NOAA/NWS Pacific Tsunami Warning Center

User's Guide: PTWC Tsunami Warning Products for American Samoa

Version 1.4
July 17, 2014

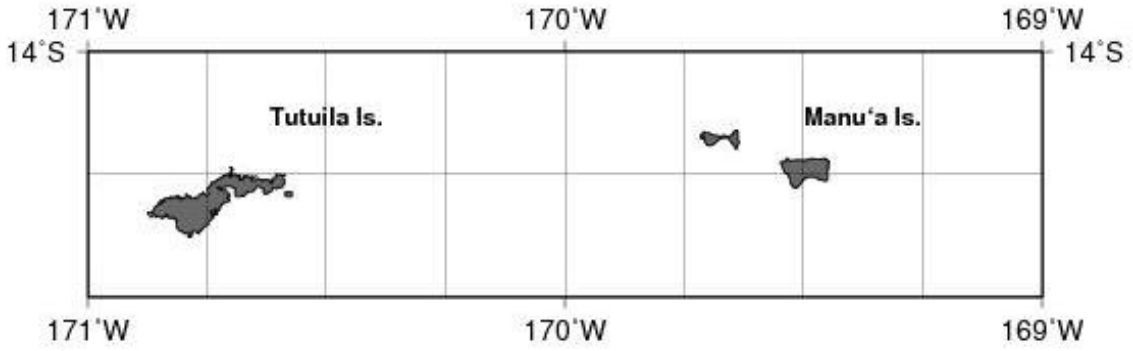
CHANGE LOG

DATE	DESCRIPTION OF CHANGE	VER	WHO
03/21/14	Corrected product IDs shown in example products	1.1	CSM
03/21/14	Updated descriptions of Tsunami Seismic Information Statement and Tsunami Information Statement – No Threat	1.1	CSM
03/31/14	Added Change Log and updated page numbers in Contents section	1.2	CSM
03/31/14	Modified #4 in page 15 to clarify that the study thresholds for a warning may be lower than the fixed thresholds in #1 and #2	1.2	CSM
04/21/14	Changed WESZ40 and WESZ42 to WEZS40 and WEZS42 everywhere in document. The WMO Product ID letters had been inadvertently transposed.	1.3	CSM
07/17/14	Added the proper WMO Product ID for the Tsunami Seismic Information Statement: SEZS70 PHEB	1.4	CSM

CONTENTS

Introduction

American Samoa is a territory of the United States located in the southern Pacific Ocean north of Tonga, east of independent Samoa, and west of the Cook Islands. It consists of five volcanic islands and two atolls and has a population of around 55,000, most of who either live or work or otherwise spend time located very near the coast. American Samoa is vulnerable to impacts from tsunamis generated by earthquakes from the nearby Tonga subduction zone, as well as those generated far away by earthquakes around the Pacific Rim.



The main islands of American Samoa include Tutuila and Aunu`u located just off its SE coast, and the Manu`a Islands – Ofu, Olosega and Ta`u. Swains Island, an atoll, lies about 217 miles (350 km) NNW of Tutuila, and uninhabited Rose Atoll is about 87 miles (140 km) ESE of the Manua Islands.

Tsunami warning services are provided to American Samoa by the NOAA/NWS Pacific Tsunami Warning Center (PTWC) located in Hawaii. For the past several decades American Samoa has been included in PTWC's international products issued for the UNESCO/IOC Pacific Tsunami Warning and Mitigation System. Those products inform about large, potentially-tsunamigenic Pacific earthquakes and assign a warning, watch, or informational status to places around the Pacific, including American Samoa, based upon their respective tsunami threat.

A separate set of domestic products is now being implemented by PTWC to cover American Samoa and give more customized information than is possible with the international product. These new products were prompted by the September 29, 2009 tsunami that struck American Samoa from a magnitude-8.0 earthquake located just 124 miles (200 km) to the southwest of the main island of Tutuila. It caused 34 casualties and significant damage. The new products have also been prompted by an upcoming change to the international products that will eliminate the use of alerting terms such as watch and warning, but instead provide only a general forecast of expected tsunami impacts.

This User's Guide describes the new PTWC products for American Samoa including the levels of alert that may be issued, the information that will be contained in the products, when products can be expected, and how they will be disseminated.

PRODUCTS AND ASSOCIATED THREATS

Tsunami Seismic Information Statement

For earthquakes located within 311 miles (500 km) of American Samoa that have magnitudes above about 5.5 but pose no tsunami threat, PTWC will issue a Tsunami Seismic Information Statement. Such earthquakes may be felt in American Samoa and potentially cause a tsunami concern. This product will quickly inform about the earthquake and that there is no tsunami threat.

Tsunami Information Statement – No Threat

For an earthquake located more than 311 miles (500 km) from American Samoa with a magnitude of 6.5 or above that clearly poses no tsunami threat to American Samoa because it is on land, is too deep within the earth, is too small, or is too far away, a Tsunami Information Statement will be issued indicating there is no tsunami threat.

Tsunami Information Statement – Potential Threat

If a distant earthquake poses a potential tsunami threat to American Samoa but the earliest expected initial wave arrival time is more than 6 hours away and the tsunami is still under evaluation by PTWC, then a Tsunami Information Statement (TIS) will be issued indicating there is a potential tsunami threat. Additional TISs will be issued at least once an hour until:

1) it is determined that there is no tsunami threat to American Samoa and a final TIS is issued;
2) the tsunami is still under evaluation but the expected initial wave arrival time becomes less than 6 hours away from American Samoa and the TIS is upgraded to a Tsunami Watch;
3) the evaluation indicates only a potential marine tsunami threat to American Samoa and the TIS is upgraded to a Tsunami Advisory; or
4) the evaluation indicates a potential land inundation threat to American Samoa and the TIS is upgraded to a Tsunami Warning.

When a TIS is issued for a potential tsunami threat then government officials, emergency managers, and the public should stay alert for further information and be prepared to respond in case the situation is upgraded to a Watch, Advisory, or Warning.

Tsunami Watch

If a distant earthquake poses a potential tsunami threat to American Samoa; the earliest expected initial wave arrival time is between 6 and 3 hours away; and the threat is still under evaluation, then a Tsunami Watch will be issued indicating there is a potential tsunami threat. Additional Tsunami Watch messages will be issued at least once an hour until:

1) it is determined that there is no tsunami threat to American Samoa, and the Tsunami Watch is cancelled;

2) the tsunami is still under evaluation but the expected initial wave arrival time is now less than 3 hours away from American Samoa so the Tsunami Watch is upgraded to a Tsunami Warning;
3) the evaluation indicates only a potential marine tsunami threat to American Samoa and the Tsunami Watch is upgraded to a Tsunami Advisory; or
4) the evaluation indicates a potential land inundation threat to American Samoa and the Tsunami Watch is upgraded to a Tsunami Warning.

When a Tsunami Watch is issued for a potential tsunami threat then government officials, emergency managers, and the public should stay alert for further information and begin taking steps to respond quickly in case the situation is upgraded to an Advisory or Warning.

Tsunami Advisory

If an earthquake poses only a potential marine tsunami threat to American Samoa, then a Tsunami Advisory will be issued. The determination of this level of threat may be made in one of two ways:

1) when the earliest expected arrival time of the initial tsunami wave is more than 3 hours away, then all available data and information will be used to forecast this level of tsunami threat to American Samoa; or
2) when the earliest expected arrival time of the initial tsunami wave is less than 3 hours away, then this level of tsunami threat will be based primarily upon the earthquake's location, depth, and magnitude using pre-determined criteria.

Tsunami Advisories will continue to be issued at least once an hour until:

1) further information before impact indicates there is no tsunami threat to American Samoa and the Tsunami Advisory is cancelled;
2) further information before impact indicates there is a greater tsunami threat to American Samoa and the Tsunami Advisory is upgraded to a Tsunami Warning;
3) the tsunami is impacting American Samoa at a higher level than expected and the Tsunami Advisory is upgraded to a Tsunami Warning; or
4) the tsunami has already impacted American Samoa and wave action has now diminished to the point where the Tsunami Advisory is cancelled.

A Tsunami Advisory means that that sea level is expected to repeatedly rise and fall by as much as 1 foot (0.3 meters) to 3.3 feet (1 meter) above and below the tide level in cycles that may take from five minutes to an hour. These sea level changes will be accompanied by dangerously strong and unusual near-shore ocean currents and minor flooding of harbors and beaches. This level of tsunami impact is a hazard to swimmers, surfers, divers, and others engaging in coastal ocean recreation or work activities. It is also a hazard to persons and boats in harbors. Government officials and emergency managers should take appropriate action for a Tsunami Advisory to inform and instruct the public and others at risk to evacuate the water and take other appropriate actions in order to protect lives and property.

