



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية الحكومية لعلوم المحيطات
政府间海洋学委员会

UNESCO – 7 Place de Fontenoy - 75352 Paris Cedex 07 SP, France
<http://ioc.unesco.org> - fax: +33 (0)1 45 68 58 12 - contact phone: +33 (0)1 45 68 39 83/84
E-mail: v.ryabinin@unesco.org

IOC Circular Letter No 2709
(Available in English only)

IOC/VR/TA/BA
22 January 2018

To : ICG/PTWS Tsunami Warning Focal Points (TWFP)
ICG/PTWS Tsunami National Contacts (TNC)
ICG/PTWS Chair and Vice-Chairs

cc. : Official National Coordinating Bodies for liaison with IOC
Permanent Delegates/Observer Missions to UNESCO of IOC Member States
National Commissions for UNESCO in IOC Member States
Directors of UNESCO and IOC Regional Offices in the Asia/Pacific Region
Regional Organizations cooperating with UNESCO/IOC
Director, Pacific Tsunami Warning Center (PTWC)
Director, Northwest Pacific Tsunami Advisory Center (NWPTAC)
Director, International Tsunami Information Center (ITIC)
Head, Tsunami Warning Division, China National Marine Environmental Forecasting
Center and South China Sea Tsunami Advisory Center (SCSTAC)

**Subject: Pacific Tsunami Warning and Mitigation System (PTWS) Exercise
Pacific Wave 2018 (PacWave18), during the period 1st September to 30
November 2018**

At its 27th session, the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS-XXVI, Tahiti, France 28–31 March 2017) approved the conduct of Exercise Pacific Wave 2018 (PacWave18) during the last Quarter of 2018.

The exercise intends to encourage country and regional readiness for the next tsunami, and supports the development of improved regional tsunami products and procedures, including new products from the Northwest Pacific Tsunami Advisory Center (NWPTAC) of the Japan Meteorological Agency (JMA), and the South China Sea Tsunami Advisory Center (SCSTAC) of the China State Oceanic Administration (SOA).

Given the importance of PacWave18 for testing the national preparedness and response, the regional cooperation, and the improvements of the Tsunami Warning and Mitigation System, we trust that it would be in your country authorities' interest to actively participate.

Chairperson

Prof. Peter M. HAUGAN
Research Director II, Institute of Marine
Research/Geophysical Institute
University of Bergen
P.O. Box 1870 Nordnes
5817 Bergen
NORWAY

Executive Secretary

Dr Vladimir RYABININ
Intergovernmental Oceanographic
Commission — UNESCO
7 Place de Fontenoy
75352 Paris Cedex 07 SP
FRANCE

Vice-Chairpersons

Ms Monika BREUCH-MORITZ
President
Federal Maritime and Hydrographic
Agency (BSH)
Bernhard-Nocht-Str. 78
20359 Hamburg
GERMANY

Dr Alexander POSTNOV
Deputy Director
State Oceanographic Institute
ROSHYDROMET
6, Kropotkinsky Lane
119034 Moscow
RUSSIAN FEDERATION

Mr Ariel Hernan TROISI
Head, Oceanography Department
Navy Hydrographic Service
Av. Montes de Oca 2124
C1270ABV Buenos Aires
ARGENTINA

Dr Somkiat KHOKIATTIWONG
Marine Biodiversity Research Specialist
Department of Marine and Coastal
Resources
Government Compact B
Changwattana Road
Laksi
12010 Bangkok
THAILAND

Dr Ashley S. JOHNSON
Director, Oceans Research
Department of Environmental
Affairs
Foretrust Building
Martin Hammerschlagt Way
Foreshore
SW Cape 8012 Cape Town
SOUTH AFRICA

PacWave18 will be overseen by the 'Task Team on PacWave Exercises' (Terms of Reference enclosed). PacWave18 information is available at the exercise web site <http://www.pacwave.info>.

Exercise Aim

The aim of PacWave18 is to test the country's preparedness arrangements, and operational procedures to respond and recover from a destructive tsunami, particularly at the community level.

In addition, the exercise seeks to:

1. Test regional cooperation and coordination arrangements;
2. Maintain familiarity with PTWC products;
3. Validate the NWPTAC new enhanced products;
4. Support the development of tsunami procedures and products by the South China Sea Tsunami Advisory Center (SCSTAC).

