

Annex 3 to IOC Circular Letter, 3019 English only

National Reports will be posted to the ICG/PTWS-XXXI website without TWFP contact details

NATIONAL REPORT

Submitted by [CHINA]

BASIC INFORMATION

(FILL IN SECTIONS 1-3 ONLY IF THERE IS A NEED TO COMMUNICATE OFFICIAL UPDATES.)

1. ICG/PTWS Tsunami National Contact (TNC)

The person designated by a Member State to an Intergovernmental Coordination Group (ICG) to represent his/her country in the coordination of international tsunami warning and mitigation activities. The person is part of the main stakeholders of the national tsunami warning and mitigation system. The person may be the Tsunami Warning Focal Point, from the national disaster management organization, from a technical or scientific institution, or from another agency with tsunami warning and mitigation responsibilities.

Name:

Title:

Organization:

Postal Address:

E-mail Address:

Telephone Number:

Fax Number:

Cellular Telephone Number:

2. ICG/PTWS Tsunami Warning Focal Point (TWFP)

A 24 x 7 point of contact (office, operational unit or position, not a person) officially designated by the NTWC or the government to receive and disseminate tsunami information from an ICG Tsunami Service Provider according to established National Standard Operating Procedures. The TWFP may or not be the NTWC.

TWFP Agency name: _

(if different from NTWC agency)

TWFP Agency Contact or Officer in Charge *(if different from NTWC Agency):*

Name:

Position:

Telephone Number:

Email Address:

Postal Address:

TWFP 24x7 point of contact (office, operational unit or position, **not a person**):

Name of office, operational unit or position:

E-mail Address:

Telephone Number:

Cellular phone number:

Fax:

National Tsunami Warning Centre (if different from the above)

A centre officially designated by the government to monitor and issue tsunami warnings and other related statements within their country according to established National Standard Operating Procedures

NTWC Agency Name:

NTWC Agency Contact or Officer in Charge (person):

Name:

Position:

Telephone Number:

Email address:

Postal Address:

3. Tsunami Advisor(s), if applicable

(Person, Committee or Agency managing Tsunami Mitigation in country)

Name:

Title:

Postal Address:

E-mail Address:

Emergency Telephone Number:

Emergency Fax Number:

Emergency Cellular Telephone Number:

**4. Tsunami Standard Operating Procedures for a Local Tsunami
(when a local tsunami hazard exists)**

The potential local and regional tsunami sources that may affect China mainland include Nankai Trench, Ryukyu Trench, Taiwan and Manila Trench, et al. A color-coded warning system based on tsunami amplitude and seriousness of the hazard has been adopted to facilitate tsunami emergency response. Tsunami warning is divided into three classes, corresponding to serious, moderately serious and common situation, with color codes Red, Orange and Yellow respectively. Besides, tsunami information statement means no tsunami threat. Details are given below:

(1) Red warning

Tsunami warning will be declared if the tsunami height is monitored to exceed 3 meters or more by the near-field tide gauge stations.

(2) Orange warning

Tsunami warning will be declared if the tsunami height is monitored to be between 1.0 and 3.0 meters by the near-field tide gauge stations.

(3) Yellow warning

Tsunami warning will be declared if the tsunami height is monitored to be between 0.3 and 1.0 meters by the near-field tide gauge stations.

(4) Information statement

Tsunami information statement will be declared if the tsunami height is monitored to be below 0.3 meter by the near-field tide gauge stations.

If a tsunami warning is in effect, the National Marine Environmental Forecasting Center (NMEFC) of the Ministry of Natural Resources of China will issue tsunami warning messages to provincial governments and agencies that are associated with marine disaster emergency

response. Local authorities are authorized to issue evacuation instructions to mitigate the tsunami hazards when necessary.

The tsunami warning will be cancelled two hours after wave amplitude well below 30 centimeters.

In Hong Kong, the tsunami monitoring and warning system is operated by the Hong Kong Observatory (HKO). HKO operates a seismographic network to detect earthquakes in the vicinity of Hong Kong and a tide gauge network to monitor sea levels around Hong Kong. HKO operates round the clock to identify and characterize events that may generate local tsunamis.

Tsunami warning issued by HKO is disseminated to the Hong Kong Special Administrative Region Government (HKSARG) departments and related organizations for actions according to the HKSARG Contingency Plan for Natural Disasters, and to the mass media for public announcement.

If the earthquake is expected to generate a significant tsunami with a height of 0.5 meters or more in Hong Kong and the estimated time of arrival of the tsunami at Hong Kong is within 3 hours, HKO will issue a Tsunami Warning to alert members of the public in Hong Kong. If a tsunami may affect Hong Kong but the tsunami height is not likely to be significant, HKO will issue a Tsunami Information Bulletin to notify members of the public.