Tsunami Warning

If an earthquake poses a potential tsunami land inundation threat to American Samoa, then a Tsunami Warning will be issued. The determination of this level of threat may be made in one of two ways:

1) when the earliest expected arrival time of the initial tsunami wave is more than 3 hours away, then all available data and information will be used to forecast this level of tsunami threat to American Samoa; or
2) when the earliest expected arrival time of the initial tsunami wave is less than 3 hours away, then this level of tsunami threat will be based primarily upon the earthquake's location, depth, and magnitude using pre-determined criteria.

Tsunami Warnings will continue to be issued at least once an hour until:

1) further information before impact indicates there is a reduced tsunami threat to American Samoa and the Tsunami Warning is downgraded to a Tsunami Advisory;
2) further information before impact indicates there is no tsunami threat to American Samoa and the Tsunami Warning is cancelled;
3) the tsunami has already impacted American Samoa and wave action is only at a lower level or it has diminished to the point where the Tsunami Warning is downgraded to a Tsunami Advisory; or
4) the tsunami has already impacted American Samoa and wave action was minor or non-existent so that the Tsunami Warning is cancelled.

A Tsunami Warning means that that sea level is expected to repeatedly rise and fall by more than 3.3 feet (1 meter) above and below the tide level in cycles that may take from five minutes to an hour. These sea level changes will be accompanied by repeated flooding and draining of land near the coast accompanied by damage to or destruction of coastal structures. This level of tsunami impact is a hazard to all persons in coastal areas of tsunami inundation zones. Government officials and emergency managers should take appropriate actions for a Tsunami Warning to inform and instruct the public and others at risk to evacuate the coast and take other appropriate actions in order to protect lives and property.

OFFICIAL PRODUCT DEFINITIONS

The following are the U.S. Tsunami Warning Center official domestic product definitions formulated by and agreed to by the National Tsunami Hazard Mitigation Program.

Tsunami Warning

A tsunami warning is issued when a tsunami with the potential to generate widespread inundation is imminent, expected, or occurring. Warnings alert the public that dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after initial arrival. Warnings alert emergency management officials to take action for the entire tsunami hazard zone. Appropriate actions to be taken by local officials may include the evacuation of low-lying coastal areas, and the repositioning of ships to deep waters when there is time to safely do so. Warnings may be updated, adjusted geographically, downgraded, or

canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information.

Tsunami Advisory

A tsunami advisory is issued when a tsunami with the potential to generate strong currents or waves dangerous to those in or very near the water is imminent, expected, or occurring. The threat may continue for several hours after initial arrival, but significant inundation is not expected for areas under an advisory. Appropriate actions to be taken by local officials may include closing beaches, evacuating harbors and marinas, and the repositioning of ships to deep waters when there is time to safely do so. Advisories are normally updated to continue the advisory, expand/contract affected areas, upgrade to a warning, or cancel the advisory.

Tsunami Watch

A tsunami watch is issued to alert emergency management officials and the public of an event which may later impact the watch area. The watch area may be upgraded to a warning or advisory - or canceled - based on updated information and analysis. Therefore, emergency management officials and the public should prepare to take action. Watches are normally issued based on seismic information without confirmation that a destructive tsunami is underway.

Tsunami Information Statement / Tsunami Seismic Information Statement

A tsunami information statement is issued to inform emergency management officials and the public that an earthquake has occurred, or that a tsunami warning, watch or advisory has been issued for another section of the ocean. In most cases, information statements are issued to indicate there is no threat of a destructive basin wide tsunami and to prevent unnecessary evacuations as the earthquake may have been felt in coastal areas. An information statement may, in appropriate situations, caution about the possibility of destructive local tsunamis. Information statements may be re-issued with additional information, though normally these messages are not updated. However, a watch, advisory or warning may be issued for the area, if necessary, after analysis and/or updated information becomes available.

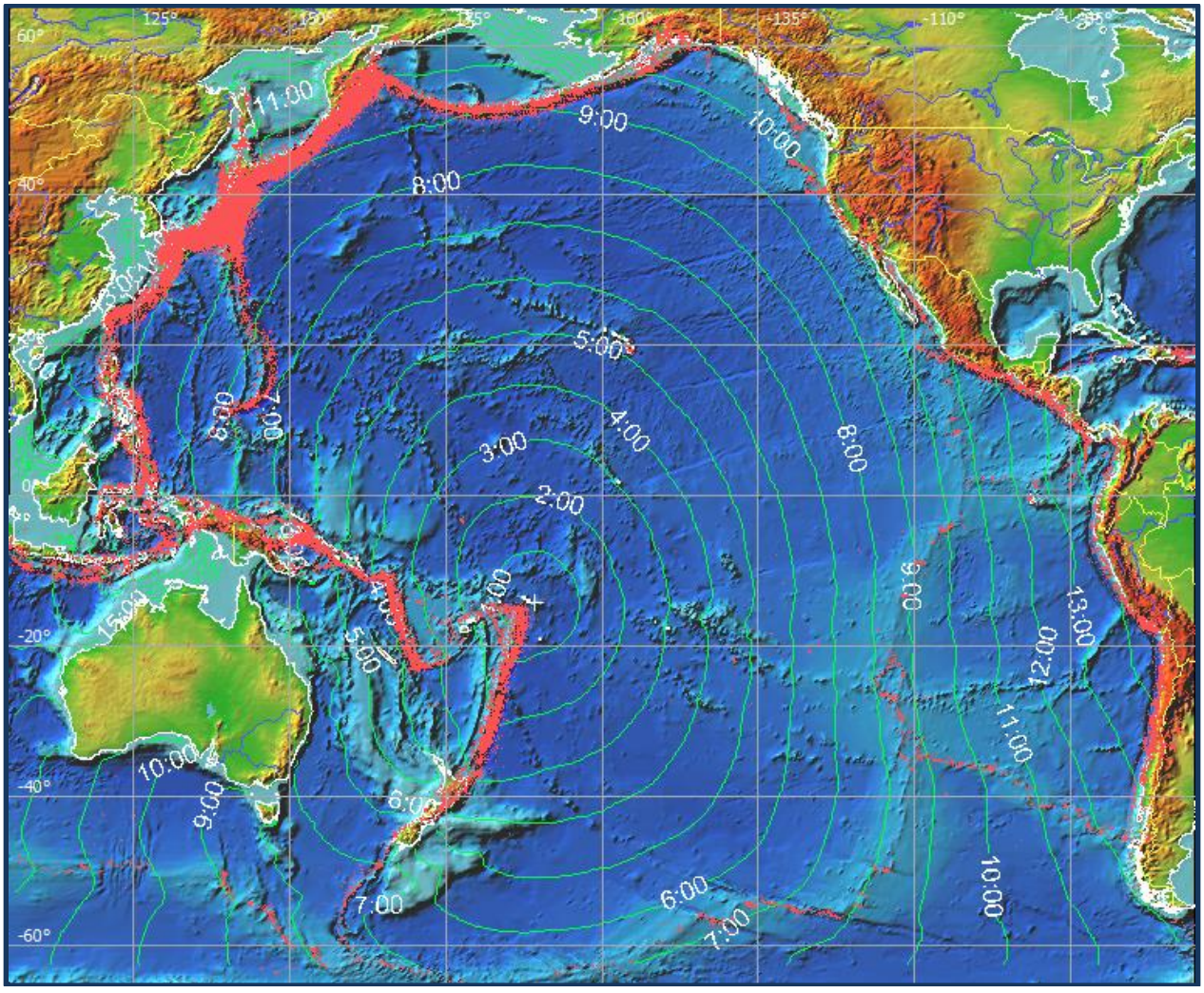
PRODUCT TYPES AND IDENTIFIERS

The following table provides the identifying codes of the World Meteorological Organization (WMO) and the U.S. Advanced Weather Information Processing System (AWIPS) for the PTWC product types issued for American Samoa. This information may be necessary to request to receive these products over some circuits such as the WMO's Global Telecommunications System (GTS), or to program certain systems such as the Emergency Manager's Weather Information System (EMWIN) to alert on these products.

