

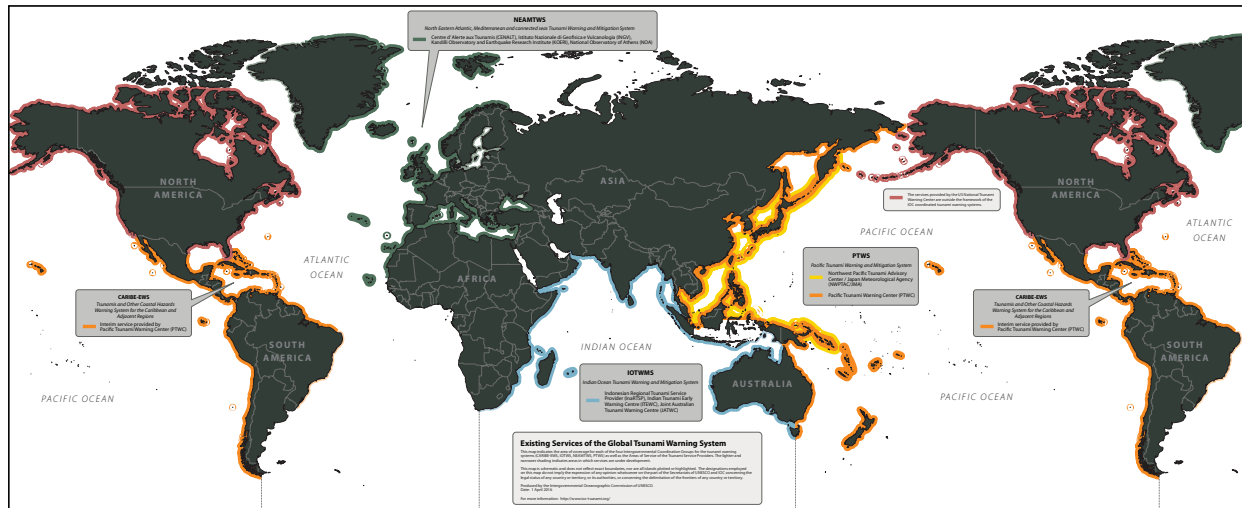
NTWC OPERATIONS - WEB SITE URLS – BOOKMARKS (July 2017)

Tsunami Threat / Warning Messages, Earthquake and Sea Level Monitoring

Depending on internet bandwidth, display may be slow.

TSUNAMI THREAT SERVICES – Global Tsunami Warning System (as of 1 April 2016)

User's Guides by each Tsunami Service Provider describe the services they provide to customers



PACIFIC and CARIBBEAN SERVICE AREAS

PTWC

<http://www.tsunami.gov>

AORs: Pacific Ocean, Hawaii, Caribbean, American Samoa, Guam/CNMI, Puerto Rico/US and British Virgin Island

The PTWC provides Warnings for Hawaii, American Samoa, Guam and CNMI, Puerto Rico and US and British Virgin Islands, and Threat Information advice for international customers.

US NTWC (formerly WC/ATWC)

<http://wcatwc.arh.noaa.gov/>

AORs: Continental USA, Canada, Alaska

The US NTWC provides Warnings for above customers.

PACIFIC (NORTH AND WEST) SERVICE AREAS

Japan NWPTAC

http://www.jma.go.jp/en/distant_tsunami/WEPA40/indexo.html

The Northwest Pacific Tsunami Advisory Center (NWPTAC) provides information advice on tsunamis in the western North Pacific and the South China Sea, including data on estimated/observed arrival times and tsunami heights, as well as earthquake information.

Geographical earthquake source coverage extends to about 100 to 165 deg E.

Forecasts are provided for blocks from Russia to Solomon Islands, and Thailand to Federated States of Micronesia and Marshall Islands (Eniwetok)

6.9 FORECAST POINTS AND COASTAL BLOCKS

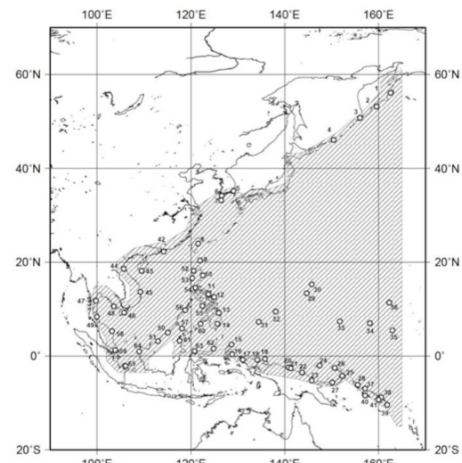


Figure 6.1 The geographical coverage (hatched area) and the forecast points (open circle) of the NWPTAC. The numbers at each point correspond with those in the right column of Table 6.1.

