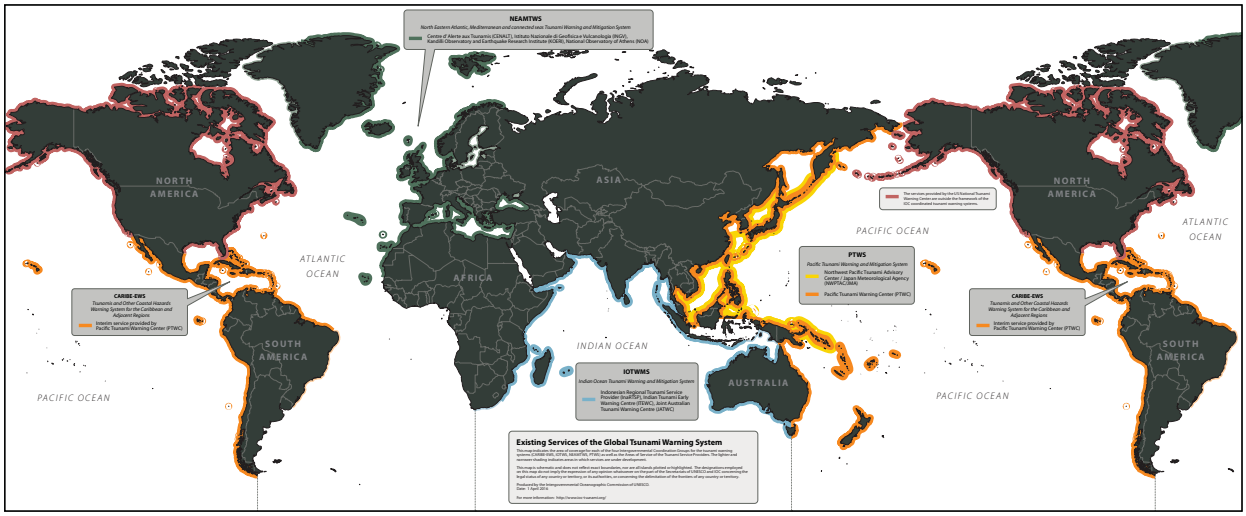
**NTWC OPERATIONS - WEB SITE URLS – BOOKMARKS (July 2017)**
**Tsunami Threat / Warning Messages, Earthquake and Sea Level Monitoring**
Depending on internet bandwidth, display may be slow.

**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.

6.9 FORECAST POINTS AND COASTAL BLOCKS

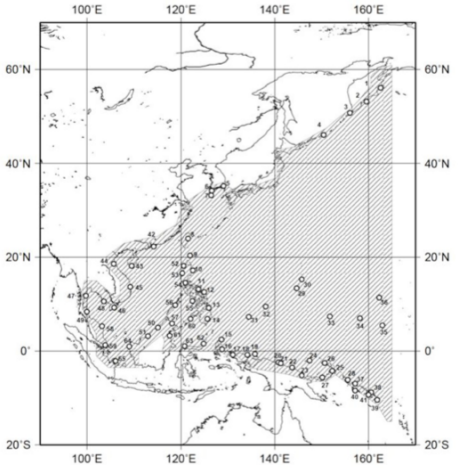



Figure 6.1 The geographical coverage (hatched area) and the forecast points (open circle) of the NWPTA. The numbers at each point correspond with those in the right column of Table 6.1.