Product Type	WMO ID	AWIPS ID
Tsunami Seismic Information Statement	SEZS70 PHEB	EQIPPG
Tsunami Information Statement	WEZS42 PHEB	TIBPPG
Tsunami Watch/Advisory/Warning	WEZS40 PHEB	TSUPPG

TSUNAMI TRAVEL TIMES

The speed that tsunami waves travel depends upon the depth of the water. In the deep ocean, they can travel at speeds similar to those of a commercial jet – 500 to 600 miles per hour. In shallow water near the coast they travel at speeds similar to common wind waves – 20 to 30 miles per hour. The following map shows tsunami travel times in hours to Tutuila from the various shallow seismic zones in the Pacific (tiny red dots). For the nearest part of the Tonga Trench seismic zone, the travel time can be only 15 minutes. For more distant seismic zones such as those in Japan or the Aleutian Islands the travel time can be 9 to 10 hours, and for South America more than 13 hours.



Tsunami travel time contours across the Pacific to Tutuila Island, American Samoa. The green contours are labelled in hours of travel time. Tiny red dots show the location of historical earthquakes having depths less than 50 km. They primarily outline boundaries between tectonic plates that cover the surface of the earth.

PRE-DETERMINED SEISMIC CRITERIA FOR INITIAL LEVELS OF ALERT

In order to provide the earliest possible information regarding any potential earthquake-generated tsunami, initial products and associated alerts for American Samoa are based primarily upon the preliminary seismic parameters determined by PTWC within a few minutes of the earthquake and that may evolve over the next few tens of minutes as more seismic data are received and processed.

Distant Earthquakes

For earthquakes located further than three hours tsunami travel time from American Samoa, the seismic criteria used for initial products are similar to seismic criteria currently used by PTWC elsewhere in the Pacific and are given in the table below.

Earthquake					
Sea	**Land**	**Depth**	**Magnitude**	**ETA**	**Product/Alert Level**
Yes	Yes	< 62 mi (100 km)	6.5 - 7.8	> 3 hr	TIS – No Threat
Yes	Yes	≥ 62 mi (100 km)	≥ 6.5	> 3 hr	TIS – No Threat
Yes	Near Sea	< 62 mi (100 km)	≥ 7.9	> 6 hr	TIS – Potential Threat
Yes	Near Sea	< 62 mi (100 km)	≥ 7.9	3 - 6 hr	Tsunami Watch

Some flexibility may be applied by the PTWC duty staff in applying these criteria based upon their assessment of the accuracy of the earthquake parameters, judgments about the tsunamigenic potential of inland events, earthquake slowness indicative of increased tsunamigenic potential, and other considerations such as proximity to the 3- and 6-hour timing boundaries.

Nearby Earthquakes

For earthquakes located within three hours tsunami travel time of American Samoa, the seismic criteria are somewhat more complicated due to the geometry of the nearby Tonga subduction zone that follows an arc coming to within about 124 miles (200 km) of Tutuila Island. Based on a numerical model study of tsunami impacts to American Samoa from earthquakes located in that nearby seismic zone, minimum magnitude thresholds were determined for Tsunami Advisory and Warning alert levels. A conservative assumption was used in the model simulations that the earthquakes have a shallow thrust mechanism with a strike parallel to the trench. Results are shown below in figures 1 and 2. Tsunami amplitudes are affected not only by the distance from each earthquake to American Samoa but also by how tsunami energy is initially directed outward perpendicular to the trench axis and also by how the tsunami energy is bent by refraction due to bathymetric features.

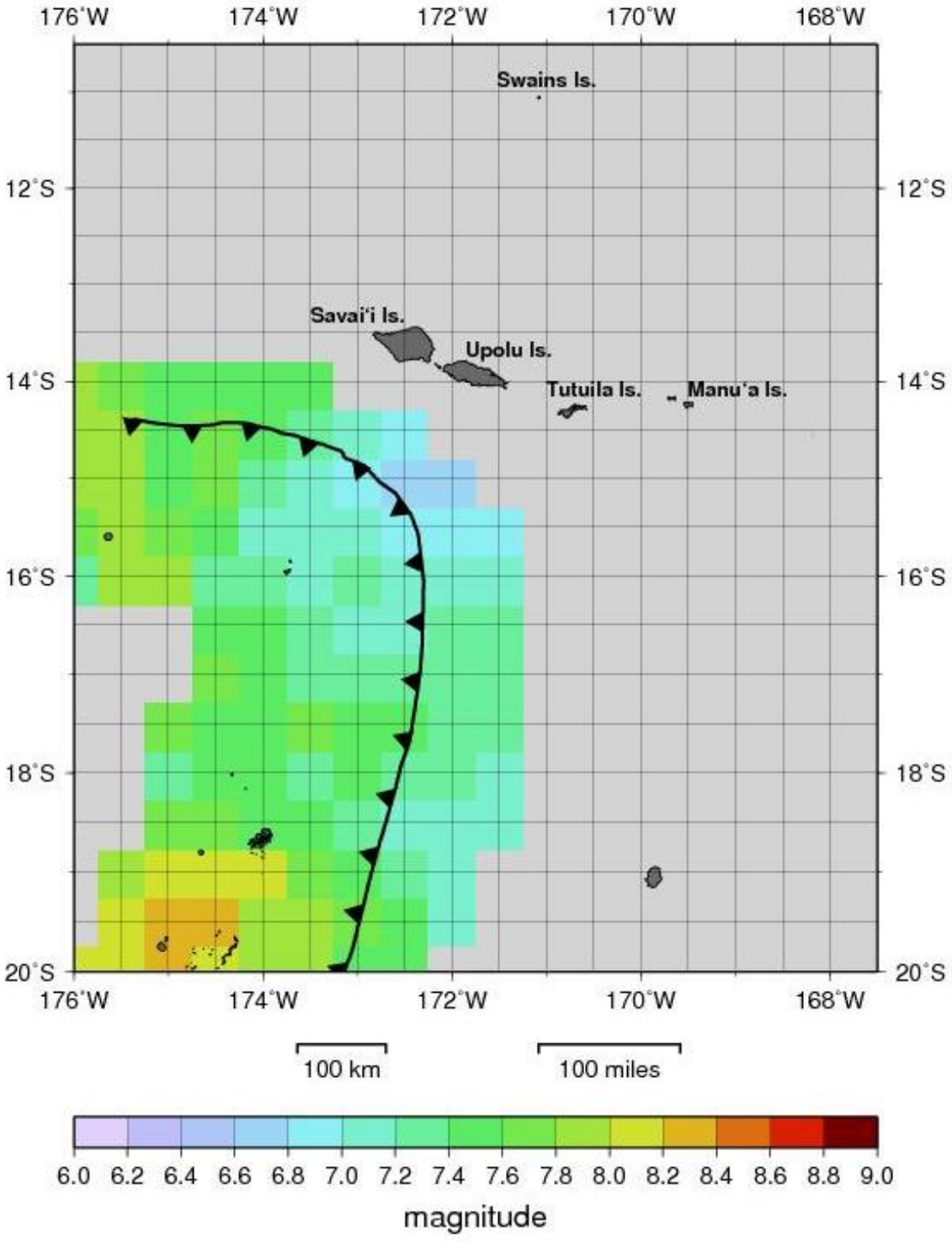


Figure 1. Minimum magnitudes of earthquakes in the Tonga Trench seismic zone that produce simulated tsunamis having coastal amplitudes anywhere in American Samoa that exceed the Tsunami Advisory threshold (>1ft or >0.3m above the tide level). Simulated epicenters are centered on a half-degree grid across the area of seismicity. The black line shows the axis of the Tonga Trench where the Pacific Plate is subducting beneath the Australian Plate.