The tsunami warning in Hong Kong will be cancelled two hours since the observed heights of sea level fluctuations become lower than 20 centimeters crest to trough if tsunami is observed, or 2 hours after the estimated time of tsunami waves arrival if no noticeable tsunami is observed

5. Tsunami Standard Operating Procedures for a Distant Tsunami (when a distant tsunami hazard exists)

For each situation, please provide the following:

- *What organization identifies and characterizes tsunamigenic events?*
- *What is the threshold or criteria for declaring a potential tsunami emergency?*
- *What organization acts on the information provided by the agency responsible for characterizing the potential tsunami threat?*
- *How is the tsunami information (warning, public safety action, etc) disseminated within country? Who is it disseminated to?*
- *How is the emergency situation terminated?*
- *For Distant Tsunami Procedures:
What actions were taken in response to tsunami bulletins issued by PTWC, NWPTAC, and/or SCSTAC during the intersessional period?*

In China, NMEFC and HKO are the primary recipients of information on tsunami events from a distant source.

The tsunami warning system operated by NMEFC described in section 4 above also applies to distant tsunamis. In this case, the prospective tsunami generation area under watch extends to the global seas. The threshold for declaring a potential distant tsunami emergency is an earthquake of magnitude $M=6.5$.

In Hong Kong on the receipt of tsunami messages from PTWC, NWPTAC or SCSTAC, HKO will assess whether a significant tsunami with tsunami height reaching or exceeding 0.5 meter above the normal tide level will affect Hong Kong and the estimated time of tsunami arrival (ETA). HKO will issue a tsunami warning if a significant tsunami is expected and the ETA is 3

hours or less. In the case that a tsunami with a height less than 0.5 meter is expected or if a significant tsunami is expected and the time is more than 3 hours before ETA, tsunami information bulletins will be issued.

Tsunami warning from HKO will be disseminated to HKSARG departments and public utilities according to the HKSARG Contingency Plan for Natural Disasters, and to all mass media, HKO's website and social media platform for public announcement. The emergency will terminate after HKO cancels the warning on an event.

6. National Sea Level Network

Please include a table with position and description of stations/sensors, and a map.

There are over 100 tide gauges along the Chinese mainland, which can record sea level fluctuations in one minute's interval. Now 3 coastal tidal gauges are transmitted through GTS.

Station name	Location	IOC GLOSS code	Latitude	Longitude	Transmit interval	Type of sensor	Sampling rate
Qinglan	Hainan Province	qing	19.57	110.82	5	Float	1
Shenzhen	Guangdong Province	shen	22.47	113.88	5	Float	1
Zhapo	Guangdong Province	zhap	21.58	111.82	5	Float	1

There are 14 tide gauge stations in Hong Kong with details given below. Real-time tide data from two, namely Quarry Bay and Shek Pik, are shared with international community via GTS.

Tide gauge station	Quarry Bay	Shek Pik	Tsim Bei Tsui	Tai Miu Wan	Tai Po Kau	Waglan Island
Location	22°17'28" N 114°12'48" E	22°13'13" N 113°53'40" E	22°29'14" N 114°00'51" E	22°16'11" N 114°17'19" E	22°26'33" N 114°11'02" E	22°10'59" N 114°18'10" E
Sensor type	Sea pressure transducer					
Resolution	1 cm					
Sampling	1 min					
Transmission	Minilink	Minilink	Minilink	Minilink	Minilink	Mobile network (4G)
Data Delay	Real-time	Real-time	Real-time	Real-time	Real-time	Real-time

Tide gauge station	Ko Lau Wan	Kwai Chung	Ma Wan	Cheung Chau	Sha Kiu Tau
Location	22°27'31" N 114°21'39" E	22°19'25" N 114°07'22" E	22°21'50" N 114°04'17" E	22°12'51" N 114°01'23" E	22°20'54" N 114°21'10" E

<i>Sensor type</i>	Acoustic with sounding tube				
<i>Resolution</i>	1 cm				
<i>Sampling</i>	1 min				
<i>Transmission</i>	FTP	FTP	FTP	FTP	FTP
<i>Data Delay</i>	Real-time	Real-time	Real-time	Real-time	Real-time

Tide gauge station	Chek Lap Kok (east)	Chek Lap Kok (west)	Tai O
<i>Location</i>	22°19'14" N 113°56'43" E	22°18'18" N 114°53'49" E	22°15'17" N 113°52'05" E
<i>Sensor type</i>	Acoustic in air column	Acoustic in air column	Ultrasonic sensor
<i>Resolution</i>	1 cm	1 cm	1 cm
<i>Sampling</i>	1 min	1 min	1 min
<i>Transmission</i>	Telephone network & 4G	Mobile network (4G)	FTP
<i>Data Delay</i>	Real-time	Real-time	Real-time

7. Information on Tsunami occurrences

Please include sea level observations, pictures, wave arrival descriptions, public, media, or other responses to warnings, lessons learned, etc.