INDIAN OCEAN SERVICE AREA – PUBLIC BULLETINS

This service is provided by regional tsunami service providers in Australia, India, and Indonesia. Public Notification Bulletins are issued publicly. Threat information is provided to NTWCs through a secure web portal. Public Notification bulletins are available through web sites.

Joint Australian Tsunami Warning Centre (JATWC) – not operational as of June 2017

<http://www.bom.gov.au/tsunami/iotws/>

Indian National Centre for Ocean Information Services (INCOIS)

<http://www.incois.gov.in/Incois/tsunami/RegionalCommEvents.jsp>

Meteorological, Climatological and Geophysical Agency of Indonesia (BMKG)

<http://rtsp.bmkg.go.id/publicbull.php>

HISTORICAL TSUNAMIS

LIST OF TSUNAMIS (BY DECADE)

[http://itic.ioc-](http://itic.ioc-unesco.org/index.php?option=com_content&view=category&layout=blog&id=1160&Itemid=1077)

[unesco.org/index.php?option=com_content&view=category&layout=blog&id=1160&Itemid=1077](http://itic.ioc-unesco.org/index.php?option=com_content&view=category&layout=blog&id=1160&Itemid=1077)

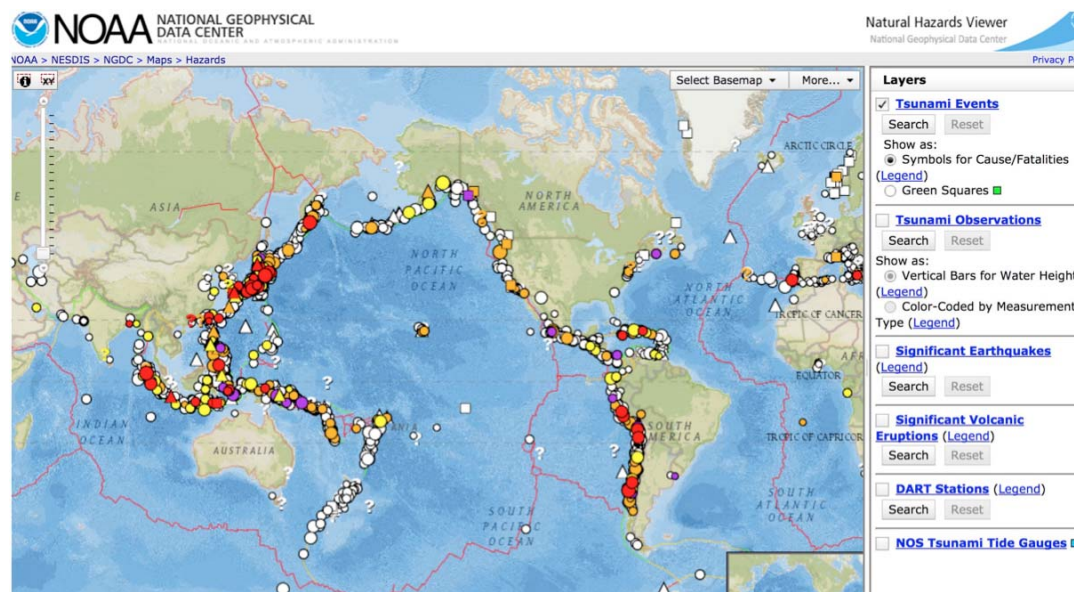
ICSU World Data Service, World Data Center for Marine Geophysics, Tsunamis

HISTORICAL TSUNAMI DATABASE

http://www.ngdc.noaa.gov/hazard/tsu_db.shtml


The Historical Tsunami Database consists of two related files containing information on tsunami events from 2000 B.C. to the present in the Atlantic, Indian, and Pacific Oceans; and the Mediterranean and Caribbean Seas.

1. **[TSUNAMI SOURCE EVENT Search](#)**: information on the source of the tsunami.
Data include: source location, date, and time, event magnitude, maximum water height, total number of deaths, injuries and damage for the event
2. **[TSUNAMI RUNUP Search](#)**: information on locations where tsunami effects occurred.
Data include: arrival date and time, travel time, maximum water heights, horizontal inundation distances, deaths, injuries, and damage for specific locations.




Earthquakes


Latest Earthquakes
Latest earthquakes map and list. Tap/click on "gear icon" for options and settings.



Earthquake Lists, Maps and Statistics
Largest earthquakes, significant events, lists and maps by magnitude, by year, or by location.



