



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

Ref: **SC/IOC/GOOS/NPOMS4**
(Available in English only)

IOC/AF/TFG/sh
29 July 2015

To : Official National Coordinating Bodies for Liaison with the IOC

cc : The Chair and Vice-Chairs of the Commission
Permanent Delegates/Observer Missions to UNESCO of IOC Member States
National Commissions for UNESCO of IOC Member States
Mr Jon Turton, DBCP Chair
Mr Johan Stander, JCOMM Co-president for Marine Meteorology
Ms Nadia Pinardi, JCOMM Co-president for Oceanography
Mr Wenxi Zhu, IOC Coordinator IOC-WESTPAC

Subject: **IOC-WMO Fourth Capacity Building Workshop of the Data Buoy Cooperation Panel (DBCP) for the North Pacific Ocean and Its Marginal Seas (NPOMS-4) (Busan, Republic of Korea, 2-4 November 2015)**

Actions required: 1. To nominate a participant of your country to attend the Workshop; and
2. To notify the IOC Secretariat, of the name and contact details of the experts, as soon as it is possible, **but preferably no later than 31 August 2015**

You will recall that the Joint WMO-IOC Data Buoy Cooperation Panel (DBCP) is an official body of the World Meteorological Organization (WMO) and of the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The work of the Panel supports the Observations Programme Area, overseen by the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM).

During its thirtieth Session (Weihai, China, Oct. 2014), the Panel, drawing from the success of the first several DBCP PANGEA Workshops recognized the value of continued efforts to hold In-region Capacity Building activities. In particular, the Panel concurred with the recommendation from the Third DBCP Capacity Building Workshop for the North Pacific Ocean and Its Marginal Seas (NPOMS-3, Kyoto, Japan, 6-8 October 2014) to organize a fourth NPOMS workshop in 2015. The Panel also reaffirmed its desire to actively encourage the participation of developing nations in the Panel's activities, as a means for nations to assist the Panel in achieving and sustaining its objectives for a globally distributed data buoy network.

In this context, the DBCP is now pleased to organize and sponsor the Fourth Capacity Building Workshop of the WMO/IOC Data Buoy Cooperation Panel (DBCP) for the North Pacific Ocean and Its

Chairperson

Prof. Peter M. HAUGAN
Director, Geophysical Institute
University of Bergen
Allegaten 70
5007 Bergen
NORWAY

Executive Secretary

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

Vice-Chairpersons

Mr Stephen P. HALL
Head, International and Strategic
Partnerships Office
National Oceanography Centre
European Way
SO14 3ZH Southampton
UNITED KINGDOM

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. Monte de Oca 2124
C1270ABV Buenos Aires
ARGENTINA

Dr Somkiat KHOKIATTIWONG
Senior Marine Biologist
Phuket Marine Biological Center,
Dept of Marine and Coastal Resources
51 Moo 8, Sakdhidej Rd.
Wichit, Mueang District
Phuket 8300
THAILAND

Dr Ashley S. JOHNSON
Director, Oceans Research
Department of Environmental
Affairs

Foretrust Building
M. Hammerschlagt Way
Foreshore
SW Cape 8000 Cape Town
SOUTH AFRICA

Marginal Seas (NPOMS-4) to be held in Busan, Republic of Korea, from 2 to 4 November 2015, at the kind invitation of the Korea ocean and Maritime University (KMOU). The objective of the Workshop will be to enhance nations' capacity to apply ocean observations for societal benefit. The workshop will address the use of ocean observations to improve Typhoon Track and Intensity Forecasts for the benefit of nations in the NPOMS region impacted by Typhoons. The goals of the Workshop are listed in Annex 1. This Workshop is a realization of the JCOMM PANGAEA concept <http://www.jcomm.info/pangea-concept>.

The Workshop will be conducted in English only. Enclosed you will find a copy of the Workshop Goals (Annex 1), for your information. The Programme, Local Arrangements (i.e., accommodation, visas, etc.); and any other information pertinent to the Workshop will be posted, in due course, on the JCOMM website, under the dedicated web page: <http://www.jcomm.info/NPOMS-4>

The Workshop is primarily designed for typhoon forecasters, ocean data users, researchers and buoy operators in countries of the **East Asia Region**. The curriculum will cover: the regional programmes on typhoon; processes and mechanisms of typhoon-ocean interaction; application and improvement of ocean observations for typhoon; and enhancing regional and national human, institutional and infrastructure capacity to deliver socio-economic benefits from ocean observations. Trainers are being drawn from a wide spectrum of the international ocean community.