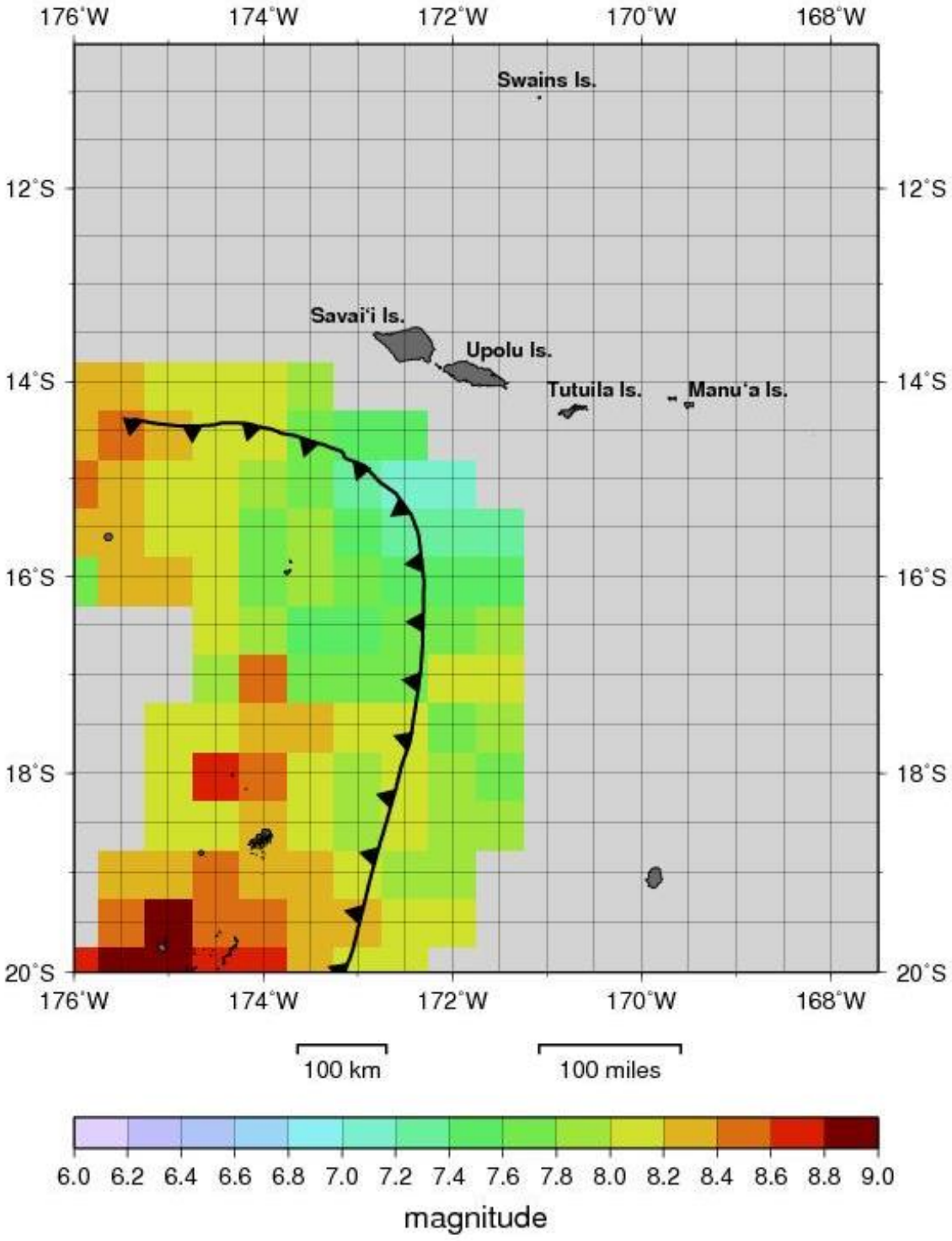


Figure 2. Minimum magnitudes of shallow earthquakes in the Tonga Trench seismic zone that produce simulated tsunamis having coastal amplitudes anywhere in American Samoa that exceed the Tsunami Warning threshold (>3.3ft or >1m above the tide level). Simulated epicenters are centered on a half-degree grid across the area of seismicity. The black line shows the axis of the Tonga Trench where the Pacific Plate is subducting beneath the Australian Plate.

For any earthquake located within three hours tsunami travel time of American Samoa and having a preliminary magnitude of 6.5 or greater, the initial level of alert issued by PTWC for American Samoa will be determined by the following criteria.

1. If the earthquake is located within 186 miles (300 km) of American Samoa, has a preliminary depth less than 62 miles (100 km) and has a preliminary magnitude of 7.1 or greater then a ***warning*** will be issued.
2. If the earthquake is located within 621 miles (1000 km) of American Samoa, has a preliminary depth less than 62 miles (100 km) and has a preliminary magnitude of 7.6 or greater then a ***warning*** will be issued.
3. If the earthquake is located more than 621 miles (1000 km) from American Samoa, has a preliminary depth less than 62 miles (100 km) and the preliminary magnitude of 7.9 or greater then a ***warning*** will be issued.
4. If the location of the earthquake (rounded to the nearest half-degree of latitude and longitude) is at one of the locations modeled in the study, the preliminary earthquake depth is less than 62 miles (100 km), and the preliminary magnitude plus 0.2 magnitude units otherwise meets or exceeds the study threshold for a warning, then a ***warning*** will be issued. The added 0.2 magnitude units is to account for any potential preliminary magnitude underestimation. For some locations, this is a lower magnitude threshold for a warning than the fixed thresholds of 7.1 and 7.6 described above in 1 and 2.
5. If the location of the earthquake (rounded to the nearest half-degree of latitude and longitude) is at one of the locations modeled in the study, the preliminary earthquake depth is less than 62 miles (100 km), and the preliminary magnitude plus 0.2 magnitude units meets or exceeds the study threshold for an advisory but not any of the above thresholds for a warning, then an ***advisory*** will be issued. The added 0.2 magnitude units is to account for any potential preliminary magnitude underestimation.
6. If the earthquake has a preliminary depth less than 62 miles (100 km) with preliminary magnitude of 6.5 or greater but does meet any of the criteria above for an advisory or warning, then only an ***information statement*** will be issued indicating no tsunami threat.
7. If the preliminary earthquake depth is greater than or equal to 62 miles (100 km) and the preliminary earthquake magnitude is greater than or equal to 6.5, then only an ***information statement*** will be issued indicating no tsunami threat from a deep earthquake.

These procedures, while sounding somewhat complex, are generally consistent with current procedures used in PTWC's Pacific and Caribbean international products, with the exception of adding more specific criteria for tsunami advisories and warnings due to earthquakes very near American Samoa. Some flexibility may be used by the PTWC duty staff in applying these criteria based upon their assessment of the accuracy of the earthquake parameters, earthquake slowness indicative of increased tsunamigenic potential, and other factors such as the proximity to the three-hour timing boundary.

TSUNAMI THREAT CRITERIA FOR SUBSEQUENT LEVELS OF ALERT

The tsunami threat to American Samoa from any earthquake or any potential or observed tsunami will be continuously evaluated by PTWC based upon all available data and information that will typically include the seismic parameters, sea level readings, historical data, tsunami reports, and one or more numerical simulations constrained by some of that information. Taking into account the various uncertainties, and in general leaning towards being conservative, a forecast will be made by PTWC duty personnel for American Samoa and the appropriate product issued using the following criteria:

Alert Level	Maximum Expected Rise of Sea Level above the Tide in American Samoa
None	0 to 1 ft (0 to 0.3 m)
Advisory	1 to 3.3 ft (0.3 to 1 m)
Warning	> 3.3 ft (> 1 m)

Alert levels may increase as an event evolves if information is received that justifies such an increase. Alert levels will not be lowered in advance of impact except in the case where an updated evaluation has very high level of confidence and there is a clear benefit to immediately lowering the alert. Alert levels may be lowered after impact as conditions warrant until cancellation.

EARTHQUAKE LOCATION DESCRIPTION

For earthquakes located further than 186 miles (300 km) from any of the American Samoan Islands, the Flynn-Engdahl global region names are used:

http://earthquake.usgs.gov/learn/topics/flinn_engdahl.php

For earthquakes located within 186 miles (300 km) of any of the islands of American Samoa and Samoa, the location name will reference the nearest island or island group (Savai, Upolu, Tutuila, Manua, and Swains) by the following scheme:

1) If the epicenter is within 6 miles (10 km) of the coast of the nearest island, the name will reference that island as follows: “in the vicinity of Savai” or “in the vicinity of Manua”.

2) If the epicenter is further than 6 miles (10 km) from the nearest island, then the name will reference that island with a distance and direction as follows: “about 91 miles northeast of Upolu” or “about 48 miles south of Tutuila”.

FORECAST POINTS

The following is a list of the forecast points referenced whenever a Watch, Advisory, or Warning is issued. For each of these points, the estimated time of arrival of the first tsunami wave is given in the product.

