FIME EASURE	MENT	OBSERVED TSUNAMI H) MAX HEIGHT	
YAKUTAT TG AK	0418	 UTC	3-28	0.36		
SELDOVIA AK			3-28		FT	
AKUTAN ISLAND AK		UTC			FT	
HOMER AK			3-28		FT	
WHITTIER AK			3-28		FT	
EUREKA CA		UTC	3-28		FT	
MONTEREY CA	0508	UTC	3-28		FΤ	
SANTA CRUZ CA			3-28		FΤ	
LANGARA TG BC		UTC	3-28		FT	
TRINIDAD CA		UTC			FT	
ELFIN COVE AK			3-28		FT	
LONG BEACH WA		UTC			FΤ	
POINT REYES TG CA		UTC			FT	
SEWARD AK			3-28		FT	
NEAH BAY TG WA		UTC			FT	
COLD BAY AK		UTC		0.43	FT	
WESTPORT WA			3-28		FT	
CORDOVA AK			3-28		FT	
SITKA DOCK TG AK		UTC			FT	
PORT ORFORD OR			3-28		FT	
DUTCH HARBOR AK	0550	UTC	3-28		FT	
SANTA BARBARA CA		UTC			FT	
SOUTH SPIT CA	0551	UTC	3-28	4.13	FT	
KODIAK AK		UTC	3-28	0.39	FT	
CHARLESTON OR	0557		3-28	2.20	FΤ	
MONTEREY CA			3-28		FΤ	
ASTORIA TG OR	0605	UTC	3-28	0.39	FT	
PORT ANGELES TG WA	0606	UTC		0.43	FT	
TRINIDAD CA	0606		3-28		FΤ	
LA HARBOR CA	0608	UTC	3-28	0.31	FT	
LA JOLLA CA	0612	UTC	3-28	0.53	FT	
TOFINO BC	0612	UTC	3-28	2.56	FT	
KING COVE AK	0618		3-28	0.82	FΤ	
SAN DIEGO NAVAL PIER CA	0623	UTC	3-28	0.73	FT	
CRESCENT CITY TG CA	0636	UTC	3-28	2.43	FT	
CRESCENT CITY CA	0636	UTC	3-28	2.36	FT	
PORT SAN LUIS CA	0636				FΤ	
SAND POINT AK	0638	UTC	3-28	0.92	FΤ	
SANTA MONICA TG CA			3-28	0.75	FΤ	
PORT TOWNSEND WA			3-28		FΤ	

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1000 AKDT MAR 27 2013
		1100 PDT MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

NEXT UPDATE AND ADDITIONAL INFORMATION

- \star This message will be updated in 60 minutes.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL RESIDENTS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE

PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION ON THIS EVENT AT PTWC.WEATHER.GOV.

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WCATWC Message #15

WEAK51 PAAQ 280802 TSUAK1

BULLETIN PUBLIC TSUNAMI MESSAGE NUMBER 15 NWS WEST COAST/ALASKA TSUNAMI WARNING CENTER PALMER AK 102 AM PDT THU MAR 28 2013

... THE TSUNAMI WARNING AND ADVISORY ARE CANCELLED...

CANCELLATIONS

- * 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 AND OREGON FROM POINT CONCEPTION CALIFORNIA TO THE OREGON-WASHINGTON BORDER
- * THE TSUNAMI ADVISORY IS CANCELED FOR THE COASTAL AREAS OF WASHINGTON - BRITISH COLUMBIA AND ALASKA FROM THE OREGON-WASHINGTON BORDER TO ATTU ALASKA

IMPACTS - UPDATED

- * TSUNAMI ACTIVITY HAS SUBSIDED ALONG THE COASTS OF THE U.S. WEST COAST STATES... BRITISH COLUMBIA AND ALASKA.
- * ONGOING ACTIVITY MAY PERSIST IN SOME AREAS CAUSING STRONG CURRENTS DANGEROUS TO SWIMMERS AND BOATS.
- * THE DETERMINATION TO RE-OCCUPY HAZARD ZONES MUST BE MADE BY LOCAL OFFICIALS.

RECOMMENDED ACTIONS - UPDATED

* DO NOT RE-OCCUPY HAZARD ZONES UNTIL LOCAL EMERGENCY OFFICIALS INDICATE IT IS SAFE TO DO SO.

ADDITIONAL OBSERVATIONS OF TSUNAMI ACTIVITY - UPDATED

SITE	-	FIME EASURE	MENT	OBSERVED I TSUNAMI H			
MONTEREY CA SANTA CRUZ CA LANGARA TG BC TOFINO BC TRINIDAD CA ELFIN COVE AK LONG BEACH WA POINT REYES TG CA SEWARD AK NEAH BAY TG WA COLD BAY AK WESTPORT WA CORDOVA AK SITKA DOCK TG AK	0508 0509 0510 0512 0513 0518 0518 0518 0518 0521 0531 0531 0540 0542	UTC UTC UTC UTC UTC UTC UTC UTC UTC UTC	3-28 3-28 3-28 3-28 3-28 3-28 3-28 3-28	0.75 F 0.75 F 1.38 F 1.61 F 0.85 F 1.20 F 0.88 F 0.30 F 0.50 F 0.43 F 0.90 F 2.85 F	 FT FT FT FT FT FT FT FT FT FT		
PORT ORFORD OR	0548	UTC	3-28	2.82 E	FΤ		

DUTCH HARBOR AK	0550	UTC	3-28	1.44	FΤ	
SANTA BARBARA CA	0550	UTC	3-28	0.45	FΤ	
SOUTH SPIT CA	0551	UTC	3-28	4.13	FΤ	
KODIAK AK	0553	UTC	3-28	0.39	FΤ	
CHARLESTON OR	0557	UTC	3-28	2.20	FT	
MONTEREY CA	0600	UTC	3-28	0.92	FΤ	
ASTORIA TG OR	0605	UTC	3-28	0.39	FΤ	
PORT ANGELES TG WA	0606	UTC	3-28	0.43	FΤ	
TRINIDAD CA	0606	UTC	3-28	4.36	FΤ	
LA HARBOR CA	0608	UTC	3-28	0.31	FΤ	
la jolla ca	0612	UTC	3-28	0.53	FΤ	
TOFINO BC	0612	UTC	3-28	2.56	FT	
KING COVE AK	0618	UTC	3-28	0.82	FT	
SAN DIEGO NAVAL PIER CA	0623	UTC	3-28	0.73	FT	
CRESCENT CITY TG CA	0636	UTC	3-28	2.43	FT	
CRESCENT CITY CA	0636	UTC	3-28	2.36	FT	
PORT SAN LUIS CA	0636	UTC	3-28	2.17	FΤ	
SAND POINT AK	0638	UTC	3-28	0.92	FΤ	
SANTA MONICA TG CA	0647	UTC	3-28	0.75	FT	
PORT TOWNSEND WA	0653	UTC	3-28	0.39	FT	

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

NEXT UPDATE AND ADDITIONAL INFORMATION

- * THIS WILL BE THE LAST WEST COAST/ALASKA TSUNAMI WARNING CENTER BULLETIN ISSUED FOR THIS EVENT.
- * REFER TO THE INTERNET SITE WCATWC.ARH.NOAA.GOV FOR MORE INFORMATION.
- * PACIFIC COASTAL REGIONS OUTSIDE CALIFORNIA... OREGON... WASHINGTON... BRITISH COLUMBIA AND ALASKA SHOULD REFER TO THE PACIFIC TSUNAMI WARNING CENTER MESSAGES FOR INFORMATION AT PTWC.WEATHER.GOV.

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PTWC Pacific Messages

PTWC Pacific Message #1

WEPA40 PHEB 271805 TSUPAC

TSUNAMI BULLETIN NUMBER 1 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 1805Z 27 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

... A TSUNAMI WARNING AND WATCH ARE IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - MARCUS IS. - GUAM - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. AND KOSRAE.

A TSUNAMI WATCH IS IN EFFECT FOR PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN -RUSSIA - NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. -HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU AND HAWAII.

FOR ALL OTHER PACIFIC AREAS, THIS MESSAGE IS FOR INFORMATION ONLY.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

-	-							_	 _	-	-	-	 	 -	-	7	-	7	-	_
*	1	MA	GN	ΙI	ΤU	JD	Е					8	3							

- * ORIGIN TIME 1800 UTC MAR 27 2013
- * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

EVALUATION

IT IS NOT KNOWN THAT A TSUNAMI WAS GENERATED. THIS WARNING IS BASED ONLY ON THE EARTHQUAKE EVALUATION. AN EARTHQUAKE OF THIS SIZE HAS THE POTENTIAL TO GENERATE A DESTRUCTIVE TSUNAMI THAT CAN STRIKE COASTLINES NEAR THE EPICENTER WITHIN MINUTES AND MORE DISTANT COASTLINES WITHIN HOURS. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS POSSIBILITY. THIS CENTER WILL MONITOR SEA LEVEL DATA FROM GAGES NEAR THE EARTHQUAKE TO DETERMINE IF A TSUNAMI WAS GENERATED AND ESTIMATE THE SEVERITY OF THE THREAT.

ESTIMATED INITIAL TSUNAMI ARRIVAL TIMES AT FORECAST POINTS WITHIN THE WARNING AND WATCH AREAS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. THE TIME BETWEEN SUCCESSIVE WAVES CAN BE FIVE MINUTES TO ONE HOUR.

ARRIVAL TIME			
7 MAR			
7 MAI 7 MAI 7 MAI			

	KUSHIRO	42.9N	144.3E	2054Z	27	MAR	
	HACHINOHE		141.5E				
	OKINAWA		127.8E				
DOUNDET							
POHNPEI	POHNPEI IS.		158.2E				
CHUUK	CHUUK IS.		151.8E				
MARSHALL IS.	ENIWETOK	11.4N	162.3E	2021Z	27	MAR	
	KWAJALEIN	8.7N	167.7E	2106Z	27	MAR	
	MAJURO		171.4E		27	MAR	
PALAU	MALAKAL	7 3 1	134.5E	20207	27	MAD	
WAKE IS.	WAKE IS.		166.6E				
KOSRAE	KOSRAE IS.	5.5N	163.0E	2046Z	27	MAR	
PAPUA NEW GUINEA	MANUS IS.	2.0S	147.5E	2113z	27	MAR	
	KAVIENG	2.5S	150.7E	2113z	27	MAR	
	VANIMO	2.65	141.3E	21257	27	MAR	
	RABAUL		152.3E				
	WEWAK		143.6E				
	KIETA		155.6E				
	AMUN	6.0S	154.7E	2157z	27	MAR	
	MADANG	5.2S	145.8E	2159Z	27	MAR	
	LAE	6.8S	147.0E	2235z	27	MAR	
	PORT MORESBY	935	146.9E	00107	28	MAR	
INDONESIA	WARSA		135.8E				
INDONESIA							
	MANOKWARI		134.2E				
	JAYAPURA		140.8E				
	BEREBERE	2.5N	128.7E	2133Z	27	MAR	
	GEME	4.6N	126.8E	2135z	27	MAR	
	SORONG	0.85	131.1E	2140z	27	MAR	
	PATANI		128.8E				
PHILIPPINES	PALANAN		122.6E		27	MAD	
FHILIFFINES							
	LEGASPI		123.8E				
	DAVAO		125.7E				
TAIWAN	HUALIEN	24.0N	121.6E	2124Z	27	MAR	
RUSSIA	URUP IS	46.1N	150.5E	2126Z	27	MAR	
	PETROPAVLOVSK K	53.2N	159.6E	2235z	27	MAR	
	SEVERO KURILSK		156.1E				
	UST KAMCHATSK		162.6E				
			167.4E				
	MEDNNY IS						
NAURU	NAURU		166.9E				
SOLOMON IS.	FALAMAE		155.6E				
	PANGGOE		157.2E				
	MUNDA	8.4S	157.2E	2223z	27	MAR	
	GHATERE	7.8S	159.2E	2235z	27	MAR	
	AUKI		160.6E				
	HONIARA		160.0E				
	KIRAKIRA		161.9E				
KIRIBATI	TARAWA IS.		173.0E				
	KANTON IS.		171.7W		28	MAR	
	CHRISTMAS IS.	2.ON	157.5W	0139Z	28	MAR	
	MALDEN IS.	3.9S	154.9W	0214Z	28	MAR	
	FLINT IS.	11.4S	151.8W	0308Z	28	MAR	
MIDWAY IS.	MIDWAY IS.		177.4W				
HOWLAND-BAKER	HOWLAND IS.		176.6W				
TUVALU	FUNAFUTI IS.		178.5E				
JOHNSTON IS.	JOHNSTON IS.		169.5W				
VANUATU	ESPERITU SANTO	15.1S	167.3E	0003Z	28	MAR	
	ANATOM IS.	20.2S	169.9E	0056Z	28	MAR	
HAWAII	NAWILIWILI		159.4W				
	HONOLULU		157.9W				
	HILO		157.JW				
		т Э. / IN	T 0 0 • T W	01402	20	1.11.71/	

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS ALERT WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #2

WEPA40 PHEB 271904 TSUPAC

TSUNAMI BULLETIN NUMBER 2 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 1904Z 27 MAR 2013

THE EARTHQUAKE MAGNITUDE HAS INCREASED TO 8.8.

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A TSUNAMI WARNING AND WATCH ARE IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - JAPAN - YAP - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU AND SOLOMON IS..

A TSUNAMI WATCH IS IN EFFECT FOR KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - HONG KONG - PALMYRA IS. -WALLIS-FUTUNA AND HAWAII.

FOR ALL OTHER PACIFIC AREAS, THIS MESSAGE IS FOR INFORMATION ONLY.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

					_	
*	MAGNITUDE	8.8				
ىك	ODICIN DIME	1000	TIMO		07	20
^	ORIGIN TIME	T800	UTC	MAR	27	20

- * ORIGIN TIME 1800 UTC MAR 27 2013 * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

EVALUATION

IT IS NOT KNOWN THAT A TSUNAMI WAS GENERATED. THIS WARNING IS BASED ONLY ON THE EARTHQUAKE EVALUATION. AN EARTHQUAKE OF THIS SIZE HAS THE POTENTIAL TO GENERATE A DESTRUCTIVE TSUNAMI THAT CAN STRIKE COASTLINES NEAR THE EPICENTER WITHIN MINUTES AND MORE DISTANT COASTLINES WITHIN HOURS. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS POSSIBILITY. THIS CENTER WILL MONITOR SEA LEVEL DATA FROM GAGES NEAR THE EARTHQUAKE TO DETERMINE IF A TSUNAMI WAS GENERATED AND ESTIMATE THE SEVERITY OF THE THREAT.

ESTIMATED INITIAL TSUNAMI ARRIVAL TIMES AT FORECAST POINTS WITHIN THE WARNING AND WATCH AREAS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. THE TIME BETWEEN SUCCESSIVE WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	FORECAST POINT	COORDINATES	ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	1838Z 27 MAR
GUAM	GUAM	13.4N 144.7E	1859Z 27 MAR
MARCUS IS.	MARCUS IS.	24.3N 154.0E	1904Z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1950z 27 MAR

	SHIMIZU	32.8N 133.0E	2038z 27 MAR
	KUSHIRO	42.9N 144.3E	2048z 27 Mar
	HACHINOHE	40.5N 141.5E	2105z 27 Mar
	OKINAWA	26.2N 127.8E	
YAP	YAP IS.	9.5N 138.1E	
	POHNPEI IS.	7.0N 158.2E	
POHNPEI		7.UN 150.2E	20032 27 MAR
CHUUK	CHUUK IS.	7.4N 151.8E	
MARSHALL IS.	ENIWETOK	11.4N 162.3E	
	KWAJALEIN	8.7N 167.7E	
	MAJURO	7.1N 171.4E	
PALAU	MALAKAL	7.3N 134.5E	2023z 27 Mar
WAKE IS.	WAKE IS.	19.3N 166.6E	2028Z 27 MAR
KOSRAE		5.5N 163.0E	
PAPUA NEW GUINEA	MANUS IS.	2.0S 147.5E	2107z 27 MAR
	KAVIENG	2.5S 150.7E	2107z 27 MAR
	VANIMO	2.6S 141.3E	2119z 27 Mar
	RABAUL	4.2s 152.3E	2126z 27 Mar
	WEWAK		2133Z 27 MAR
	KIETA	6.1S 155.6E	
	AMUN	6.0S 154.7E	
	MADANG	5.2S 145.8E	
	LAE	6.8S 147.0E	
	PORT MORESBY	9.3S 146.9E	
INDONESIA	WARSA	0.6S 135.8E	
	MANOKWARI	0.8S 134.2E	
	JAYAPURA	2.4S 140.8E	
	BEREBERE	2.5N 128.7E	
	GEME	4.6N 126.8E	2130Z 27 MAR
	SORONG	0.8S 131.1E	2134Z 27 MAR
	PATANI	0.4N 128.8E	2155Z 27 MAR
PHILIPPINES	PALANAN	17.1N 122.6E	2115z 27 MAR
	DAVAO	6.8N 125.7E	
	LEGASPI	13.2N 123.8E	2139Z 27 MAR
TAIWAN	HUALIEN	24.0N 121.6E	
RUSSIA	URUP IS	46.1N 150.5E	
10000111	PETROPAVLOVSK K		2230Z 27 MAR
	SEVERO KURILSK		22302 27 11111
			22407 27 MAR
		50.8N 156.1E	
	UST KAMCHATSK	56.1N 162.6E	2252Z 27 MAR
	UST KAMCHATSK MEDNNY IS	56.1N 162.6E 54.7N 167.4E	2252Z 27 MAR 2254Z 27 MAR
NAURU	UST KAMCHATSK MEDNNY IS NAURU	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E	2252Z 27 MAR 2254Z 27 MAR 2143Z 27 MAR
NAURU SOLOMON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E	2252Z 27 MAR 2254Z 27 MAR 2143Z 27 MAR 2200Z 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E	2252Z 27 MAR 2254Z 27 MAR 2143Z 27 MAR 2200Z 27 MAR 2203Z 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22282 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR
	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR
SOLOMON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 22152 27 MAR
SOLOMON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 22152 27 MAR 00182 28 MAR
SOLOMON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 22152 27 MAR 00182 28 MAR
SOLOMON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 2152 27 MAR 00182 28 MAR 01372 28 MAR
SOLOMON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 0182 28 MAR 01372 28 MAR 02112 28 MAR 03062 28 MAR
SOLOMON IS. KIRIBATI MIDWAY IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W 11.4S 151.8W 28.2N 177.4W	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22282 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 0182 28 MAR 01372 28 MAR 02112 28 MAR 03062 28 MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W 11.4S 151.8W 28.2N 177.4W 0.6N 176.6W	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 2152 27 MAR 00182 28 MAR 01372 28 MAR 03062 28 MAR 23112 27 MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER TUVALU	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W 11.4S 151.8W 28.2N 177.4W 0.6N 176.6W 7.9S 178.5E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22172 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 00182 28 MAR 01372 28 MAR 03062 28 MAR 2312 27 MAR 23312 27 MAR 23362 27 MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS.	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W 11.4S 151.8W 28.2N 177.4W 0.6N 176.6W 7.9S 178.5E 16.7N 169.5W	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22172 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 00182 28 MAR 01372 28 MAR 02112 28 MAR 03062 28 MAR 2312 27 MAR 23262 27 MAR 23422 27 MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER TUVALU	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W 11.4S 151.8W 28.2N 177.4W 0.6N 176.6W 7.9S 178.5E 16.7N 169.5W 15.1S 167.3E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22172 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 00182 28 MAR 01372 28 MAR 02112 28 MAR 03062 28 MAR 2312 27 MAR 23262 27 MAR 23362 27 MAR 23422 27 MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS.	56.1N 162.6E 54.7N 167.4E 0.5S 166.9E 7.4S 155.6E 6.9S 157.2E 8.4S 157.2E 8.4S 157.2E 7.8S 159.2E 8.8S 160.6E 9.3S 160.0E 10.4S 161.9E 1.5N 173.0E 2.8S 171.7W 2.0N 157.5W 3.9S 154.9W 11.4S 151.8W 28.2N 177.4W 0.6N 176.6W 7.9S 178.5E 16.7N 169.5W 15.1S 167.3E 20.2S 169.9E	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22172 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 00182 28 MAR 01372 28 MAR 02112 28 MAR 03062 28 MAR 2312 27 MAR 23262 27 MAR 23422 27 MAR 23562 27 MAR 23422 27 MAR 23562 27 MAR 23562 27 MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS.	$\begin{array}{c} 56.1N & 162.6E \\ 54.7N & 167.4E \\ 0.5S & 166.9E \\ 7.4S & 155.6E \\ 6.9S & 157.2E \\ 8.4S & 157.2E \\ 7.8S & 159.2E \\ 8.8S & 160.6E \\ 9.3S & 160.0E \\ 10.4S & 161.9E \\ 1.5N & 173.0E \\ 2.8S & 171.7W \\ 2.0N & 157.5W \\ 3.9S & 154.9W \\ 11.4S & 151.8W \\ 28.2N & 177.4W \\ 0.6N & 176.6W \\ 7.9S & 178.5E \\ 16.7N & 169.5W \\ 15.1S & 167.3E \\ 20.2S & 169.9E \\ 9.2S & 171.8W \\ \end{array}$	2252227MAR2254227MAR2143227MAR2200227MAR2203227MAR2217227MAR2250227MAR2250227MAR2307227MAR2115227MAR018228MAR0137228MAR0306228MAR231227MAR2356227MAR2356227MAR0049228MAR
SOLOMON IS. KIRIBATI MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU HONG KONG	UST KAMCHATSK MEDNNY IS NAURU FALAMAE PANGGOE MUNDA GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. HONG KONG	$\begin{array}{c} 56.1N & 162.6E \\ 54.7N & 167.4E \\ 0.5S & 166.9E \\ 7.4S & 155.6E \\ 6.9S & 157.2E \\ 8.4S & 157.2E \\ 7.8S & 159.2E \\ 8.8S & 160.6E \\ 9.3S & 160.0E \\ 10.4S & 161.9E \\ 1.5N & 173.0E \\ 2.8S & 171.7W \\ 2.0N & 157.5W \\ 3.9S & 154.9W \\ 11.4S & 151.8W \\ 28.2N & 177.4W \\ 0.6N & 176.6W \\ 7.9S & 178.5E \\ 16.7N & 169.5W \\ 15.1S & 167.3E \\ 20.2S & 169.9E \\ 9.2S & 171.8W \\ 22.3N & 114.2E \\ \end{array}$	22522 27 MAR 22542 27 MAR 21432 27 MAR 22002 27 MAR 22002 27 MAR 22032 27 MAR 22172 27 MAR 22172 27 MAR 22502 27 MAR 22502 27 MAR 23072 27 MAR 23072 27 MAR 00182 28 MAR 01372 28 MAR 03062 28 MAR 2312 27 MAR 23262 27 MAR 23422 27 MAR 23422 27 MAR 23562 27 MAR 00492 28 MAR 00492 28 MAR 00422 28 MAR
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BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS ALERT WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #3

WEPA40 PHEB 272004 TSUPAC

TSUNAMI BULLETIN NUMBER 3 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 2004Z 27 MAR 2013

THE EARTHQUAKE MAGNITUDE HAS INCREASED TO 9.0.

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A TSUNAMI WARNING AND WATCH ARE IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI AND MIDWAY IS..

A TSUNAMI WATCH IS IN EFFECT FOR HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU -WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - AUSTRALIA - SAMOA - JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE AND HAWAII.

FOR ALL OTHER PACIFIC AREAS, THIS MESSAGE IS FOR INFORMATION ONLY.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

	TIME	OBSERVED MAX
SITE	OF MEASUREMENT	TSUNAMI HEIGHT
GUAM	1856 UTC 3-27	0.81 FT

 \mbox{HeIGHT} – Observed MAX tsunami height is the water level above the tide level at the time of measurement.

DEEP OCEAN PRESSURE SENSOR DATA INDICATES A TSUNAMI WAS GENERATED.

EVALUATION

SEA LEVEL READINGS INDICATE A TSUNAMI WAS GENERATED. IT MAY HAVE BEEN DESTRUCTIVE ALONG COASTS NEAR THE EARTHQUAKE EPICENTER AND

COULD ALSO BE A THREAT TO MORE DISTANT COASTS. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS POSSIBILITY. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE THREAT IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

ESTIMATED INITIAL TSUNAMI ARRIVAL TIMES AT FORECAST POINTS WITHIN THE WARNING AND WATCH AREAS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. THE TIME BETWEEN SUCCESSIVE WAVES CAN BE FIVE MINUTES TO ONE HOUR.