**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)

**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

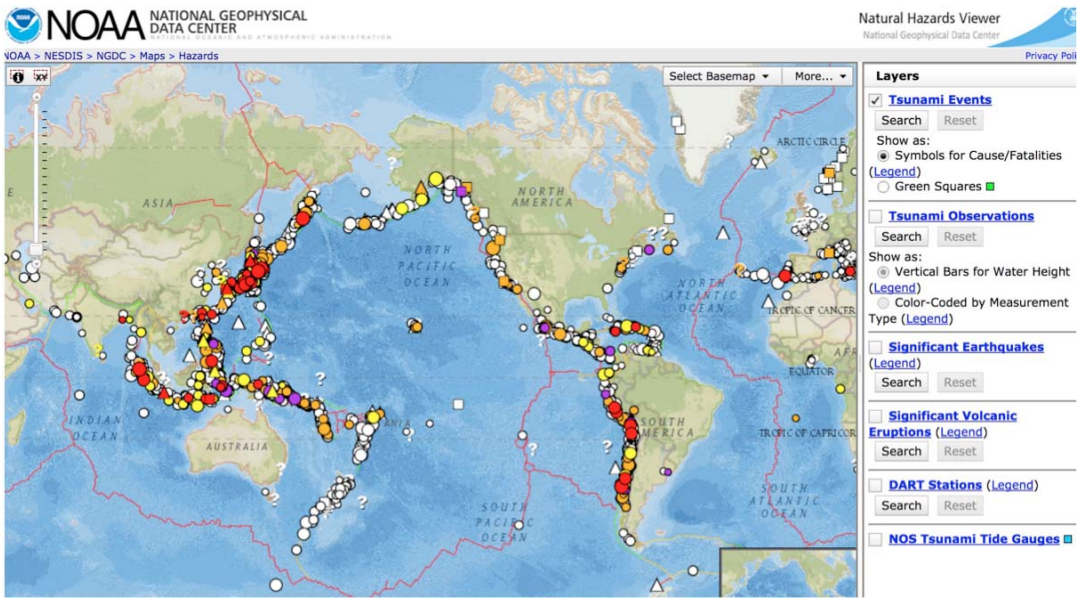
**Meteorological, Climatological and Geophysical Agency of Indonesia (BMKG)**
http://rtsp.bmkg.go.id/publicbull.php

**HISTORICAL TSUNAMIS**
**LIST OF TSUNAMIS (BY DECADE)**
http://itic.ioc-unesco.org/index.php?option=com_content&view=category&layout=blog&id=1160&Itemid=1077

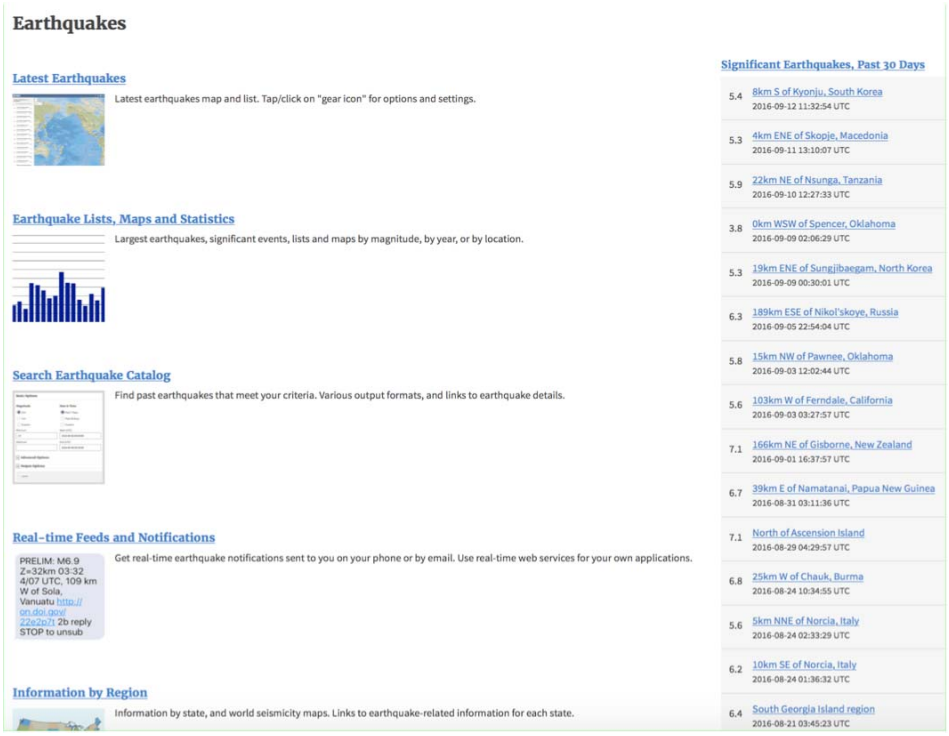
**ICSU World Data Service, World Data Center for Marine Geophysics, Tsunamis**
**HISTORICAL TSUNAMI DATABASE**
http://www.ngdc.noaa.gov/hazard/tsu_db.shtml

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.