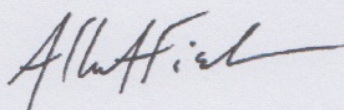
I encourage you to nominate potential trainees using the attached Nomination/Registration form (Annex 2). The Workshop will offer an exceptional opportunity for participants both to learn new skills and to make significant and ongoing contributions to major international programmes.. Please note that a similar invitation letter to this event is circulated by the WMO.

A selection committee will be set-up with a view of selecting from all the nominations received the most qualified experts in the area of marine meteorological and oceanographic (met-ocean) forecasting or met-ocean observations. The selection committee will deliberate by the beginning of September 2015 and will inform the selected experts accordingly.

In order to allow sufficient time to consider all the nominations and complete the selection process in a timely fashion, it would be greatly appreciated if your reply could reach the IOC Secretariat, **as soon as possible, but no later than 31 August 2015**, preferably via email, to the attention of Dr Thomas Gross, at t.gross@unesco.org with copy to: Mr Etienne Charpentier, at echarpentier@wmo.int. Also, it should be noted that selected participants will be required to present a valid passport (6 months beyond the date of travel), and obtain the necessary entry and/or transit visas, in due course.

Finally, I indeed look forward to the active participation of operators and scientists currently involved in this important and rewarding initiative. In this context, you are welcome, in your capacity of Permanent Representative of your country with IOC, to nominate experts from either your oceanographic or meteorological institutions, or any other national institutions specializing in the subject field.

Yours sincerely,



Albert Fischer
Head of Section
Ocean Observations and Services
IOC, UNESCO

ANNEX I

GOALS OF THE WORKSHOP

The Following Goals and Associated Actions reflect the needs of this NPOMS-4 Workshop and of the long-term Ocean-Climate Monitoring Capacity for Cyclogenesis and Forecasting:

1. Continue to build regional collaboration to improve the implementation of ocean observations for improving typhoon track and intensity forecasts, and estimating the impacts of typhoons on ocean environment,
 2. Review recent, on-going and planned regional programs on typhoon and its interaction with the ocean,
 3. Discuss new advances in our understanding of the processes and mechanisms of typhoon-ocean interaction,
 4. Build Regional 1) human, 2) institutional and 3) infrastructure capacity needed to acquire, process and deliver rapid deployment, potentially from aircraft, of operational data buoys, floats, gliders, etc. for the collection of buoy data, and related data management, for improving typhoon forecast accuracy,
 5. Demonstrate the crucial role of ocean observations in the Western Pacific, such as for understanding and predicting regional cyclogenesis,
 6. Continue to Learn Practical Implementation Skills for the Deployment of Operational Data Buoys at Sea, the Collection of Buoy Data, and Related Data Management,
 7. Continue to Align with Objectives of the *Global Framework for Climate Services* (GFCS) and Global Framework for Ocean Observations to Deliver Ocean Data to the End-User,
 8. Enhance Coordination and Cooperation between the DBCP Task Team for Capacity Building (TT-CB), WMO Regional Associations (RA-II/V) and the IOC Sub-Commission for the Western Pacific (WESTPAC).
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NOMINATION / REGISTRATION FORM

IOC-WMO Fourth Workshop of DBCP Capacity Building for the North Pacific Ocean and Its Marginal Seas with a Focus on Typhoon

The Government of: Indonesia

proposes the following nomination:

**NOTE TO THE NOMINATED PARTICIPANT:
PLEASE COMPLETE ALL THE QUESTIONS IN THIS FORM. PLEASE WRITE CLEARLY, AND
SUBMIT IT, PREFERABLY, IN ELECTRONIC FORMAT.**