	FORECAST POINT		
N. MARIANAS	ς λ τ ρ λ Ν	 15.3N 145.8E	18347 27 MAD
GUAM	GUAM MARCUS IS. YAP IS. KATSUURA SHIMIZU KUSHIRO HACHINOHE	13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	MARCUS IS.	24.3N 154.0E	1905z 27 MAR
YAP	YAP IS.	9.5N 138.1E	1946Z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1947Z 27 MAR
	SHIMIZU	32.8N 133.0E	2036Z 27 MAR
	KUSHIRO	42.9N 144.3E	2045z 27 MAR
	HACHINOHE	40.5N 141.5E	2102Z 27 MAR
	OKINAWA	26.2N 127.8E	211/2 2/ MAR
POHNPEI CHUUK	POHNPEI IS.	7.0N 158.2E	2002z 27 MAR
CHUUK	CHUUK IS.	7.4N 151.8E	2009z 27 MAR
MARSHALL IS.	ENIWETOK	11.4N 162.3E	2012z 27 MAR
	KWAJALEIN	8.7N 167.7E	2057z 27 MAR
	MAJURO	7.1N 171.4E	2133z 27 mar
	MALAKAL	7.3N 134.5E	2019Z 27 MAR
WAKE IS.	WAKE IS.	19.3N 166.6E	2028Z 27 MAR
KOSRAE	KOSRAE IS.	5.5N 163.0E	2037z 27 MAR
PAPUA NEW GUINEA	KAVIENG		2103z 27 MAR
	MANUS IS.		2103Z 27 MAR
	VANIMO		2115Z 27 MAR
	RABAUL		2122Z 27 MAR
	WEWAK	3.5S 143.6E	2130Z 27 MAR
	KIETA	3.55 143.6E 6.1S 155.6E	2143z 27 MAR
	AMUN	6.0S 154.7E 5.2S 145.8E	2147z 27 MAR
	MADANG	5.2S 145.8E	2149z 27 MAR
	LAE	6 89 147 OF	22257 27 MAR
	PORT MORESBY	9.3S 146.9E	0000Z 28 MAR
INDONESIA	WARSA	0.6S 135.8E	2108Z 27 MAR
	MANOKWARI	0.8S 134.2E	2113Z 27 MAR
	JAYAPURA	2.4S 140.8E 2.5N 128.7E	2117Z 27 MAR
*	BEREBERE	2.5N 128.7E	2123Z 27 MAR
	GEME	4.6N 126.8E 0.8S 131.1E	2126Z 27 MAR
	SORONG	0.8S 131.1E	2130Z 27 MAR
	PATANI	0.4N 128.8E 17.1N 122.6E	2152Z 27 MAR
PHILIPPINES	PALANAN	17.1N 122.6E	2115Z 27 MAR
	DAVAO	6.8N 125.7E 13.2N 123.8E	2135Z 27 MAR
	LEGASPI	13.2N 123.8E	2139Z 27 MAR
TAIWAN	HUALIEN	24.0N 121.6E	2117Z 27 MAR
RUSSIA		46.1N 150.5E	
	PETROPAVLOVSK K	53.2N 159.6E	
	SEVERO KURILSK	50.8N 156.1E	
	UST KAMCHATSK	56.1N 162.6E 54.7N 167.4E	2249Z 27 MAR
	MEDNNY IS	54.7N 167.4E	2251Z 27 MAR
NAURU	NAURU	0.5S 166.9E 7.4S 155.6E	2140Z 27 MAR
	FALAMAE	7.4S 155.6E	2156Z 27 MAR
	PANGGOE MUNDA	6.9S 157.2E 8.4S 157.2E	2200Z 27 MAR
	MUNDA	8.4S 157.2E	2213Z 27 MAR

	GHATERE	7.8s 159.2	E 2225Z	27	MAR	
	AUKI	8.8S 160.0				
	HONIARA	9.3S 160.0)E 2249z	27	MAR	
		10.4s 161.9)E 2304z	27	MAR	
KIRIBATI	TARAWA IS.	1.5N 173.0)E 2212Z	27	MAR	
	KANTON IS.	2.8S 171.7	7W 0015z	28	MAR	
	CHRISTMAS IS.	2.0N 157.5				
	MALDEN IS.	3.9s 154.9	9W 0210z	28	MAR	
	FLINT IS.	11.4S 151.8	3W 0303z	28	MAR	
MIDWAY IS.	MIDWAY IS.	28.2N 177.4	W 2231z	27	MAR	
HOWLAND-BAKER	HOWLAND IS.	0.6N 176.0	5W 2323z	27	MAR	
TUVALU	FUNAFUTI IS.	7.9S 178.5	5E 2333Z	27	MAR	
JOHNSTON IS.	JOHNSTON IS.	16.7N 169.5	5W 2341z	27	MAR	
VANUATU	ESPERITU SANTO	15.1s 167.3	3E 2353Z	27	MAR	
	ANATOM IS.	20.25 169.9	9E 0046Z	28	MAR	
TOKELAU	NUKUNONU IS.	9.2S 171.8	3W 0039z	28	MAR	
WALLIS-FUTUNA	WALLIS IS.	13.3S 176.3	3W 0042z	28	MAR	
HONG KONG	HONG KONG	22.3N 114.2	2E 0043Z	28	MAR	
PALMYRA IS.	PALMYRA IS.	6.3N 162.4	1W 0044Z	28	MAR	
HAWAII	NAWILIWILI	22.0N 159.4	W 0056z	28	MAR	
	HONOLULU	21.3N 157.9	9W 0108Z	28	MAR	
	HILO	19.7N 155.2	W 0146Z	28	MAR	
AUSTRALIA	CAIRNS	16.7S 145.8	BE 0106Z	28	MAR	
	BRISBANE	27.2s 153.3		28	MAR	
	SYDNEY	33.9S 151.4	lE 0226Z	28	MAR	
	GLADSTONE	23.8S 151.4				
	HOBART	43.3S 147.0				
	MACKAY	21.1S 149.3		-		
SAMOA		13.8S 171.8				
JARVIS IS.	JARVIS IS.	0.4S 160.1				
AMERICAN SAMOA		14.3S 170.7				
FIJI	SUVA	18.1S 178.4				
NEW CALEDONIA		22.3S 166.5				
COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9				
	PENRHYN IS.	8.9S 157.8				
	RAROTONGA	21.2s 159.8				
NIUE	NIUE IS.	19.0S 170.0)W 0145Z	28	MAR	

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS ALERT WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #4

WEPA40 PHEB 272103 TSUPAC

TSUNAMI BULLETIN NUMBER 4 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 2103Z 27 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER

- TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

- * MAGNITUDE 9.0
- * ORIGIN TIME 1800 UTC MAR 27 2013
- * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASU	OBSERVED MAX TSUNAMI HEIGHT	
GUAM POHNPEI IS WAKE IS KUSHIRO JAPAN KWAJALEIN	1856 UTC 2002 UTC 2028 UTC 2045 UTC 2057 UTC	C 3-27 C 3-27 C 3-27 C 3-27	0.81 FT 1.56 FT 1.47 FT 0.68 FT 0.73 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

LOCATION	FORECAST POINT	COORDINATES	ARRIVAL TIME
N. MARIANAS GUAM	SAIPAN GUAM	15.3N 145.8E 13.4N 144.7E	

MARCUS IS.	MARCUS IS.	24.3N	154.0E	1905z	27	MAR	
YAP	YAP IS.	9.5N	138.1E	1946Z	27	MAR	
JAPAN	KATSUURA		140.3E				
	SHIMIZU	32.8N	133.0E	2036Z	27	MAR	
	KUSHIRO	42.9N	144.3E	2045z	27	MAR	
	HACHINOHE	40.5N	141.5E	2102z	27	MAR	
	OKINAWA	26.2N	127.8E	2117z	27	MAR	
POHNPEI	POHNPEI IS.	7.0N	158.2E	2002z	27	MAR	
CHUUK	CHUUK IS.	7.4N	151.8E	2009z	27	MAR	
MARSHALL IS.	ENIWETOK		162.3E				
	KWAJALEIN	8.7N	167.7E	2057z	27	MAR	
	MAJURO	7.1N	171.4E	2133z	27	MAR	
PALAU	MALAKAL	7.3N	134.5E	2019z	27	MAR	
WAKE IS.	WAKE IS.	19.3N	166.6E	2028z	27	MAR	
KOSRAE	KOSRAE IS.	5.5N	163.0E	2037z	27	MAR	
PAPUA NEW GUINEA	KAVIENG	2.5S	150.7E	2103z	27	MAR	
	MANUS IS.	2.0S	147.5E	2103z	27	MAR	
	VANIMO	2.6S	141.3E	2115z	27	MAR	
	RABAUL	4.2S	152.3E	2122z	27	MAR	
	WEWAK	3.5S	143.6E	2130z	27	MAR	
	KIETA	6.1S	155.6E	2143z	27	MAR	
	AMUN	6.0S	154.7E	2147z	27	MAR	
	MADANG	5.2S	145.8E	2149z	27	MAR	
	LAE	6.8S	147.0E	2225z	27	MAR	
	PORT MORESBY	9.3S	146.9E	0000z	28	MAR	
INDONESIA	WARSA	0.65	135.8E	2108z	27	MAR	
	MANOKWARI	0.8S	134.2E	2113z	27	MAR	
	JAYAPURA	2.4S	140.8E	2117z	27	MAR	
	BEREBERE	2.5N	128.7E	2123Z	27	MAR	
	GEME	4.6N	126.8E	2126Z	27	MAR	
	SORONG	0.85	131.1E	2130Z	27	MAR	
	PATANI	0.4N	128.8E	2152z	27	MAR	
PHILIPPINES	PALANAN	17.1N	122.6E	2115z	27	MAR	
	DAVAO	6.8N	125.7E	2135z	27	MAR	
	LEGASPI	13.2N	123.8E	2139z	27	MAR	
TAIWAN	HUALIEN	24.0N	121.6E	2117z	27	MAR	
RUSSIA	URUP IS	46.1N	150.5E	2117z	27	MAR	
	PETROPAVLOVSK K		159.6E		27	MAR	
	SEVERO KURILSK		156.1E				
	UST KAMCHATSK		162.6E				
	MEDNNY IS		167.4E				
NAURU	NAURU		166.9E				
SOLOMON IS.	FALAMAE		155.6E	2156Z			
	PANGGOE		157.2E	2200Z			
	MUNDA		157.2E				
	GHATERE		159.2E				
	AUKI		160.6E				
	HONIARA						
			160.0E				
WIDIDAWI	KIRAKIRA	10.4S	161.9E	2304Z	27	MAR	
KIRIBATI	KIRAKIRA TARAWA IS.	10.4S 1.5N	161.9E 173.0E	2304Z 2212Z	27 27	MAR MAR	
KIRIBATI	KIRAKIRA TARAWA IS. KANTON IS.	10.4S 1.5N 2.8S	161.9E 173.0E 171.7W	2304z 2212z 0015z	27 27 28	MAR MAR MAR	
KIRIBATI	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS.	10.4S 1.5N 2.8S 2.0N	161.9E 173.0E 171.7W 157.5W	2304z 2212z 0015z 0136z	27 27 28 28	MAR MAR MAR MAR	
KIRIBATI	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS.	10.4s 1.5N 2.8s 2.0N 3.9s	161.9E 173.0E 171.7W 157.5W 154.9W	2304Z 2212Z 0015Z 0136Z 0210Z	27 27 28 28 28	MAR MAR MAR MAR MAR	
	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS.	10.4s 1.5N 2.8s 2.0N 3.9s 11.4s	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z	27 27 28 28 28 28 28	MAR MAR MAR MAR MAR MAR	
MIDWAY IS.	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS.	10.4s 1.5N 2.8s 2.0N 3.9s 11.4s 28.2N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z 2231Z	27 27 28 28 28 28 28 27	MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS.	10.4s 1.5N 2.8s 2.0N 3.9s 11.4s 28.2N 0.6N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z 2231Z 2323Z	27 27 28 28 28 28 28 27 27	MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS.	10.4s 1.5N 2.8s 2.0N 3.9s 11.4s 28.2N 0.6N 7.9s	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z 2231Z 2323Z 2333Z	27 27 28 28 28 28 27 27 27	MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS.	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS.	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z 2231Z 2323Z 2333Z 2341Z	27 27 28 28 28 28 27 27 27 27	MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E	2304z 2212z 0015z 0210z 0303z 2231z 2323z 2333z 2341z 2353z	27 28 28 28 28 27 27 27 27 27 27	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS.	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E	2304z 2212z 0015z 0210z 0303z 2231z 2323z 2333z 2341z 2353z 0046z	27 28 28 28 28 27 27 27 27 27 27 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS.	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W	2304z 2212z 0015z 0210z 0303z 2231z 2323z 233z 2341z 2353z 0046z 0039z	27 28 28 28 27 27 27 27 27 27 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS.	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S 13.3S	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W 176.3W	2304z 2212z 0015z 0210z 0303z 2231z 2323z 2332z 2341z 2353z 0046z 0039z 0042z	27 27 28 28 28 28 27 27 27 27 27 27 28 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S 13.3S 22.3N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W 176.3W 114.2E	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z 2231Z 2323Z 2333Z 2341Z 2353Z 0046Z 0039Z 0042Z 0043Z	27 27 28 28 28 27 27 27 27 27 27 28 28 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS.	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS.	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S 13.3S 22.3N 6.3N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W 176.3W 114.2E 162.4W	2304Z 2212Z 0015Z 0136Z 0210Z 2303Z 233Z 233Z 2341Z 2353Z 0046Z 0039Z 0042Z 0042Z 0043Z	27 28 28 28 28 27 27 27 27 27 27 28 28 28 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S 13.3S 22.3N 6.3N 22.0N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W 176.3W 114.2E	2304Z 2212Z 0015Z 0136Z 0210Z 0303Z 2231Z 2323Z 2333Z 2341Z 2353Z 0046Z 0039Z 0042Z 0042Z 0043Z 0044Z	27 28 28 28 28 27 27 27 27 27 27 27 28 28 28 28 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS.	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S 13.3S 22.3N 6.3N 22.0N 21.3N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W 176.3W 114.2E 162.4W 159.4W	2304Z 2212Z 0015Z 0210Z 0303Z 2231Z 2323Z 2333Z 2341Z 2353Z 0046Z 0039Z 0042Z 0042Z 0042Z 0042Z 0042Z 0042Z 0042Z	27 27 28 28 28 27 27 27 27 27 27 27 27 28 28 28 28 28 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS.	KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU	10.4S 1.5N 2.8S 2.0N 3.9S 11.4S 28.2N 0.6N 7.9S 16.7N 15.1S 20.2S 9.2S 13.3S 22.3N 6.3N 22.0N 21.3N 19.7N	161.9E 173.0E 171.7W 157.5W 154.9W 151.8W 177.4W 176.6W 178.5E 169.5W 167.3E 169.9E 171.8W 176.3W 114.2E 162.4W 159.4W	2304Z 2212Z 0015Z 0210Z 0303Z 2231Z 2323Z 2333Z 2341Z 2353Z 0046Z 0039Z 0042Z 0042Z 0043Z 0044Z 0056Z 0108Z 0146Z	27 28 28 28 28 27 27 27 27 27 27 28 28 28 28 28 28 28 28 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR	

	BRISBANE	27.2S 153.3E	0156Z 28 MAR
	SYDNEY	33.9S 151.4E	0226Z 28 MAR
	GLADSTONE	23.8S 151.4E	0301Z 28 MAR
	HOBART	43.3S 147.6E	0359z 28 MAR
	MACKAY	21.1S 149.3E	0456Z 28 MAR
SAMOA	APIA		0112z 28 Mar
JARVIS IS.	JARVIS IS.	0.4S 160.1W	
	PAGO PAGO		0120Z 28 MAR
FIJI	SUVA		0125Z 28 MAR
NEW CALEDONIA	NOUMEA	22.3S 166.5E	
COOK ISLANDS	PUKAPUKA IS.		0128Z 28 MAR
	PENRHYN IS.	8.9S 157.8W	0212Z 28 MAR
	RAROTONGA	21.2S 159.8W	0257z 28 MAR
NIUE	NIUE IS.	19.0S 170.0W	0145Z 28 MAR
TONGA	NUKUALOFA	21.0S 175.2W	0211Z 28 MAR
KERMADEC IS	RAOUL IS.		0253Z 28 MAR
NEW ZEALAND	NORTH CAPE		0257Z 28 MAR
NEW ZEALAND	EAST CAPE		0344Z 28 MAR
	AUCKLAND-W		0357Z 28 MAR
		44.6S 167.9E	
	GISBORNE	38.7S 178.0E	0428Z 28 MAR
	AUCKLAND-E	36.7S 175.0E	0434Z 28 MAR
	NEW PLYMOUTH	39.1S 174.1E	0446Z 28 MAR
	NAPIER	39.5S 176.9E	0459Z 28 MAR
	WESTPORT		0507Z 28 MAR
	WELLINGTON	41.3S 174.8E	
			05192 28 MAR
	BLUFF		
	NELSON	41.3S 173.3E	
	LYTTELTON		
	DUNEDIN		0635Z 28 MAR
FR. POLYNESIA	PAPEETE	17.5S 149.6W	0353Z 28 MAR
	HIVA OA	10.0S 139.0W	0435z 28 MAR
	RIKITEA	23.1S 135.0W	0602Z 28 MAR
MEXICO	ENSENADA		0546Z 28 MAR
	PUNTA ABREOJOS		0628Z 28 MAR
	CABO SAN LUCAS		0702Z 28 MAR
			0708Z 28 MAR
	SOCORRO		
	MAZATLAN		0756Z 28 MAR
	MANZANILLO		0814Z 28 MAR
	ACAPULCO	16.9N 99.9W	0858Z 28 MAR
	PUERTO MADERO	14.8N 92.5W	1024Z 28 MAR
PITCAIRN	PITCAIRN IS.	25.1S 130.1W	0650Z 28 MAR
ANTARCTICA	CAPE ADARE	71.0S 170.0E	0758z 28 MAR
	THURSTON IS.	72.0S 100.0W	1137z 28 Mar
CHILE	EASTER IS.	27.1S 109.4W	
011112	GOLFO DE PENAS	47.1S 74.9W	
	CORRAL	39.8S 73.5W	
	PUERTO WILLIAMS	54.8S 68.2W	
	TALCAHUANO	36.7S 73.1W	
	VALPARAISO	33.0S 71.6W	
	IQUIQUE	20.2S 70.1W	1455Z 28 MAR
×	ARICA	18.5S 70.3W	
	COQUIMBO	29.9S 71.4W	1501Z 28 MAR
	CALDERA	27.1S 70.8W	1504z 28 MAR
	ANTOFAGASTA	23.3s 70.4W	1505z 28 mar
	PUNTA ARENAS	53.2S 70.9W	
	PUERTO MONTT	41.5S 73.0W	
GUATEMALA	SIPICATE	13.9N 91.2W	
EL SALVADOR	ACAJUTLA	13.6N 89.8W	
COSTA RICA	CABO SAN ELENA	10.9N 86.0W	
	CABO MATAPALO	8.4N 83.3W	
	PUERTO QUEPOS	9.4N 84.2W	
NICARAGUA	SAN JUAN DL SUR	11.2N 85.9W	1114z 28 MAR
	PUERTO SANDINO	12.2N 86.8W	1147z 28 MAR
	CORINTO	12.5N 87.2W	1149Z 28 MAR
PANAMA	PUNTA BURICA	8.0N 82.9W	
	PUNTA MALA	7.5N 80.0W	
	PUERTO PINA	7.4N 78.0W	
	7 0 DIVI 0 1 TIVI	, , O . OW	

BALBOA HTS.	9.0N	79.6W	1341z	28	MAR
AMAPALA	13.2N	87.6W	1135z	28	MAR
BALTRA IS.	0.5S	90.3W	1138Z	28	MAR
ESMERELDAS	1.2N	79.8W	1248Z	28	MAR
LA LIBERTAD	2.2S	81.2W	1304Z	28	MAR
BAHIA SOLANO	6.3N	77.4W	1239Z	28	MAR
TUMACO	1.8N	78.9W	1259Z	28	MAR
BUENAVENTURA	3.8N	77.2W	1341Z	28	MAR
TALARA	4.6S	81.5W	1254Z	28	MAR
LA PUNTA	12.1S	77.2W	1354Z	28	MAR
PIMENTEL	6.9S	80.OW	1354Z	28	MAR
CHIMBOTE	9.0S	78.8W	1356Z	28	MAR
SAN JUAN	15.3S	75.2W	1405Z	28	MAR
MOLLENDO	17.1S	72.OW	1437Z	28	MAR
	AMAPALA BALTRA IS. ESMERELDAS LA LIBERTAD BAHIA SOLANO TUMACO BUENAVENTURA TALARA LA PUNTA PIMENTEL CHIMBOTE SAN JUAN	AMAPALA13.2NBALTRA IS.0.5SESMERELDAS1.2NLA LIBERTAD2.2SBAHIA SOLANO6.3NTUMACO1.8NBUENAVENTURA3.8NTALARA4.6SLA PUNTA12.1SPIMENTEL6.9SCHIMBOTE9.0SSAN JUAN15.3S	AMAPALA13.2N87.6WBALTRA IS.0.5S90.3WESMERELDAS1.2N79.8WLA LIBERTAD2.2S81.2WBAHIA SOLANO6.3N77.4WTUMACO1.8N78.9WBUENAVENTURA3.8N77.2WTALARA4.6S81.5WLA PUNTA12.1S77.2WPIMENTEL6.9S80.0WCHIMBOTE9.0S78.8WSAN JUAN15.3S75.2W	AMAPALA13.2N87.6W1135ZBALTRA IS.0.5S90.3W1138ZESMERELDAS1.2N79.8W1248ZLA LIBERTAD2.2S81.2W1304ZBAHIA SOLANO6.3N77.4W1239ZTUMACO1.8N78.9W1259ZBUENAVENTURA3.8N77.2W1341ZTALARA4.6S81.5W1254ZLA PUNTA12.1S77.2W1354ZPIMENTEL6.9S80.0W1354ZCHIMBOTE9.0S78.8W1356ZSAN JUAN15.3S75.2W1405Z	AMAPALA13.2N87.6W1135Z28BALTRA IS.0.5S90.3W1138Z28ESMERELDAS1.2N79.8W1248Z28LA LIBERTAD2.2S81.2W1304Z28BAHIA SOLANO6.3N77.4W1239Z28TUMACO1.8N78.9W1259Z28BUENAVENTURA3.8N77.2W1341Z28TALARA4.6S81.5W1254Z28LA PUNTA12.1S77.2W1354Z28PIMENTEL6.9S80.0W1354Z28CHIMBOTE9.0S78.8W1356Z28SAN JUAN15.3S75.2W1405Z28

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #5

WEPA40 PHEB 272203 TSUPAC

TSUNAMI BULLETIN NUMBER 5 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 2203Z 27 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

... A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

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- * ORIGIN TIME 1800 UTC MAR 27 2013
- * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

OBSERVED MAX

SITE	OF MEASUE	REMENT	TSUNAMI HEIGHT
POHNPEI IS	2002 UTC	3-27	1.56 FT
WAKE IS	2028 UTC	3-27	1.47 FT
KUSHIRO JAPAN	2045 UTC	3-27	0.68 FT
KWAJALEIN	2057 UTC	3-27	0.73 FT
RABAUL PAPUA NEW GUINEA	2122 UTC	3-27	1.32 FT
MAJURO MARSHALL IS	2133 UTC	3-27	0.98 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

	FORECAST POINT	COORDINATES	ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	
GUAM	GUAM	13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	MARCUS IS.		
YAP	YAP IS.	9.5N 138.1E	1946Z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1947Z 27 MAR
		32.8N 133.0E	
	KUSHIRO	42.9N 144.3E	2045Z 27 MAR
	HACHINOHE	40.5N 141.5E	2102Z 27 MAR
	OKINAWA	26.2N 127.8E	2117Z 27 MAR
POHNPEI	POHNPEI IS.	7.0N 158.2E	2002z 27 Mar
CHUUK	CHUUK IS.	7.4N 151.8E	2009z 27 Mar
MARSHALL IS.	ENIWETOK	11.4N 162.3E	2012Z 27 MAR
	KWAJALEIN	8.7N 167.7E	2057Z 27 MAR
	MAJURO		
PALAU	MALAKAL	7.3N 134.5E	2019Z 27 MAR
	WAKE IS.		
KOSRAE	KOSRAE IS.	5.5N 163.0E	2037Z 27 MAR
PAPUA NEW GUINEA	KAVIENG	2.5S 150.7E	2103Z 27 MAR
	MANUS IS.	2.0S 147.5E	2103Z 27 MAR
	VANIMO	2.6S 141.3E	2115Z 27 MAR
	RABAUL	4.2S 152.3E	2122Z 27 MAR
	WEWAK		2130Z 27 MAR
	KIETA	6.1S 155.6E	2143Z 27 MAR
	AMUN	6.0S 154.7E	2147Z 27 MAR
		5.2S 145.8E	
	LAE	6.8S 147.0E	2225z 27 MAR

	PORT MORESBY	9 35 146 9E	0000z 28 mar
INDONESIA	WARSA		2108Z 27 MAR
INDONEDIN	MANOKWARI	0.8S 134.2E	
	JAYAPURA	2.4S 140.8E	
	BEREBERE	2.45 140.0E 2.5N 128.7E	2123Z 27 MAR
	GEME	4.6N 126.8E	2126Z 27 MAR
	SORONG	0.8S 131.1E	2130Z 27 MAR
	PATANI		2152Z 27 MAR
PHILIPPINES	PALANAN		2115z 27 MAR
	DAVAO	6.8N 125.7E	
	LEGASPI		2139Z 27 MAR
TAIWAN	HUALIEN		2117z 27 Mar
RUSSIA	URUP IS	46.1N 150.5E	
	PETROPAVLOVSK K		2227Z 27 MAR
	SEVERO KURILSK		2237z 27 Mar
	UST KAMCHATSK	56.1N 162.6E	2249Z 27 MAR
	MEDNNY IS	54.7N 167.4E	2251Z 27 MAR
NAURU	NAURU	0.5S 166.9E	2140z 27 MAR
SOLOMON IS.	FALAMAE	7.4S 155.6E	2156Z 27 MAR
	PANGGOE	6.9S 157.2E	2200Z 27 MAR
	MUNDA	8.4S 157.2E	2213Z 27 MAR
	GHATERE	7.8S 159.2E	2225Z 27 MAR
	AUKI	8.8S 160.6E	2247Z 27 MAR
	HONIARA		2249Z 27 MAR
	KIRAKIRA	10.4S 161.9E	
KIRIBATI	TARAWA IS.	1.5N 173.0E	2212Z 27 MAR
	KANTON IS.		0015z 28 MAR
	CHRISTMAS IS.	2.08 171.7W	
	MALDEN IS.	3.95 154.9W	0210Z 28 MAR
	FLINT IS.		0303Z 28 MAR
MIDHAY IO			
MIDWAY IS.	MIDWAY IS.		2231Z 27 MAR
HOWLAND-BAKER	HOWLAND IS.	0.6N 176.6W	2323Z 27 MAR
TUVALU	FUNAFUTI IS.		2333Z 27 MAR
JOHNSTON IS.	JOHNSTON IS.	16.7N 169.5W	
VANUATU	ESPERITU SANTO	15.1S 167.3E	
	ANATOM IS.	20.2S 169.9E	0046Z 28 MAR
TOKELAU	NUKUNONU IS.	9.2S 171.8W	0039Z 28 MAR
WALLIS-FUTUNA	WALLIS IS.	13.3S 176.3W	0042Z 28 MAR
HONG KONG	HONG KONG	22.3N 114.2E	0043Z 28 MAR
PALMYRA IS.	PALMYRA IS.	6.3N 162.4W	0044Z 28 MAR
HAWAII	NAWILIWILI	22.0N 159.4W	0056z 28 MAR
	HONOLULU	21.3N 157.9W	0108z 28 MAR
	HILO	19.7N 155.1W	0146Z 28 MAR
AUSTRALIA	CAIRNS	16.7S 145.8E	0106Z 28 MAR
	BRISBANE	27.2s 153.3E	0156Z 28 MAR
	SYDNEY	33.9S 151.4E	0226Z 28 MAR
	GLADSTONE		0301Z 28 MAR
	HOBART		0359Z 28 MAR
	MACKAY		0456Z 28 MAR
SAMOA	APIA	13.8S 171.8W	0112Z 28 MAR
JARVIS IS.	JARVIS IS.	0.4S 160.1W	01122 28 MAR
AMERICAN SAMOA	PAGO PAGO		0120Z 28 MAR
	SUVA	18.1S 178.4E	01202 28 MAR 0125z 28 MAR
FIJI NEW CALEDONIA		22.3S 166.5E	01232 28 MAR 0127z 28 MAR
NEW CALEDONIA	NOUMEA		
COOK ISLANDS	PUKAPUKA IS.	10.85 165.9W	0128Z 28 MAR
	PENRHYN IS.	8.9S 157.8W	0212Z 28 MAR
	RAROTONGA		0257z 28 MAR
NIUE	NIUE IS.		0145Z 28 MAR
TONGA	NUKUALOFA		0211Z 28 MAR
KERMADEC IS	RAOUL IS.	29.2S 177.9W	0253Z 28 MAR
NEW ZEALAND	NORTH CAPE	34.4S 173.3E	0257z 28 MAR
	EAST CAPE		0344z 28 MAR
	AUCKLAND-W	37.1S 174.2E	0357z 28 MAR
	MILFORD SOUND	44.6S 167.9E	0410Z 28 MAR
	GISBORNE	38.7S 178.0E	0428z 28 MAR
	AUCKLAND-E	36.7S 175.0E	0434z 28 MAR
	NEW PLYMOUTH	39.1S 174.1E	0446Z 28 MAR
	NAPIER	39.5S 176.9E	0459Z 28 MAR