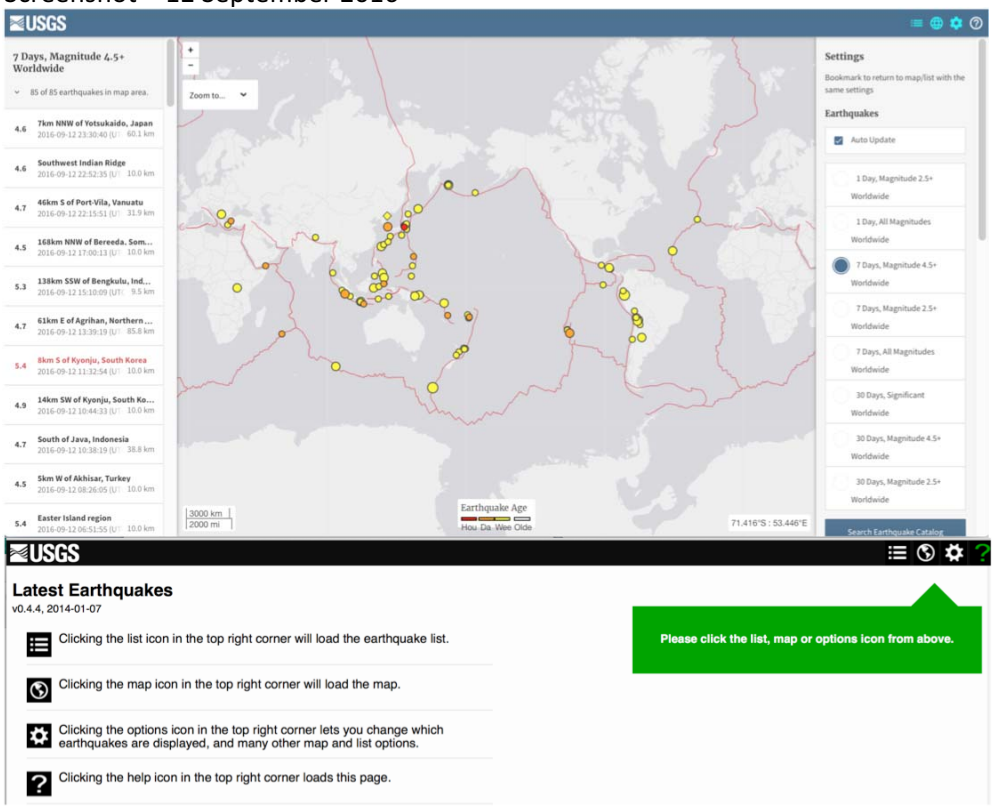
**LATEST EARTHQUAKES – US GEOLOGICAL SURVEY** http://earthquake.usgs.gov/earthquakes




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 CISN Display.

Screenshot – 12 September 2016



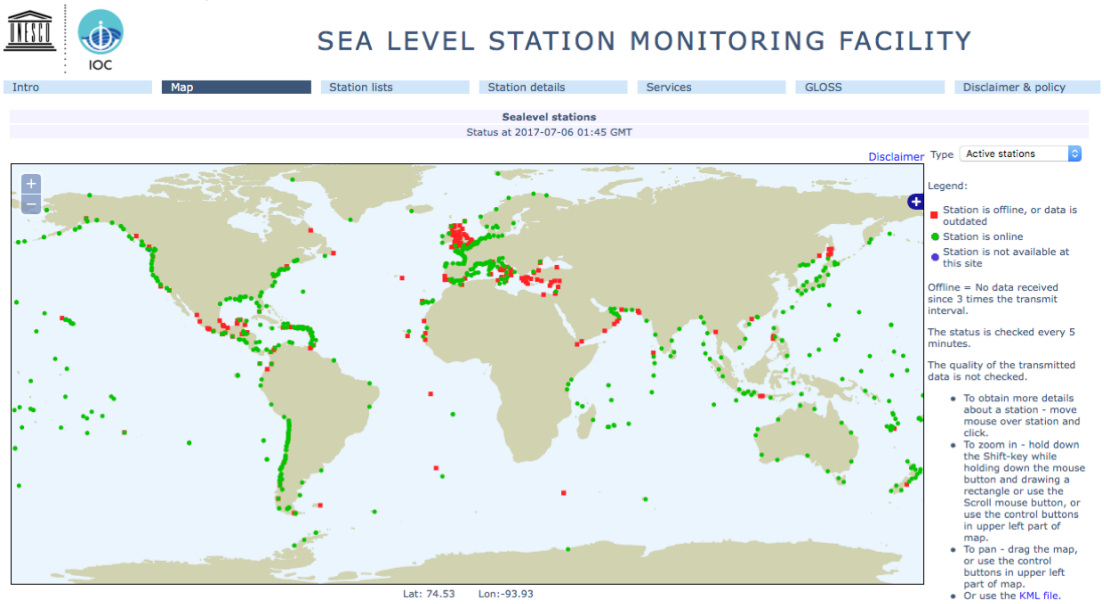
**SEA LEVEL MONITORING**

**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




**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