Mr /Mrs /Dr /etc	Mr / Ms: Mr	Dr / Professor / Eng / etc. : MSc
Family name	Salamena	
First name	Gerry Giliant	
Job title	Junior Scientist	
Professional specialization	Ocean Modelling using MOHID	
Graduation degree(s)	MSc majoring Environmental Marine Science	
ADDRESS: Dept./Div.	Environmental Dept./ Physical oceanography div.	
Street	Jl. Y. Syaranamual, Guru-Guru, Poka	
Suite/Office/etc	LIPI's Centre for Deep Sea Research (LIPI - Ambon)	
City /postal codes	97233	
State/Province/etc	Maluku	
COUNTRY	Indonesia	
Tel. number(s)	+62 911 322700	
Fax number(s)		
Email(s) - PLEASE WRITE YOUR E-MAIL(S) VERY CLEARLY gerry.salamena@my.jcu.edu.au		
E-mail (1) gerry_fisika@yahoo.com		
E-mail (2) gerry_fisika@yahoo.com		
Job responsibilities: My job is to provide information associated with physical properties of Banda Sea, Indonesia (ca. 3000 m) and its coastal zones via firstly routine measurements (e.g. CTD casts using research vessel) and secondly further analysis such as statistical and numerical modelling.		
Financial assistance is requested for: travel <input checked="" type="checkbox"/> per diem <input checked="" type="checkbox"/>		

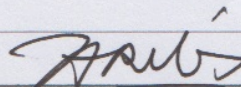
QUESTIONS TO THE EXPERT NOMINATED FOR THE TRAINING WORKSHOP	
1.	Please indicate the plans you may have in your country for; (i) initialization/maintenance ocean observing systems in Eastern Asia region, and/or; (ii) cooperation with international programmes regarding the implementation of such systems (e.g. through the provision of instrument deployment opportunities). <i>N.B.: Please use a separate sheet to provide a brief description on this question.</i>
1.	Please indicate the plans you may have in your country for; (i) utilizing ocean observing systems in Eastern Asia region, for improving typhoon track and intensity forecasts; (ii) cooperation with international programmes regarding the implementation of such systems (e.g. through the provision of instrument deployment opportunities). <i>N.B.: Please use a separate sheet to provide a brief description on this question.</i>
3.	Do you have an understanding of physical oceanography and the basics in geophysical fluid dynamics (e.g. Equation of State, etc.)? Yes, due to my interest in 3D-baroclinic model
4.	What operating system will you have on your laptop (e.g. PC/Windows, Linux-Ubuntu, Linux-Mandriva, etc.)? Windows 4.1. What is your level of knowledge and experience with your Operating System (O/S), and with an alternative system (with Windows in case your O/S is Linux; and with Linux in case your O/S is Windows)? Beside being familiar using Windows, I also have experience in operating software for Satellite data processing (SeaDAS) and COHERENS model under Linux-Ubuntu and so, that could be helpful for me to deal with both O/S
5.	What do you expect from this Training Workshop? I expect to acquire knowledge in designing integrated ocean observing systems and in managing and processing the oceanographic data to be used as reference for the early warning system associated with ocean and climate dynamics in Indonesia and for numerical model
6.	In your view, what would make the Training Workshop successful? I believe that the stakeholders involvement related to establishing ocean observing system (i.e. modellers, ocean data users, buoy operators) is important. This allows collaborations among these stakeholders in this integrated observing system to address regional climatic issue related to ocean and atmospheric dynamics
7.	Do you have any questions or comments? Seems that there will be much knowledge to learn from geophysical fluid dynamics to technical issues i.e. buoy system in only 3 days workshop. which area will be focused most?
8.	Did you participate at NPOMS-1, 2 or 3? No

PLEASE NOTE, ONLY NOMINATION/REGISTRATION FORMS, SIGNED BY THE PERMANENT REPRESENTATIVE (PR) OF YOUR COUNTRY WITH WMO OR THE IOC ACTION ADDRESSEE(S) OF YOUR COUNTRY, WILL BE CONSIDERED.

Name of PR with WMO or IOC Action Addressee:

Date:

18 Aug 2015



(Signature of the Permanent Representative with WMO or IOC Action Addressee)

Please return the completed form before 31 August 2015, preferably by e-mail, to the attention of Mr Tom Gross, t.gross@unesco.org, with cc: Mr Etienne Charpentier, echarpentier@wmo.int, and/or to the WMO Secretariat, at:

World Meteorological Organization
Observing and Information Services Department (OBS)
P. O. Box 2300
CH-1211 GENEVA 2
Switzerland
Fax: (+41 22) 730 8021

1. Please indicate the plans you may have in your country for;

(i) initialization/maintenance ocean observing systems in Eastern Asia region, and/or

Climate patterns of the Indonesian archipelago, indeed, do not include the tropical cyclone season, called typhoon activities due to geographic location of this region in the Equator. However, the initialization of the tropical cyclone is associated with variability of ITCZ band lied over this marine continent, seasonally. The ITCZ activity depends on ocean-atmosphere interaction which not only relies on ocean warming but also ocean dynamics where the oceanographic properties of this region prevail.

