Section 6.4: Report By the DBCP Capacity Building Task Team (TT-CB)

www.jcomm.info/pangea-concept

DBCP-30
Weihai, China
29 October 2014

Dr. Sidney Thurston
Lead, DBCP Capacity Building Task Team
NOAA Office of Climate Observation (OCO)

Many Thanks to Capacity Building Task Team Colleagues

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DBCP Executive Board members, including DBCP Chairperson, Vice-chairpersons (or their respective Deputies)	DBCP Technical Coordinator
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Overview

- Capacity Building Task Team Background
- 2014 Workshops, Lessons Learned, Recommendations Forward
- Proposed 2015 Workshops for Consideration by the DBCP Executive Board

Background of Capacity Building Task Team

- Task Team for Capacity Building was established Seven Years ago at DBCP-24 in Jeju South Korea
- During this time we have been successful in raising awareness of the DBCP in many countries around the world, both developing and developed States
- Over three hundred participants have contributed to eight capacity building workshops in Asia, Western Indian Ocean and North Pacific Ocean and Marginal Seas
- Trainees have received technical training as well as demonstrations on the social and economic practical applications of ocean observations.

Capacity Building Task Team Objectives:

- Provide In-country/Regional Training Workshops to build local capacity for drifter/mooring observations, as well as the societal-economic applications and management of these new data,

- Build advocacy of Government officials to support additional ocean observations and become active and contributing Members of the DBCP,

- Encourage the sharing of Drifter/Mooring Data.

Recent DBCP Capacity Building
PANGEA Workshops for the Western Indian Ocean

Capetown April 2010

Mombasa Kenya May 2012

Mauritius May 2011

Zanzibar Tanzania April 2013

Recent DBCP Capacity Building
PANGEA Workshops for the North Pacific Ocean and Marginal Seas (NPOMS)

Jeju, South Korea July 2012

Hangzhou China October 2013

Kyoto Japan October 2014

Busan South Korea November 2015

DBCP Regional Workshop on Best Practices for Instruments, Methods of Ocean Observation India National Institute of Ocean Technology (NIOT), Chennai India 19-21 November 2012

PANGEA

The Partnership for New GEOSS Applications (PANGEA)

Author(s)	Secretariat
Summary	The Partnership for new GEOSS Applications (PANGEA) is a concept developed by the Joint WMO–IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) with the goal to develop partnership between developed and developing countries to realize the socio-economical benefits of ocean observing systems at global and regional scales.
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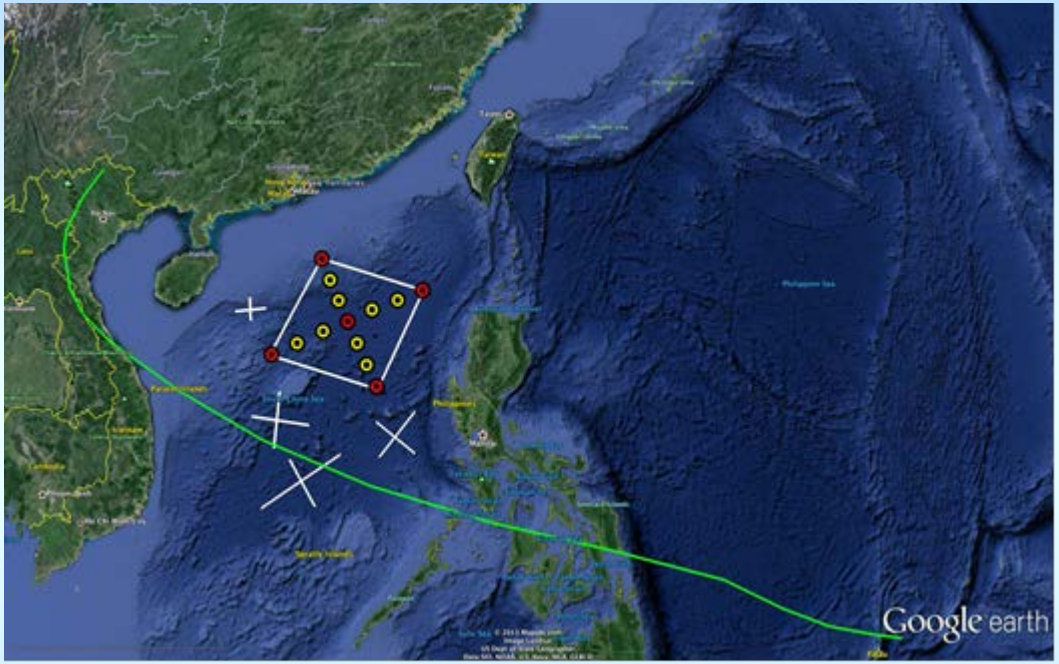
Your DBCP Capacity Building Task Team: Working Hard for you Since DBCP-29 (Paris)