Date and Conduct of Exercise

PacWave18 shall take place during the period 1st September to 30 November 2018, in order for the post-exercise evaluation questionnaire to be completed and returned by 21st December 2018. PacWave18 shall simulate Pacific countries receiving Tsunami Threat messages containing wave amplitude forecasts. Member States may use this information in their decision-making to assess their national threat and simulate creating and disseminating alerts. It is recommended to be at least a tabletop exercise and countries are encouraged to engage communities at the local level.

PacWave18 shall include multiple scenarios to enable all Member States select a distant or regional event that would cause the greatest impact to their country. Scenarios shall include and use observations from past real events, including the 2009 South Pacific, 2010 Chile, and 2011 Japan tsunamis. Each exercise scenario, to be available in the PacWave18 Exercise Manual, shall start during the daytime in the source area with a dummy message issued by the PTWC, and as needed, by the NWPTAC and SCSTAC.

Northwest Pacific Tsunami Advisory Center (NWPTAC) new enhanced products

At the ICG/PTWS-XXVI, Member States agreed on NWPTAC to proceed with the development of its enhanced products for the North-West Pacific, under the guidance and feedback of the 'Task Team on Enhanced Products'. The enhanced products consist of an initial text message using information from a pre-established tsunami database, and are followed by text and graphical messages that include results from real-time simulations. The enhanced products include new forecast points, five categories of tsunami amplitude classification, and three graphical products. The graphical products are sent solely to Tsunami Warning Focal Points of recipient countries. A draft users' guide based on the document *Operational Users Guide for the Pacific Tsunami Warning and Mitigation System (PTWS)* (IOC Technical Series 87, 2nd ed., mainly section 6) is available at the PacWave18 web site. PacWave16 and PacWave17 were used to support the development of the NWPTAC enhanced products. Exercise Pacific Wave 2018 shall be used to validate the new NWPTAC enhanced products.

Through [IOC Circular Letter 2702](#) dated 13 December 2017, the Japan Meteorological Agency's NWPTAC started the issuance of its experimental NWPTAC Enhanced Products on 20 December 2017, in parallel to its existing products. The full changeover date to the new products is expected in six months to a year afterward.

South China Sea Tsunami Advisory Center products

At the ICG/PTWS-XXIII, Member States agreed to form a Task Team on the Establishment of a South China Sea Tsunami Advisory Center, and accepted the offer of the Government of China to host the SCSTAC at the National Marine Environmental Forecasting Center (NMEFC). The *Technical Document: Tsunami Advisory Products for the South China Sea Regional Tsunami Warning and Mitigation System* (October 2017) provides information on the SCSTAC products, geographical coverage, bulletins, forecast points and other technical aspects (<http://www.scstac.org> or the PacWave18 web site). PacWave17 was used to support the development of the SCSTAC enhanced products. Exercise Pacific Wave 2018 shall be used to validate the new SCSTAC products.

Through [IOC Circular Letter 2706](#) dated 5 January 2018, the China's SCSTAC will start a trial issuance for its SCSTAC Products on 26 January 2018. During this trial, your comments and suggestions on the Technical Document or SCSTAC products are welcome up to end May 2018, with the aim of improving the products to validate in PacWave18.

Exercise Documents

The PacWave18 Exercise Manual and products/messages shall be distributed electronically and posted on the exercise website (www.pacwave.info) by **31 March 2018**. The Exercise Manual shall contain details on the scenarios, the Master Schedule of Events List (MSEL) for PTWC and NWPTAC, the post-exercise evaluation questionnaire, and guidance on how countries may want to conduct their exercise. All exercise documents shall be posted at <http://www.pacwave.info>.

For further and immediate exercise guidance, Member States should consult [How to Plan, Conduct and Evaluate Tsunami Wave Exercises](#) (2012, English, Spanish) IOC Manuals and Guides 58, available at <http://www.pacwave.info>.

PacWave18 National Contact Nomination by 28 February 2018

Member States are strongly encouraged to participate in the exercise. In order to ensure that the participating countries' commitment is fully coordinated, and to facilitate the transmission of important information, we seek your nomination of a National Contact to PacWave18. The designated PacWave18 National Contact is expected to confirm the accuracy of existing points of contact for the receipt and dissemination of tsunami warnings downstream from the national tsunami warning centre. The designated PacWave18 National Contact shall also be responsible for coordinating input to the exercise evaluation tool.