	WESTPORT	41.8S	171.6E	0507z	28	MAR	
	WELLINGTON	41.3S	174.8E	0519Z	28	MAR	
	BLUFF		168.3E				
	NELSON		173.3E				
	LYTTELTON		172.7E				
	DUNEDIN		170.5E				
FR. POLYNESIA	PAPEETE		149.6W				
FR. FOLINESIA			139.0W				
	HIVA OA						
VENTOO	RIKITEA		135.0W				
MEXICO	ENSENADA		116.8W				
	PUNTA ABREOJOS		113.6W				
	CABO SAN LUCAS		110.OW				
	SOCORRO		111.OW				
	MAZATLAN		106.4W				
	MANZANILLO		104.3W				
	ACAPULCO	16.9N	99.9W	0858Z	28	MAR	
	PUERTO MADERO	14.8N	92.5W	1024Z	28	MAR	
PITCAIRN	PITCAIRN IS.	25.1S	130.1W	0650Z	28	MAR	
ANTARCTICA	CAPE ADARE	71.0S	170.0E	0758Z	28	MAR	
	THURSTON IS.	72.0S	100.OW	1137z	28	MAR	
CHILE	EASTER IS.	27.1S	109.4W	0944Z	28	MAR	
	GOLFO DE PENAS	47.1S	74.9W	1338z	28	MAR	
	CORRAL	39.8S	73.5W	1417z	28	MAR	
	PUERTO WILLIAMS	54.8S	68.2W	1439Z	28	MAR	
	TALCAHUANO		73.1W		28	MAR	
	VALPARAISO	33.0S	71.6W	1448Z	2.8	MAR	
	IOUIOUE	20.2S					
	ARICA	18.5S					
	COQUIMBO	29.95		1501Z			
	CALDERA	27.1S					
	ANTOFAGASTA	23.35	70.4W				
	PUNTA ARENAS	53.2S		1512Z			
	PUERTO MONTT		73.0W				
CITATENALA		41.35 13.9N					
GUATEMALA	SIPICATE						
EL SALVADOR	ACAJUTLA	13.6N					
COSTA RICA	CABO SAN ELENA	10.9N					
	CABO MATAPALO		83.3W				
	PUERTO QUEPOS	9.4N					
NICARAGUA	SAN JUAN DL SUR	11.2N					
	PUERTO SANDINO	12.2N					
	CORINTO	12.5N					
PANAMA	PUNTA BURICA	8.ON					
	PUNTA MALA	7.5N	80.OW	1219Z			
	PUERTO PINA	7.4N	78.OW	1232Z	28	MAR	
	BALBOA HTS.	9.0N	79.6W	1341Z			
HONDURAS	AMAPALA	13.2N	87.6W	1135z	28	MAR	
ECUADOR	BALTRA IS.	0.55	90.3W	1138Z	28	MAR	
	ESMERELDAS	1.2N	79.8W	1248Z	28	MAR	
	LA LIBERTAD	2.25	81.2W	1304Z	28	MAR	
COLOMBIA	BAHIA SOLANO	6.3N	77.4W	1239z	28	MAR	
	TUMACO	1.8N	78.9W	1259z	28	MAR	
	BUENAVENTURA	3.8N	77.2W	1341z	28	MAR	
PERU	TALARA	4.6S	81.5W	1254Z			
	LA PUNTA	12.1S	77.2W	1354Z			
	PIMENTEL	6.9S	80.0W	1354Z			
	CHIMBOTE	9.0S		1356Z			
	SAN JUAN	15.3S					
	MOLLENDO	17.1S		1437Z			
		± / • ±0	, 2 • 0 W	± 10 / U	20	/	

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #6

WEPA40 PHEB 272304 TSUPAC

TSUNAMI BULLETIN NUMBER 6 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 2304Z 27 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	T OF ME	IME ASURE	MENT	OBSERVED MAX TSUNAMI HEIGHT	
POHNPEI IS WAKE IS KUSHIRO JAPAN KWAJALEIN RABAUL PAPUA NEW GUINEA MAJURO MARSHALL IS MIDWAY IS	2002 2028 2045 2057 2122 2133 2231	UTC UTC UTC	3-27 3-27 3-27 3-27 3-27 3-27 3-27 3-27	1.56 FT 1.47 FT 0.68 FT 0.73 FT 1.32 FT 0.98 FT 1.02 FT	

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N. MARIANAS SAIPAN 15.3N 145.8E 1834Z 27 MAR	
GUAM GUAM 13.4N 144.7E 1856Z 27 MAR	
MARCUS IS. MARCUS IS. 24.3N 154.0E 1905Z 27 MAR	
YAP YAP IS. 9.5N 138.1E 1946Z 27 MAR	
JAPAN KATSUURA 35.1N 140.3E 1947Z 27 MAR	
SHIMIZU 32.8N 133.0E 2036Z 27 MAR	
KUSHIRO 42.9N 144.3E 2045Z 27 MAR	
HACHINOHE 40.5N 141.5E 2102Z 27 MAR	
OKINAWA 26.2N 127.8E 2117Z 27 MAR	
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MARSHALL IS. ENIWETOK 11.4N 162.3E 2012Z 27 MAR	
KWAJALEIN 8.7N 167.7E 2057Z 27 MAR	
MAJURO 7.1N 171.4E 2133Z 27 MAR	
PALAU MALAKAL 7.3N 134.5E 2019Z 27 MAR	
WAKE IS. WAKE IS. 19.3N 166.6E 2028Z 27 MAR	
KOSRAE KOSRAE IS. 5.5N 163.0E 2037Z 27 MAR	
PAPUA NEW GUINEA KAVIENG 2.5S 150.7E 2103Z 27 MAR	
MANUS IS. 2.0S 147.5E 2103Z 27 MAR	
VANIMO 2.6S 141.3E 2115Z 27 MAR RABAUL 4.2S 152.3E 2122Z 27 MAR	
RABAUL 4.2S 152.3E 2122Z 27 MAR WEWAK 3.5S 143.6E 2130Z 27 MAR	
KIETA 6.1S 155.6E 2143Z 27 MAR AMUN 6.0S 154.7E 2147Z 27 MAR	
MADANG 5.2S 145.8E 2149Z 27 MAR	
LAE 6.8S 147.0E 2225Z 27 MAR	
DAL 0.05 147.01 22232 27 MAR PORT MORESBY 9.3S 146.9E 0000Z 28 MAR	
INDONESIA WARSA 0.6S 135.8E 2108Z 27 MAR	
MANOKWARI 0.8S 134.2E 2113Z 27 MAR	
JAYAPURA 2.4S 140.8E 2117Z 27 MAR	
BEREBERE 2.5N 128.7E 2123Z 27 MAR	
GEME 4.6N 126.8E 2126Z 27 MAR	
SORONG 0.8S 131.1E 2130Z 27 MAR	
PATANI 0.4N 128.8E 2152Z 27 MAR	
PHILIPPINES PALANAN 17.1N 122.6E 2115Z 27 MAR	
DAVAO 6.8N 125.7E 2135Z 27 MAR	
LEGASPI 13.2N 123.8E 2139Z 27 MAR	
TAIWAN HUALIEN 24.0N 121.6E 2117Z 27 MAR	
RUSSIA URUP IS 46.1N 150.5E 2117Z 27 MAR	
PETROPAVLOVSK K 53.2N 159.6E 2227Z 27 MAR	
SEVERO KURILSK 50.8N 156.1E 2237Z 27 MAR	
UST KAMCHATSK 56.1N 162.6E 2249Z 27 MAR	
MEDNNY IS 54.7N 167.4E 2251Z 27 MAR	
NAURU NAURU 0.5S 166.9E 2140Z 27 MAR	
SOLOMON IS. FALAMAE 7.4S 155.6E 2156Z 27 MAR	
PANGGOE 6.9S 157.2E 2200Z 27 MAR	
MUNDA 8.4S 157.2E 2213Z 27 MAR	
GHATERE 7.8S 159.2E 2225Z 27 MAR	
AUKI 8.8S 160.6E 2247Z 27 MAR	

	HONIARA	9.3S 160.0E	2249Z 27 MAR
	KIRAKIRA	10.4S 161.9E	2304Z 27 MAR
KIRIBATI	TARAWA IS.	1.5N 173.0E	
	KANTON IS.	2.8s 171.7w 2.0n 157.5w	0015Z 28 MAR
	CHRISTMAS IS.		
	MALDEN IS.	3.9S 154.9W	0210z 28 MAR
	FLINT IS.	11.4S 151.8W	0303Z 28 MAR
MIDWAY IS.	MIDWAY IS.	28.2N 177.4W	2231Z 27 MAR
	HOWLAND IS.	0.6N 176.6W	2323z 27 Mar
TUVALU	FUNAFUTI IS.	7.9S 178.5E	2333z 27 Mar
JOHNSTON IS.	JOHNSTON IS.	16.7N 169.5W	2341z 27 MAR
VANUATU	JOHNSTON IS. ESPERITU SANTO	15.1S 167.3E	2353z 27 Mar
	ANATOM IS.	20.2S 169.9E	
TOKELAU		9.2S 171.8W	0039Z 28 MAR
WALLIS-FUTUNA	NUKUNONU IS. WALLIS IS.	9.2S 171.8W 13.3S 176.3W	00427 28 MAR
	HONG KONG	22.3N 114.2E	
	PALMYRA IS	6 3N 162 4W	00447 28 MAR
HAWAII	PALMYRA IS. NAWILIWILI	6.3N 162.4W 22.0N 159.4W 21.3N 157.9W	00567 28 MAR
IIAWATT	HONOLULU	22.0N 157.4W	01087 28 MAR
	HILO	19.7N 155.1W	01467 29 MAR
AUSTRALIA	CAIRNS	16./S 145.8E	0106Z 28 MAR
	BRISBANE	27.2S 153.3E	01562 28 MAR
	SYDNEY	33.9S 151.4E	
	GLADSTONE	23.8S 151.4E 43.3S 147.6E	0301Z 28 MAR
	HOBART		
		21.1S 149.3E	0456Z 28 MAR
SAMOA	APIA	13.8S 171.8W	0112Z 28 MAR
JARVIS IS.	JARVIS IS.	0.4S 160.1W	0119Z 28 MAR
AMERICAN SAMOA	PAGO PAGO	14.3S 170.7W	0120Z 28 MAR
FIJI	SUVA	18.1S 178.4E	0125Z 28 MAR
NEW CALEDONIA	NOUMEA		0127z 28 MAR
NEW CALEDONIA COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9W	0128z 28 MAR
	PENRHYN IS.	8.9S 157.8W	0212Z 28 MAR
	RAROTONGA	21.2S 159.8W	0257Z 28 MAR
NIUE	NIUE IS.		0145Z 28 MAR
TONGA	NUKUALOFA		0211Z 28 MAR
KERMADEC IS	RAOUL IS.		0253Z 28 MAR
NEW ZEALAND	NORTH CAPE		0257Z 28 MAR
NEW ZEALAND	EAST CAPE		0344Z 28 MAR
	AUCKLAND-W		0357Z 28 MAR
	MILFORD SOUND		0410Z 28 MAR 0428Z 28 MAR
	GISBORNE		
	AUCKLAND-E		0434Z 28 MAR
	NEW PLYMOUTH		0446Z 28 MAR
	NAPIER		0459Z 28 MAR
	WESTPORT		0507Z 28 MAR
	WELLINGTON		0519Z 28 MAR
	BLUFF		0533Z 28 MAR
	NELSON	41.3S 173.3E	
	LYTTELTON		0630Z 28 MAR
	DUNEDIN	45.9S 170.5E	0635Z 28 MAR
FR. POLYNESIA	PAPEETE	17.5S 149.6W	0353Z 28 MAR
	HIVA OA	10.0S 139.0W	0435z 28 MAR
	RIKITEA	23.1S 135.0W	0602z 28 MAR
MEXICO	ENSENADA	31.8N 116.8W	0546z 28 MAR
	PUNTA ABREOJOS	26.7N 113.6W	
	CABO SAN LUCAS	22.8N 110.0W	
	SOCORRO	18.8N 111.0W	
	MAZATLAN	23.2N 106.4W	
	MANZANILLO	19.1N 104.3W	
	ACAPULCO	16.9N 99.9W	
	PUERTO MADERO	14.8N 92.5W	
PITCAIRN	PUERIO MADERO PITCAIRN IS.	25.1s 130.1W	
		LO.ID IDU.IM	JUJUL ZO MAR
ANTARCTICA		71 00 170 00	07507 20 MAD
	CAPE ADARE		0758Z 28 MAR
011115	CAPE ADARE THURSTON IS.	72.0S 100.0W	1137z 28 MAR
CHILE	CAPE ADARE THURSTON IS. EASTER IS.	72.0S 100.0W 27.1S 109.4W	1137z 28 MAR 0944z 28 MAR
CHILE	CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS	72.0S 100.0W 27.1S 109.4W 47.1S 74.9W	1137Z 28 MAR 0944Z 28 MAR 1338Z 28 MAR
CHILE	CAPE ADARE THURSTON IS. EASTER IS.	72.0S 100.0W 27.1S 109.4W	1137Z 28 MAR 0944Z 28 MAR 1338Z 28 MAR

	PUERTO WILLIAMS	54.8S	68.2W	1439z	28	MAR	
	TALCAHUANO	36.7S	73.1W	1447Z	28	MAR	
	VALPARAISO	33.0S	71.6W	1448Z	28	MAR	
	IQUIQUE	20.2S	70.1W	1455Z	28	MAR	
	ARICA	18.5S	70.3W	1500Z	28	MAR	
	COQUIMBO	29.9S	71.4W	1501Z	28	MAR	
	CALDERA	27.1S	70.8W	1504Z	28	MAR	
	ANTOFAGASTA	23.3S	70.4W	1505Z	28	MAR	
	PUNTA ARENAS	53.2S	70.9W	1512Z	28	MAR	
	PUERTO MONTT	41.5S	73.OW	1634Z	28	MAR	
GUATEMALA	SIPICATE	13.9N	91.2W	1033Z	28	MAR	
EL SALVADOR	ACAJUTLA	13.6N	89.8W	1045Z	28	MAR	
COSTA RICA	CABO SAN ELENA	10.9N	86.OW	1059Z	28	MAR	
	CABO MATAPALO	8.4N	83.3W	1121Z	28	MAR	
	PUERTO QUEPOS	9.4N	84.2W	1129Z	28	MAR	
NICARAGUA	SAN JUAN DL SUR	11.2N	85.9W	1114Z			
	PUERTO SANDINO	12.2N	86.8W	1147Z	28	MAR	
	CORINTO	12.5N	87.2W	1149Z	28	MAR	
PANAMA	PUNTA BURICA	8.0N	82.9W	1131Z	28	MAR	
	PUNTA MALA	7.5N	80.OW	1219Z	28	MAR	
	PUERTO PINA	7.4N	78.OW	1232Z	28	MAR	
	BALBOA HTS.	9.0N	79.6W	1341Z			
HONDURAS	AMAPALA	13.2N	87.6W	1135Z			
ECUADOR	BALTRA IS.	0.5S	90.3W	1138Z			
	ESMERELDAS		79.8W	1248Z			
	LA LIBERTAD	2.2S	81.2W	1304Z			
COLOMBIA	BAHIA SOLANO	6.3N	77.4W	1239Z			
	TUMACO	1.8N	78.9W	1259Z			
	BUENAVENTURA	3.8N	77.2W	1341Z			
PERU	TALARA	4.6S	81.5W	1254Z			
	LA PUNTA	12.1S	77.2W	1354Z			
	PIMENTEL	6.9S	80.0W	1354Z			
	CHIMBOTE	9.0S	78.8W	1356Z			
	SAN JUAN	15.3S	75.2W	1405Z			
	MOLLENDO	17.1S	72.OW	1437Z	28	MAR	

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #7

WEPA40 PHEB 280004 TSUPAC

TSUNAMI BULLETIN NUMBER 7 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0004Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -

JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHOUAKE PARAMETERS

- _____ 9.0 * MAGNITUDE
- * ORIGIN TIME 1800 UTC MAR 27 2013
- * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTI	VITY		
SITE	TIME OF MEASURE	MENT	OBSERVED MAX TSUNAMI HEIGHT
RABAUL PAPUA NEW GUINEA MAJURO MARSHALL IS MIDWAY IS JOHNSTON IS SHEMYA AK		3-27 3-27 3-27 3-27 3-27 3-28	1.32 FT 0.98 FT 1.02 FT 1.12 FT 0.66 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

FORECAST POINT	COORDINATES	ARRIVAL TIME
SAIPAN	15.3N 145.8E	1834Z 27 MAR
GUAM	13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	24.3N 154.0E	1905z 27 MAR
YAP IS.	9.5N 138.1E	1946Z 27 MAR
KATSUURA	35.1N 140.3E	1947Z 27 MAR
	SAIPAN GUAM MARCUS IS. YAP IS.	SAIPAN 15.3N 145.8E GUAM 13.4N 144.7E MARCUS IS. 24.3N 154.0E YAP IS. 9.5N 138.1E

	SHIMIZU	32.8N	133.0E	2036Z	27	MAR
	KUSHIRO	42 9N	144.3E	20457	27	MAR
	HACHINOHE		141.5E			
	OKINAWA		127.8E			
POHNPEI	POHNPEI IS.		158.2E			
CHUUK	CHUUK IS.	7.4N	151.8E	2009z	27	MAR
MARSHALL IS.	ENIWETOK		162.3E			
11110111111 10.	KWAJALEIN		167.7E			
	MAJURO		171.4E			
PALAU	MALAKAL	7.3N	134.5E	2019Z	27	MAR
WAKE IS.	WAKE IS.	19.3N	166.6E	20287	27	MAR
KOSRAE	KOSRAE IS.		163.0E			
PAPUA NEW GUINEA	-		150.7E			
	MANUS IS.	2.0S	147.5E	2103Z	27	MAR
	VANIMO	2.6S	141.3E	2115z	27	MAR
	RABAUL	4.25	152.3E	21227	27	MAR
	WEWAK		143.6E			
	KIETA		155.6E			
	AMUN	6.0S	154.7E	2147Z	27	MAR
	MADANG	5.2S	145.8E	2149Z	27	MAR
	LAE	6 85	147.0E	22257	27	MAR
	PORT MORESBY		146.9E			
INDONESIA	WARSA	0.65	135.8E	2108z	27	MAR
	MANOKWARI	0.8S	134.2E	2113Z	27	MAR
	JAYAPURA		140.8E		27	MAR
	BEREBERE		128.7E			
	GEME		126.8E			
	SORONG	0.85	131.1E	2130Z	27	MAR
	PATANI	0.4N	128.8E	2152Z	27	MAR
PHILIPPINES	PALANAN	17 1N	122.6E	21157	27	MAR
	DAVAO		125.7E			
	LEGASPI		123.8E			
TAIWAN	HUALIEN	24.0N	121.6E	2117z	27	MAR
RUSSIA	URUP IS	46.1N	150.5E	2117z	27	MAR
	PETROPAVLOVSK K		159.6E			
	SEVERO KURILSK		156.1E			
	UST KAMCHATSK	56.1N	162.6E	2249Z	27	MAR
	MEDNNY IS	54.7N	167.4E	2251z	27	MAR
NAURU	NAURU	0.55	166.9E	21407	27	MAR
SOLOMON IS.	FALAMAE		155.6E			
Solohow 15.						
	PANGGOE		157.2E			
	MUNDA	8.4S	157.2E	2213Z	27	MAR
	GHATERE	7.8S	159.2E	2225z	27	MAR
	AUKI	8 85	160.6E	2247z	27	MAR
	HONIARA		160.0E			
	KIRAKIRA		161.9E			
KIRIBATI	TARAWA IS.	1.5N	173.0E	2212Z	27	MAR
	KANTON IS.	2.8S	171.7W	0015z	28	MAR
	CHRISTMAS IS.		157.5W			
	MALDEN IS.		154.9W			
	FLINT IS.		151.8W			
MIDWAY IS.	MIDWAY IS.	28.2N	177.4W	2231Z	27	MAR
HOWLAND-BAKER	HOWLAND IS.	0.6N	176.6W	2323z	27	MAR
TUVALU	FUNAFUTI IS.		178.5E			
JOHNSTON IS.	JOHNSTON IS.		169.5W			
VANUATU	ESPERITU SANTO		167.3E			
	ANATOM IS.	20.2S	169.9E	0046Z	28	MAR
TOKELAU	NUKUNONU IS.		171.8W			
WALLIS-FUTUNA	WALLIS IS.		176.3W			
HONG KONG	HONG KONG		114.2E			
PALMYRA IS.	PALMYRA IS.	6.3N	162.4W			
HAWAII	NAWILIWILI	22.0N	159.4W	0056Z	28	MAR
	HONOLULU		157.9W			
			155.1W			
	HILO					
AUSTRALIA	CAIRNS		145.8E			
	BRISBANE	27.2S	153.3E	0156Z	28	MAR
	SYDNEY	33.95	151.4E	0226Z	28	MAR
	GLADSTONE		151.4E			
		20.00	тот•-тп	00010	20	/

		43.3S 147.6E		
	MACKAY	21.1S 149.3E	0456Z 28	MAR
SAMOA	APIA	13.8S 171.8W	0112Z 28	MAR
JARVIS IS.	JARVIS IS.	0.4s 160.1W	01197 28	MAR
AMERICAN SAMOA		14.3s 170.7W		
FIJI	SUVA	18.1S 178.4E		
NEW CALEDONIA	NOUMEA	22.3S 166.5E		
COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9W	0128Z 28	MAR
	PENRHYN IS.	8.9S 157.8W	0212Z 28	MAR
	RAROTONGA	21.2s 159.8W	0257z 28	MAR
NIUE	NIUE IS.	19.0S 170.0W	01457 28	MAR
TONGA	NUKUALOFA	21.0S 175.2W		
KERMADEC IS	RAOUL IS.	29.2S 177.9W		
NEW ZEALAND	NORTH CAPE	34.4S 173.3E		
	EAST CAPE	37.7S 178.5E		
	AUCKLAND-W	37.1S 174.2E		
	MILFORD SOUND	44.6S 167.9E	0410Z 28	MAR
	GISBORNE	38.7S 178.0E	0428Z 28	MAR
	AUCKLAND-E	36.7S 175.0E	0434Z 28	MAR
	NEW PLYMOUTH	39.1S 174.1E	04467 28	MAR
	NAPIER	39.5S 176.9E		
	WESTPORT	41.8S 171.6E		
	WELLINGTON	41.3S 174.8E		
	BLUFF	46.6S 168.3E		
	NELSON	41.3S 173.3E		MAR
	LYTTELTON	43.6S 172.7E	0630Z 28	MAR
	DUNEDIN	45.9S 170.5E	0635Z 28	MAR
FR. POLYNESIA	PAPEETE	17.5S 149.6W	0353Z 28	MAR
	HIVA OA	10.0s 139.0W		
	RIKITEA	23.1s 135.0W		
MEXICO	ENSENADA	31.8N 116.8W		
MEXICO				
	PUNTA ABREOJOS	26.7N 113.6W		
	CABO SAN LUCAS	22.8N 110.0W		
	SOCORRO	18.8N 111.0W	0708Z 28	MAR
	MAZATLAN	23.2N 106.4W	0756Z 28	MAR
	MANZANILLO	19.1N 104.3W	0814Z 28	MAR
	ACAPULCO	16.9N 99.9W	0858Z 28	MAR
	PUERTO MADERO	14.8N 92.5W	1024Z 28	MAR
PITCAIRN	PITCAIRN IS.	25.1s 130.1W		
ANTARCTICA	CAPE ADARE	71.0S 170.0E		
ANTAICTICA	THURSTON IS.	72.0S 100.0W		
CHILE	EASTER IS.	27.1S 109.4W		
	GOLFO DE PENAS	47.1S 74.9W		
	CORRAL	39.8S 73.5W		
	PUERTO WILLIAMS	54.8S 68.2W	1439Z 28	MAR
	TALCAHUANO	36.7S 73.1W	1447Z 28	MAR
	VALPARAISO	33.0S 71.6W	1448Z 28	MAR
	IQUIQUE	20.2s 70.1W		
	ARICA	18.5S 70.3W		
	COQUIMBO	29.9S 71.4W		
	CALDERA		1504Z 28	
			1505Z 28	
	PUNTA ARENAS	53.2S 70.9W		
	PUERTO MONTT	41.5s 73.0W		
GUATEMALA			10337 30	MAR
	SIPICATE	13.9N 91.2W		
EL SALVADOR	SIPICATE ACAJUTLA	13.6N 89.8W	1045Z 28	MAR
			1045Z 28	MAR
EL SALVADOR	ACAJUTLA	13.6N 89.8W	1045Z 28 1059Z 28	MAR MAR
EL SALVADOR	ACAJUTLA CABO SAN ELENA	13.6N 89.8W 10.9N 86.0W	1045Z 28 1059Z 28 1121Z 28	MAR MAR MAR
EL SALVADOR COSTA RICA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W	1045Z 28 1059Z 28 1121Z 28 1129Z 28	MAR MAR MAR MAR
EL SALVADOR	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W	1045z 28 1059z 28 1121z 28 1129z 28 1114z 28	MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W	10452 28 10592 28 11212 28 11292 28 11142 28 11142 28 11472 28	MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA NICARAGUA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W	10452 28 10592 28 11212 28 11292 28 11292 28 11142 28 11142 28 11472 28 11492 28	MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO PUNTA BURICA	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W 8.0N 82.9W	10452 28 10592 28 11212 28 11292 28 11142 28 11472 28 11492 28 11312 28	MAR MAR MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA NICARAGUA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO PUNTA BURICA PUNTA MALA	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W 8.0N 82.9W 7.5N 80.0W	10452 28 10592 28 11212 28 11292 28 11142 28 11472 28 11492 28 11312 28 12122 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA NICARAGUA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO PUNTA BURICA PUNTA MALA PUERTO PINA	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W 8.0N 82.9W 7.5N 80.0W 7.4N 78.0W	10452 28 10592 28 11212 28 11292 28 11142 28 11472 28 11472 28 11312 28 12322 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA NICARAGUA PANAMA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO PUNTA BURICA PUNTA MALA PUERTO PINA BALBOA HTS.	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W 8.0N 82.9W 7.5N 80.0W 9.4N 78.0W 9.0N 79.6W	10452 28 10592 28 11212 28 11292 28 11142 28 11472 28 11472 28 11312 28 12192 28 1312 28 12322 28 13412 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA NICARAGUA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO PUNTA BURICA PUNTA MALA PUERTO PINA	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W 8.0N 82.9W 7.5N 80.0W 7.4N 78.0W 9.0N 79.6W 13.2N 87.6W	10452 28 10592 28 11212 28 11292 28 11142 28 11472 28 11472 28 11312 28 12192 28 12322 28 12322 28 13412 28 13412 28 1352 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR
EL SALVADOR COSTA RICA NICARAGUA PANAMA	ACAJUTLA CABO SAN ELENA CABO MATAPALO PUERTO QUEPOS SAN JUAN DL SUR PUERTO SANDINO CORINTO PUNTA BURICA PUNTA MALA PUERTO PINA BALBOA HTS.	13.6N 89.8W 10.9N 86.0W 8.4N 83.3W 9.4N 84.2W 11.2N 85.9W 12.2N 86.8W 12.5N 87.2W 8.0N 82.9W 7.5N 80.0W 9.4N 78.0W 9.0N 79.6W	10452 28 10592 28 11212 28 11292 28 11142 28 11472 28 11472 28 11312 28 12192 28 1312 28 12322 28 13412 28 13412 28 13412 28 1352 28	MAR MAR MAR MAR MAR MAR MAR MAR MAR MAR