Search Earthquake Catalog
Find past earthquakes that meet your criteria. Various output formats, and links to earthquake details.



Real-time Feeds and Notifications
Get real-time earthquake notifications sent to you on your phone or by email. Use real-time web services for your own applications.

```
PRELIM. M6.9
Z=32km 03-32
4:07 UTC, 109 km
W of Sola,
Vanuatu https://
usgs.gov/feed/
22s2o7/; 2b reply
STOP to unsub
```

Information by Region
Information by state, and world seismicity maps. Links to earthquake-related information for each state.

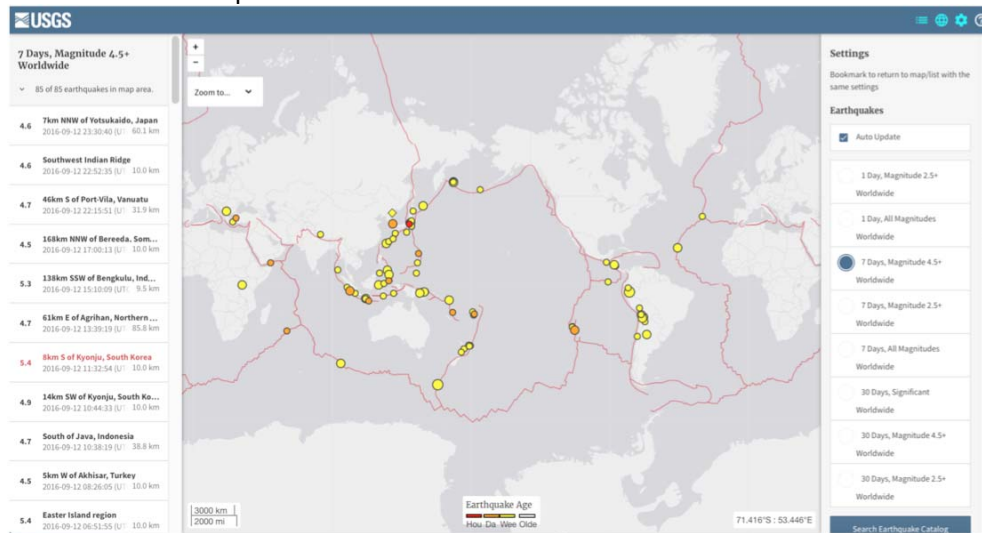
Significant Earthquakes, Past 30 Days

5.4	8km S of Kyonju, South Korea	2016-09-12 11:32:54 UTC
5.3	4km ENE of Skopje, Macedonia	2016-09-11 13:10:07 UTC
5.9	72km NE of Nsunga, Tanzania	2016-09-10 12:27:33 UTC
3.8	0km WSW of Spencer, Oklahoma	2016-09-09 02:06:29 UTC
5.3	19km ENE of Sungjibaegam, North Korea	2016-09-05 00:30:01 UTC
6.3	189km ESE of Nikol'skoye, Russia	2016-09-05 22:54:04 UTC
5.8	15km NW of Pawnee, Oklahoma	2016-09-03 12:02:44 UTC
5.6	103km W of Ferndale, California	2016-09-03 03:27:57 UTC
7.1	166km NE of Gisborne, New Zealand	2016-09-01 16:37:57 UTC
6.7	39km E of Namatanai, Papua New Guinea	2016-08-31 03:11:36 UTC
7.1	North of Ascension Island	2016-08-29 04:29:57 UTC
6.8	25km W of Chauk, Burma	2016-08-24 10:34:55 UTC
5.6	5km NNE of Norcia, Italy	2016-08-24 02:33:29 UTC
6.2	10km SE of Norcia, Italy	2016-08-24 01:36:32 UTC
6.4	South Georgia Island region	2016-08-21 03:45:23 UTC

Real time information can be received directly from the USGS

You may choose which earthquakes to display (recommended 7 Days, Magnitude 4.5+ Worldwide). This should mimic CISON Display.

Screenshot – 12 September 2016



USGS

7 Days, Magnitude 4.5+ Worldwide

85 of 85 earthquakes in map area.