LOCATION NAME	LATITUDE	LONGITUDE
PAGO PAGO, TUTUILA	14.276°S	170.689°W
TAFUNA, TUTUILA	14.342°S	170.715°W
LEONE, TUTUILA	14.343°S	170.793°W
AMANAVE, TUTUILA	14.329°S	170.834°W
FAGAMALO, TUTUILA	14.297°S	170.814°W
FAGASA, TUTUILA	14.281°S	170.727°W
VATIA, TUTUILA	14.248°S	170.672°W
MASEFAU, TUTUILA	14.254°S	170.624°W
TULA, TUTUILA	14.252°S	170.562°W
PAGAI, TUTUILA	14.273°S	170.610°W
AUMI, TUTUILA	14.291°S	170.653°W
AUNUU ISLAND	14.283°S	170.563°W
TAU, MANUA	14.260°S	169.456°W
OFU, MANUA	14.185°S	169.679°W
OLESEGA, MANUA	14.185°S	169.625°W
SWAINS ISLAND	11.070°S	171.080°W

PRODUCT TIMING

The initial product for a potentially tsunamigenic earthquake will be issued as soon as the earthquake's location, depth, and magnitude can be determined by PTWC with sufficient accuracy to reasonably estimate its tsunamigenic potential. The speed at which this occurs depends upon a number of factors, the most important of which is the density of real-time-reporting seismic stations in the vicinity of the earthquake. This density varies considerably around the Pacific so that initial products may go out within two to five minutes for an earthquake in Hawaii or California, but could take more than 10 minutes for an earthquake along the East Pacific Rise. The speed of the initial product is most important for coasts located near the earthquake because a tsunami, if generated, may strike those nearby coasts within minutes.

The number of real-time-reporting seismic stations near American Samoa has increased in recent years but there still are none in American Samoa, and data from the nearest seismic networks in Tonga, Samoa, and Fiji are not being disseminated outside of those countries. Consequently, for earthquakes in the vicinity of American Samoa, the elapsed time until the initial PTWC international product is issued for earthquakes near American Samoa is currently between 5 and 10 minutes. For more distant events around the Pacific, the elapsed time is rarely more than 15 minutes.

For a Tsunami Information Statement (TIS) indicating no threat to American Samoa only one product is usually issued. A supplemental TIS may be issued at a later time, however, if there is something new to report.

For TIS with a potential threat, or for a Watch, Advisory, or Warning, subsequent products will be issued at least once an hour, or more frequently if there is significant new information to report such as a change in the earthquake parameters or a crucial measurement of the tsunami waves. Products will continue to be issued at least hourly until the threat to American Samoa has passed, either before impact because the threat was downgraded, or after impact when the threat is over.

A cancellation supplement may also be issued after a significant tsunami to distribute a summary of tsunami observations, some of which may not have been included in the products issued during the event.

PRODUCT CONTENT

The products will have content divided into the following lines and sections.

- WMO Product ID Line
- AWIPS Product ID Line
- UGC Code Line [1]
- VTEC Code Line(s) [1]
- Broadcast Instruction Line [1]
- Product Type Line
- Issuing Office Line
- Issuance Date/Time Line
- Product Headline
- Updates Section [2]
- Potential Impacts Section [1]
- Recommended Actions Section
- Estimated Times of Arrival Section [1]
- Tsunami Observations Section [3]
- Preliminary Earthquake Parameters Section
- Next Update and Additional Information Section

[1] Line or Section is only in a Watch, Advisory or Warning.
[2] Updates Section is only present if there is significant new information in the message.
[3] Tsunami Observations Section is only present when there are observations to report.

SAMPLE PRODUCTS

On the following pages are samples of the various types of PTWC domestic products for American Samoa to show their general format and the type of information they contain. They are not intended to simulate or otherwise represent the characteristics of any particular actual event or related threat.

Tsunami Seismic Information Statement

SESZ70 PHEB 071324
EQIPPG

TSUNAMI SEISMIC INFORMATION STATEMENT NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
224 AM SST FRI FEB 07 2014

...THERE IS NO TSUNAMI THREAT FROM A NEARBY EARTHQUAKE...

AUDIENCE

EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC

EVALUATION
----

* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 5.8 OCCURRED ABOUT 70 MILES SOUTH OF SAVAI AT 221 AM SST ON FRIDAY FEBRUARY 7 2014.

* BASED ON ALL AVAILABLE DATA... THERE IS NO TSUNAMI THREAT TO AMERICAN SAMOA FROM THIS EARTHQUAKE.

* SOME AREAS MAY HAVE EXPERIENCED SHAKING.

RECOMMENDED ACTIONS
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* NO ACTION IS REQUIRED.

PRELIMINARY EARTHQUAKE PARAMETERS
----

* MAGNITUDE 5.8
* ORIGIN TIME 221 AM SST FEB 07 2014
* COORDINATES 14.7 SOUTH 173.0 WEST
* DEPTH 13 MILES
* LOCATION 70 MILES SOUTH OF SAVAI

NEXT UPDATE AND ADDITIONAL INFORMATION
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* THIS WILL BE THE ONLY STATEMENT ISSUED FOR THIS EVENT UNLESS ADDITIONAL DATA ARE RECEIVED OR THE SITUATION CHANGES.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Information Statement – No Threat

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WEZS42 PHEB 071402
TIBPPG

TSUNAMI INFORMATION STATEMENT NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
302 AM SST FRI FEB 07 2014

...TSUNAMI INFORMATION STATEMENT...


AUDIENCE
--------
EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 6.8 OCCURRED
    OFF THE COAST OF CENTRAL CHILE AT 221 AM SST ON FRIDAY
    FEBRUARY 7 2014.

  * BASED ON ALL AVAILABLE DATA... THERE IS NO TSUNAMI THREAT TO
    AMERICAN SAMOA FROM THIS EARTHQUAKE.


RECOMMENDED ACTIONS
-------------------

  * NO ACTION IS REQUIRED.


PRELIMINARY EARTHQUAKE PARAMETERS
---------------------------------

  * MAGNITUDE      6.8
  * ORIGIN TIME    221 AM SST FEB 07 2014
  * COORDINATES    32.3 SOUTH  73.0 WEST
  * DEPTH          13 MILES
  * LOCATION       OFF THE COAST OF CENTRAL CHILE


NEXT UPDATE AND ADDITIONAL INFORMATION
--------------------------------------

  * THIS WILL BE THE ONLY STATEMENT ISSUED FOR THIS EVENT UNLESS
    ADDITIONAL DATA ARE RECEIVED OR THE SITUATION CHANGES.

  * FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE
    INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

  * AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S.
    GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT
    EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.


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Tsunami Information Statement – Potential Threat

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WEZS42 PHEB 071403
TIBPPG

TSUNAMI INFORMATION STATEMENT NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
303 AM SST FRI FEB 07 2014

...TSUNAMI INFORMATION STATEMENT...


AUDIENCE
--------
EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.3 OCCURRED
    OFF THE COAST OF CENTRAL CHILE AT 221 AM SST ON FRIDAY
    FEBRUARY 7 2014.

  * THE TSUNAMI THREAT TO AMERICAN SAMOA FROM THIS EARTHQUAKE IS
    STILL UNDER INVESTIGATION.


POTENTIAL IMPACTS
-----------------

  * IF A TSUNAMI THREAT EXISTS... THE EARLIEST ESTIMATED ARRIVAL
    TIME OF TSUNAMI WAVES WITHIN AMERICAN SAMOA WOULD BE

                433 PM SST FRIDAY 07 FEB 2014


RECOMMENDED ACTIONS
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  * STAY ALERT FOR FURTHER INFORMATION.  THERE IS THE POSSIBILITY
    THAT A TSUNAMI WATCH... ADVISORY... OR WARNING COULD BE ISSUED
    LATER FOR AMERICAN SAMOA.


PRELIMINARY EARTHQUAKE PARAMETERS
---------------------------------

  * MAGNITUDE      8.3
  * ORIGIN TIME    221 AM SST FEB 07 2014
  * COORDINATES    32.3 SOUTH  73.0 WEST
  * DEPTH          13 MILES
  * LOCATION       OFF THE COAST OF CENTRAL CHILE


NEXT UPDATE AND ADDITIONAL INFORMATION
--------------------------------------

  * THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF
    THE SITUATION WARRANTS.

  * FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE
    INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.
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* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S.
  GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT
  EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Advisory Message – Nearby Event

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WEZS40 PHEB 071328
TSUPPG
ASZ001>003-071528-
/O.NEW.PHEB.TS.Y.0001.140207T1328Z-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED
TSUNAMI MESSAGE NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
328 AM SST FRI FEB 07 2014

...A TSUNAMI ADVISORY IS NOW IN EFFECT FOR ALL OF AMERICAN
SAMOA...


AUDIENCE
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EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.1 OCCURRED
    ABOUT 70 MILES SOUTH OF SAVAI AT 321 AM SST ON FRIDAY
    FEBRUARY 7 2014.

  * A HAZARDOUS TSUNAMI MAY HAVE BEEN GENERATED BY THIS
    EARTHQUAKE THAT COULD IMPACT NEARBY COASTS WITHIN MINUTES.

  * MONITORING IS UNDERWAY TO EVALUATE THE TSUNAMI THREAT.

  * SOME AREAS MAY HAVE EXPERIENCED SHAKING.