	ESMERELDAS LA LIBERTAD	1.2N 2.2S	79.8W 81.2W	1248Z 1304Z		
COLOMDIA						
COLOMBIA	BAHIA SOLANO	6.3N	77.4W	1239Z	28	MAR
	TUMACO	1.8N	78.9W	1259Z	28	MAR
	BUENAVENTURA	3.8N	77.2W	1341Z	28	MAR
PERU	TALARA	4.6S	81.5W	1254Z	28	MAR
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	MOLLENDO	17.1S	72.OW	1437Z	28	MAR

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THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #8

WEPA40 PHEB 280104 TSUPAC

TSUNAMI BULLETIN NUMBER 8 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0104Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

... A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

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PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

	TIME	OBSERVED MAX
SITE	OF MEASUREMENT	TSUNAMI HEIGHT

MIDWAY IS	2231	UTC	3-27	1.02	FΤ
JOHNSTON IS	2341	UTC	3-27	1.12	\mathbf{FT}
SHEMYA AK	0000	UTC	3-28	0.66	\mathbf{FT}
WEST ATKA AK	0012	UTC	3-28	0.79	\mathbf{FT}
NAWILIWILI HI	0056	UTC	3-28	0.75	FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

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LOCATION		COORDINATES	
N. MARIANAS	SAIPAN	15.3N 145.8E	1834z 27 MAR
GUAM		13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	MARCUS IS.	24.3N 154.0E	1905Z 27 MAR
YAP		9.5N 138.1E	
JAPAN		35.1N 140.3E	
	SHIMIZU	32.8N 133.0E	2036Z 27 MAR
	KUSHIRO		
	HACHINOHE		
	OKINAWA	26.2N 127.8E	2117Z 27 MAR
POHNPEI	POHNPEI IS.		
СНИИК	CHUUK IS.	7.4N 151.8E	2009Z 27 MAR
MARSHALL IS.	ENIWETOK		
	KWAJALEIN	8.7N 167.7E	2057Z 27 MAR
		7.1N 171.4E	
PALAU	MALAKAL	7.3N 134.5E	2019Z 27 MAR
WAKE IS.	WAKE IS.	19.3N 166.6E	2028Z 27 MAR
KOSRAE	KOSRAE IS.	5.5N 163.0E	2037Z 27 MAR
PAPUA NEW GUINEA	KAVIENG	2.5S 150.7E	2103Z 27 MAR
	MANUS IS.	2.0s 147.5E	2103Z 27 MAR
	VANIMO	2.6S 141.3E	2115Z 27 MAR
	RABAUL	4.2S 152.3E	2122Z 27 MAR
	WEWAK	3.5S 143.6E	2130Z 27 MAR
	KIETA	6.1S 155.6E	2143Z 27 MAR
	AMUN		2147Z 27 MAR
	MADANG	5.2S 145.8E	2149Z 27 MAR
	LAE	6.8S 147.0E	2225Z 27 MAR
	PORT MORESBY	9.3S 146.9E	0000Z 28 MAR
INDONESIA	WARSA	0.6S 135.8E	2108Z 27 MAR
	MANOKWARI	0.8S 134.2E	2113Z 27 MAR

	JAYAPURA	2.4S 140.8E	2117z 27 Mar
	BEREBERE		2123Z 27 MAR
	GEME		2126Z 27 MAR
	SORONG		2130Z 27 MAR
	PATANI		2152Z 27 MAR
PHILIPPINES	PALANAN		2115Z 27 MAR
THEFT THE	DAVAO		2135Z 27 MAR
	LEGASPI		21392 27 MAR
TAIWAN	HUALIEN		2117Z 27 MAR
RUSSIA	URUP IS		21172 27 MAR 2117z 27 MAR
RUSSIA	PETROPAVLOVSK K		21172 27 MAR 2227z 27 MAR
	SEVERO KURILSK		2237z 27 Mar 2237z 27 Mar
	UST KAMCHATSK		
			2249Z 27 MAR
	MEDNNY IS		2251Z 27 MAR
NAURU	NAURU		2140Z 27 MAR
SOLOMON IS.	FALAMAE		2156Z 27 MAR
	PANGGOE		2200Z 27 MAR
	MUNDA		2213Z 27 MAR
	GHATERE		2225z 27 MAR
	AUKI		2247Z 27 MAR
	HONIARA		2249Z 27 MAR
	KIRAKIRA	10.4S 161.9E	2304Z 27 MAR
KIRIBATI	TARAWA IS.		2212Z 27 MAR
	KANTON IS.	2.8S 171.7W	0015Z 28 MAR
	CHRISTMAS IS.	2.0N 157.5W	0136Z 28 MAR
	MALDEN IS.	3.9S 154.9W	0210Z 28 MAR
	FLINT IS.	11.4S 151.8W	0303Z 28 MAR
MIDWAY IS.	MIDWAY IS.	28.2N 177.4W	2231Z 27 MAR
HOWLAND-BAKER	HOWLAND IS.	0.6N 176.6W	
TUVALU	FUNAFUTI IS.	7.9S 178.5E	
JOHNSTON IS.	JOHNSTON IS.		2341Z 27 MAR
VANUATU	ESPERITU SANTO	15.1S 167.3E	
VIIIVOITEO	ANATOM IS.		0046Z 28 MAR
TOKELAU	NUKUNONU IS.	9.2S 171.8W	
WALLIS-FUTUNA	WALLIS IS.	13.3S 176.3W	
HONG KONG	HONG KONG	22.3N 114.2E	
PALMYRA IS.	PALMYRA IS.	6.3N 162.4W	
HAWAII	NAWILIWILI	22.0N 159.4W	
	HONOLULU		0108Z 28 MAR
	HILO		0146Z 28 MAR
AUSTRALIA	CAIRNS		0106Z 28 MAR
	BRISBANE	27.2S 153.3E	
	SYDNEY	33.9S 151.4E	
	GLADSTONE	23.8S 151.4E	
	HOBART	43.3S 147.6E	
	MACKAY	21.1S 149.3E	
SAMOA	APIA	13.8S 171.8W	
JARVIS IS.	JARVIS IS.	0.4S 160.1W	0119Z 28 MAR
AMERICAN SAMOA	PAGO PAGO	14.3S 170.7W	0120Z 28 MAR
FIJI	SUVA	18.1S 178.4E	0125Z 28 MAR
NEW CALEDONIA	NOUMEA	22.3S 166.5E	0127Z 28 MAR
COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9W	0128Z 28 MAR
	PENRHYN IS.	8.9S 157.8W	0212Z 28 MAR
	RAROTONGA	21.2S 159.8W	0257Z 28 MAR
NIUE	NIUE IS.	19.0S 170.0W	0145z 28 Mar
TONGA	NUKUALOFA	21.0S 175.2W	
KERMADEC IS	RAOUL IS.	29.2S 177.9W	
NEW ZEALAND	NORTH CAPE	34.4S 173.3E	
	EAST CAPE	37.7S 178.5E	
	AUCKLAND-W	37.1S 174.2E	
	MILFORD SOUND	44.6S 167.9E	
	GISBORNE	38.7S 178.0E	
		36.7S 178.0E	
	AUCKLAND-E		
	NEW PLYMOUTH	39.1S 174.1E	
	NAPIER	39.5S 176.9E	
	WESTPORT		0507Z 28 MAR
	WELLINGTON		0519Z 28 MAR
	BLUFF	46.6S 168.3E	0533Z 28 MAR

	NELSON	41.3S	173.3E	0609Z	28	MAR	
	LYTTELTON	43.6S	172.7E	0630Z	28	MAR	
	DUNEDIN	45.9S	170.5E	0635Z	28	MAR	
FR. POLYNESIA	PAPEETE	17.5S	149.6W	0353Z	28	MAR	
	HIVA OA	10.0S	139.OW	0435Z	28	MAR	
	RIKITEA	23.1S	135.OW	0602Z	28	MAR	
MEXICO	ENSENADA	31.8N	116.8W	0546Z	28	MAR	
	PUNTA ABREOJOS	26.7N	113.6W	0628Z	28	MAR	
	CABO SAN LUCAS	22.8N	110.OW	0702Z	28	MAR	
	SOCORRO	18.8N	111.OW	0708Z	28	MAR	
	MAZATLAN	23.2N	106.4W	0756Z	28	MAR	
	MANZANILLO	19.1N	104.3W	0814Z	28	MAR	
	ACAPULCO	16.9N	99.9W	0858Z	28	MAR	
	PUERTO MADERO	14.8N	92.5W	1024Z	28	MAR	
PITCAIRN	PITCAIRN IS.	25.1S	130.1W	0650Z	28	MAR	
ANTARCTICA	CAPE ADARE	71.0S	170.0E	0758Z	28	MAR	
	THURSTON IS.	72.0S	100.0W	1137z	28	MAR	
CHILE	EASTER IS.	27.1S	109.4W	0944Z	28	MAR	
	GOLFO DE PENAS	47.1S	74.9W	1338z	28	MAR	
	CORRAL	39.8S	73.5W	1417Z	28	MAR	
	PUERTO WILLIAMS	54.8S	68.2W	1439Z	28	MAR	
	TALCAHUANO	36.7S	73.1W	1447Z	28	MAR	
	VALPARAISO	33.0S	71.6W	1448Z	28	MAR	
	IQUIQUE	20.2S	70.1W	1455Z	28	MAR	
	ARICA	18.5S	70.3W	1500z	28	MAR	
	COQUIMBO	29.9S	71.4W	1501z	28	MAR	
	CALDERA	27.1S	70.8W	1504z	28	MAR	
	ANTOFAGASTA	23.3S	70.4W	1505z	28	MAR	
	PUNTA ARENAS	53.2S	70.9W	1512Z	28	MAR	
	PUERTO MONTT	41.5S	73.OW	1634Z	28	MAR	
GUATEMALA	SIPICATE	13.9N	91.2W	1033z	28	MAR	
EL SALVADOR	ACAJUTLA	13.6N	89.8W	1045z	28	MAR	
COSTA RICA	CABO SAN ELENA 🧹	10.9N	86.OW	1059z	28	MAR	
	CABO MATAPALO	8.4N	83.3W	1121Z	28	MAR	
	PUERTO QUEPOS	9.4N	84.2W	1129Z	28	MAR	
NICARAGUA	SAN JUAN DL SUR	11.2N	85.9W	1114Z	28	MAR	
	PUERTO SANDINO	12.2N	86.8W	1147z	28	MAR	
	CORINTO	12.5N			28	MAR	
PANAMA	PUNTA BURICA	8.0N	82.9W	1131z	28	MAR	
	PUNTA MALA	7.5N	80.OW	1219Z	28	MAR	
	PUERTO PINA	7.4N	78.OW	1232z	28	MAR	
	BALBOA HTS.	9.0N	79.6W	1341z	28	MAR	
HONDURAS	AMAPALA	13.2N	87.6W	1135z	28	MAR	
ECUADOR	BALTRA IS.	0.55	90.3W	1138z	28	MAR	
	ESMERELDAS	1.2N	79.8W	1248Z	28	MAR	
	LA LIBERTAD	2.2S		1304z	28	MAR	
COLOMBIA	BAHIA SOLANO	6.3N	77.4W	1239z	28	MAR	
	TUMACO	1.8N	78.9W	1259Z	28	MAR	
	BUENAVENTURA	3.8N	77.2W	1341Z	28	MAR	
PERU	TALARA	4.6S	81.5W	1254Z	28	MAR	
	LA PUNTA	12.1S					
	PIMENTEL	6.9S					
	CHIMBOTE	9.0S					
	SAN JUAN	15.3S			28	MAR	
	MOLLENDO	17.1S					

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #9

WEPA40 PHEB 280203

TSUPAC

TSUNAMI BULLETIN NUMBER 9 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0203Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

... A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

- * MAGNITUDE 9.0
- * ORIGIN TIME 1800 UTC MAR 27 2013
- * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASU	E JREMENT	OBSERVE TSUNAMI	ED MAX HEIGHT
JOHNSTON IS NAWILIWILI HI HONOLULU HI SHEMYA AK KAWAIHAE HI NIKOLSKI AK AKUTAN ISLAND AK KAHULUI HI DUTCH HARBOR AK HILO HI	2341 UT 0056 UT 0108 UT 0109 UT 0128 UT 0129 UT 0130 UT 0135 UT 0142 UT 0146 UT	C 3-28 C 3-28 C 3-28 C 3-28 C 3-28 C 3-28 C 3-28 C 3-28 C 3-28 C 3-28	1.12 0.75 1.14 1.35 4.33 0.56 0.62 6.96 0.52 2.30	FT FT FT FT FT FT FT FT FT
WEST ATKA AK	0148 UT		1.54	FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY

SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

LOCATION	FORECAST POINT	COORDINATES	ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	1834z 27 MAR
GUAM	GUAM	13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	MARCUS IS.	24.3N 154.0E 9.5N 138.1E 35.1N 140.3E 32.8N 133.0E	1905Z 27 MAR
YAP	YAP IS.	9.5N 138.1E	1946Z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1947Z 27 MAR
	SHIMIZU	32.8N 133.0E	2036Z 27 MAR
	KUSHIRO	42.9N 144.3E 40.5N 141.5E 26.2N 127.8E	2045Z 27 MAR
	HACHINOHE	40.5N 141.5E	2102z 27 MAR
	OKINAWA	26.2N 127.8E	2117Z 27 MAR
POHNPEI	POHNPEI IS.	7.0N 158.2E	2002z 27 MAR
CHUUK	CHUUK IS.	7.4N 151.8E	2009Z 27 MAR
MARSHALL IS.	ENIWETOK	11.4N 162.3E	2012z 27 MAR
	KWAJALEIN		2057Z 27 MAR
	MAJURO	7.1N 171.4E	2133Z 27 MAR
PALAU	MALAKAL	7.3N 134.5E	2019z 27 MAR
WAKE IS.	WAKE IS.	19.3N 166.6E	2028z 27 Mar
	KOSRAE IS.	5.5N 163.0E	2037z 27 Mar
PAPUA NEW GUINEA	KAVIENG	2.5S 150.7E	2103z 27 Mar
	MANUS IS.	2.0S 147.5E	2103z 27 Mar
	VANIMO	2.6S 141.3E	2115Z 27 MAR
	RABAUL	4.2S 152.3E	2122z 27 MAR
	WEWAK	3.5S 143.6E	2130Z 27 MAR
	KIETA	6.1S 155.6E	2143z 27 MAR
	AMUN	6.0S 154.7E	2147z 27 MAR
	MADANG	5.2S 145.8E	2149z 27 MAR
	LAE	6.8S 147.0E	2225Z 27 MAR
	PORT MORESBY	9.3S 146.9E	0000Z 28 MAR
INDONESIA	WARSA		2108z 27 MAR
	MANOKWARI	0.8S 134.2E	2113z 27 MAR
	JAYAPURA	2.4S 140.8E 2.5N 128.7E	2117z 27 MAR
	BEREBERE	2.5N 128.7E	2123Z 27 MAR
· · · · · · · · · · · · · · · · · · ·	GEME	4.6N 126.8E	2126Z 27 MAR
	SORONG	0.8S 131.1E	2126Z 27 MAR 2130Z 27 MAR
	PATANI	0 /NT 100 0T	01500 07 MAD
PHILIPPINES	PALANAN	17.1N 122.6E 6.8N 125.7E 13.2N 123.8E 24.0N 121.6E	2115z 27 MAR
	DAVAO	6.8N 125.7E	2135z 27 MAR
	LEGASPI	13.2N 123.8E	2139Z 27 MAR
TAIWAN	HUALIEN	24.0N 121.6E	2117z 27 MAR
RUSSIA	URUP IS	46.1N 150.5E 53.2N 159.6E	2117Z 27 MAR
	PETROPAVLOVSK K	53.2N 159.6E	2227Z 27 MAR
	SEVERO KURILSK UST KAMCHATSK MEDNNY IS NAUDU	50.8N 156.1E	2237z 27 Mar
	UST KAMCHATSK	56.1N 162.6E	2249z 27 MAR
	MEDNNY IS	54.7N 167.4E	2251z 27 MAR
NAURU	NAURU	0.55 I00.9E	ZI4UZ Z/ MAR
SOLOMON IS.	FALAMAE	7.4S 155.6E	2156Z 27 MAR
	PANGGOE	7.4S 155.6E 6.9S 157.2E	2200z 27 MAR
	MUNDA		2213Z 27 MAR
	GHATERE	7.8S 159.2E	2225Z 27 MAR

	AUKI		2247Z 27 MAR
	HONIARA		2249Z 27 MAR
			2304Z 27 MAR
KIRIBATI	TARAWA IS.		2212Z 27 MAR
	KANTON IS.		0015Z 28 MAR
	CHRISTMAS IS.		0136Z 28 MAR
	MALDEN IS.		0210Z 28 MAR
MIDHAY IO	FLINT IS.		0303Z 28 MAR
MIDWAY IS.	MIDWAY IS.		2231Z 27 MAR
HOWLAND-BAKER	HOWLAND IS. FUNAFUTI IS.		2323Z 27 MAR
TUVALU JOHNSTON IS.	JOHNSTON IS.		2333Z 27 MAR 2341Z 27 MAR
VANUATU	ESPERITU SANTO		23412 27 MAR 2353z 27 MAR
VANUATU	ANATOM IS.		0046Z 28 MAR
TOKELAU	NUKUNONU IS.		00402 28 MAR 0039Z 28 MAR
WALLIS-FUTUNA	WALLIS IS.		0042z 28 MAR
HONG KONG	HONG KONG		0043Z 28 MAR
PALMYRA IS.	PALMYRA IS.		0044z 28 MAR
HAWAII	NAWILIWILI		0056Z 28 MAR
	HONOLULU		0108Z 28 MAR
	HILO		0146Z 28 MAR
AUSTRALIA	CAIRNS		0106Z 28 MAR
	BRISBANE		0156Z 28 MAR
	SYDNEY	33.9S 151.4E	0226Z 28 MAR
	GLADSTONE	23.8S 151.4E	
	HOBART	43.3S 147.6E	0359Z 28 MAR
	MACKAY		0456Z 28 MAR
SAMOA	APIA	13.8S 171.8W	0112Z 28 MAR
JARVIS IS.	JARVIS IS.	0.4s 160.1W	0119Z 28 MAR
AMERICAN SAMOA	PAGO PAGO	14.3s 170.7w	0120Z 28 MAR
FIJI	SUVA	18.1S 178.4E	0125Z 28 MAR
NEW CALEDONIA	NOUMEA	22.3S 166.5E	0127Z 28 MAR
COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9W	0128Z 28 MAR
	PENRHYN IS.	8.9S 157.8W	0212Z 28 MAR
	RAROTONGA	21.2S 159.8W	0257Z 28 MAR
NIUE	NIUE IS.	19.0S 170.0W	0145Z 28 MAR
TONGA	NUKUALOFA	21.0S 175.2W	0211Z 28 MAR
KERMADEC IS	RAOUL IS.		0253Z 28 MAR
NEW ZEALAND	NORTH CAPE		0257z 28 MAR
	EAST CAPE		0344Z 28 MAR
	AUCKLAND-W		0357Z 28 MAR
	MILFORD SOUND		0410Z 28 MAR
	GISBORNE	38.7S 178.0E	
	AUCKLAND-E		0434Z 28 MAR
	NEW PLYMOUTH	39.1S 174.1E	
	NAPIER		0459Z 28 MAR
	WESTPORT		0507Z 28 MAR
	WELLINGTON BLUFF		0519Z 28 MAR 0533Z 28 MAR
			0609Z 28 MAR
	NELSON LYTTELTON		06092 28 MAR 0630z 28 MAR
	DUNEDIN	45.9S 172.7E	
FR. POLYNESIA	PAPEETE	43.93 170.3E 17.5S 149.6W	
FR. IODINEDIA	HIVA OA		0435Z 28 MAR
	RIKITEA		0602z 28 MAR
MEXICO	ENSENADA		0546Z 28 MAR
TILIATOO	PUNTA ABREOJOS		0628Z 28 MAR
	CABO SAN LUCAS		0702Z 28 MAR
	SOCORRO	18.8N 111.0W	
	MAZATLAN		0756Z 28 MAR
	MANZANILLO		0814Z 28 MAR
	ACAPULCO	16.9N 99.9W	
	PUERTO MADERO	14.8N 92.5W	
PITCAIRN	PITCAIRN IS.		0650z 28 MAR
ANTARCTICA	CAPE ADARE		0758z 28 MAR
	THURSTON IS.		1137z 28 MAR
CHILE	EASTER IS.	27.1S 109.4W	0944z 28 MAR
	GOLFO DE PENAS	47.1S 74.9W	1338Z 28 MAR

	CORRAL	39.8s 73.	5W 1417z	28 MAR
	PUERTO WILLIAMS	54.8S 68.	2W 1439Z	28 MAR
	TALCAHUANO	36.7s 73.	1W 1447z	28 MAR
	VALPARAISO	33.0s 71.	6W 1448Z	28 MAR
	IQUIQUE	20.2S 70.	1W 1455z	28 MAR
	ARICA	18.5S 70.	3W 1500z	28 MAR
	COQUIMBO	29.9S 71.	4W 1501z	28 MAR
	CALDERA	27.1S 70.	8W 1504z	28 MAR
	ANTOFAGASTA	23.3s 70.	4W 1505z	28 MAR
	PUNTA ARENAS	53.2s 70.	9W 1512Z	28 MAR
	PUERTO MONTT	41.5S 73.	0W 1634z	28 MAR
GUATEMALA	SIPICATE	13.9N 91.	2W 1033Z	28 MAR
EL SALVADOR	ACAJUTLA	13.6N 89.	8W 1045Z	28 MAR
COSTA RICA	CABO SAN ELENA	10.9N 86.	0W 1059z	28 MAR
	CABO MATAPALO	8.4N 83.	3W 1121Z	28 MAR
	PUERTO QUEPOS	9.4N 84.	2W 1129Z	28 MAR
NICARAGUA	SAN JUAN DL SUR	11.2N 85.	9W 1114z	28 MAR
	PUERTO SANDINO	12.2N 86.	8W 1147z	28 MAR
	CORINTO	12.5N 87.	2W 1149Z	28 MAR
PANAMA	PUNTA BURICA	8.0N 82.	9W 1131Z	28 MAR
	PUNTA MALA	7.5N 80.	0W 1219z	28 MAR
	PUERTO PINA	7.4N 78.	0W 1232z	28 MAR
	BALBOA HTS.	9.0N 79.	6W 1341z	28 MAR
HONDURAS	AMAPALA	13.2N 87.	6W 1135Z	28 MAR
ECUADOR	BALTRA IS.	0.5S 90.	3W 1138Z	28 MAR
	ESMERELDAS	1.2N 79.	8W 1248Z	28 MAR
	LA LIBERTAD	2.2S 81.	2W 1304z	28 MAR
COLOMBIA	BAHIA SOLANO	6.3N 77.	4W 1239z	28 MAR
	TUMACO	1.8N 78.	9W 1259Z	28 MAR
	BUENAVENTURA	3.8N 77.3	2W 1341z	28 MAR
PERU	TALARA	4.6S 81.	5W 1254z	28 MAR
	LA PUNTA	12.1s 77.	2W 1354z	28 MAR
	PIMENTEL	6.9S 80.	0W 1354z	28 MAR
	CHIMBOTE	9.0S 78.		28 MAR
	SAN JUAN	15.3s 75.3	2W 1405z	28 MAR
	MOLLENDO	17.1S 72.	0W 1437z	28 MAR

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #10

WEPA40 PHEB 280304 TSUPAC

TSUNAMI BULLETIN NUMBER 10 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0304Z 28 MAR 2013

NO NEW UPDATES SINCE LAST MESSAGE.

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -

NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

- 9.0
- * MAGNITUDE
- * ORIGIN TIME 1800 UTC MAR 27 2013
- * COORDINATES 20.2 NORTH 146.8 EAST
- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY _____

SITE	TIME OF MEASU	OBSERVED MAX TSUNAMI HEIGHT		
NAWILIWILI HI	0056 UTC	3-28	0.75 FT	
HONOLULU HI	0108 UTC	3-28	1.14 FT	
SHEMYA AK	0109 UTC	3-28	1.35 FT	
KAWAIHAE HI	0128 UTC	3-28	4.33 FT	
NIKOLSKI AK	0129 UTC	3-28	0.56 FT	
KAHULUI HI	0135 UTC	3-28	6.96 FT	
DUTCH HARBOR AK	0142 UTC	3-28	0.52 FT	
HILO HI	0146 UTC	3-28	2.30 FT	
WEST ATKA AK	0148 UTC	3-28	1.54 FT	
SAND POINT AK	0224 UTC	3-28	0.30 FT	
AKUTAN ISLAND AK	0240 UTC	3-28	0.89 FT	
COLD BAY AK	0254 UTC	3-28	0.33 FT	

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

ESTIMATED INITIAL TSUNAMI ARRIVAL TIMES AT FORECAST POINTS WITHIN THE WARNING AND WATCH AREAS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE

THE LARGEST. THE TIME BETWEEN SUCCESSIVE WAVES CAN BE FIVE MINUTES TO ONE HOUR.