I would be grateful if you could provide the details of your PacWave18 National Contact by 28 February 2018 to the ICG/PTWS Technical Secretary, through email to b.aliaga@unesco.org, with copy to laura.kong@noaa.gov and jo.guard@dpmc.govt.nz. You are also encouraged to further disseminate copies of this letter to appropriate organizations and authorities within your country.

Provisional timeline and milestones

28 February 2018	Nomination of a National Contact for PacWave18
31 March 2018	Exercise manual available on www.pacwave.info (including scenarios and products)
1 September – 30 November 2018	PacWave18

21 December 2018	Countries to complete and submit PacWave18 evaluation survey online
ICG/PTWS-XXVIII, 2019	Draft PacWave18 Preliminary Report discussed at the ICG meeting
30 June, 2019	Draft PacWave18 Preliminary Report available to Member States
31 August, 2019	Final PacWave18 Summary Report uploaded to www.pacwave.info

With the assurances of my highest consideration, I remain,

Yours sincerely,

[signature]

Vladimir Ryabinin
Executive Secretary

Enclosure (1):

PTWS Task Team on PacWave Exercises Terms of Reference [Appendix to Recommendation ICG/PTWS-XXVI.1, in report: *Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), twenty-seventh session, Tahiti, French Polynesia, 28–31 March 2017 – [IOC/ICG/PTWS-XXVI/3](#), 2017]*

Recommendation ICG/PTWS-XXVI.1
(Honolulu, United States of America, 22–24 April 2015)

ICG/PTWS Governance

[...] Appendix

Terms of Reference

Task Team on PacWave Exercises

1. Design and carry out a sixth and seventh Exercise Pacific Wave 2016 and 2017 with the following characteristics:
 - Two exercises shall be conducted to support the development of improved tsunami procedures and products by the Northwest Pacific Tsunami Advisory of the Northwest Pacific Tsunami Advisory Center (NWPTAC) enhanced products.
 - The exercises are an effective and important way to increase readiness and raise awareness, and especially communities at risk need to be prepared for the next tsunami.
 - Exercise Pacific Wave 2016 (PacWave16) will:
 - Take place in the first quarter of 2016, preferably in February
 - Be conducted as a regional exercise involving the sixteen countries that receive the NWPTAC products
 - Be conducted as a table top exercise.
 - Exercise Pacific Wave 2017 (PacWave17) will:
 - Take place in the first quarter of 2017, preferably in February
 - Be conducted as a Pacific-wide exercise involving all PTWS countries as part of the regular bi-annual Pacific Wave exercise conducted since 2006
 - Be conducted to include exercise activities over and above a table top exercise. Possible exercise variations include:
 - conduct in real time during the daytime working hours with full staffing, or simulating minimal staff during night time or weekend hours
 - joint exercises involving neighbouring countries organized through the PTWS Regional Working Groups.
 - The exercise objectives and dates of the exercises will be finalized by the PTWS Steering Committee.
 - The exercise scenarios will be a multi-scenario exercise consisting of major tsunamis originating in various seismic zones of the Pacific to complement previous scenarios in other places.
 - The exercise shall be announced by the IOC to Member States at least 180 days in advance of the exercise date.

- The exercise manual including instructions to Member States regarding their participation and the evaluation instrument be prepared with content and structure similar to what was prepared for previous Pacific-wide exercises, but taking into account lessons learned and any need to collect additional information.
 - The exercise manual will be distributed by the IOC to Member States at least 90 days in advance of the exercise date. The manual should include instructions to Member States regarding the exercise conduct and the evaluation instrument.
 - Participating Member States be asked to complete and return the evaluation instrument no more than 21 days following the exercise.
2. Advise countries as requested on the scenarios, design and conduct of national tsunami exercises, in coordination with the Task Team on Enhancing Products.
 3. Prepare the Summary Report for each exercise, compiling a list of recommendations on the NWPTAC enhanced products and the list of actions from the findings for consideration by the ICG/PTWS-XXVII.
 4. Members from the ICG/PTWS Member States, Task Team co-chairs: Laura Kong (ITIC), Jo Guard (New Zealand), Tomoaki Ozaki (Japan).