POTENTIAL IMPACTS
-----------------

  * SEA LEVEL FLUCTUATIONS THAT ARE GENERALLY NO MORE THAN 3 FEET
    ABOVE AND BELOW THE TIDE LEVEL.

  * MINOR FLOODING OF BEACH AND HARBOR AREAS.

  * STRONG AND UNUSUAL OCEAN CURRENTS IN HARBORS... BAYS... AND
    OTHER NEAR SHORE WATERS.


RECOMMENDED ACTIONS
-------------------

  * PERSONS IN OR NEAR THE OCEAN ALONG THE COASTS OF ALL OF
    AMERICAN SAMOA SHOULD MOVE IMMEDIATELY OUT OF THE WATER AND
    AWAY FROM BEACHES AND HARBORS.

  * FROM A SAFE LOCATION... STAY ALERT FOR FURTHER INFORMATION
    AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES THAT MAY BE
    BROADCAST OVER LOCAL RADIO OR TELEVISION STATIONS INCLUDING
    THE NOAA WEATHER RADIO.

  * DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN
    BY LOCAL AUTHORITIES.
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ESTIMATED TIMES OF ARRIVAL
---

* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(SST)
AMANAVE	TUTUILA	14.3S 170.8W	340 AM 02/07
LEONE	TUTUILA	14.3S 170.8W	340 AM 02/07
FAGAMALO	TUTUILA	14.3S 170.8W	340 AM 02/07
TAFUNA	TUTUILA	14.3S 170.7W	340 AM 02/07
FAGASA	TUTUILA	14.3S 170.7W	341 AM 02/07
VATIA	TUTUILA	14.2S 170.7W	342 AM 02/07
PAGO PAGO	TUTUILA	14.3S 170.7W	342 AM 02/07
AUMI	TUTUILA	14.3S 170.7W	342 AM 02/07
AUNUU ISLAND	AUNUU	14.3S 170.6W	345 AM 02/07
TULA	TUTUILA	14.3S 170.6W	347 AM 02/07
MASEFAU	TUTUILA	14.3S 170.6W	347 AM 02/07
PAGAI	TUTUILA	14.3S 170.6W	347 AM 02/07
OFU ISLAND	MANUA	14.2S 169.7W	351 AM 02/07
OLESEGA ISLAND	MANUA	14.2S 169.6W	352 AM 02/07
TAU ISLAND	MANUA	14.3S 169.5W	353 AM 02/07
SWAINS ISLAND	SWAINS	11.1S 171.1W	358 AM 02/07

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 7.1
* ORIGIN TIME 321 AM SST FEB 07 2014
* COORDINATES 14.7 SOUTH 173.0 WEST
* DEPTH 13 MILES
* LOCATION 70 MILES SOUTH OF SAVAI

NEXT UPDATE AND ADDITIONAL INFORMATION
---

* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Warning Message – Nearby Event

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WEZS40 PHEB 071328
TSUPPG
ASZ001>003-071528-
/O.NEW.PHEB.TS.W.0001.140207T1328Z-000000T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED
TSUNAMI MESSAGE NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
328 AM SST FRI FEB 07 2014

...A TSUNAMI WARNING IS NOW IN EFFECT FOR ALL OF AMERICAN
SAMOA...


AUDIENCE
--------
EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED
    ABOUT 70 MILES SOUTH OF SAVAI AT 321 AM SST ON FRIDAY
    FEBRUARY 7 2014.

  * A HAZARDOUS TSUNAMI MAY HAVE BEEN GENERATED BY THIS
    EARTHQUAKE THAT COULD IMPACT NEARBY COASTS WITHIN MINUTES.

  * MONITORING IS UNDERWAY TO EVALUATE THE TSUNAMI THREAT.

  * SOME AREAS MAY HAVE EXPERIENCED SHAKING.


POTENTIAL IMPACTS
-----------------

  * SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND
    BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS OF THE WARNED
    AREA.

  * REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.

  * DESTRUCTION OF SMALLER COASTAL STRUCTURES.

  * RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.

  * SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES...
    FIRES... AND HAZARDOUS MATERIAL SPILLS.


RECOMMENDED ACTIONS
-------------------

  * PERSONS LOCATED IN LOW-LYING AREAS ALONG COASTS OF ALL OF
    AMERICAN SAMOA SHOULD MOVE IMMEDIATELY INLAND OR TO HIGH
    GROUND OR TO THE FOURTH FLOOR AND ABOVE IN A STEEL OR CONCRETE
    BUILDING.

  * FROM A SAFE LOCATION... STAY ALERT FOR FURTHER INFORMATION
    AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES THAT MAY BE
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BROADCAST OVER LOCAL RADIO OR TELEVISION STATIONS INCLUDING THE NOAA WEATHER RADIO.

* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

ESTIMATED TIMES OF ARRIVAL
---

* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(SST)
AMANAVE	TUTUILA	14.3S 170.8W	340 AM 02/07
LEONE	TUTUILA	14.3S 170.8W	340 AM 02/07
FAGAMALO	TUTUILA	14.3S 170.8W	340 AM 02/07
TAFUNA	TUTUILA	14.3S 170.7W	340 AM 02/07
FAGASA	TUTUILA	14.3S 170.7W	341 AM 02/07
VATIA	TUTUILA	14.2S 170.7W	342 AM 02/07
PAGO PAGO	TUTUILA	14.3S 170.7W	342 AM 02/07
AUMI	TUTUILA	14.3S 170.7W	342 AM 02/07
AUNUU ISLAND	AUNUU	14.3S 170.6W	345 AM 02/07
TULA	TUTUILA	14.3S 170.6W	347 AM 02/07
MASEFAU	TUTUILA	14.3S 170.6W	347 AM 02/07
PAGAI	TUTUILA	14.3S 170.6W	347 AM 02/07
OFU ISLAND	MANUA	14.2S 169.7W	351 AM 02/07
OLESEGA ISLAND	MANUA	14.2S 169.6W	352 AM 02/07
TAU ISLAND	MANUA	14.3S 169.5W	353 AM 02/07
SWAINS ISLAND	SWAINS	11.1S 171.1W	358 AM 02/07

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 7.9
* ORIGIN TIME 321 AM SST FEB 07 2014
* COORDINATES 14.7 SOUTH 173.0 WEST
* DEPTH 13 MILES
* LOCATION 70 MILES SOUTH OF SAVAI

NEXT UPDATE AND ADDITIONAL INFORMATION
---

* THE NEXT MESSAGE WILL BE ISSUED IN THIRTY MINUTES... OR SOONER IF THE SITUATION WARRANTS.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Warning Cancellation Message – Nearby Event

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WEZS40 PHEB 071355
TSUPPG
ASZ001>003-071555-
/O.CAN.PHEB.TS.W.0000.000000T0000Z-000000T0000Z/

BULLETIN
TSUNAMI MESSAGE NUMBER 2
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
255 AM SST FRI FEB 07 2014

...THE TSUNAMI WARNING IS NOW CANCELLED FOR ALL OF AMERICAN
   SAMOA...

AUDIENCE
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EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.9 OCCURRED
    ABOUT 70 MILES SOUTH OF SAVAI AT 221 AM SST ON FRIDAY
    FEBRUARY 7 2014.

  * A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE.

  * ALL AVAILABLE DATA NOW INDICATE THAT THE TSUNAMI THREAT HAS
    PASSED ALTHOUGH SMALL SEA LEVEL FLUCTUATIONS MAY CONTINUE.


RECOMMENDED ACTIONS
-------------------

  * DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN
    BY LOCAL AUTHORITIES.


PRELIMINARY EARTHQUAKE PARAMETERS
---------------------------------

  * MAGNITUDE      7.9
  * ORIGIN TIME    221 AM SST FEB 07 2014
  * COORDINATES    14.7 SOUTH  173.0 WEST
  * DEPTH          13 MILES / 21 KM
  * LOCATION       70 MILES SOUTH OF SAVAI


NEXT UPDATE AND ADDITIONAL INFORMATION
--------------------------------------

  * THIS WILL BE THE FINAL STATEMENT ISSUED FOR THIS EVENT UNLESS
    NEW INFORMATION IS RECEIVED OR THE SITUATION CHANGES.

  * FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE
    INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

  * AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S.
    GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT
    EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.
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Tsunami Watch Message – Distant Event

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WEZS40 PHEB 071833
TSUPPG
ASZ001>003-072033-
/O.NEW.PHEB.TS.A.0001.140207T1833Z-000000T0000Z/

BULLETIN
TSUNAMI MESSAGE NUMBER 5
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
733 AM SST FRI FEB 07 2014

...A TSUNAMI WATCH IS NOW IN EFFECT FOR ALL OF AMERICAN
   SAMOA...