	FORECAST POINT		ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	1834z 27 MAR
	GUAM	13.4N 144.7E	1856Z 27 MAR
	MARCUS IS.	24.3N 154.0E	1905Z 27 MAR
YAP	YAP IS.	9.5N 138.1E	
JAPAN	KATSUURA	35.1N 140.3E	1947Z 27 MAR
	SHIMIZU	32.8N 133.0E 42.9N 144.3E	2036Z 27 MAR
	KUSHIRO		
	HACHINOHE	40.5N 141.5E	
	OKINAWA	26.2N 127.8E	
POHNPEI	POHNPEI IS.	7.0N 158.2E	2002Z 27 MAR
	CHUUK IS.	7.4N 151.8E	
MARSHALL IS.	ENIWETOK	11.4N 162.3E	
	KWAJALEIN		2057Z 27 MAR
יז ג ד ג ר	MAJURO	7.1N 171.4E	21332 27 MAR
	MALAKAL	7.3N 134.5E 19.3N 166.6E	20192 27 MAR
	WAKE IS. KOSRAE IS.	5.5N 163.0E	
PAPUA NEW GUINEA		2.5S 150.7E	
FAFUA NEW GUINEA	MANUS IS.	2.JS 1JU./E 2 0g 147 5F	21032 27 MAR
	VANIMO	2.0S 147.5E 2.6S 141.3E	21157 27 MAR
		4.2S 152.3E	21227 27 MAR
	WEWAK	3.5S 143.6E	21307 27 MAR
	KIETA	6.1S 155.6E	2143Z 27 MAR
	AMUN		2147Z 27 MAR
	MADANG		2149Z 27 MAR
	LAE		2225z 27 MAR
	PORT MORESBY	9.3S 146.9E	0000z 28 MAR
INDONESIA	WARSA	0.6S 135.8E	2108Z 27 MAR
	MANOKWARI		2113Z 27 MAR
	JAYAPURA	2.4S 140.8E	2117Z 27 MAR
	BEREBERE		2123Z 27 MAR
	GEME	4.6N 126.8E	2126Z 27 MAR
	SORONG		2130Z 27 MAR
	PATANI		2152Z 27 MAR
PHILIPPINES	PALANAN		2115Z 27 MAR
	DAVAO		2135Z 27 MAR
	LEGASPI		2139Z 27 MAR
TAIWAN	HUALIEN		2117Z 27 MAR
RUSSIA	URUP IS		2117Z 27 MAR
	PETROPAVLOVSK K SEVERO KURILSK		
			2237Z 27 MAR
	UST KAMCHATSK MEDNNY IS		2249Z 27 MAR 2251Z 27 MAR
NAURU	NAURU		2140Z 27 MAR
SOLOMON IS.	FALAMAE	7.4S 155.6E	
bollonon ib.	PANGGOE		2200Z 27 MAR
	MUNDA		2213Z 27 MAR
	GHATERE	7.8S 159.2E	
	AUKI		2247z 27 MAR
	HONIARA		2249z 27 MAR
	KIRAKIRA		2304z 27 MAR
KIRIBATI	TARAWA IS.	1.5N 173.0E	2212Z 27 MAR
	KANTON IS.		0015z 28 MAR
	CHRISTMAS IS.	2.0N 157.5W	0136Z 28 MAR
	MALDEN IS.	3.9S 154.9W	0210Z 28 MAR
	FLINT IS.	11.4S 151.8W	
MIDWAY IS.	MIDWAY IS.	28.2N 177.4W	
HOWLAND-BAKER	HOWLAND IS.	0.6N 176.6W	
TUVALU	FUNAFUTI IS.		2333Z 27 MAR
JOHNSTON IS.	JOHNSTON IS.		2341Z 27 MAR
VANUATU	ESPERITU SANTO		2353Z 27 MAR
	ANATOM IS.		0046Z 28 MAR
TOKELAU	NUKUNONU IS.	9.2S 171.8W	0039Z 28 MAR

WALLIS-FUTUNA	WALLIS IS.	13.3S 176.3W	0042z 28 MAR
HONG KONG	HONG KONG	22.3N 114.2E	
PALMYRA IS.	PALMYRA IS.	6.3N 162.4W	
HAWAII	NAWILIWILI	22.0N 159.4W	
IIAWALL		21.3N 157.9W	
	HONOLULU		
	HILO	19.7N 155.1W	
AUSTRALIA	CAIRNS	16.7S 145.8E	
	BRISBANE	27.2S 153.3E	0156Z 28 MAR
	SYDNEY	33.9S 151.4E	0226Z 28 MAR
	GLADSTONE	23.8S 151.4E	0301Z 28 MAR
	HOBART	43.3S 147.6E	0359Z 28 MAR
	MACKAY	21.1S 149.3E	0456z 28 MAR
SAMOA	APIA	13.8S 171.8W	
JARVIS IS.	JARVIS IS.	0.4S 160.1W	
AMERICAN SAMOA		14.3S 170.7W	
FIJI	SUVA		01252 28 MAR
NEW CALEDONIA	NOUMEA	22.3S 166.5E	
COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9W	
	PENRHYN IS.	8.9S 157.8W	
	RAROTONGA	21.2S 159.8W	0257Z 28 MAR
NIUE	NIUE IS.	19.0S 170.0W	0145z 28 MAR
TONGA	NUKUALOFA	21.0S 175.2W	0211Z 28 MAR
KERMADEC IS	RAOUL IS.	29.2S 177.9W	0253Z 28 MAR
NEW ZEALAND	NORTH CAPE	34.4S 173.3E	0257z 28 MAR
	EAST CAPE		0344Z 28 MAR
	AUCKLAND-W	37.1S 174.2E	
	MILFORD SOUND		0410Z 28 MAR
	GISBORNE	38.7S 178.0E	
	AUCKLAND-E	36.7S 175.0E	
	NEW PLYMOUTH		0446Z 28 MAR
	NAPIER		0459Z 28 MAR
	WESTPORT	41.8S 171.6E	0507Z 28 MAR
	WELLINGTON	41.3S 174.8E	0519Z 28 MAR
	BLUFF	46.6S 168.3E	0533Z 28 MAR
	NELSON	41.3S 173.3E	0609z 28 MAR
	LYTTELTON	43.6S 172.7E	0630z 28 MAR
	DUNEDIN	45.9S 170.5E	06357 28 MAR
FR POLYNESTA	DUNEDIN	45.9S 170.5E	
FR. POLYNESIA	PAPEETE	17.5S 149.6W	0353Z 28 MAR
FR. POLYNESIA	PAPEETE HIVA OA	17.5S 149.6W 10.0S 139.0W	0353Z 28 MAR 0435Z 28 MAR
	PAPEETE HIVA OA RIKITEA	17.55 149.6W 10.0S 139.0W 23.1S 135.0W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR
FR. POLYNESIA MEXICO	PAPEETE HIVA OA RIKITEA ENSENADA	17.55 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR 0546Z 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS	17.55 149.6W 10.05 139.0W 23.15 135.0W 31.8N 116.8W 26.7N 113.6W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR 0546Z 28 MAR 0628Z 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS	17.55 149.6W 10.05 139.0W 23.15 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR 0546Z 28 MAR 0628Z 28 MAR 0702Z 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR 0546Z 28 MAR 0628Z 28 MAR 0702Z 28 MAR 0708Z 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR 0546Z 28 MAR 0628Z 28 MAR 0702Z 28 MAR 0708Z 28 MAR 0708Z 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W	0353Z 28 MAR 0435Z 28 MAR 0602Z 28 MAR 0546Z 28 MAR 0628Z 28 MAR 0702Z 28 MAR 0708Z 28 MAR 0708Z 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR
	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR
MEXICO PITCAIRN	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS.	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 06502 28 MAR
MEXICO	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 06502 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS.	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 10242 28 MAR 06502 28 MAR 07582 28 MAR
MEXICO PITCAIRN	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS.	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 06502 28 MAR 07582 28 MAR 07582 28 MAR 07582 28 MAR 11372 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 06502 28 MAR 07582 28 MAR 11372 28 MAR 09442 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 06502 28 MAR 07582 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 06502 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 06502 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 06502 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14482 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14482 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15002 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 14552 28 MAR 15002 28 MAR 15012 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 14552 28 MAR 15002 28 MAR 15012 28 MAR 15012 28 MAR
MEXICO PITCAIRN ANTARCTICA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA PUNTA ARENAS	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W 53.2S 70.9W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15002 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR
MEXICO PITCAIRN ANTARCTICA CHILE	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA PUNTA ARENAS PUERTO MONTT	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W 53.2S 70.9W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 10242 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15002 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15052 28 MAR
MEXICO PITCAIRN ANTARCTICA CHILE GUATEMALA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA PUNTA ARENAS PUERTO MONTT SIPICATE	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W 53.2S 70.9W 41.5S 73.0W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 06502 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15002 28 MAR 15012 28 MAR 15052 28 MAR 15052 28 MAR 15122 28 MAR
MEXICO PITCAIRN ANTARCTICA CHILE GUATEMALA EL SALVADOR	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA PUNTA ARENAS PUERTO MONTT SIPICATE ACAJUTLA	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W 53.2S 70.9W 41.5S 73.0W 13.9N 91.2W 13.6N 89.8W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 06502 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15002 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15052 28 MAR 15052 28 MAR 15052 28 MAR 15122 28 MAR 16342 28 MAR
MEXICO PITCAIRN ANTARCTICA CHILE GUATEMALA	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA PUNTA ARENAS PUERTO MONTT SIPICATE ACAJUTLA CABO SAN ELENA	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W 53.2S 70.9W 41.5S 73.0W 13.9N 91.2W 13.6N 89.8W 10.9N 86.0W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15052 28 MAR 15052 28 MAR 15122 28 MAR 16342 28 MAR 10332 28 MAR 10332 28 MAR
MEXICO PITCAIRN ANTARCTICA CHILE GUATEMALA EL SALVADOR	PAPEETE HIVA OA RIKITEA ENSENADA PUNTA ABREOJOS CABO SAN LUCAS SOCORRO MAZATLAN MANZANILLO ACAPULCO PUERTO MADERO PITCAIRN IS. CAPE ADARE THURSTON IS. EASTER IS. GOLFO DE PENAS CORRAL PUERTO WILLIAMS TALCAHUANO VALPARAISO IQUIQUE ARICA COQUIMBO CALDERA ANTOFAGASTA PUNTA ARENAS PUERTO MONTT SIPICATE ACAJUTLA	17.5S 149.6W 10.0S 139.0W 23.1S 135.0W 31.8N 116.8W 26.7N 113.6W 22.8N 110.0W 18.8N 111.0W 23.2N 106.4W 19.1N 104.3W 16.9N 99.9W 14.8N 92.5W 25.1S 130.1W 71.0S 170.0E 72.0S 100.0W 27.1S 109.4W 47.1S 74.9W 39.8S 73.5W 54.8S 68.2W 36.7S 73.1W 33.0S 71.6W 20.2S 70.1W 18.5S 70.3W 29.9S 71.4W 27.1S 70.8W 23.3S 70.4W 53.2S 70.9W 41.5S 73.0W 13.9N 91.2W 13.6N 89.8W	03532 28 MAR 04352 28 MAR 06022 28 MAR 05462 28 MAR 06282 28 MAR 07022 28 MAR 07082 28 MAR 07082 28 MAR 07082 28 MAR 07562 28 MAR 08142 28 MAR 08582 28 MAR 10242 28 MAR 10242 28 MAR 11372 28 MAR 11372 28 MAR 13382 28 MAR 14172 28 MAR 14172 28 MAR 14472 28 MAR 14472 28 MAR 14482 28 MAR 14482 28 MAR 14482 28 MAR 14552 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15012 28 MAR 15052 28 MAR 15052 28 MAR 15122 28 MAR 16342 28 MAR 10332 28 MAR 10332 28 MAR

	PUERTO QUEPOS	9.4N	84.2W	1129Z	28	MAR
NICARAGUA	SAN JUAN DL SUR	11.2N	85.9W	1114Z	28	MAR
	PUERTO SANDINO	12.2N	86.8W	1147Z	28	MAR
	CORINTO	12.5N	87.2W	1149Z	28	MAR
PANAMA	PUNTA BURICA	8.0N	82.9W	1131Z	28	MAR
	PUNTA MALA	7.5N	80.0W	1219z	28	MAR
	PUERTO PINA	7.4N	78.OW	1232z	28	MAR
	BALBOA HTS.	9.0N	79.6W	1341Z	28	MAR
HONDURAS	AMAPALA	13.2N	87.6W	1135z	28	MAR
ECUADOR	BALTRA IS.	0.55	90.3W	1138Z	28	MAR
	ESMERELDAS	1.2N	79.8W	1248Z	28	MAR
	LA LIBERTAD	2.2S	81.2W	1304Z	28	MAR
COLOMBIA	BAHIA SOLANO	6.3N	77.4W	1239Z	28	MAR
	TUMACO	1.8N	78.9W	1259Z	28	MAR
	BUENAVENTURA	3.8N	77.2W	1341Z	28	MAR
PERU	TALARA	4.6S	81.5W	1254Z	28	MAR
	LA PUNTA	12.1S	77.2W	1354Z	28	MAR
	PIMENTEL	6.9S	80.OW	1354Z	28	MAR
	CHIMBOTE	9.0S	78.8W	1356Z	28	MAR
	SAN JUAN	15.3S	75.2W	1405Z	28	MAR
	MOLLENDO	17.1S	72.OW	1437Z	28	MAR

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #11

WEPA40 PHEB 280403 TSUPAC

TSUNAMI BULLETIN NUMBER 11 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0403Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

* MAGNITUDE 9.0 * ORIGIN TIME 1800 UTC MAR 27 2013

*	COORDINATES	20.2	NORTH	146.8	EAST	
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- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

	r	FIME		OBSERVE	ED MAX
SITE	OF MI	EASURE	MENT	TSUNAM	I HEIGHT
IONOLULU HI	0108	UTC	3-28	1.14	FT
SHEMYA AK	0109	UTC	3-28	1.35	FT
KAWAIHAE HI	0128	UTC	3-28	4.33	FT
KAHULUI HI	0135	UTC	3-28	6.96	FT
DUTCH HARBOR AK	0142	UTC	3-28	0.52	FT
HILO HI	0146	UTC	3-28	2.30	FT
VEST ATKA AK	0148	UTC	3-28	1.54	FT
SAND POINT AK	0224	UTC	3-28	0.30	FT
AKUTAN ISLAND AK	0240	UTC	3-28	0.89	FT
COLD BAY AK	0254	UTC	3-28	0.33	FT
KODIAK AK	0316	UTC	3-28	0.16	FT
NIKOLSKI AK	0322	UTC	3-28	1.15	FT
SEWARD AK	0348	UTC	3-28	0.23	FT
ELFIN COVE AK	0351	UTC	3-28	0.39	FT
LANGARA TG BC	0355	UTC	3-28	0.46	FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

LOCATION FORECAST POINT		COORDINATES	ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	1834Z 27 MAR
GUAM	GUAM	13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	MARCUS IS.	24.3N 154.0E	1905Z 27 MAR
YAP	YAP IS.	9.5N 138.1E	1946Z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1947Z 27 MAR
	SHIMIZU	32.8N 133.0E	2036Z 27 MAR
	KUSHIRO	42.9N 144.3E	2045z 27 MAR
	HACHINOHE	40.5N 141.5E	2102Z 27 MAR
	OKINAWA	26.2N 127.8E	2117z 27 MAR

POHNPEI	POHNPEI IS.	7.0N 158.2	E 2002Z	27 MAR	
CHUUK	CHUUK IS.	7.4N 151.8	E 2009Z	27 MAR	
MARSHALL IS.	ENIWETOK	11.4N 162.3	E 2012Z	27 MAR	
	KWAJALEIN	8.7N 167.7			
	MAJURO	7.1N 171.4		27 MAR	
PALAU	MALAKAL	7.3N 134.5			
WAKE IS.	WAKE IS.	19.3N 166.6			
KOSRAE	KOSRAE IS.	5.5N 163.0		27 MAR	
PAPUA NEW GUINEA		2.5S 150.7			
	MANUS IS.	2.0S 147.5		27 MAR	
	VANIMO	2.6S 141.3			
	RABAUL	4.2S 152.3		27 MAR	
	WEWAK	3.5S 143.6 6.1S 155.6		27 MAR	
	KIETA	6.0S 154.7			
	AMUN MADANG	5.2s 145.8	E 21472 E 21707	27 MAR 27 MAR	
	LAE	6.8S 147.0			
	PORT MORESBY	9.3S 146.9			
INDONESIA	WARSA	0.6S 135.8			
	MANOKWARI	0.8S 134.2			
	JAYAPURA	2.4S 140.8			
	BEREBERE	2.5N 128.7		27 MAR	
	GEME	4.6N 126.8			
	SORONG	0.8S 131.1	E 2130Z	27 MAR	
	PATANI	0.4N 128.8			
PHILIPPINES	PALANAN	17.1N 122.6	E 2115Z	27 MAR	
	DAVAO	6.8N 125.7	E 2135Z	27 MAR	
	LEGASPI	13.2N 123.8		27 MAR	
TAIWAN	HUALIEN	24.0N 121.6			
RUSSIA	URUP IS	46.1N 150.5			
	PETROPAVLOVSK K	53.2N 159.6			
	SEVERO KURILSK	50.8N 156.1			
	UST KAMCHATSK	56.1N 162.6			
	MEDNNY IS	54.7N 167.4			
NAURU	NAURU	0.5S 166.9		27 MAR	
SOLOMON IS.	FALAMAE	7.4S 155.6 6.9S 157.2		27 MAR	
	PANGGOE	0.95 13/.2	E ZZUUZ		
	MUNDA	0 10 157 2			
	MUNDA	8.4S 157.2	E 2213Z	27 MAR	
	GHATERE	7.8S 159.2	E 2213Z E 2225Z	27 MAR 27 MAR	
	GHATERE AUKI	7.8S 159.2 8.8S 160.6	E 2213Z E 2225Z E 2247Z	27 MAR 27 MAR 27 MAR	
	GHATERE AUKI HONIARA	7.8S 159.2 8.8S 160.6 9.3S 160.0	E 2213Z E 2225Z E 2247Z E 2249Z	27 MAR27 MAR27 MAR27 MAR	
KIRIBATI	GHATERE AUKI	7.8S 159.2 8.8S 160.6	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z	27 MAR27 MAR27 MAR27 MAR	
KIRIBATI	GHATERE AUKI HONIARA KIRAKIRA	7.85 159.2 8.85 160.6 9.35 160.0 10.45 161.9	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 	
KIRIBATI	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS.	7.8S 159.2 8.8S 160.6 9.3S 160.0 10.4S 161.9 1.5N 173.0	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 	
KIRIBATI	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS.	7.8S 159.2 8.8S 160.6 9.3S 160.0 10.4S 161.9 1.5N 173.0 2.8S 171.7	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
KIRIBATI	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS.	7.8S 159.2 8.8S 160.6 9.3S 160.0 10.4S 161.9 1.5N 173.0 2.8S 171.7 2.0N 157.5	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 	
KIRIBATI MIDWAY IS.	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 28 MAR 28 MAR 28 MAR 	
	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z W 2323Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS.	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z W 2341Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z W 2341Z E 2353Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z W 2341Z E 2353Z E 0046Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z E 2333Z W 2341Z E 2353Z E 0046Z W 0039Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z E 2333Z W 2341Z E 2353Z E 0046Z W 0039Z W 0042Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 28 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0303Z W 2231Z W 2323Z E 2333Z E 2333Z W 2341Z E 2353Z E 0046Z W 0039Z W 0042Z E 0043Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS.	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS.	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0210Z W 2231Z W 2323Z E 2333Z W 2341Z E 2353Z E 0046Z W 0042Z E 0043Z W 0044Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0210Z W 0210Z W 2323Z E 2333Z E 2333Z E 2353Z E 0046Z W 0039Z W 0042Z E 0043Z W 0044Z W 0056Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS.	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0210Z W 0210Z W 0231Z W 2323Z E 2333Z E 2333Z W 2341Z E 2353Z E 0046Z W 0042Z E 0043Z W 0044Z W 0056Z W 0108Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0210Z W 0210Z W 0231Z W 2323Z E 2333Z E 2333Z E 2353Z E 0046Z W 0039Z W 0042Z E 0043Z W 0056Z W 0108Z W 0146Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS.	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1	E 2213Z E 2225Z E 2247Z E 2249Z E 2304Z E 2212Z W 0015Z W 0136Z W 0210Z W 0210Z W 0210Z W 0210Z W 0210Z W 0231Z E 2333Z E 2333Z E 2333Z E 2353Z E 0046Z W 0039Z W 0042Z E 0043Z W 0056Z W 0108Z W 0146Z E 0106Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS BRISBANE	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.98 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1 16.7S 145.8 27.2S 153.3	E 2213Z E 2225Z E 2247Z E 2249Z E 2212Z W 0015Z W 0136Z W 0210Z W 2323Z E 2333Z W 2341Z E 2353Z E 0046Z W 0042Z E 0044Z W 0056Z W 0108Z W 0146Z E 0106Z E 0106Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS BRISBANE SYDNEY	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1 16.7S 145.8 27.2S 153.3 33.9S 151.4	E 2213Z E 2225Z E 2247Z E 2249Z E 2212Z W 0015Z W 0136Z W 0210Z W 2323Z E 2333Z W 2341Z E 2353Z E 0046Z W 0042Z E 0043Z W 0056Z W 0108Z W 0146Z E 0106Z E 0156Z W 0146Z E 0126Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS BRISBANE	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.98 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1 16.7S 145.8 27.2S 153.3	E 2213Z E 2225Z E 2247Z E 2249Z E 2212Z W 0015Z W 0136Z W 0210Z W 2323Z E 2333Z W 2341Z E 2353Z E 0046Z W 0042Z E 0043Z W 0056Z W 0108Z W 0146Z E 0106Z E 0106Z E 0106Z E 0126Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS BRISBANE SYDNEY GLADSTONE	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1 16.7S 145.8 27.2S 153.3 33.9S 151.4	E 2213Z E 2225Z E 2247Z E 2249Z E 2212Z W 0015Z W 0136Z W 0210Z W 2323Z E 2333Z W 2341Z E 2353Z E 0046Z W 0042Z E 0044Z W 0056Z W 0108Z W 0146Z E 0106Z E 0106Z E 0126Z E 0301Z E 0301Z E 0301Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS BRISBANE SYDNEY GLADSTONE HOBART	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1 16.7S 145.8 27.2S 153.3 33.9S 151.4 23.8S 151.4	E 2213Z E 2225Z E 2247Z E 2249Z E 2212Z W 0015Z W 0136Z W 0210Z W 2323Z E 2333Z W 2323Z E 2353Z E 0046Z W 0042Z E 0043Z W 0056Z W 0108Z W 0146Z E 0106Z E 0106Z E 0106Z E 0106Z E 0106Z E 0301Z E 0301Z E 0359Z E 0456Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	
MIDWAY IS. HOWLAND-BAKER TUVALU JOHNSTON IS. VANUATU TOKELAU WALLIS-FUTUNA HONG KONG PALMYRA IS. HAWAII AUSTRALIA	GHATERE AUKI HONIARA KIRAKIRA TARAWA IS. KANTON IS. CHRISTMAS IS. MALDEN IS. FLINT IS. MIDWAY IS. HOWLAND IS. FUNAFUTI IS. JOHNSTON IS. ESPERITU SANTO ANATOM IS. NUKUNONU IS. WALLIS IS. HONG KONG PALMYRA IS. NAWILIWILI HONOLULU HILO CAIRNS BRISBANE SYDNEY GLADSTONE HOBART MACKAY	7.88 159.2 8.88 160.6 9.38 160.0 10.48 161.9 1.5N 173.0 2.88 171.7 2.0N 157.5 3.98 154.9 11.48 151.8 28.2N 177.4 0.6N 176.6 7.9S 178.5 16.7N 169.5 15.1S 167.3 20.2S 169.9 9.2S 171.8 13.3S 176.3 22.3N 114.2 6.3N 162.4 22.0N 159.4 21.3N 157.9 19.7N 155.1 16.7S 145.8 27.2S 153.3 33.9S 151.4 23.8S 151.4 43.3S 147.6 21.1S 149.3	E 2213Z E 2225Z E 2247Z E 2249Z E 2212Z W 0015Z W 0136Z W 0210Z W 2323Z E 2333Z W 2323Z E 2353Z E 0046Z W 0042Z E 0044Z W 0056Z W 0108Z W 0146Z E 0106Z E 0106Z E 0106Z E 0301Z E 0301Z E 0301Z E 0301Z E 0359Z E 0456Z W 0112Z	 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 28 MAR 28 MAR 27 MAR 27 MAR 27 MAR 27 MAR 27 MAR 28 MAR 	

AMERICAN SAMOA	PAGO PAGO	14.3S	170.7W	0120z	28	MAR	
FIJI	SUVA	18.1S	178.4E	0125z	28	MAR	
NEW CALEDONIA	NOUMEA	22.3S	166.5E	0127z	28	MAR	
COOK ISLANDS	PUKAPUKA IS.	10.8S	165.9W	0128Z	28	MAR	
	PENRHYN IS.	8.9S	157.8W	0212Z	28	MAR	
	RAROTONGA	21.2S	159.8W	0257z	28	MAR	
NIUE	NIUE IS.		170.OW				
TONGA	NUKUALOFA		175.2W				
KERMADEC IS	RAOUL IS.		177.9W				
NEW ZEALAND	NORTH CAPE		173.3E				
	EAST CAPE		178.5E				
	AUCKLAND-W		174.2E				
	MILFORD SOUND		167.9E				
	GISBORNE		178.0E				
	AUCKLAND-E		175.0E				
	NEW PLYMOUTH		174.1E				
	NAPIER		176.9E				
	WESTPORT		171.6E				
	WELLINGTON		174.8E				
	BLUFF		168.3E				
	NELSON		173.3E				
	LYTTELTON		172.7E				
	DUNEDIN		172.7E				
FR. POLYNESIA	PAPEETE		149.6W				
FR. FOLINESIA	HIVA OA		139.0W				
	RIKITEA		135.0W				
MEXICO	ENSENADA		135.0W				
MEXICO	PUNTA ABREOJOS		113.6W				
	CABO SAN LUCAS		113.0W				
	SOCORRO		110.0W				
	MAZATLAN		106.4W				
	MAZAILAN MANZANILLO		108.4W				
			104.3W 99.9W				
	ACAPULCO PUERTO MADERO	14.8N		1024Z			
DIMCAIDN			92.JW 130.1W				
PITCAIRN	PITCAIRN IS.		130.1W 170.0E				
ANTARCTICA	CAPE ADARE						
CUTTE	THURSTON IS. EASTER IS.		100.0W 109.4W				
CHILE	GOLFO DE PENAS		109.4W 74.9W				
	CORRAL	39.8S					
	PUERTO WILLIAMS		68.2W				
	TALCAHUANO	36.7S					
	VALPARAISO	33.0S	73.1W 71.6W	14472 1448Z			
		20.2S		1440Z 1455Z			
	IQUIQUE ARICA	18.5S					
	COQUIMBO CALDERA	29.9S 27.1S		1501Z 1504Z			
	ANTOFAGASTA	27.13 23.3S					
	PUNTA ARENAS	53.2S		1505Z			
	PUERTO MONTT	41.5S		1634Z			
GUATEMALA	SIPICATE	13.9N					
EL SALVADOR	ACAJUTLA	13.6N					
COSTA RICA	CABO SAN ELENA	10.9N					
COSIA RICA	CABO MATAPALO	10.9N 8.4N					
	PUERTO QUEPOS	9.4N		11212 1129Z			
NICARAGUA	SAN JUAN DL SUR	9.4N 11.2N		11292 1114Z			
NICARAGOA	PUERTO SANDINO	12.2N		1142 1147Z			
		12.2N 12.5N					
	CORINTO						
PANAMA	PUNTA BURICA PUNTA MALA	8.0N 7.5N		1131Z 1219Z			
	PUNTA MALA PUERTO PINA	7.5N 7.4N		12192 1232Z			
	BALBOA HTS.	9.0N		12322 13412			
HONDURAS	AMAPALA	9.0N 13.2N		1341Z 1135Z			
ECUADOR	BALTRA IS.	0.5S					
TOOLOU	ESMERELDAS	0.35 1.2N					
	LA LIBERTAD	1.2N 2.2S					
COLOMBIA	BAHIA SOLANO	2.25 6.3N					
COTOLDIY	TUMACO	1.8N					
	TONACO	T.0N	10.9W	тсјуд	20	MAR	

CHIMBOTE 9.0S 78.8W 1356Z 28 MAR SAN JUAN 15.3S 75.2W 1405Z 28 MAR MOLLENDO 17.1S 72.0W 1437Z 28 MAR	BUENAVENTURA TALARA LA PUNTA PIMENTEL	4.6S 12.1S 6.9S	77.2W 81.5W 77.2W 80.0W	1254Z 1354Z 1354Z	28 28 28	MAR MAR MAR
		15.3S	75.2W	1405z	28	MAR

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #12

WEPA40 PHEB 280503 TSUPAC

TSUNAMI BULLETIN NUMBER 12 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0503Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

... A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR

N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
+	TOCATION	MADIANA TOTANDO DECION

* LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

TIME	OBSERVED MAX				
OF MEASUREMENT	TSUNAMI HEIGHT				
0224 UTC 3-28	0.30 FT				
0240 UTC 3-28	0.89 FT				
0254 UTC 3-28	0.33 FT				
0316 UTC 3-28	0.16 FT				
	OF MEASUREMENT 0224 UTC 3-28 0240 UTC 3-28 0254 UTC 3-28				

