PTWC New Enhanced Products
Explanation of Each Product

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TSUNAMI INFORMATION STATEMENT NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
2058 UTC FRI NOV 13 2015

...PTWC TSUNAMI INFORMATION STATEMENT...

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

THIS STATEMENT IS ISSUED FOR INFORMATION ONLY IN SUPPORT OF THE
UNESCO/IOC PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM AND IS
MEANT FOR NATIONAL AUTHORITIES IN EACH COUNTRY OF THAT SYSTEM.

NATIONAL AUTHORITIES WILL DETERMINE THE APPROPRIATE LEVEL OF
ALERT FOR EACH COUNTRY AND MAY ISSUE ADDITIONAL OR MORE REFINED
INFORMATION.

**** NOTICE **** NOTICE **** NOTICE **** NOTICE **** NOTICE *****

PRELIMINARY EARTHQUAKE PARAMETERS - FROM JMA
-----------------------------------------------

* MAGNITUDE 7.0
* ORIGIN TIME 2051 UTC NOV 13 2015
* COORDINATES 30.9 NORTH 128.7 EAST
* DEPTH 10 KM / 6 MILES
* LOCATION NORTHWEST OF THE RYUKYU ISLANDS

EVALUATION
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* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 7.0 OCCURRED
NORTHWEST OF THE RYUKYU ISLANDS AT 2051 UTC ON FRIDAY NOVEMBER
13 2015.

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

RECOMMENDED ACTIONS
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* NO ACTION IS REQUIRED.

NEXT UPDATE AND ADDITIONAL INFORMATION
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* THIS WILL BE THE ONLY STATEMENT ISSUED FOR THIS EVENT UNLESS
Public Text message – Threat Message

1st Message
• Threat
• Take Action
• EQ-based

PTWC guidance
information to
Country TWFP/NTWC

TSUNAMI MESSAGE NUMBER 1
NWS PACIFIC TSUNAMI WARNING CENTER EWA BEACH HI
0005 UTC TUE SEP 8 2015

...TSUNAMI THREAT MESSAGE...

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PRELIMINARY EARTHQUAKE PARAMETERS
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* MAGNITUDE      8.2
* ORIGIN TIME    0000 UTC SEP 8 2015
* COORDINATES    10.0 SOUTH  165.0 EAST
* DEPTH          20 KM / 12 MILES
* LOCATION       SANTA CRUZ ISLANDS

EVALUATION
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* AN EARTHQUAKE WITH A PRELIMINARY MAGNITUDE OF 9.0 OCCURRED IN
  THE SANTA CRUZ ISLANDS AT 0000 UTC ON TUESDAY SEPTEMBER 8
  2015.

* BASED ON THE PRELIMINARY EARTHQUAKE PARAMETERS... WIDESPREAD
  HAZARDOUS TSUNAMI WAVES ARE POSSIBLE.

TSUNAMI THREAT FORECAST
---------------------------------
* HAZARDOUS TSUNAMI WAVES FROM THIS EARTHQUAKE ARE POSSIBLE
  WITHIN THE NEXT THREE HOURS ALONG SOME COASTS OF

  SOLOMON ISLANDS... VANUATU... NAURU... PAPUA NEW GUINEA...
  TUVALU... KOSRAE... NEW CALEDONIA... MARSHALL ISLANDS...
  WALLIS AND FUTUNA AND HOWLAND AND BAKER
2nd-3rd + Messages

• Threat
• Take Actions
• Magnitude update?
• Wave Forecasts
• Tsunami readings

PTWC guidance information to Country TWFP/NTWC
PTWC Enhanced Products: TWFP Products - Examples
Near Field Forecast

Requires ~10s to Compute
Graphical Product: Deep-Ocean Forecast

- Tsunami Travel Time contours (assumes point source)
- Color range scaled so red/white show maxima
- Shaded textures show energy distribution

This map should not be used to estimate coastal amplitudes or impacts. Deep-ocean amplitudes are usually much smaller than coastal amplitudes.
Graphical Product: Coastal Forecast

- Green’s Law used to propagate off-shore, deep-ocean to coast
- Tsunami Travel Time contours (assumes point source)
- Tsunami Wave Amplitudes at designated coastal forecast points (Green’s Law)
- Shaded textures show energy distribution
- Pacific-wide, sub-region plots

Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and local features. In particular, maximum tsunami amplitudes on atolls will likely be much smaller than the forecast indicates.
Graphical Product: Coastal Forecast

Sub-Regional Plots
**Threat level for designated forecast zones (based on geographical, geopolitical)**

- Grey-shaded textures shows bathymetry

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Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and local features. In particular, maximum tsunami amplitudes on atolls will likely be much smaller than the forecast indicates.
Basin-Wide Forecast

Requires ~10mins to Compute
Graphical Product: Deep-Ocean Forecast

- Tsunami Travel Time contours (assumes point source)
- Color range scaled so red / white show maxima
- Shaded textures show energy distribution
Graphical Product: Coastal Forecast

- Green’s Law used to propagate off-shore, deep-ocean to coast
- Tsunami Travel Time contours (assumes point source)
- Tsunami Wave Amplitudes at designated coastal forecast points (Green’s Law)
- Shaded textures show energy distribution
- Pacific-wide, sub-region plots
Graphical Product: Coastal Forecast

Sub-Regional Plots
Graphical Product: Forecast Polygon

PTWC Coastal Tsunami Amplitude Forecast Polygons

Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and local features. In particular, maximum tsunami amplitudes on atolls will likely be much smaller than the forecast indicates.

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- Threat level for designated forecast zones (based on geographical, geopolitical)
- Grey-shaded textures shows bathymetry
Coastal and Deep-Ocean Forecasts for polygons

Includes statistics giving uncertainty / quality estimate.

E.g., for each polygon (comprised of # forecast points), max / mean / median / standard deviation of coastal and offshore (deep-ocean) wave amplitude for that polygon

Complements GoogleEarth .kmz tool - can show value variation from point-to-point.

PTWC TABLE OF FORECAST STATISTICS FOR REGIONAL POLYGONS - RUN ID 20150916232733
(for internal use only - not for distribution)


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Actual amplitudes at the coast may vary from forecast amplitudes due to uncertainties in the forecast and Local features. In particular, maximum tsunami amplitudes on atolls will likely be much smaller than the forecast indicates.

<table>
<thead>
<tr>
<th>Region_Name</th>
<th>Coastal Forecast (meters)</th>
<th>Offshore Forecast (meters)</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Maximum</td>
<td>Mean</td>
<td>Median</td>
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<tr>
<td>North_Central_Chile</td>
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<td>South_Central_Chile</td>
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<td>Marquesas_Islands</td>
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<tr>
<td>Easter_Island</td>
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<tr>
<td>Pitcairn_Islands</td>
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<tr>
<td>Society_Islands</td>
<td>0.77</td>
<td>0.59</td>
<td>0.59</td>
</tr>
</tbody>
</table>
Cascadia, Pacific Northwest: Earthquake: 46.5N 124.5W Depth: 020km Magnitude: 9.0

- Mouse-over balloon gives value of forecast point.
- Forecast computed for model grid points nearest the coast.
- Color-scale indicates values of forecast points.

- Zoom in to area of interest
- Trends more important than individual pts
Thank You

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