AUDIENCE
--------
EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.6 OCCURRED
    OFF THE COAST OF CENTRAL CHILE AT 1121 PM SST ON THURSDAY
    FEBRUARY 6 2014.

  * THE TSUNAMI THREAT TO AMERICAN SAMOA FROM THIS EARTHQUAKE IS
    STILL BEING EVALUATED.



POTENTIAL IMPACTS
-----------------

  * IF A TSUNAMI THREAT EXISTS... THE EARLIEST ESTIMATED ARRIVAL
    TIME OF TSUNAMI WAVES WITHIN AMERICAN SAMOA WOULD BE

                133 PM SST FRIDAY 07 FEB 2014


RECOMMENDED ACTIONS
-------------------

  * STAY ALERT FOR FURTHER INFORMATION. THE TSUNAMI WATCH COULD
    BE ELEVATED TO AN ADVISORY OR WARNING.

  * CONSIDER YOUR COURSE OF ACTION IF A TSUNAMI ADVISORY OR
    WARNING IS ISSUED.


TSUNAMI OBSERVATIONS
--------------------

  * THE PRESENCE OF A TSUNAMI AND AN INDICATION OF ITS STRENGTH
    ARE CONFIRMED BY THE FOLLOWING OBSERVATIONS OF THE TSUNAMI.

                          GAUGE      TIME OF   MAXIMUM     WAVE
                       COORDINATES   MEASURE   TSUNAMI   PERIOD
    GAUGE LOCATION      LAT   LON     (SST)     HEIGHT    (MIN)
    ------------------------------------------------------------
    DART 32402         26.7S  74.0W  1245 AM   0.7FT/ 0.2M  22
```

TALCAHUANO CL	36.7S	73.4W	156 AM	5.2FT/ 1.6M	34
VALPARAISO CL	33.0S	71.6W	338 AM	4.9FT/ 1.5M	20

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 8.6
* ORIGIN TIME 1121 PM SST FEB 06 2014
* COORDINATES 32.3 SOUTH 73.0 WEST
* DEPTH 13 MILES / 21 KM
* LOCATION OFF THE COAST OF CENTRAL CHILE

NEXT UPDATE AND ADDITIONAL INFORMATION
---

* THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF THE SITUATION WARRANTS.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Advisory Message – Distant Event

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WEZS40 PHEB 071410
TSUPPG
ASZ001>003-071610-
/O.CAN.PHEB.TS.A.0000.000000T0000Z-000000T0000Z/
/O.NEW.PHEB.TS.Y.0001.140207T1410Z-000000T0000Z/

BULLETIN
TSUNAMI MESSAGE NUMBER 3
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
310 AM SST FRI FEB 07 2014

...A TSUNAMI ADVISORY IS NOW IN EFFECT FOR ALL OF AMERICAN
   SAMOA...


AUDIENCE
--------
EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.6 OCCURRED
    OFF THE COAST OF CENTRAL CHILE AT 1121 PM SST ON THURSDAY
    FEBRUARY 6 2014.

  * A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE. BASED ON ALL
    AVAILABLE DATA... THERE IS A THREAT TO AMERICAN SAMOA OF SEA
    LEVEL FLUCTUATIONS AND STRONG OCEAN CURRENTS THAT COULD BE A
    HAZARD ALONG BEACHES... IN HARBORS... AND IN COASTAL WATERS.


POTENTIAL IMPACTS
-----------------

  * SEA LEVEL FLUCTUATIONS THAT ARE GENERALLY NO MORE THAN 3 FEET
    ABOVE AND BELOW THE TIDE LEVEL.

  * MINOR FLOODING OF BEACH AND HARBOR AREAS.

  * STRONG AND UNUSUAL OCEAN CURRENTS IN HARBORS... BAYS... AND
    OTHER NEAR SHORE WATERS.

  * THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE
    INITIAL WAVE IMPACT.

  * THE EARLIEST ESTIMATED TIME THAT HAZARDOUS SEA LEVEL
    FLUCTUATIONS AND STRONG OCEAN CURRENTS MAY BEGIN IN AMERICAN
    SAMOA IS

                  133  SST FRIDAY 07 FEB 2014


RECOMMENDED ACTIONS
-------------------

  * PERSONS IN THE OCEAN SHOULD GET OUT OF THE WATER. PERSONS
    NEAR THE OCEAN SHOULD MOVE AWAY FROM BEACHES AND HARBORS.

  * FROM A SAFE LOCATION... STAY ALERT FOR FURTHER INFORMATION
```

AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES THAT MAY BE BROADCAST OVER LOCAL RADIO OR TELEVISION STATIONS INCLUDING THE NOAA WEATHER RADIO.

* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

ESTIMATED TIMES OF ARRIVAL
---

* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(SST)
TAU ISLAND	MANUA	14.3S 169.5W	133 PM 02/07
OFU ISLAND	MANUA	14.2S 169.7W	134 PM 02/07
OLESEGA ISLAND	MANUA	14.2S 169.6W	135 PM 02/07
TAFUNA	TUTUILA	14.3S 170.7W	139 PM 02/07
LEONE	TUTUILA	14.3S 170.8W	141 PM 02/07
FAGAMALO	TUTUILA	14.3S 170.8W	141 PM 02/07
AMANAVE	TUTUILA	14.3S 170.8W	141 PM 02/07
AUNUU ISLAND	AUNUU	14.3S 170.6W	141 PM 02/07
PAGO PAGO	TUTUILA	14.3S 170.7W	142 PM 02/07
AUMI	TUTUILA	14.3S 170.7W	142 PM 02/07
VATIA	TUTUILA	14.2S 170.7W	142 PM 02/07
FAGASA	TUTUILA	14.3S 170.7W	143 PM 02/07
TULA	TUTUILA	14.3S 170.6W	143 PM 02/07
MASEFAU	TUTUILA	14.3S 170.6W	144 PM 02/07
PAGAI	TUTUILA	14.3S 170.6W	144 PM 02/07
SWAINS ISLAND	SWAINS	11.1S 171.1W	200 PM 02/07

TSUNAMI OBSERVATIONS
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* THE PRESENCE OF A TSUNAMI AND AN INDICATION OF ITS STRENGTH ARE CONFIRMED BY THE FOLLOWING OBSERVATIONS OF THE TSUNAMI.

GAUGE LOCATION	GAUGE COORDINATES LAT	LON	TIME OF MEASURE (SST)	MAXIMUM TSUNAMI HEIGHT	WAVE PERIOD (MIN)
DART 32402	26.7S	74.0W	1245 AM	0.7FT/ 0.2M	22
TALCAHUANO CL	36.7S	73.4W	156 AM	5.2FT/ 1.6M	34
VALPARAISO CL	33.0S	71.6W	338 AM	4.9FT/ 1.5M	20

PRELIMINARY EARTHQUAKE PARAMETERS
---

* MAGNITUDE 8.6
* ORIGIN TIME 1121 PM SST FEB 06 2014
* COORDINATES 32.3 SOUTH 73.0 WEST
* DEPTH 13 MILES / 21 KM
* LOCATION OFF THE COAST OF CENTRAL CHILE

NEXT UPDATE AND ADDITIONAL INFORMATION

---

  * THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF
    THE SITUATION WARRANTS.

  * FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE
    INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

  * AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S.
    GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT
    EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Warning Message – Distant Event

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WEZS40 PHEB 071412
TSUPPG
ASZ001>003-071612-
/O.CAN.PHEB.TS.Y.0000.000000T0000Z-000000T0000Z/
/O.NEW.PHEB.TS.W.0001.140207T1412Z-000000T0000Z/

BULLETIN
TSUNAMI MESSAGE NUMBER 4
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
312 AM SST FRI FEB 07 2014

...A TSUNAMI WARNING IS NOW IN EFFECT FOR ALL OF AMERICAN
    SAMOA...


AUDIENCE
--------
EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
----------

  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.6 OCCURRED
    OFF THE COAST OF CENTRAL CHILE AT 1121 PM SST ON THURSDAY
    FEBRUARY 6 2014.

  * A TSUNAMI WAS GENERATED BY THIS EARTHQUAKE. BASED ON ALL
    AVAILABLE DATA... THERE IS THE THREAT OF HAZARDOUS TSUNAMI
    WAVES IMPACTING LOW-LYING COASTAL AREAS IN AMERICAN SAMOA.