Oceanographically, Indonesian archipelago is a complex marine system due to (1) complex bathymetry i.e. the existence of deep waters (e.g. Banda Sea, Makassar Strait, Maluku Sea, etc.) and shallow waters (e.g. Java Sea) inside this marine continent and (2) global oceanic inflow so-called Indonesian Throughflow (ITF). This ocean complexity leads to a requirement of ocean observing systems which monitor and analyze not only ocean dynamics but also its consequences to the climate pattern.

In East Asia, monitoring ocean and atmospheric dynamics is essential in order to provide real-time oceanographic and atmospheric data and their forecast associated with cyclone activities; this is related to the socio-economic impacts from this climatic phenomenon to the human society. In fact, despite different goal, the advantages of having real time oceanographic data from the ocean observing systems in Indonesia can be important including for the early warning system of extreme weather and coastal natural hazards (e.g. rainfall, storm surges) due to the ITCZ activities and even of tsunamis.

In Indonesia, the ocean observing systems are limited. For instance, there are only few locations off Java and Sumatera Islands situated in Indian Ocean where buoys are deployed; these buoys are part of Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction (RAMA), part of the Indian Ocean Observing System (IndOOS); these buoy systems are not available inside the archipelago despite its complex oceanographic features. Moreover, the existing ocean observing systems only consist of seasonal oceanographic cruises on the permanent stations, coastal radar system with the limited area coverage and satellite images which are not integrated.

The proper plan of ocean observing system in Indonesia is (1) to design appropriate ocean observing system associated with the oceanographic features of Indonesia including mooring designs in particular deep waters (e.g. Banda Sea), (2) to integrate the existing ocean observing system and (3) to conduct ocean data management for being available as real-time oceanographic and atmospheric data products which can be used for the early warning system for natural hazards.

(ii) Cooperation with international programmes regarding the implementation of such systems

The enhanced attention of climatologists recently to the Indonesian archipelago associated with global climate change (i.e. change of ITCZ variability) requires well-established ocean observing system inside this marine continent. In fact, the absence of real-time data in inside the marine continent has been existing due to inadequate ocean observing system. Thus, the deployment of

mooring system inside this archipelago can be beneficial to bridge this gap and be seen as the global need considering the role of this archipelago to the climate change.

Almost three decades, attention of many leading oceanographers (e.g. Prof. Klaus Wyrtki, Hawaii University, Prof. Arnold Gordon, Columbia University) on the Indonesian Throughflow led them to be involved in some oceanographic cruises for analyze the dynamics of this oceanic inflow. If design of ocean observing system is representative for measuring dynamics of the ITF, the cruises can be replaced by this system in the future regarding economic cost. Therefore, the implementation of ocean observing system such as mooring deployments in Indonesian waters can improve international collaboration for studying the ITF.

Regarding the important roles of Indonesian waters related to global ocean and climate dynamics, the establishment of global ocean observing system inside this archipelago enables: the available oceanographic and atmospheric data for study of ITCZ-climate change relationship and of ocean dynamics in the waters, comprehensively and for international collaboration for climate change investigation. In particular to the international collaboration, due to the inadequate oceanographic instruments in Indonesian waters related to cost issue for the Indonesian oceanographic research institutions, the provision of the instrument deployment opportunities can be considered as very significant improvement of ocean observatories inside the region.

2. Please indicate the plans you may have in your country for;

(i) utilizing ocean observing systems in Eastern Asia region, for improving typhoon track and intensity forecasts;

As explained previously, due to the absence of typhoon activities over Indonesia and the presence of extreme weather (e.g. rainfall, storm surges) associated with ITCZ variability, the use of the ocean observing systems in the archipelago is likely to provide sustainably the real-time oceanographic and atmospheric data for the early warning system via the accurate weather forecasts in the short-term temporal scale and for the climate forecasts in the long-term timescale. Furthermore, this system is also beneficial for tsunami's early warning system.

(ii) Cooperation with international programmes regarding the implementation of such systems

This is the same following #1 point (ii).