4.6 7km NNW of Yotsukaido, Japan
2016-09-12 23:30:40 (U) 60.1 km

4.6 Southwest Indian Ridge
2016-09-12 22:52:33 (U) 30.8 km

4.7 46km S of Port Vila, Vanuatu
2016-09-12 22:15:51 (U) 31.9 km

4.5 168km NNW of Bereeda, Som...
2016-09-12 21:00:13 (U) 38.8 km

5.3 138km SSW of Bengkulu, Ind...
2016-09-12 15:10:09 (U) 9.5 km

4.7 43km E of Agrihan, Northern...
2016-09-12 13:39:13 (U) 85.6 km

5.4 8km S of Kyonju, South Korea
2016-09-12 11:32:54 (U) 30.0 km

4.9 14km SW of Kyonju, South Ka...
2016-09-12 10:44:33 (U) 30.0 km

4.7 South of Java, Indonesia
2016-09-12 10:38:19 (U) 38.8 km

4.5 5km W of Akhisar, Turkey
2016-09-12 08:26:05 (U) 30.0 km

5.4 Easter Island region
2016-09-12 06:56:25 (U) 60.8 km

Settings
Bookmark to return to map/list with the same settings

Earthquakes

Auto Update

1 Day, Magnitude 2.5+ Worldwide

1 Day, All Magnitudes Worldwide

7 Days, Magnitude 4.5+ Worldwide

7 Days, Magnitude 2.5+ Worldwide

7 Days, All Magnitudes Worldwide

30 Days, Significant Worldwide

30 Days, Magnitude 4.5+ Worldwide

30 Days, Magnitude 2.5+ Worldwide

[Search Earthquake Catalog](#)

USGS

Latest Earthquakes
v0.4.4, 2014-01-07

- Clicking the list icon in the top right corner will load the earthquake list.
- Clicking the map icon in the top right corner will load the map.
- Clicking the options icon in the top right corner lets you change which earthquakes are displayed, and many other map and list options.
- Clicking the help icon in the top right corner loads this page.

Please click the list, map or options icon from above.

SEA LEVEL MONITORING

IOC Sea Level Monitoring Facility

<http://www.ioc-sealevelmonitoring.org/map.php>

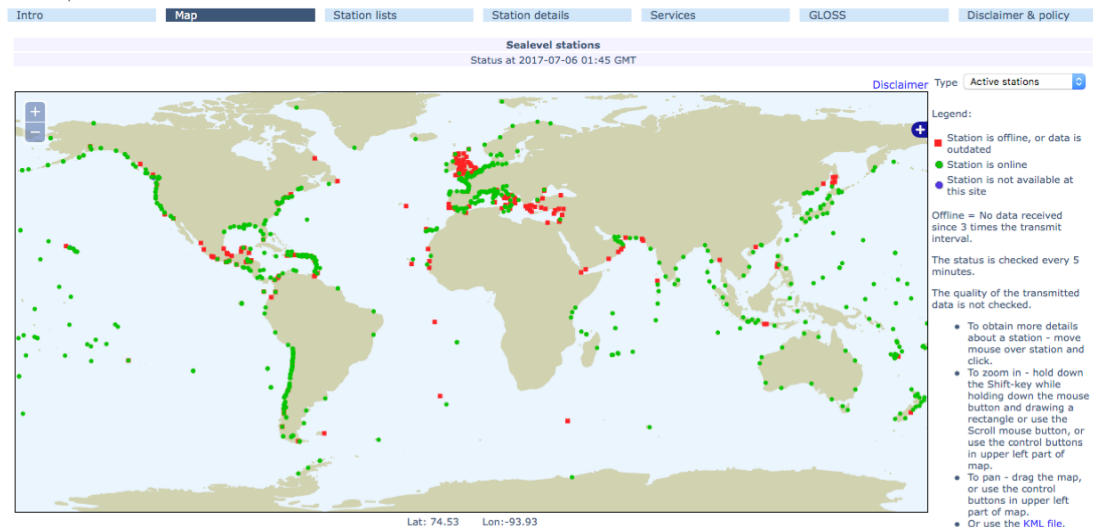
The objective of this service is

- to provide information about the operational status of global and regional networks of real time sea level stations
- to provide a display service for quick inspection of the raw data stream from individual stations.

IOC SLSMF – 5 July 2017



SEA LEVEL STATION MONITORING FACILITY



Real-time Deep-Ocean Systems

<http://www.ndbc.noaa.gov/dart.shtml>

There are 39 US DART systems in the Pacific, Caribbean / Atlantic, and Indian Oceans. Australia, Chile, Colombia, Ecuador, Japan, and Russia also maintain deep-ocean or DART systems in the Pacific. Australia, India, and Thailand maintain deep-ocean or DART systems in the Indian Ocean. Each DART system has two data reporting modes, standard and event. In event-triggered mode, 15-second values are transmitted during the initial few minutes, followed by 1-minute averages. The USA TWCs can manually trigger the event mode transmission of DARTs. NOTE: DART readings are deep-ocean measurements. Numerical modeling is required to forecast (predict) a coastal wave amplitude.

DART System – 5 July 2017