POTENTIAL IMPACTS
-----------------

  * SEA LEVEL FLUCTUATIONS THAT ARE 3 FEET OR MORE ABOVE AND
    BELOW THE TIDE LEVEL ALONG SOME OR ALL COASTS.

  * REPEATED FLOODING AND DRAINING OF LOW-LYING COASTAL AREAS.

  * DESTRUCTION OF SMALLER COASTAL STRUCTURES.

  * RAPIDLY FLOWING FLOOD WATER FILLED WITH HAZARDOUS DEBRIS.

  * SECONDARY HAZARDS THAT MAY INCLUDE DOWNED POWER LINES...
    FIRES... AND HAZARDOUS MATERIAL SPILLS.

  * THE HAZARD MAY PERSIST FOR MANY HOURS OR LONGER AFTER THE
    INITIAL WAVE IMPACT.

  * THE EARLIEST ESTIMATED TIME THAT TSUNAMI WAVE ACTIVITY MAY
    BEGIN WITHIN AMERICAN SAMOA IS

                133 PM SST FRIDAY 07 FEB 2014


RECOMMENDED ACTIONS
-------------------


  * MOVE INLAND OR UPHILL AWAY FROM THE COAST TO AN AREA OUTSIDE
```

OF THE TSUNAMI EVACUATION ZONE. TO AVOID TRAFFIC GRIDLOCK... CONSIDER WALKING IF POSSIBLE.

* FROM A SAFE LOCATION... STAY ALERT FOR FURTHER INFORMATION AND FOLLOW INSTRUCTIONS FROM LOCAL AUTHORITIES THAT MAY BE BROADCAST OVER LOCAL RADIO OR TELEVISION STATIONS INCLUDING THE NOAA WEATHER RADIO.

* PERSONS LOCATED OUTSIDE THE EVACUATION ZONE SHOULD LIMIT TRAVEL TO PREVENT CONGESTION OF EVACUATION ROUTES.

* LIMIT TELEPHONE AND CELL PHONE USAGE SO THOSE SYSTEMS DO NOT BECOME OVERLOADED.

* DO NOT RETURN TO EVACUATED AREAS UNTIL THE ALL CLEAR IS GIVEN BY LOCAL AUTHORITIES.

ESTIMATED TIMES OF ARRIVAL
---

* ESTIMATED TIMES OF ARRIVAL -ETA- OF THE INITIAL TSUNAMI WAVE ARE GIVEN BELOW. ACTUAL ARRIVAL TIMES MAY DIFFER AND THE INITIAL WAVE MAY NOT BE THE LARGEST. A TSUNAMI IS A SERIES OF WAVES AND THE TIME BETWEEN WAVES CAN BE FIVE MINUTES TO ONE HOUR.

LOCATION	REGION	COORDINATES	ETA(SST)
TAU ISLAND	MANUA	14.3S 169.5W	133 PM 02/07
OFU ISLAND	MANUA	14.2S 169.7W	134 PM 02/07
OLESEGA ISLAND	MANUA	14.2S 169.6W	135 PM 02/07
TAFUNA	TUTUILA	14.3S 170.7W	139 PM 02/07
LEONE	TUTUILA	14.3S 170.8W	141 PM 02/07
FAGAMALO	TUTUILA	14.3S 170.8W	141 PM 02/07
AMANAVE	TUTUILA	14.3S 170.8W	141 PM 02/07
AUNUU ISLAND	AUNUU	14.3S 170.6W	141 PM 02/07
PAGO PAGO	TUTUILA	14.3S 170.7W	142 PM 02/07
AUMI	TUTUILA	14.3S 170.7W	142 PM 02/07
VATIA	TUTUILA	14.2S 170.7W	142 PM 02/07
FAGASA	TUTUILA	14.3S 170.7W	143 PM 02/07
TULA	TUTUILA	14.3S 170.6W	143 PM 02/07
MASEFAU	TUTUILA	14.3S 170.6W	144 PM 02/07
PAGAI	TUTUILA	14.3S 170.6W	144 PM 02/07
SWAINS ISLAND	SWAINS	11.1S 171.1W	200 PM 02/07

TSUNAMI OBSERVATIONS
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* THE PRESENCE OF A TSUNAMI AND AN INDICATION OF ITS STRENGTH ARE CONFIRMED BY THE FOLLOWING OBSERVATIONS OF THE TSUNAMI.

	GAUGE COORDINATES		TIME OF MEASURE	MAXIMUM TSUNAMI	WAVE PERIOD
GAUGE LOCATION	LAT	LON	(SST)	HEIGHT	(MIN)
DART 32402	26.7S	74.0W	1245 AM	0.7FT/ 0.2M	22
TALCAHUANO CL	36.7S	73.4W	156 AM	5.2FT/ 1.6M	34
VALPARAISO CL	33.0S	71.6W	338 AM	4.9FT/ 1.5M	20

PRELIMINARY EARTHQUAKE PARAMETERS

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  * MAGNITUDE   8.6
  * ORIGIN TIME   1121 PM SST FEB 06 2014
  * COORDINATES   32.3 SOUTH 73.0 WEST
  * DEPTH   13 MILES / 21 KM
  * LOCATION   OFF THE COAST OF CENTRAL CHILE

NEXT UPDATE AND ADDITIONAL INFORMATION
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  * THE NEXT MESSAGE WILL BE ISSUED IN ONE HOUR... OR SOONER IF
    THE SITUATION WARRANTS.

  * FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE
    INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

  * AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S.
    GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT
    EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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Tsunami Cancellation Message – Distant Event

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WEZS40 PHEB 091012
TSUPPG
ASZ001>003-091212-
/O.CAN.PHEB.TS.W.0000.000000T0000Z-000000T0000Z/

BULLETIN
TSUNAMI MESSAGE NUMBER 6
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
1112 PM SST SAT FEB 08 2014

...THE TSUNAMI WARNING IS NOW CANCELLED FOR ALL OF AMERICAN
    SAMOA...


AUDIENCE
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EMERGENCY MANAGERS... MEDIA... GENERAL PUBLIC


EVALUATION
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  * AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 8.6 OCCURRED
    OFF THE COAST OF CENTRAL CHILE AT 1121 PM SST ON THURSDAY
    FEBRUARY 6 2014.

  * BASED ON ALL AVAILABLE DATA... THERE IS NO FURTHER TSUNAMI
    THREAT TO AMERICAN SAMOA FROM THIS EARTHQUAKE ALTHOUGH MINOR
    SEA LEVEL FLUCTUATIONS MAY CONTINUE.


RECOMMENDED ACTIONS
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  * FOLLOW ANY INSTRUCTIONS FROM GOVERNMENT AGENCIES.

  * BE OBSERVANT AND EXERCISE NORMAL CAUTION IF YOU ARE NEAR OR
    IN THE OCEAN.

  * OTHERWISE... NO FURTHER ACTION IS REQUIRED.


TSUNAMI OBSERVATIONS
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  * THE PRESENCE OF A TSUNAMI AND AN INDICATION OF ITS STRENGTH
    ARE CONFIRMED BY THE FOLLOWING OBSERVATIONS OF THE TSUNAMI.

                          GAUGE      TIME OF   MAXIMUM     WAVE
                       COORDINATES   MEASURE   TSUNAMI   PERIOD
    GAUGE LOCATION      LAT   LON     (SST)     HEIGHT    (MIN)
    ------------------------------------------------------------
    DART 32402         26.7S  74.0W  1245 AM   0.7FT/ 0.2M  22
    TALCAHUANO CL      36.7S  73.4W   156 AM   5.2FT/ 1.6M  34
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PRELIMINARY EARTHQUAKE PARAMETERS
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  * MAGNITUDE      8.6
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* ORIGIN TIME   1121 PM SST FEB 06 2014
* COORDINATES   32.3 SOUTH 73.0 WEST
* DEPTH   13 MILES / 21 KM
* LOCATION   OFF THE COAST OF CENTRAL CHILE

NEXT UPDATE AND ADDITIONAL INFORMATION
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* THIS WILL BE THE FINAL STATEMENT ISSUED FOR THIS EVENT UNLESS NEW INFORMATION IS RECEIVED OR THE SITUATION CHANGES.

* FURTHER INFORMATION ABOUT THIS EVENT MAY BE FOUND ON THE INTERNET AT PTWC.WEATHER.GOV AND AT WWW.TSUNAMI.GOV.

* AUTHORITATIVE INFORMATION ABOUT THE EARTHQUAKE FROM THE U.S. GEOLOGICAL SURVEY CAN BE FOUND ON THE INTERNET AT EARTHQUAKE.USGS.GOV/EARTHQUAKES -ALL LOWERCASE LETTERS-.

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