NIKOLSKI AK	0322	UTC	3-28	1.15	FΤ
KING COVE AK	0344	UTC	3-28	0.43	\mathbf{FT}
SEWARD AK	0348	UTC	3-28	0.23	\mathbf{FT}
ELFIN COVE AK	0351	UTC	3-28	0.39	\mathbf{FT}
LANGARA TG BC	0355	UTC	3-28	0.46	\mathbf{FT}
CORDOVA AK	0414	UTC	3-28	0.16	FΤ
YAKUTAT TG AK	0418	UTC	3-28	0.36	\mathbf{FT}
SITKA DOCK TG AK	0418	UTC	3-28	0.09	\mathbf{FT}
SELDOVIA AK	0432	UTC	3-28	0.08	FΤ
AKUTAN ISLAND AK	0441	UTC	3-28	1.35	\mathbf{FT}
HOMER AK	0442	UTC	3-28	0.07	\mathbf{FT}
DUTCH HARBOR AK	0444	UTC	3-28	1.41	\mathbf{FT}
WHITTIER AK	0447	UTC	3-28	0.10	\mathbf{FT}
EUREKA CA	0456	UTC	3-28	0.94	\mathbf{FT}
SOUTH SPIT CA	0458	UTC	3-28	1.17	FΤ

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

LOCATION	FORECAST POINT		
MARCUS IS. YAP	SAIPAN GUAM MARCUS IS. YAP IS. KATSUURA SHIMIZU KUSHIRO HACHINOHE	15.3N 145.8E 13.4N 144.7E 24.3N 154.0E 9.5N 138.1E 35.1N 140.3E 32.8N 133.0E 42.9N 144.3E 40.5N 141.5E	1834Z 27 MAR 1856Z 27 MAR 1905Z 27 MAR 1946Z 27 MAR 1947Z 27 MAR 2036Z 27 MAR 2045Z 27 MAR 2102Z 27 MAR
CHUUK	OKINAWA POHNPEI IS. CHUUK IS. ENIWETOK KWAJALEIN MAJURO	7.0N 158.2E 7.4N 151.8E 11.4N 162.3E 8.7N 167.7E	2002Z 27 MAR 2009Z 27 MAR 2012Z 27 MAR 2057Z 27 MAR
WAKE IS. Kosrae	MALAKAL WAKE IS. KOSRAE IS. KAVIENG MANUS IS. VANIMO	7.3N 134.5E 19.3N 166.6E 5.5N 163.0E 2.5S 150.7E 2.0S 147.5E	2019Z 27 MAR 2028Z 27 MAR 2037Z 27 MAR 2103Z 27 MAR

	RABAUL	4.2S 152.3E	2122z 27 MAR
	WEWAK	3.5S 143.6E	
	KIETA		2143z 27 MAR
	AMUN		2147z 27 MAR
	MADANG	5.2S 145.8E	
	LAE DODE MODECDY		2225Z 27 MAR
	PORT MORESBY		0000Z 28 MAR
INDONESIA	WARSA	0.6S 135.8E	
	MANOKWARI	0.8S 134.2E	
	JAYAPURA	2.4S 140.8E	2117z 27 Mar
	BEREBERE	2.5N 128.7E	2123z 27 Mar
	GEME	4.6N 126.8E	2126Z 27 MAR
	SORONG	0.8S 131.1E	2130z 27 MAR
	PATANI		2152z 27 MAR
PHILIPPINES	PALANAN		2115z 27 Mar
	DAVAO		2135Z 27 MAR
	LEGASPI	13.2N 123.8E	
ma TEIAN			
TAIWAN	HUALIEN	24.0N 121.6E	
RUSSIA	URUP IS	46.1N 150.5E	
	PETROPAVLOVSK K	53.2N 159.6E	
	SEVERO KURILSK	50.8N 156.1E	2237z 27 Mar
	UST KAMCHATSK	56.1N 162.6E	2249z 27 MAR
	MEDNNY IS	54.7N 167.4E	2251z 27 MAR
NAURU	NAURU	0.5S 166.9E	2140Z 27 MAR
SOLOMON IS.	FALAMAE	7.4S 155.6E	2156Z 27 MAR
	PANGGOE	6.9S 157.2E	
	MUNDA		2213Z 27 MAR
	GHATERE		2225Z 27 MAR
		8.8S 160.6E	
	AUKI		
	HONIARA		2249Z 27 MAR
	KIRAKIRA		2304z 27 Mar
KIRIBATI	TARAWA IS.	1.5N 173.0E	
	KANTON IS.	2.8S 171.7W	0015z 28 MAR
	CHRISTMAS IS.	2.0N 157.5W	0136Z 28 MAR
	MALDEN IS.	3.9s 154.9w	0210z 28 Mar
	FLINT IS.	11.4S 151.8W	0303Z 28 MAR
MIDWAY IS.	MIDWAY IS.	28.2N 177.4W	2231z 27 Mar
HOWLAND-BAKER	HOWLAND IS.		2323Z 27 MAR
TUVALU	FUNAFUTI IS.	7.9S 178.5E	
	JOHNSTON IS.		2341Z 27 MAR
JOHNSTON IS.			
VANUATU	ESPERITU SANTO		2353Z 27 MAR
	ANATOM IS.	20.2S 169.9E	
TOKELAU	NUKUNONU IS.	9.2S 171.8W	0039Z 28 MAR
WALLIS-FUTUNA	WALLIS IS.		0042Z 28 MAR
HONG KONG	HONG KONG	22.3N 114.2E	0043Z 28 MAR
PALMYRA IS.	PALMYRA IS.	6.3N 162.4W	0044Z 28 MAR
HAWAII	NAWILIWILI	22.0N 159.4W	0056z 28 MAR
	HONOLULU	21.3N 157.9W	0108z 28 MAR
	HILO	19.7N 155.1W	
AUSTRALIA	CAIRNS		0106Z 28 MAR
	BRISBANE		0156Z 28 MAR
	SYDNEY		0226Z 28 MAR
	GLADSTONE		0301Z 28 MAR
	HOBART		0359Z 28 MAR
	MACKAY	21.1S 149.3E	
SAMOA	APIA	13.8S 171.8W	
JARVIS IS.	JARVIS IS.	0.4S 160.1W	0119z 28 MAR
AMERICAN SAMOA	PAGO PAGO	14.3s 170.7W	0120Z 28 MAR
FIJI	SUVA	18.1S 178.4E	0125Z 28 MAR
NEW CALEDONIA	NOUMEA	22.3S 166.5E	0127Z 28 MAR
COOK ISLANDS	PUKAPUKA IS.	10.8S 165.9W	
-	PENRHYN IS.	8.9S 157.8W	
	RAROTONGA		0257Z 28 MAR
NIUE	NIUE IS.		0145Z 28 MAR
TONGA	NUKUALOFA		01452 28 MAR 0211Z 28 MAR
KERMADEC IS	RAOUL IS.		0253Z 28 MAR
NEW ZEALAND	NORTH CAPE		0257Z 28 MAR
	EAST CAPE	37.7S 178.5E	0344Z 28 MAR

	AUCKLAND-W	37.1S 17	74.2E	0357z	28	MAR
	MILFORD SOUND	44.6S 16	57.9E	0410z	28	MAR
	GISBORNE	38.7S 17	78.0E	0428Z	28	MAR
	AUCKLAND-E	36.7S 17	75.0E	0434Z	28	MAR
	NEW PLYMOUTH	39.1S 17				
	NAPIER	39.5S 17				
	WESTPORT	41.8S 17				
	WELLINGTON	41.3S 17				
	BLUFF	46.6S 16				
	NELSON	41.35 17				
	LYTTELTON	43.6S 17				
	DUNEDIN	45.9S 17				
FR. POLYNESIA						
FR. POLINESIA	PAPEETE	17.5S 14				
	HIVA OA	10.0s 13				
VENTOO	RIKITEA	23.1S 13				
MEXICO	ENSENADA	31.8N 11				
	PUNTA ABREOJOS	26.7N 11				
	CABO SAN LUCAS	22.8N 11				
	SOCORRO	18.8N 11				
	MAZATLAN	23.2N 10				
	MANZANILLO	19.1N 10	04.3W			
	ACAPULCO	16.9N 9	99.9W	0858Z	28	MAR
	PUERTO MADERO	14.8N 9	92.5W	1024Z	28	MAR
PITCAIRN	PITCAIRN IS.	25.1S 13	30.1W	0650Z	28	MAR
ANTARCTICA	CAPE ADARE	71.0s 17	70.0E	0758Z	28	MAR
	THURSTON IS.	72.0S 10	W0.00	1137z	28	MAR
CHILE	EASTER IS.	27.1S 10)9.4W	0944Z	28	MAR
	GOLFO DE PENAS	47.1s	74.9W	1338z	28	MAR
	CORRAL	39.85 T	73.5W	1417Z	28	MAR
	PUERTO WILLIAMS	54.8S 6	58.2W	1439Z	28	MAR
	TALCAHUANO	36.7S 7	73.1W			
	VALPARAISO		71.6W			
	IQUIQUE		70.1W			
	ARICA		70.3W			
	COQUIMBO		71.4W			
	CALDERA		70.8W			
	ANTOFAGASTA		70.4W			
	PUNTA ARENAS		70.9W			
	PUERTO MONTT		73.0W			
GUATEMALA	SIPICATE		91.2W			
EL SALVADOR	ACAJUTLA					
COSTA RICA	CABO SAN ELENA		39.8W			
COSTA RICA			36.0W			
	CABO MATAPALO		33.3W	1121Z		
	PUERTO QUEPOS		34.2W	1129Z		
NICARAGUA	SAN JUAN DL SUR		35.9W			
	PUERTO SANDINO		36.8W			
	CORINTO		37.2W			
PANAMA	PUNTA BURICA		32.9W			
	PUNTA MALA		30.OW	1219Z		
	PUERTO PINA		78.OW			
	BALBOA HTS.		79.6W			
HONDURAS	AMAPALA	13.2N 8	37.6W	1135z	28	MAR
ECUADOR	BALTRA IS.	0.5S 9	90.3W	1138Z	28	MAR
	ESMERELDAS	1.2N 7	79.8W	1248Z	28	MAR
	LA LIBERTAD		31.2W	1304Z	28	MAR
COLOMBIA	BAHIA SOLANO	6.3N 7	77.4W	1239z	28	MAR
	TUMACO		78.9W	1259Z	28	MAR
	BUENAVENTURA		77.2W			
PERU	TALARA		31.5W			
	LA PUNTA		77.2W			
	PIMENTEL		30.OW			
	CHIMBOTE		78.8W			
	SAN JUAN		75.2W			
	MOLLENDO		72.0W			
						·- ·

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PTWC Pacific Message #13

WEPA40 PHEB 280603 TSUPAC

TSUNAMI BULLETIN NUMBER 13 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0603Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

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PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT		
NIKOLSKI AK KING COVE AK YAKUTAT TG AK SELDOVIA AK AKUTAN ISLAND AK HOMER AK WHITTIER AK EUREKA CA CRESCENT CITY TG CA MONTEREY CA SAND POINT AK SANTA CRUZ CA LANGARA TG BC CRESCENT CITY CA	0322 0344 0418 0432 0441 0442 0447 0456 0506 0508 0508 0508 0509 0510 0511	UTC UTC UTC UTC UTC UTC UTC UTC UTC UTC	3-28 3-28 3-28 3-28 3-28 3-28 3-28 3-28	1.15 0.43 0.36 0.08 1.35 0.07 0.10 0.94 1.16 0.69 0.49 0.75 0.75 1.24	FT FT FT FT FT FT FT FT	
TOFINO BC	0512	UTC	3-28	1.38	FT	

TRINIDAD CA	0512	UTC	3-28	1.61	FΤ
ELFIN COVE AK	0513	UTC	3-28	0.85	FΤ
LONG BEACH WA	0518	UTC	3-28	1.20	FΤ
POINT REYES TG CA	0518	UTC	3-28	0.88	FΤ
SEWARD AK	0518	UTC	3-28	0.30	\mathbf{FT}
NEAH BAY TG WA	0521	UTC	3-28	0.50	FΤ
COLD BAY AK	0531	UTC	3-28	0.43	\mathbf{FT}
WESTPORT WA	0531	UTC	3-28	0.90	FΤ
PORT SAN LUIS CA	0534	UTC	3-28	0.71	FΤ
CORDOVA AK	0540	UTC	3-28	2.85	\mathbf{FT}
SITKA DOCK TG AK	0542	UTC	3-28	0.10	\mathbf{FT}
PORT ORFORD OR	0548	UTC	3-28	2.82	\mathbf{FT}
DUTCH HARBOR AK	0550	UTC	3-28	1.44	\mathbf{FT}
SANTA BARBARA CA	0550	UTC	3-28	0.45	\mathbf{FT}
SOUTH SPIT CA	0551	UTC	3-28	4.13	FΤ
KODIAK AK	0553	UTC	3-28	0.39	FΤ
CHARLESTON OR	0557	UTC	3-28	2.20	\mathbf{FT}

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

LOCATION	FORECAST POINT	COORDINATES	ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	18347 27 MAR
GUAM	GUAM		
	MARCUS IS.	24.3N 154.0E	1905z 27 MAR
YAP	YAP IS.	9.5N 138.1E	1946z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1947z 27 MAR
	SHIMIZU	32.8N 133.0E	2036Z 27 MAR
	KUSHIRO	42.9N 144.3E	2045z 27 MAR
	HACHINOHE	40.5N 141.5E	2102z 27 MAR
	OKINAWA	26.2N 127.8E	2117z 27 MAR
POHNPEI	POHNPEI IS.	7.0N 158.2E	2002z 27 MAR
CHUUK	CHUUK IS.	7.4N 151.8E	2009z 27 MAR
MARSHALL IS.	ENIWETOK	11.4N 162.3E	2012z 27 MAR
	KWAJALEIN	8.7N 167.7E	2057z 27 MAR
	MAJURO	7.1N 171.4E	2133Z 27 MAR
PALAU	MALAKAL	7.3N 134.5E	2019Z 27 MAR
WAKE IS.	WAKE IS.	19.3N 166.6E	2028z 27 MAR
KOSRAE	KOSRAE IS.	5.5N 163.0E	2037z 27 MAR
PAPUA NEW GUINEA	KAVIENG	2.5S 150.7E	2103Z 27 MAR

	MANUS IS.	2.0S 147.5E	2103Z 27 MAR
	VANIMO	2.6S 141.3E	2115z 27 Mar
	RABAUL	4.2S 152.3E	2122z 27 Mar
	WEWAK	3.5S 143.6E	2130z 27 MAR
	KIETA	6.1S 155.6E	2143Z 27 MAR
	AMUN	6.0S 154.7E	2147Z 27 MAR
	MADANG	5.2S 145.8E	2149Z 27 MAR
	LAE	6.8S 147.0E	2225z 27 Mar
	PORT MORESBY	9.3S 146.9E	0000Z 28 MAR
INDONESIA	WARSA	0.6S 135.8E	2108Z 27 MAR
	MANOKWARI	0.8S 134.2E	
	JAYAPURA		2117z 27 Mar
	BEREBERE		2123Z 27 MAR
	GEME		2126Z 27 MAR
	SORONG		2130Z 27 MAR
	PATANI	0.4N 128.8E	
PHILIPPINES	PALANAN		2115Z 27 MAR
	DAVAO		2135Z 27 MAR
	LEGASPI		2139Z 27 MAR
TAIWAN	HUALIEN		2117Z 27 MAR
RUSSIA	URUP IS		2117Z 27 MAR
	PETROPAVLOVSK K		2227Z 27 MAR
	SEVERO KURILSK		2237Z 27 MAR
	UST KAMCHATSK		2249Z 27 MAR
	MEDNNY IS		2251Z 27 MAR
NAURU	NAURU	0.5S 166.9E	
SOLOMON IS.	FALAMAE		2156Z 27 MAR 2200Z 27 MAR
	PANGGOE		
	MUNDA		2213Z 27 MAR
	GHATERE		2225Z 27 MAR 2247Z 27 MAR
	AUKI		22472 27 MAR 2249z 27 MAR
	HONIARA		2304Z 27 MAR
VIDIDAUI	KIRAKIRA	1.5N 173.0E	
KIRIBATI	TARAWA IS. KANTON IS.		0015Z 28 MAR
	CHRISTMAS IS.		00132 28 MAR 0136z 28 MAR
	MALDEN IS.		01302 28 MAR 0210z 28 MAR
	FLINT IS.		0303Z 28 MAR
MIDWAY IS.	MIDWAY IS.		2231Z 27 MAR
HOWLAND-BAKER	HOWLAND IS.		2323Z 27 MAR
TUVALU	FUNAFUTI IS.		2333Z 27 MAR
JOHNSTON IS.	JOHNSTON IS.		2341Z 27 MAR
VANUATU	ESPERITU SANTO	15.1S 167.3E	2353Z 27 MAR
	ANATOM IS.	20.2S 169.9E	
TOKELAU	NUKUNONU IS.		0039Z 28 MAR
WALLIS-FUTUNA	WALLIS IS.		0042Z 28 MAR
HONG KONG	HONG KONG		0043z 28 Mar
PALMYRA IS.	PALMYRA IS.	6.3N 162.4W	0044z 28 Mar
HAWAII	NAWILIWILI	22.0N 159.4W	0056z 28 MAR
	HONOLULU	21.3N 157.9W	0108z 28 MAR
	HILO	19.7N 155.1W	0146Z 28 MAR
AUSTRALIA	CAIRNS	16.7S 145.8E	0106z 28 MAR
	BRISBANE	27.2S 153.3E	0156z 28 MAR
	SYDNEY	33.9S 151.4E	0226Z 28 MAR
	GLADSTONE	23.8S 151.4E	0301Z 28 MAR
	HOBART	43.3S 147.6E	0359Z 28 MAR
	MACKAY		0456Z 28 MAR
SAMOA	APIA		0112Z 28 MAR
JARVIS IS.	JARVIS IS.	0.4S 160.1W	0119Z 28 MAR
AMERICAN SAMOA	PAGO PAGO		0120Z 28 MAR
FIJI	SUVA		0125Z 28 MAR
NEW CALEDONIA	NOUMEA		0127Z 28 MAR
COOK ISLANDS	PUKAPUKA IS.		0128Z 28 MAR
	PENRHYN IS.		0212Z 28 MAR
	RAROTONGA		0257Z 28 MAR
NIUE	NIUE IS.		0145Z 28 MAR
TONGA	NUKUALOFA		0211Z 28 MAR
KERMADEC IS	RAOUL IS.	29.2S 177.9W	0253Z 28 MAR

NEW ZEALAND	NORTH CAPE	34.4S	173.3E	0257z	28	MAR
	EAST CAPE		178.5E			
	AUCKLAND-W	37.1S	174.2E	0357Z	28	MAR
	MILFORD SOUND	44.6S	167.9E	0410Z	28	MAR
	GISBORNE	38.7S	178.0E	0428Z	28	MAR
	AUCKLAND-E	36.7S	175.0E	0434Z	28	MAR
	NEW PLYMOUTH	39.1S	174.1E	0446Z	28	MAR
	NAPIER	39.5S	176.9E	0459Z	28	MAR
	WESTPORT	41.8S	171.6E	0507Z	28	MAR
	WELLINGTON	41.3S	174.8E	0519Z	28	MAR
	BLUFF	46.6S	168.3E	0533Z	28	MAR
	NELSON	41.3S	173.3E			
	LYTTELTON		172.7E			
	DUNEDIN		170.5E			
FR. POLYNESIA	PAPEETE		149.6W			
	HIVA OA		139.0W			
	RIKITEA		135.0W			
MEXICO	ENSENADA		116.8W			
MEAICO	PUNTA ABREOJOS		113.6W			
	CABO SAN LUCAS		110.0W		-	
	SOCORRO		111.0W			
	MAZATLAN		106.4W			
	MANZANILLO		104.3W			
	ACAPULCO		99.9W			
	PUERTO MADERO		92.5W			
PITCAIRN	PITCAIRN IS.		130.1W			
ANTARCTICA	CAPE ADARE		170.0E		28	MAR
	THURSTON IS.	72.0S	100.0W	1137z	28	MAR
CHILE	EASTER IS.	27.1S	109.4W	0944Z	28	MAR
	GOLFO DE PENAS	47.1S	74.9W	1338Z	28	MAR
	CORRAL	39.8S	73.5W	1417Z	28	MAR
	PUERTO WILLIAMS	54.8S	68.2W	1439Z	28	MAR
	TALCAHUANO	36.7s	73.1W	1447z	28	MAR
	VALPARAISO	33.0S	71.6W	1448Z	28	MAR
	IQUIQUE	20.2S	70.1W	1455Z	28	MAR
	ARICA	18.5S	70.3W	1500z	28	MAR
	COQUIMBO	29.95	71.4W	1501z	28	MAR
	CALDERA	27.1S	70.8W	1504z	28	MAR
	ANTOFAGASTA	23.3S	70.4W	1505z	28	MAR
	PUNTA ARENAS	53.2S	70.9W	1512z	28	MAR
	PUERTO MONTT	41.5S	73.0W	1634Z		
GUATEMALA	SIPICATE	13.9N		1033Z		
EL SALVADOR	ACAJUTLA	13.6N	89.8W	1045z		
COSTA RICA	CABO SAN ELENA	10.9N		1059Z		
CODIN NICH	CABO MATAPALO	10.9N 8.4N		10392 1121Z		
	PUERTO OUEPOS			11212 1129Z		
	~		84.2W			
NICARAGUA	SAN JUAN DL SUR		85.9W	1114Z		
	PUERTO SANDINO	12.2N				
	CORINTO		87.2W	1149Z		
PANAMA	PUNTA BURICA	8.0N				
	PUNTA MALA	7.5N		1219Z		
· · · · · · · · · · · · · · · · · · ·	PUERTO PINA	7.4N	78.OW	1232Z		
	BALBOA HTS.	9.0N	79.6W	1341Z	28	MAR
HONDURAS	AMAPALA	13.2N	87.6W	1135z	28	MAR
ECUADOR	BALTRA IS.	0.55	90.3W	1138Z	28	MAR
	ESMERELDAS	1.2N		1248Z	28	MAR
	LA LIBERTAD	2.2S	81.2W	1304Z	28	MAR
COLOMBIA	BAHIA SOLANO	6.3N		1239z	28	MAR
	TUMACO	1.8N	78.9W	1259z	28	MAR
	BUENAVENTURA	3.8N		1341Z		
PERU	TALARA	4.6S		1254Z		
	LA PUNTA	12.1S		1354Z		
	PIMENTEL	6.9S		1354Z		
	CHIMBOTE			+	20	1.12.17
	CHIMBOTE SAN JUAN	9.0S			20	
	CHIMBOTE SAN JUAN MOLLENDO	9.05 15.3S 17.1S	75.2W	1405Z		MAR

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT.

THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #14

WEPA40 PHEB 280703 TSUPAC

TSUNAMI BULLETIN NUMBER 14 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0703Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

...A PACIFIC-WIDE TSUNAMI WARNING IS IN EFFECT...

A TSUNAMI WARNING IS IN EFFECT FOR N. MARIANAS - GUAM - MARCUS IS. - YAP - JAPAN - POHNPEI -CHUUK - MARSHALL IS. - PALAU - WAKE IS. - KOSRAE - PAPUA NEW GUINEA - INDONESIA - PHILIPPINES - TAIWAN - RUSSIA -NAURU - SOLOMON IS. - KIRIBATI - MIDWAY IS. - HOWLAND-BAKER - TUVALU - JOHNSTON IS. - VANUATU - TOKELAU - WALLIS-FUTUNA - HONG KONG - PALMYRA IS. - HAWAII - AUSTRALIA - SAMOA -JARVIS IS. - FIJI - NEW CALEDONIA - COOK ISLANDS - NIUE -TONGA - KERMADEC IS - NEW ZEALAND - FR. POLYNESIA - MEXICO - PITCAIRN - ANTARCTICA - CHILE - GUATEMALA - EL SALVADOR -COSTA RICA - NICARAGUA - PANAMA - HONDURAS - ECUADOR -COLOMBIA AND PERU.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

* MAGNITUDE	9.0
* ORIGIN TIME	1800 UTC MAR 27 2013
* COORDINATES	20.2 NORTH 146.8 EAST
* DEPTH	19 MILES

* LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT			
YAKUTAT TG AK	0418	UTC	3-28	0.36 FT			
SELDOVIA AK	0432	UTC	3-28	0.08 FT			
AKUTAN ISLAND AK	0441	UTC	3-28	1.35 FT			
HOMER AK	0442	UTC	3-28	0.07 FT			
WHITTIER AK	0447	UTC	3-28	0.10 FT			
EUREKA CA	0456	UTC	3-28	0.94 FT			
MONTEREY CA	0508	UTC	3-28	0.69 FT			
SANTA CRUZ CA	0509	UTC	3-28	0.75 FT			
LANGARA TG BC	0510	UTC	3-28	0.75 FT			
TRINIDAD CA	0512	UTC	3-28	1.61 FT			
ELFIN COVE AK	0513	UTC	3-28	0.85 FT			
LONG BEACH WA	0518	UTC	3-28	1.20 FT			
POINT REYES TG CA	0518	UTC	3-28	0.88 FT			

SEWARD AK	0518	UTC	3-28	0.30	FT	
NEAH BAY TG WA	0521	UTC	3-28	0.50	FΤ	
COLD BAY AK	0531	UTC	3-28	0.43	FΤ	
WESTPORT WA	0531	UTC	3-28	0.90	FΤ	
CORDOVA AK	0540	UTC	3-28	2.85	FΤ	
SITKA DOCK TG AK	0542	UTC	3-28	0.10	FΤ	
PORT ORFORD OR	0548	UTC	3-28	2.82	FΤ	
DUTCH HARBOR AK	0550	UTC	3-28	1.44	FΤ	
SANTA BARBARA CA	0550	UTC	3-28	0.45	FΤ	
SOUTH SPIT CA	0551	UTC	3-28	4.13	FΤ	
KODIAK AK	0553	UTC	3-28	0.39	FΤ	
CHARLESTON OR	0557	UTC	3-28	2.20	FΤ	
MONTEREY CA	0600	UTC	3-28	0.92	FΤ	
ASTORIA TG OR	0605	UTC	3-28	0.39	FΤ	
PORT ANGELES TG WA	0606	UTC	3-28	0.43	FΤ	
TRINIDAD CA	0606	UTC	3-28	4.36	FΤ	
LA HARBOR CA	0608	UTC	3-28	0.31	FΤ	
la jolla ca	0612	UTC	3-28	0.53	FΤ	
TOFINO BC	0612	UTC	3-28	2.56	FT	
KING COVE AK	0618	UTC	3-28	0.82	FT	
SAN DIEGO NAVAL PIER CA	0623	UTC	3-28	0.73	FT	
CRESCENT CITY TG CA	0636	UTC	3-28	2.43	FT	
CRESCENT CITY CA	0636	UTC	3-28	2.36	FΤ	
PORT SAN LUIS CA	0636	UTC	3-28	2.17	FT	
SAND POINT AK	0638	UTC	3-28	0.92	FT	
SANTA MONICA TG CA	0647	UTC	3-28	0.75	FT	
PORT TOWNSEND WA	0653	UTC	3-28	0.39	FΤ	

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS CONFIRM THAT A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE WIDESPREAD DAMAGE TO COASTS AND ISLANDS IN THE PACIFIC. AUTHORITIES SHOULD TAKE APPROPRIATE ACTION IN RESPONSE TO THIS THREAT. THIS CENTER WILL CONTINUE TO MONITOR SEA LEVEL DATA TO DETERMINE THE EXTENT AND SEVERITY OF THE THREAT.