From October 2023 to October 2024, NTWC responded to 39 major earthquakes, and 66 information bulletins and 8 threat bulletins are issued with average latency of 9.7 mins for the initial message. At 7:58 (CST) on April 3, 2024, a 7.3-magnitude earthquake occurred off the east coast of Taiwan, China, with a focal depth of 12.0 kilometers. Four tsunami warning bulletins at the Red and Orange warning levels were issued with the latency for the first bulletin about 12 minutes. Hualien station reported a 105-centimeter tsunami amplitude.

8. Web sites (URLs) of national tsunami-related web sites

<http://www.nmefc.cn/> (NMEFC)

https://www.hko.gov.hk/en/gts/quake/tsunami_info_warn.htm (HKO)

<http://scstac.oceanguide.org.cn> (SCSTAC)

<https://bcsctac.hko.gov.hk/index.htm> (BSCSTAC)

<http://www.oceanguide.org.cn/TsunamiWarning>

9. Summary plans of future tsunami warning and mitigation system improvements.

Following the guideline of ODTP

1. Enhance the rapid tsunami detection, measurement and forecasting capabilities;
2. Taking efforts on implementation of Tsunami Ready communities and related capacities

NATIONAL PROGRAMMES AND ACTIVITIES INFORMATION

10. EXECUTIVE SUMMARY

Please provide a brief statement of no more than one page addressing all items discussed in the Narrative section of the National Report (below)

The main operation platform of national tsunami warning system is located at 8 Dahuisi Road, Haidian District, Beijing. The backup platform is located at Huairou District, Beijing, about 66 km away from the main platform. It can be connected with VPN based on independent network card and standby battery power.

From October 2023 to October 2024, NTWC responded to 39 major earthquakes, and 66 information bulletins and 8 threat bulletins are issued with average latency of 9.7 mins for the initial message. At 7:58 (BJT) on April 3, 2024, a 7.3-magnitude earthquake occurred off the west coast of Taiwan, China, with a focal depth of 12.0 kilometers. An Orange alert for potential tsunami hazards was issued with the latency for the first bulletin about 12 minutes. Hualien station reported a 105-centimeter tsunami amplitude.

On November 5, 2024, PacWave 2024 was conducted by kicking off the communication test message in the South China Sea region. In addition, with the assumption of a magnitude 9.0 earthquake occurring in the Nankai Trough, a tsunami would be triggered, and severely impact the coasts of China. Orange alerts were released to the corresponding provincial marine disaster forecast and service agency. Tsunami risk assessment was conducted for Macao. Some training courses and workshop were held in the regional and domestic scope.

The tsunami prediction capability has been significantly improved with the adoption of a GPU-based tsunami model from China's NMEFC and the development of a web interface for internal use at HKO. The dissemination of local tsunami warnings has been enhanced through the use of the Emergency Alert System EAS by the HKSARG and the establishment of an SOP for issuing extreme emergency alerts via EAS in 2024. In collaboration with the Hong Kong Red Cross and Hong Kong Design Institute, plans have been made for community engagement and outreach activities to promote tsunami preparedness and resilience against coastal floods and tsunamis in Hong Kong.

11. NARRATIVE

Detailed description of innovations or modifications to National tsunami warnings procedures or operations since last National Report, tsunami research projects, tsunami mitigation activities and best practices (especially in preparedness and emergency management), tsunami exercises, as well as public education programmes or other measures taken to heighten awareness of the tsunami hazard and risk.

1. China participated in the Exercise Pacific Wave 2024 (PacWave24) on 5 November 2024. As the SCSTAC, NMEFC also took the opportunity to organize SCS regional Tsunami Exercise to. By this chance, the National Tsunami Center also carried out domestic tsunami drills to test China's tsunami warning information release and departmental linkage.

2. China hosted a training course on numerical tsunami models in the South China Sea Region, Zhenjiang city of Jiangsu Province, 22 May, 2024

3. China hosted a domestic operation and management workshop on seismic station for tsunami warning services, 28-29 August, 2024
4. An agreement was struck between STMKG-BMKG and NMEFC in the first half of 2024, followed by a joint workshop on tsunami, storm surge, and other ocean hazards forecasting in Jakarta from September 25th to 28th.
5. From 2021 to 2024, China carried out a multi-hazard risk evaluation program in national/provincial/city/village level. Another progress is tsunami warning system is being developed by provincial marine forecast and prevention agencies under the guidance of NTWC, like Zhejiang province, Hainan province, etc.
6. The capability of tsunami prediction has been significantly enhanced with the implementation of a GPU-based tsunami model adapted from NMEFC, and the development of a web user interface for running tsunami model and displaying graphical outputs for internal reference in HKO.
7. Dissemination of local Tsunami Warning has been enhanced with the use of the Emergency Alert System (EAS) of the HKSARG and the establishment of Standard Operating Procedure (SOP) for the issuance of Extreme Emergency Alert via EAS in 2024.
8. Community engagement and outreach activities have been planned in collaboration with the Hong Kong Red Cross and Hong Kong Design Institute for promoting public education on tsunami preparedness as well as coastal flood and tsunami resiliency in Hong Kong.

Date:12 March 2025..... Name: ...Zongchen WANG.....