A TSUNAMI IS A SERIES OF WAVES AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMI HEIGHTS CANNOT BE FORECASTED AND CAN VARY SIGNIFICANTLY ALONG A COAST DUE TO LOCAL EFFECTS. THE TIME FROM ONE WAVE TO THE NEXT CAN BE FIVE MINUTES TO AN HOUR AND THE THREAT CAN CONTINUE FOR MANY HOURS AS MULTIPLE WAVES ARRIVE.

FOR ALL AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE TSUNAMI IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

ESTIMATED INITIAL TSUNAMI ARRIVAL TIMES AT FORECAST POINTS WITHIN THE WARNING AND WATCH AREAS ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. THE TIME BETWEEN SUCCESSIVE WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	FORECAST POINT	COORDINATES	ARRIVAL TIME
N. MARIANAS	SAIPAN	15.3N 145.8E	1834Z 27 MAR
GUAM	GUAM	13.4N 144.7E	1856Z 27 MAR
MARCUS IS.	MARCUS IS.	24.3N 154.0E	1905Z 27 MAR
YAP	YAP IS.	9.5N 138.1E	1946Z 27 MAR
JAPAN	KATSUURA	35.1N 140.3E	1947Z 27 MAR
	SHIMIZU	32.8N 133.0E	2036Z 27 MAR
	KUSHIRO	42.9N 144.3E	2045Z 27 MAR
	HACHINOHE	40.5N 141.5E	2102z 27 MAR

	OKINAWA	26.2N 127.8E	2117z 27 Mar
POHNPEI	POHNPEI IS.	7.0N 158.2E	
СНИЛК	CHUUK IS.	7.4N 151.8E	
MARSHALL IS.	ENIWETOK	11.4N 162.3E	
matching 10.	KWAJALEIN		2057z 27 MAR
	MAJURO		2133Z 27 MAR
PALAU	MALAKAL	7.3N 134.5E	
WAKE IS.	WAKE IS.	19.3N 166.6E	2028z 27 Mar
KOSRAE	KOSRAE IS.	5.5N 163.0E	2037z 27 Mar
PAPUA NEW GUINEA	KAVIENG	2.5S 150.7E	2103z 27 Mar
	MANUS IS.	2.0S 147.5E	2103z 27 Mar
	VANIMO	2.6S 141.3E	
	RABAUL		2122Z 27 MAR
	WEWAK	3.5S 143.6E	
	KIETA	6.1S 155.6E	
	AMUN	6.0S 154.7E	2147z 27 MAR
	MADANG	5.2S 145.8E	2149Z 27 MAR
	LAE	6.8S 147.0E	2225z 27 MAR
	PORT MORESBY	9.3S 146.9E	0000Z 28 MAR
INDONESIA	WARSA	0.6S 135.8E	2108z 27 Mar
1112 01120 111	MANOKWARI	0.8S 134.2E	
		2.4S 140.8E	
	JAYAPURA		
	BEREBERE		2123Z 27 MAR
	GEME		2126Z 27 MAR
	SORONG	0.8S 131.1E	2130z 27 MAR
	PATANI	0.4N 128.8E	2152Z 27 MAR
PHILIPPINES	PALANAN	17.1N 122.6E	2115z 27 Mar
	DAVAO	6.8N 125.7E	2135z 27 MAR
	LEGASPI	13.2N 123.8E	2139Z 27 MAR
TAIWAN	HUALIEN		2117Z 27 MAR
RUSSIA	URUP IS		2117Z 27 MAR
	PETROPAVLOVSK K	53.2N 159.6E	
	SEVERO KURILSK		2237Z 27 MAR
	UST KAMCHATSK	56.1N 162.6E	2249z 27 Mar
	MEDNNY IS	54.7N 167.4E	2251Z 27 MAR
NAURU	NAURU	0.5S 166.9E	2140z 27 MAR
SOLOMON IS.	FALAMAE	7.4S 155.6E	2156z 27 Mar
002011011 10.	PANGGOE		2200Z 27 MAR
	MUNDA		2213Z 27 MAR
	GHATERE		2225Z 27 MAR
	AUKI		2247Z 27 MAR
	HONIARA	9.3S 160.0E	2249z 27 MAR
	KIRAKIRA	10.4S 161.9E	2304z 27 MAR
KIRIBATI	TARAWA IS.	1.5N 173.0E	2212z 27 Mar
	KANTON IS.	2.8S 171.7W	0015z 28 MAR
	CHRISTMAS IS.	2.0N 157.5W	
	MALDEN IS.	3.9S 154.9W	
	FLINT IS.	11.4S 151.8W	
MIDHAY IC			
MIDWAY IS.	MIDWAY IS.	28.2N 177.4W	
HOWLAND-BAKER	HOWLAND IS.	0.6N 176.6W	
TUVALU	FUNAFUTI IS.	7.9S 178.5E	
JOHNSTON IS.	JOHNSTON IS.	16.7N 169.5W	2341z 27 MAR
VANUATU	ESPERITU SANTO	15.1S 167.3E	2353Z 27 MAR
	ANATOM IS.	20.2S 169.9E	0046z 28 MAR
TOKELAU	NUKUNONU IS.	9.2S 171.8W	
WALLIS-FUTUNA	WALLIS IS.	13.3S 176.3W	
		22.3N 114.2E	
HONG KONG	HONG KONG		
PALMYRA IS.	PALMYRA IS.	6.3N 162.4W	
HAWAII	NAWILIWILI	22.0N 159.4W	
	HONOLULU	21.3N 157.9W	
	HILO	19.7N 155.1W	0146Z 28 MAR
AUSTRALIA	CAIRNS	16.7S 145.8E	0106z 28 MAR
	BRISBANE	27.2s 153.3E	
	SYDNEY	33.9S 151.4E	
	GLADSTONE	23.8S 151.4E	
	HOBART	43.3S 147.6E	
	MACKAY	21.1S 149.3E	
SAMOA	APIA	13.8S 171.8W	0112z 28 MAR

JARVIS IS.	JARVIS IS.	0.4S	160.1W	0119z	28	MAR	
AMERICAN SAMOA	PAGO PAGO	14.3S	170.7W	0120Z	28	MAR	
FIJI	SUVA	18.1S	178.4E	0125Z	28	MAR	
NEW CALEDONIA	NOUMEA	22.3S	166.5E	0127Z	28	MAR	
COOK ISLANDS	PUKAPUKA IS.	10.8S	165.9W	0128Z	28	MAR	
	PENRHYN IS.	8.9S	157.8W	0212Z	28	MAR	
	RAROTONGA	21.2S	159.8W	0257z	28	MAR	
NIUE	NIUE IS.		170.0W				
TONGA	NUKUALOFA		175.2W				
KERMADEC IS	RAOUL IS.		177.9W				
NEW ZEALAND	NORTH CAPE		173.3E				
	EAST CAPE		178.5E				
	AUCKLAND-W		174.2E				
	MILFORD SOUND		167.9E				
	GISBORNE		178.0E				
	AUCKLAND-E		175.0E				
			173.0E 174.1E				
	NEW PLYMOUTH						
	NAPIER		176.9E				
	WESTPORT		171.6E				
	WELLINGTON		174.8E				
	BLUFF		168.3E				
	NELSON		173.3E				
	LYTTELTON		172.7E				
	DUNEDIN		170.5E				
FR. POLYNESIA	PAPEETE		149.6W				
	HIVA OA		139.OW				
	RIKITEA		135.OW				
MEXICO	ENSENADA		116.8W		28	MAR	
	PUNTA ABREOJOS		113.6W				
	CABO SAN LUCAS	22.8N	110.OW	0702Z	28	MAR	
	SOCORRO	18.8N	111.OW	0708Z	28	MAR	
	MAZATLAN	23.2N	106.4W	0756Z	28	MAR	
	MANZANILLO	19.1N	104.3W	0814Z	28	MAR	
	ACAPULCO	16.9N	99.9W	0858Z	28	MAR	
	PUERTO MADERO	14.8N	92.5W	1024Z	28	MAR	
PITCAIRN	PITCAIRN IS.	25.1S	130.1W	0650Z	28	MAR	
ANTARCTICA	CAPE ADARE	71.0S	170.0E	0758Z	28	MAR	
	THURSTON IS.	72.0S	100.0W	1137z	28	MAR	
CHILE	EASTER IS.	27.1S	109.4W	0944Z	28	MAR	
	GOLFO DE PENAS	47.1S	74.9W	1338z	28	MAR	
	CORRAL	39.8S	73.5W	1417z	28	MAR	
	PUERTO WILLIAMS	54.8S	68.2W	1439z	28	MAR	
	TALCAHUANO	36.7S	73.1W	1447Z	28	MAR	
	VALPARAISO	33.0S	71.6W	1448Z	28	MAR	
	IQUIQUE	20.2S	70.1W	1455Z	28	MAR	
	ARICA	18.5S	70.3W	1500z	28	MAR	
	COQUIMBO	29.9S	71.4W	1501Z	28	MAR	
	CALDERA	27.1S	70.8W	1504Z	28	MAR	
	ANTOFAGASTA	23.3S	70.4W	1505z	28	MAR	
	PUNTA ARENAS	53.2S		1512z	28	MAR	
	PUERTO MONTT	41.5S	73.OW	1634Z	28	MAR	
GUATEMALA	SIPICATE	13.9N	91.2W	1033z			
EL SALVADOR	ACAJUTLA	13.6N		1045z			
COSTA RICA	CABO SAN ELENA	10.9N		1059z			
	CABO MATAPALO	8.4N		1121Z			
	PUERTO QUEPOS	9.4N		1129Z			
NICARAGUA	SAN JUAN DL SUR	11.2N		1114z			
	PUERTO SANDINO	12.2N		1147z			
	CORINTO	12.5N		1149z			
PANAMA	PUNTA BURICA	8.0N		1131Z			
	PUNTA MALA	7.5N		1219Z			
	PUERTO PINA	7.4N		12192 1232Z			
	BALBOA HTS.	9.0N		12322 1341Z			
HONDURAS	AMAPALA	13.2N		11341Z 1135Z			
ECUADOR	BALTRA IS.	0.5S					
BCUADUK							
	ESMERELDAS	1.2N					
COLOMBIA	LA LIBERTAD	2.2S					
COLOMBIA	BAHIA SOLANO	6.3N	77.4W	1239Z	ΖÖ	MAK	

	TUMACO BUENAVENTURA		78.9W 77.2W			
PERU	TALARA	4.6S	81.5W	1254Z	28	MAR
	LA PUNTA	12.1S	77.2W	1354Z	28	MAR
	PIMENTEL	6.9S	80.0W	1354Z	28	MAR
	CHIMBOTE	9.0S	78.8W	1356Z	28	MAR
	SAN JUAN	15.3S	75.2W	1405z	28	MAR
	MOLLENDO	17.1S	72.OW	1437Z	28	MAR

BULLETINS WILL BE ISSUED HOURLY OR SOONER IF CONDITIONS WARRANT. THIS TSUNAMI WARNING WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Pacific Message #15

WEPA40 PHEB 280804 TSUPAC

TSUNAMI BULLETIN NUMBER 15 PACIFIC TSUNAMI WARNING CENTER/NOAA/NWS ISSUED AT 0804Z 28 MAR 2013

THIS BULLETIN APPLIES TO AREAS WITHIN AND BORDERING THE PACIFIC OCEAN AND ADJACENT SEAS... EXCEPT ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON AND CALIFORNIA.

... TSUNAMI WARNING CANCELLATION...

THE TSUNAMI WARNING IS CANCELED FOR ALL COASTAL AREAS AND ISLANDS IN THE PACIFIC.

THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS REGARDING THE OFFICIAL STATE OF ALERT IN THEIR AREA AND ANY ACTIONS TO BE TAKEN IN RESPONSE.

PRELIMINARY EARTHQUAKE PARAMETERS

* MAGNITUDE	9.0
* ORIGIN TIME	1800 UTC MAR 27 2013
* COORDINATES	20.2 NORTH 146.8 EAST

- * DEPTH 19 MILES
- * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT		
MONTEREY CA	0508	UTC	3-28	0.69 FT		
SANTA CRUZ CA	0509	UTC	3-28	0.75 FT		
LANGARA TG BC	0510	UTC	3-28	0.75 FT		
TOFINO BC	0512	UTC	3-28	1.38 FT		
TRINIDAD CA	0512	UTC	3-28	1.61 FT		
ELFIN COVE AK	0513	UTC	3-28	0.85 FT		
LONG BEACH WA	0518	UTC	3-28	1.20 FT		
POINT REYES TG CA	0518	UTC	3-28	0.88 FT		
SEWARD AK	0518	UTC	3-28	0.30 FT		
NEAH BAY TG WA	0521	UTC	3-28	0.50 FT		
COLD BAY AK	0531	UTC	3-28	0.43 FT		
WESTPORT WA	0531	UTC	3-28	0.90 FT		
CORDOVA AK	0540	UTC	3-28	2.85 FT		

SITKA DOCK TG AK	0542	UTC	3-28	0.10	FΤ	
PORT ORFORD OR	0548	UTC	3-28	2.82	FΤ	
DUTCH HARBOR AK	0550	UTC	3-28	1.44	FΤ	
SANTA BARBARA CA	0550	UTC	3-28	0.45	FΤ	
SOUTH SPIT CA	0551	UTC	3-28	4.13	FT	
KODIAK AK	0553	UTC	3-28	0.39	FΤ	
CHARLESTON OR	0557	UTC	3-28	2.20	FΤ	
MONTEREY CA	0600	UTC	3-28	0.92	FΤ	
ASTORIA TG OR	0605	UTC	3-28	0.39	FΤ	
PORT ANGELES TG WA	0606	UTC	3-28	0.43	FΤ	
TRINIDAD CA	0606	UTC	3-28	4.36	FΤ	
LA HARBOR CA	0608	UTC	3-28	0.31	FΤ	
LA JOLLA CA	0612	UTC	3-28	0.53	FΤ	
TOFINO BC	0612	UTC	3-28	2.56	FΤ	
KING COVE AK	0618	UTC	3-28	0.82	FT	
SAN DIEGO NAVAL PIER CA	0623	UTC	3-28	0.73	FT	
CRESCENT CITY TG CA	0636	UTC	3-28	2.43	FΤ	
CRESCENT CITY CA	0636	UTC	3-28	2.36	FΤ	
PORT SAN LUIS CA	0636	UTC	3-28	2.17	FT	
SAND POINT AK	0638	UTC	3-28	0.92	FT	
SANTA MONICA TG CA	0647	UTC	3-28	0.75	FT	
PORT TOWNSEND WA	0653	UTC	3-28	0.39	FT	

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

SEA LEVEL READINGS INDICATE A TSUNAMI WAS GENERATED. IT MAY HAVE BEEN DESTRUCTIVE ALONG COASTS NEAR THE EARTHQUAKE EPICENTER. FOR THOSE AREAS - WHEN NO MAJOR WAVES ARE OBSERVED FOR TWO HOURS AFTER THE ESTIMATED TIME OF ARRIVAL OR DAMAGING WAVES HAVE NOT OCCURRED FOR AT LEAST TWO HOURS THEN LOCAL AUTHORITIES CAN ASSUME THE THREAT IS PASSED. DANGER TO BOATS AND COASTAL STRUCTURES CAN CONTINUE FOR SEVERAL HOURS DUE TO RAPID CURRENTS. AS LOCAL CONDITIONS CAN CAUSE A WIDE VARIATION IN TSUNAMI ACTION THE ALL CLEAR DETERMINATION MUST BE MADE BY LOCAL AUTHORITIES.

NO TSUNAMI THREAT EXISTS FOR OTHER COASTAL AREAS IN THE PACIFIC ALTHOUGH SOME OTHER AREAS MAY EXPERIENCE NON-DAMAGING SEA LEVEL CHANGES. THIS TSUNAMI WARNING IS CANCELLED.

THIS WILL BE THE FINAL MESSAGE ISSUED FOR THIS EVENT UNLESS ADDITIONAL INFORMATION BECOMES AVAILABLE.

THE WEST COAST/ALASKA TSUNAMI WARNING CENTER WILL ISSUE MESSAGES FOR ALASKA... BRITISH COLUMBIA... WASHINGTON... OREGON... AND CALIFORNIA.

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PTWC Hawaii Messages

PTWC Hawaii Message #1

WEHW40 PHEB 271806 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-271906-/T.NEW.PHEB.TS.A.0121.130327T1806Z-000000T0000Z/

BULLETIN TSUNAMI MESSAGE NUMBER 1 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 806 AM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI WATCH BULLETIN...

A TSUNAMI WATCH IS ISSUED FOR THE STATE OF HAWAII EFFECTIVE AT 806 AM HST.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	8.3
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

EVALUATION

BASED ON ALL AVAILABLE DATA A TSUNAMI MAY HAVE BEEN GENERATED BY THIS EARTHQUAKE THAT COULD BE DESTRUCTIVE ON COASTAL AREAS EVEN FAR FROM THE EPICENTER. AN INVESTIGATION IS UNDERWAY TO DETERMINE IF THERE IS A TSUNAMI THREAT TO HAWAII.

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27	7
HONOLULU	HAWAII	308 PM HST MARCH 27	7
HILO	HAWAII	346 PM HST MARCH 27	7

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #2

WEHW40 PHEB 271905 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-272005-/T.CON.PHEB.TS.A.0121.000000T00002-000000T00002/

BULLETIN TSUNAMI MESSAGE NUMBER 2 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 905 AM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI WATCH SUPPLEMENT...

THE TSUNAMI WATCH CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	8.8
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES

* LOCATION MARIANA ISLANDS REGION

EVALUATION

BASED ON ALL AVAILABLE DATA A TSUNAMI MAY HAVE BEEN GENERATED BY THIS EARTHQUAKE THAT COULD BE DESTRUCTIVE ON COASTAL AREAS EVEN FAR FROM THE EPICENTER. AN INVESTIGATION IS UNDERWAY TO DETERMINE IF THERE IS A TSUNAMI THREAT TO HAWAII.

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256	PM	HST	MARCH	27	
HONOLULU	HAWAII	308	ΡM	HST	MARCH	27	
HILO	HAWAII	346	PM	HST	MARCH	27	

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #3

WEHW40 PHEB 272006 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-272106-/T.CON.PHEB.TS.A.0121.000000T0000Z-000000T0000Z/

BULLETIN

TSUNAMI MESSAGE NUMBER 3 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 1006 AM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI WATCH SUPPLEMENT...

THE TSUNAMI WATCH CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES

* LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

 TIME
 OBSERVED MAX

 SITE
 OF MEASUREMENT
 TSUNAMI HEIGHT

 GUAM
 1856 UTC 3-27
 0.81 FT

 \mbox{HeIGHT} – Observed MAX tsunami height is the water level above the tide level at the time of measurement.

DEEP OCEAN PRESSURE SENSOR DATA INDICATES A TSUNAMI WAS GENERATED.

EVALUATION BASED ON ALL AVAILABLE DATA A TSUNAMI MAY HAVE BEEN GENERATED BY THIS EARTHQUAKE THAT COULD BE DESTRUCTIVE ON COASTAL AREAS EVEN

FAR FROM THE EPICENTER. AN INVESTIGATION IS UNDERWAY TO DETERMINE IF THERE IS A TSUNAMI THREAT TO HAWAII.

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27	1
HONOLULU	HAWAII	308 PM HST MARCH 27	1
HILO	HAWAII	346 PM HST MARCH 27	1

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #4

WEHW40 PHEB 272104 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-272204-/T.CAN.PHEB.TS.A.0121.000000T0000Z-000000T0000Z/ /T.NEW.PHEB.TS.W.0121.130327T2104Z-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED TSUNAMI MESSAGE NUMBER 4 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 1104 AM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI WARNING BULLETIN...

A TSUNAMI WARNING IS ISSUED FOR THE STATE OF HAWAII EFFECTIVE AT 1104 AM $\ensuremath{\mathsf{HST}}$.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	-	'IME CASURE	MENT	OBSERVED MAX TSUNAMI HEIGHT
GUAM POHNPEI IS WAKE IS KUSHIRO JAPAN KWAJALEIN	2028 2045	UTC	3-27 3-27 3-27	0.81 FT 1.56 FT 1.47 FT 0.68 FT 0.73 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE DAMAGE ALONG COASTLINES OF ALL ISLANDS IN THE STATE OF HAWAII. URGENT ACTION SHOULD BE TAKEN TO PROTECT LIVES AND PROPERTY.

A TSUNAMI IS A SERIES OF LONG OCEAN WAVES. EACH INDIVIDUAL WAVE CREST CAN LAST 5 TO 15 MINUTES OR MORE AND EXTENSIVELY FLOOD COASTAL AREAS. THE DANGER CAN CONTINUE FOR MANY HOURS AFTER THE INITIAL WAVE AS SUBSEQUENT WAVES ARRIVE. TSUNAMI WAVE HEIGHTS CANNOT BE FORECASTED AND THE FIRST WAVE MAY NOT BE THE LARGEST.

TSUNAMIS EFFECTIVELY WRAP AROUND ISLANDS. ALL SHORES ARE AT RISK NO MATTER WHICH DIRECTION THEY FACE. THE TROUGH OF A TSUNAMI MAY TEMPORARILY EXPOSE THE SEAFLOOR BUT THE AREA WILL QUICKLY FLOOD AGAIN. EXTREMELY STRONG AND UNUSUAL NEARSHORE CURRENTS CAN ACCOMPANY A TSUNAMI. DEBRIS PICKED UP AND CARRIED BY A TSUNAMI AMPLIFIES ITS DESTRUCTIVE POWER. SIMULTANEOUS HIGH TIDES OR HIGH SURF CAN SIGNIFICANTLY INCREASE THE TSUNAMI HAZARD

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27
HONOLULU	HAWAII	308 PM HST MARCH 27
HILO	HAWAII	346 PM HST MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #5

WEHW40 PHEB 272205 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-272305-/T.CON.PHEB.TS.W.0121.000000T00002-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED TSUNAMI MESSAGE NUMBER 5 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 1205 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI WARNING SUPPLEMENT...

THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0	
*	ORIGIN TIME	0800 HST MAR 27 2013	
		1800 UTC MAR 27 2013	
*	COORDINATES	20.2 NORTH 146.8 EAST	
*	DEPTH	19 MILES	
*	LOCATION	MARIANA ISLANDS REGION	I

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT		
POHNPEI IS	2002	UTC	3-27	1.56 FT		
WAKE IS	2028	UTC	3-27	1.47 FT		
KUSHIRO JAPAN	2045	UTC	3-27	0.68 FT		
KWAJALEIN	2057	UTC	3-27	0.73 FT		
RABAUL PAPUA NEW GUINEA	2122	UTC	3-27	1.32 FT		
MAJURO MARSHALL IS	2133	UTC	3-27	0.98 FT		

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE DAMAGE ALONG COASTLINES OF ALL ISLANDS IN THE STATE OF HAWAII. URGENT ACTION SHOULD BE TAKEN TO PROTECT LIVES AND PROPERTY.

A TSUNAMI IS A SERIES OF LONG OCEAN WAVES. EACH INDIVIDUAL WAVE CREST CAN LAST 5 TO 15 MINUTES OR MORE AND EXTENSIVELY FLOOD

COASTAL AREAS. THE DANGER CAN CONTINUE FOR MANY HOURS AFTER THE INITIAL WAVE AS SUBSEQUENT WAVES ARRIVE. TSUNAMI WAVE HEIGHTS CANNOT BE FORECASTED AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMIS EFFECTIVELY WRAP AROUND ISLANDS. ALL SHORES ARE AT RISK NO MATTER WHICH DIRECTION THEY FACE. THE TROUGH OF A TSUNAMI MAY TEMPORARILY EXPOSE THE SEAFLOOR BUT THE AREA WILL QUICKLY FLOOD AGAIN. EXTREMELY STRONG AND UNUSUAL NEARSHORE CURRENTS CAN ACCOMPANY A TSUNAMI. DEBRIS PICKED UP AND CARRIED BY A TSUNAMI AMPLIFIES ITS DESTRUCTIVE POWER. SIMULTANEOUS HIGH TIDES OR HIGH SURF CAN SIGNIFICANTLY INCREASE THE TSUNAMI HAZARD

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256	PM	HST	MARCH	27
HONOLULU	HAWAII	308	PM	HST	MARCH	27
HILO	HAWAII	346	ΡM	HST	MARCH	27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #6

WEHW40 PHEB 272305 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280005-/T.CON.PHEB.TS.W.0121.000000T0000Z-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED TSUNAMI MESSAGE NUMBER 6 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 105 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI WARNING SUPPLEMENT...

THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0				
*	ORIGIN TIME	0800	HST	MAR	27	2013
		1800	UTC	MAR	27	2013
*	COORDINATES	20.2 1	NORTH	H 146	5.8	EAST
*	DEPTH	19 MI	LES			
*	LOCATION	MARIA	NA IS	SLANI	DS E	REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT		OBSERVED MAX TSUNAMI HEIGHT	
POHNPEI IS WAKE IS KUSHIRO JAPAN KWAJALEIN RABAUL PAPUA NEW GUINEA	2002 UT 2028 UT 2045 UT 2057 UT 2122 UT	C 3-27 C 3-27 C 3-27	1.56 1.47 0.68 0.73 1.32	FT FT FT FT FT
MAJURO MARSHALL IS MIDWAY IS	2133 UT 2231 UT		0.98	FT FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE DAMAGE ALONG

COASTLINES OF ALL ISLANDS IN THE STATE OF HAWAII. URGENT ACTION SHOULD BE TAKEN TO PROTECT LIVES AND PROPERTY.

A TSUNAMI IS A SERIES OF LONG OCEAN WAVES. EACH INDIVIDUAL WAVE CREST CAN LAST 5 TO 15 MINUTES OR MORE AND EXTENSIVELY FLOOD COASTAL AREAS. THE DANGER CAN CONTINUE FOR MANY HOURS AFTER THE INITIAL WAVE AS SUBSEQUENT WAVES ARRIVE. TSUNAMI WAVE HEIGHTS CANNOT BE FORECASTED AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMIS EFFECTIVELY WRAP AROUND ISLANDS. ALL SHORES ARE AT RISK NO MATTER WHICH DIRECTION THEY FACE. THE TROUGH OF A TSUNAMI MAY TEMPORARILY EXPOSE THE SEAFLOOR BUT THE AREA WILL QUICKLY FLOOD AGAIN. EXTREMELY STRONG AND UNUSUAL NEARSHORE CURRENTS CAN ACCOMPANY A TSUNAMI. DEBRIS PICKED UP AND CARRIED BY A TSUNAMI AMPLIFIES ITS DESTRUCTIVE POWER. SIMULTANEOUS HIGH TIDES OR HIGH SURF CAN SIGNIFICANTLY INCREASE THE TSUNAMI HAZARD

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27
HONOLULU	HAWAII	308 PM HST MARCH 27
HILO	HAWAII	346 PM HST MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #7

WEHW40 PHEB 280005 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280105-/T.CON.PHEB.TS.W.0121.000000T0000Z-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED TSUNAMI MESSAGE NUMBER 7 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 205 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI WARNING SUPPLEMENT...

THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE		TIME OF MEASUREMENT		OBSERVED MAX TSUNAMI HEIGHT		
RABAUL PAPUA NEW GUINEA	2122	UTC	3-27	1.32	FT	
MAJURO MARSHALL IS	2133	UTC	3-27	0.98	FT	
MIDWAY IS	2231	UTC	3-27	1.02	FT	
JOHNSTON IS	2341	UTC	3-27	1.12	FT	
SHEMYA AK	0000	UTC	3-28	0.66	FT	

 \mbox{HeIGHT} – Observed Max tsunami height is the water level above the tide level at the time of measurement.

EVALUATION A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE DAMAGE ALONG COASTLINES OF ALL ISLANDS IN THE STATE OF HAWAII. URGENT ACTION SHOULD BE TAKEN TO PROTECT LIVES AND PROPERTY.

A TSUNAMI IS A SERIES OF LONG OCEAN WAVES. EACH INDIVIDUAL WAVE CREST CAN LAST 5 TO 15 MINUTES OR MORE AND EXTENSIVELY FLOOD COASTAL AREAS. THE DANGER CAN CONTINUE FOR MANY HOURS AFTER THE INITIAL WAVE AS SUBSEQUENT WAVES ARRIVE. TSUNAMI WAVE HEIGHTS CANNOT BE FORECASTED AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMIS EFFECTIVELY WRAP AROUND ISLANDS. ALL SHORES ARE AT RISK NO MATTER WHICH DIRECTION THEY FACE. THE TROUGH OF A TSUNAMI MAY TEMPORARILY EXPOSE THE SEAFLOOR BUT THE AREA WILL QUICKLY FLOOD AGAIN. EXTREMELY STRONG AND UNUSUAL NEARSHORE CURRENTS CAN ACCOMPANY A TSUNAMI. DEBRIS PICKED UP AND CARRIED BY A TSUNAMI AMPLIFIES ITS DESTRUCTIVE POWER. SIMULTANEOUS HIGH TIDES OR HIGH SURF CAN SIGNIFICANTLY INCREASE THE TSUNAMI HAZARD

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM	HST MARCH 27
HONOLULU	HAWAII	308 PM	HST MARCH 27
HILO	HAWAII	346 PM	HST MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #8

WEHW40 PHEB 280105 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280205-/T.CON.PHEB.TS.W.0121.00000T00002-000000T00002/

BULLETIN - EAS ACTIVATION REQUESTED TSUNAMI MESSAGE NUMBER 8 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 305 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI WARNING SUPPLEMENT...

THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0				
*	ORIGIN TIME	0800	HST	MAR	27	2013
		1800	UTC	MAR	27	2013
*	COORDINATES	20.2	NORTH	H 140	5.8	EAST
*	DEPTH	19 MI	ILES			
*	LOCATION	MARIA	ANA IS	SLANI	DS I	REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	= =	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT		
MIDWAY IS JOHNSTON IS SHEMYA AK WEST ATKA AK NAWILIWILI HI	2341 0000	UTC UTC UTC	3-27 3-27 3-28 3-28 3-28 3-28	- • • -	FT FT FT FT FT		

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE DAMAGE ALONG COASTLINES OF ALL ISLANDS IN THE STATE OF HAWAII. URGENT ACTION SHOULD BE TAKEN TO PROTECT LIVES AND PROPERTY.

A TSUNAMI IS A SERIES OF LONG OCEAN WAVES. EACH INDIVIDUAL WAVE CREST CAN LAST 5 TO 15 MINUTES OR MORE AND EXTENSIVELY FLOOD COASTAL AREAS. THE DANGER CAN CONTINUE FOR MANY HOURS AFTER THE INITIAL WAVE AS SUBSEQUENT WAVES ARRIVE. TSUNAMI WAVE HEIGHTS CANNOT BE FORECASTED AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMIS EFFECTIVELY WRAP AROUND ISLANDS. ALL SHORES ARE AT RISK NO MATTER WHICH DIRECTION THEY FACE. THE TROUGH OF A TSUNAMI MAY TEMPORARILY EXPOSE THE SEAFLOOR BUT THE AREA WILL QUICKLY FLOOD AGAIN. EXTREMELY STRONG AND UNUSUAL NEARSHORE CURRENTS CAN ACCOMPANY A TSUNAMI. DEBRIS PICKED UP AND CARRIED BY A TSUNAMI AMPLIFIES ITS DESTRUCTIVE POWER. SIMULTANEOUS HIGH TIDES OR HIGH SURF CAN SIGNIFICANTLY INCREASE THE TSUNAMI HAZARD

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27	7
HONOLULU	HAWAII	308 PM HST MARCH 27	7
HILO	HAWAII	346 PM HST MARCH 27	7

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #9

WEHW40 PHEB 280205 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280305-/T.CON.PHEB.TS.W.0121.000000T0000Z-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED TSUNAMI MESSAGE NUMBER 9 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 405 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI WARNING SUPPLEMENT...

THE TSUNAMI WARNING CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES

* LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT		OBSERVED MAX TSUNAMI HEIGHT		
JOHNSTON IS NAWILIWILI HI HONOLULU HI SHEMYA AK	2341 UTC 0056 UTC 0108 UTC 0109 UTC	C 3-28 C 3-28	- • - •		

KAWAIHAE HI	0128	UTC	3-28	4.33	FΤ
NIKOLSKI AK	0129	UTC	3-28	0.56	FΤ
AKUTAN ISLAND AK	0130	UTC	3-28	0.62	FΤ
KAHULUI HI	0135	UTC	3-28	6.96	FΤ
DUTCH HARBOR AK	0142	UTC	3-28	0.52	FΤ
HILO HI	0146	UTC	3-28	2.30	FΤ
WEST ATKA AK	0148	UTC	3-28	1.54	FΤ

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD CAUSE DAMAGE ALONG COASTLINES OF ALL ISLANDS IN THE STATE OF HAWAII. URGENT ACTION SHOULD BE TAKEN TO PROTECT LIVES AND PROPERTY.

A TSUNAMI IS A SERIES OF LONG OCEAN WAVES. EACH INDIVIDUAL WAVE CREST CAN LAST 5 TO 15 MINUTES OR MORE AND EXTENSIVELY FLOOD COASTAL AREAS. THE DANGER CAN CONTINUE FOR MANY HOURS AFTER THE INITIAL WAVE AS SUBSEQUENT WAVES ARRIVE. TSUNAMI WAVE HEIGHTS CANNOT BE FORECASTED AND THE FIRST WAVE MAY NOT BE THE LARGEST. TSUNAMIS EFFECTIVELY WRAP AROUND ISLANDS. ALL SHORES ARE AT RISK NO MATTER WHICH DIRECTION THEY FACE. THE TROUGH OF A TSUNAMI MAY TEMPORARILY EXPOSE THE SEAFLOOR BUT THE AREA WILL QUICKLY FLOOD AGAIN. EXTREMELY STRONG AND UNUSUAL NEARSHORE CURRENTS CAN ACCOMPANY A TSUNAMI. DEBRIS PICKED UP AND CARRIED BY A TSUNAMI AMPLIFIES ITS DESTRUCTIVE POWER. SIMULTANEOUS HIGH TIDES OR HIGH SURF CAN SIGNIFICANTLY INCREASE THE TSUNAMI HAZARD

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256	PM HST	MARCH 27
HONOLULU	HAWAII	308	PM HST	MARCH 27
HILO	HAWAII	346	PM HST	MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #10

WEHW40 PHEB 280306 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280406-/T.CAN.PHEB.TS.W.0121.000000T0000Z-000000T0000Z/ /T.NEW.PHEB.TS.Y.0121.130328T0306Z-000000T0000Z/

TSUNAMI MESSAGE NUMBER 10 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 506 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI ADVISORY BULLETIN...

A TSUNAMI ADVISORY IS ISSUED FOR THE STATE OF HAWAII EFFECTIVE AT 506 PM HST. ALL HAWAIIAN TIDE GAUGES ARE REPORTING AMPLITUDES OF LESS THAN 0.3 METERS (0.98 FT).

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES

* LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

		TIME		OBSERVE	ed max
SITE	OF MI	EASURE	EMENT	TSUNAM	HEIGHT
NAWILIWILI HI	0056	UTC	3-28	0.75	FT
HONOLULU HI	0108	UTC	3-28	1.14	FT
SHEMYA AK	0109	UTC	3-28	1.35	FT
KAWAIHAE HI	0128	UTC	3-28	4.33	FT
NIKOLSKI AK	0129	UTC	3-28	0.56	FT
KAHULUI HI	0135	UTC	3-28	6.96	FT
DUTCH HARBOR AK	0142	UTC	3-28	0.52	FT
HILO HI	0146	UTC	3-28	2.30	FT
WEST ATKA AK	0148	UTC	3-28	1.54	FT
SAND POINT AK	0224	UTC	3-28	0.30	FT
AKUTAN ISLAND AK	0240	UTC	3-28	0.89	FT
COLD BAY AK	0254	UTC	3-28	0.33	FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD IMPACT THE 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.

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

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAI	256	PM HST	MARCH 27	
HONOLULU	HAWAI	308	PM HST	MARCH 27	
HILO	HAWAI	346	PM HST	MARCH 27	

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #11

WEHW40 PHEB 280404 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280504-/T.CON.PHEB.TS.Y.0121.000000T0000Z-0000000T0000Z/

TSUNAMI MESSAGE NUMBER 11 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 604 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

...TSUNAMI ADVISORY SUPPLEMENT...

THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0	
*	ORIGIN TIME	0800	HST MAR 27 2013
		1800	UTC MAR 27 2013
*	COORDINATES	20.2	NORTH 146.8 EAST

- * DEPTH 19 MILES * LOCATION MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY _____

SITE		TIME EASURE	MENT	OBSERVED MAX TSUNAMI HEIGHT
HONOLULU HI	0108		3-28	1.14 FT
SHEMYA AK	0109		3-28	1.35 FT
KAWAIHAE HI	0128		3-28	4.33 FT
KAHULUI HI	0135		3-28	6.96 FT
DUTCH HARBOR AK	0142	UTC	3-28	0.52 FT
HILO HI	0146	UTC	3-28	2.30 FT
WEST ATKA AK	0148	UTC	3-28	1.54 FT
SAND POINT AK	0224	UTC	3-28	0.30 FT
AKUTAN ISLAND AK	0240	UTC	3-28	0.89 FT
COLD BAY AK	0254	UTC	3-28	0.33 FT
KODIAK AK	0316	UTC	3-28	0.16 FT
NIKOLSKI AK	0322	UTC	3-28	1.15 FT
SEWARD AK	0348	UTC	3-28	0.23 FT
ELFIN COVE AK	0351	UTC	3-28	0.39 FT
LANGARA TG BC	0355	UTC	3-28	0.46 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD IMPACT THE 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.

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

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27
HONOLULU	HAWAII	308 PM HST MARCH 27
HILO	HAWAII	346 PM HST MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #12

WEHW40 PHEB 280504 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280604-/T.CON.PHEB.TS.Y.0121.000000T0000Z-000000T0000Z/

TSUNAMI MESSAGE NUMBER 12 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 704 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI ADVISORY SUPPLEMENT...

THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

		MENT	OBSERVED MAX TSUNAMI HEIGHT
SAND POINT AK			0.30 FT
AKUTAN ISLAND AK	0240 UTC	3-28	0.89 FT
COLD BAY AK	0254 UTC	3-28	0.33 FT
KODIAK AK	0316 UTC	3-28	0.16 FT
NIKOLSKI AK	0322 UTC	3-28	1.15 FT
KING COVE AK	0344 UTC	3-28	0.43 FT
SEWARD AK	0348 UTC	3-28	0.23 FT
ELFIN COVE AK	0351 UTC	3-28	0.39 FT
LANGARA TG BC	0355 UTC	3-28	0.46 FT
CORDOVA AK	0414 UTC	3-28	0.16 FT
YAKUTAT TG AK	0418 UTC	3-28	0.36 FT
SITKA DOCK TG AK	0418 UTC	3-28	0.09 FT
SELDOVIA AK	0432 UTC	3-28	0.08 FT
AKUTAN ISLAND AK	0441 UTC	3-28	1.35 FT
HOMER AK	0442 UTC	3-28	0.07 FT
DUTCH HARBOR AK	0444 UTC	3-28	1.41 FT
WHITTIER AK	0447 UTC	3-28	0.10 FT
EUREKA CA	0456 UTC	3-28	0.94 FT
SOUTH SPIT CA	0458 UTC	3-28	1.17 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD IMPACT THE 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.

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

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM HST MARCH 27
HONOLULU	HAWAII	308 PM HST MARCH 27
HILO	HAWAII	346 PM HST MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #13

WEHW40 PHEB 280604 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280704-/T.CON.PHEB.TS.Y.0121.000000T0000Z-000000T0000Z/

TSUNAMI MESSAGE NUMBER 13 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 804 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI ADVISORY SUPPLEMENT...

THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUREMENT			OBSERVED MAX TSUNAMI HEIGHT		
NIKOLSKI AK	0322	UTC	3-28	1.15	FT	
KING COVE AK	0344	UTC	3-28	0.43	FT	
YAKUTAT TG AK	0418	UTC	3-28	0.36	FT	
SELDOVIA AK	0432			0.08	FT	
AKUTAN ISLAND AK	0441	UTC	3-28	1.35	FT	
HOMER AK	0442	UTC	3-28	0.07	FT	
WHITTIER AK	0447	UTC	3-28	0.10	FT	
EUREKA CA	0456	UTC	3-28	0.94	FT	
CRESCENT CITY TG CA	0506	UTC	3-28	1.16	FT	
MONTEREY CA	0508	UTC	3-28	0.69	FT	
SAND POINT AK	0508	UTC	3-28	0.49	FT	
SANTA CRUZ CA	0509	UTC	3-28	0.75	FT	
LANGARA TG BC	0510	UTC	3-28	0.75	FT	
CRESCENT CITY CA	0511	UTC	3-28	1.24	FT	
TOFINO BC	0512			1.38	FT	
TRINIDAD CA	0512	UTC	3-28	1.61	FT	
ELFIN COVE AK	0513	UTC	3-28	0.85	FT	
LONG BEACH WA	0518	UTC	3-28	1.20	FT	
POINT REYES TG CA	0518	UTC	3-28	0.88	FT	
SEWARD AK	0518	UTC	3-28	0.30	FT	
NEAH BAY TG WA	0521	UTC	3-28	0.50	FT	
COLD BAY AK	0531	UTC	3-28	0.43	FT	
WESTPORT WA	0531	UTC	3-28	0.90	FT	
PORT SAN LUIS CA	0534	UTC	3-28	0.71	FT	
CORDOVA AK	0540	UTC	3-28	2.85	FT	
SITKA DOCK TG AK	0542	UTC	3-28	0.10	FT	
PORT ORFORD OR	0548	UTC	3-28	2.82	FT	
DUTCH HARBOR AK	0550	UTC	3-28	1.44	FT	
SANTA BARBARA CA			3-28	0.45	FT	
SOUTH SPIT CA			3-28	4.13	FT	
KODIAK AK	0553			0.39	FT	
CHARLESTON OR	0557	UTC	3-28	2.20	FΤ	

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE

TIDE LEVEL AT THE TIME OF MEASUREMENT.

EVALUATION

A TSUNAMI HAS BEEN GENERATED WHICH COULD IMPACT THE 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.

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THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI WAVES ARE

NAWILIWILI	HAWAII	256 PM	HST MARCH 27
HONOLULU	HAWAII	308 PM	HST MARCH 27
HILO	HAWAII	346 PM	HST MARCH 27

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

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PTWC Hawaii Message #14

WEHW40 PHEB 280704 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280804-/T.CON.PHEB.TS.Y.0121.000000T0000Z-000000T0000Z/

TSUNAMI MESSAGE NUMBER 14 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 904 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI ADVISORY SUPPLEMENT...

THE TSUNAMI ADVISORY CONTINUES IN EFFECT FOR THE STATE OF HAWAII.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

SITE	TIME OF MEASUR	EMENT	OBSERVED MAX TSUNAMI HEIGHT		
YAKUTAT TG AK	0418 UTC	3-28	0.36 FT		
SELDOVIA AK	0432 UTC	3-28	0.08 FT		
AKUTAN ISLAND AK	0441 UTC	3-28	1.35 FT		
HOMER AK	0442 UTC	3-28	0.07 FT		
WHITTIER AK	0447 UTC	3-28	0.10 FT		
EUREKA CA	0456 UTC	3-28	0.94 FT		
MONTEREY CA	0508 UTC	3-28	0.69 FT		
SANTA CRUZ CA	0509 UTC	3-28	0.75 FT		

PTWC Hawaii Message #15

INITIAL WAVE ARRIVAL.

EVALUATION

AGENCIES.

WAVES ARE

NAWILIWILI

HONOLULU

HILO

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LANGARA TG BC TRINIDAD CA ELFIN COVE AK	0510 0512 0513	UTC UTC UTC		0.75 1.61 0.85	FT FT FT	
LONG BEACH WA	0518	UTC	3-28	1.20	FΤ	
POINT REYES TG CA	0518	UTC	3-28	0.88	FΤ	
SEWARD AK	0518	UTC	3-28	0.30	FΤ	
NEAH BAY TG WA	0521	UTC	3-28	0.50	FΤ	
COLD BAY AK	0531	UTC	3-28	0.43	FΤ	
WESTPORT WA	0531	UTC	3-28	0.90	FΤ	
CORDOVA AK	0540	UTC	3-28	2.85	FΤ	
SITKA DOCK TG AK	0542	UTC	3-28	0.10	FΤ	
PORT ORFORD OR	0548	UTC	3-28	2.82	FΤ	
DUTCH HARBOR AK	0550	UTC	3-28	1.44	FΤ	
SANTA BARBARA CA	0550	UTC	3-28	0.45	FΤ	
SOUTH SPIT CA	0551	UTC	3-28	4.13	FΤ	
KODIAK AK	0553	UTC	3-28	0.39	\mathbf{FT}	
CHARLESTON OR	0557	UTC	3-28	2.20	FΤ	
MONTEREY CA	0600	UTC	3-28	0.92	FΤ	
ASTORIA TG OR	0605	UTC	3-28	0.39	FT	
PORT ANGELES TG WA	0606	UTC	3-28	0.43	FΤ	
TRINIDAD CA	0606	UTC	3-28	4.36	FT	
LA HARBOR CA	0608	UTC	3-28	0.31	FΤ	
LA JOLLA CA	0612	UTC	3-28	0.53	FΤ	
TOFINO BC	0612	UTC	3-28	2.56	FΤ	
KING COVE AK	0618	UTC	3-28	0.82	FT	
SAN DIEGO NAVAL PIER CA	0623	UTC	3-28	0.73	FΤ	
CRESCENT CITY TG CA	0636	UTC	3-28	2.43	FΤ	
CRESCENT CITY CA	0636	UTC	3-28	2.36	FΤ	
PORT SAN LUIS CA	0636	UTC	3-28	2.17	FT	
SAND POINT AK	0638	UTC	3-28	0.92	FT	
SANTA MONICA TG CA	0647	UTC	3-28	0.75	FT	
PORT TOWNSEND WA	0653	UTC	3-28	0.39	FT	
HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE						THE

TIDE LEVEL AT THE TIME OF MEASUREMENT.

A TSUNAMI HAS BEEN GENERATED WHICH COULD IMPACT THE 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

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

THE ESTIMATED ARRIVAL TIMES IN HAWAII OF THE FIRST TSUNAMI

BULLETINS WILL BE ISSUED HOURLY OR SOONER AS CONDITIONS WARRANT.

HAWAII

HAWAII

HAWAII

256 PM HST MARCH 27

308 PM HST MARCH 27

346 PM HST MARCH 27

127

WEHW40 PHEB 280805 TSUHWX HIZ001>003-005>009-012>014-016>021-023>026-280905-/T.CAN.PHEB.TS.Y.0122.000000T0000Z-000000T0000Z/

BULLETIN TSUNAMI MESSAGE NUMBER 15 NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI 1005 PM HST WED MAR 27 2013

TO - CIVIL DEFENSE IN THE STATE OF HAWAII

... TSUNAMI ADVISORY CANCELLATION...

THE TSUNAMI ADVISORY IS CANCELLED FOR THE STATE OF HAWAII EFFECTIVE AT 1005 PM HST.

PRELIMINARY EARTHQUAKE PARAMETERS

*	MAGNITUDE	9.0
*	ORIGIN TIME	0800 HST MAR 27 2013
		1800 UTC MAR 27 2013
*	COORDINATES	20.2 NORTH 146.8 EAST
*	DEPTH	19 MILES
*	LOCATION	MARIANA ISLANDS REGION

OBSERVATIONS OF TSUNAMI ACTIVITY

	TIME		OBSERVED MAX		
SITE	OF MEASU	JREMENT	TSUNAMI	HEIGHT	
			0.69	 FT	
MONTEREY CA SANTA CRUZ CA	0509 UT	C 3-28	0.75		
LANGARA TG BC		C 3-28	0.75	FT	
TOFINO BC	0512 UT		1.38	FT	
TRINIDAD CA	0512 UT	C 3-28	1.61	FT	
ELFIN COVE AK		C 3-28		FT	
LONG BEACH WA	0518 UT	C 3-28	1.20	FT	
POINT REYES TG CA	0518 UT	C 3-28	0.88	FΤ	
SEWARD AK	0518 UT	C 3-28	0.30	FT	
NEAH BAY TG WA	0521 UT	'C 3-28	0.50	FT	
COLD BAY AK	0531 UT	C 3-28	0.43	FΤ	
WESTPORT WA	0531 UT		0.90	FT	
CORDOVA AK	0540 UT	C 3-28	2.85	FT	
SITKA DOCK TG AK	0542 UT	'C 3-28	0.10	FT	
PORT ORFORD OR	0548 UT	C 3-28	2.82	FT	
PORT ORFORD OR DUTCH HARBOR AK SANTA BARBARA CA SOUTH SPIT CA KODIAK AK CHARLESTON OR MONTEREY CA	0550 UT	'C 3-28	1.44	FT	
SANTA BARBARA CA	0550 UT	'C 3-28	0.45	FT	
SOUTH SPIT CA	0551 UT	'C 3-28	4.13	FT	
KODIAK AK	0553 UT	'C 3-28	0.39	FT	
CHARLESTON OR	0557 UT	C 3-28	2.20	FT	
		C 3-28	0.92	FT	
ASTORIA TG OR		C 3-28	0.39	FT	
PORT ANGELES TG WA	0606 UT	C 3-28	0.43	FT	
		C 3-28	4.36	FT	
LA HARBOR CA	0608 UT	C 3-28	0.31	FΤ	
la jolla ca	0612 UT	C 3-28	0.53	FT	
LA JOLLA CA TOFINO BC KING COVE AK	0612 UT	C 3-28	2.56	FT	
KING COVE AK	0618 UT	C 3-28	0.82	FT	
SAN DIEGO NAVAL PIER CA	0623 UT	C 3-28	0.73	FT	
CRESCENT CITY TG CA	0636 UT	C 3-28	2.43	FT	
CRESCENT CITY CA	0636 UT	C 3-28	2.36	FT	
PORT SAN LUIS CA	0636 UT	C 3-28	2.17	FT	
SAND POINT AK	0638 UT	C 3-28	0.92	FT	
SANTA MONICA TG CA	0647 UT	C 3-28	0.75	FT	

PORT TOWNSEND WA 0653 UTC 3-28 0.39 FT

HEIGHT - OBSERVED MAX TSUNAMI HEIGHT IS THE WATER LEVEL ABOVE THE TIDE LEVEL AT THE TIME OF MEASUREMENT.

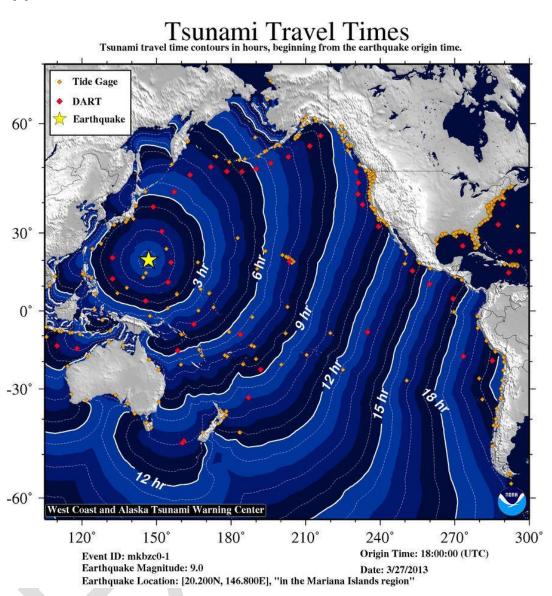
EVALUATION

BASED ON ALL AVAILABLE DATA THERE IS NO DESTRUCTIVE TSUNAMI THREAT TO THE STATE OF HAWAII. THEREFORE THE TSUNAMI ADVISORY FOR HAWAII IS CANCELLED.

HOWEVER... SOME COASTAL AREAS IN HAWAII COULD EXPERIENCE NON-DAMAGING SEA LEVEL CHANGES AND STRONG OR UNUSUAL CURRENTS LASTING FOR UP TO SEVERAL HOURS.

THIS WILL BE THE FINAL BULLETIN ISSUED FOR THIS EVENT UNLESS ADDITIONAL DATA ARE RECEIVED.

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Appendix E. Web-based WCATWC Products

Figure E1: Tsunami Travel Time Map generated after issuing Bulletin 1.

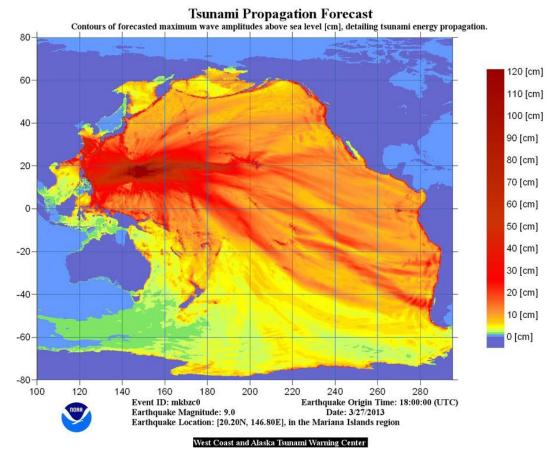


Figure E2: Tsunami Propagation Forecast Map generated after issuing Bulletin 3.

Appendix F. 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)

NORTH PACIFIC TSUNAMI EXERCISE TO BE CONDUCTED MARCH 23, 2011

(*insert community/county/state name*) will join other localities in the north Pacific as a participant in a tsunami response exercise on March 27, 2013. 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 2009 Samoa 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 PACIFEX 13, 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 sixth 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 in the Mariana Islands Region at 11:00 am Pacific Daylight Time (*or appropriate local time*) on March 27, 2013. Exercise participants will be provided with a handbook which describes the scenario and contains tsunami messages from both the West Coast/Alaska Tsunami Warning Center (WCATWC) and the Pacific Tsunami Warning Center (PTWC).

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.

If any real tsunami threat occurs during the time period of the exercise, the exercise will be terminated.

The exercise is sponsored by the U.S. National Oceanic and Atmospheric Administration (NOAA) and by the U.S. National Tsunami Hazard Mitigation Program (NTHMP – a partnership of 28 states and territories and three federal agencies). For more information on the U.S. tsunami warning system, see <u>www.tsunami.gov</u>. For more information on the NTHMP, see <u>nthmp.tsunami.gov</u>.

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On the Web: West Coast/Alaska Tsunami Warning Center Pacific Tsunami Warning Center NOAA Tsunami Program NTHMP: Insert state/local emergency response URLs

http://wcatwc.arh.noaa.gov http://www.weather.gov/ptwc http://www.tsunami.gov http://nthmp.tsunami.gov