2nd In-Region DBCP North Pacific Ocean and Marginal Seas (NPOMS-3) Capacity Building Workshop
6-8 October 2013

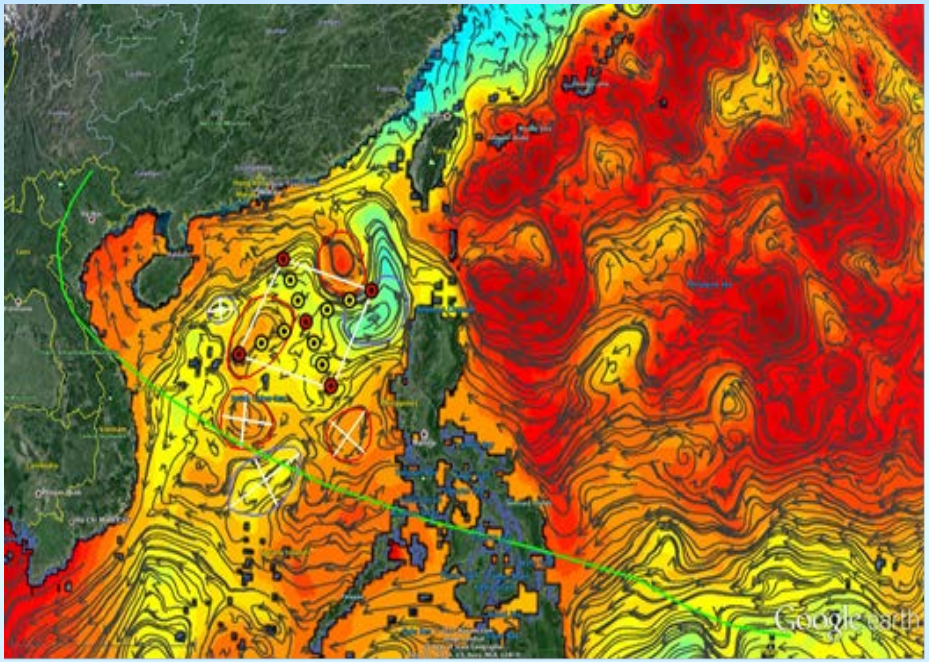

Second Capacity Building Workshop of the WMO/IOC Data Buoy Cooperation
Panel (DBCP) for the North Pacific Ocean and Its Marginal Seas (NPOMS-2)
Application of Regional Ocean Observations for Increasing Society's Understanding and Forecasting of Typhoons

Proposed China 973
Moored-Buoy Array for Typhoon Observations



5 Met-Ocean Buoys (Red) and 8 Tall Moorings (Yellow).
Green line is the track of typhoon Haiyan 7-9 November 2013.
(Map Courtesy of Rutgers University Coastal Ocean Observation Laboratory COOL)

Monitor Maximum Ocean Heat Content: Adaptive Subsurface Sampling Using Real-time Ocean Forecasting System (RTOFS)



- **NPOMS surface currents (black arrows) and sea surface height (color fill - red is high, blue is low) for 7 January 2014 as a prototype product.**
- **The hand-drawn circles are the warm (red) and cold (blue) eddies observed in the RTOFS model. The green line is the track of typhoon Haiyan 7-9 November 2013.**
- By using the **NOAA RTOFS global ocean model to illustrate the best estimates of the current eddy field, combined with NPOMS real-time in-situ and remote ocean observations, it is possible to refine adaptive subsurface sampling plans for gliders or air deployed profilers (white lines) that will further help improve typhoon track and intensity forecasts.**

Continued Development in Kyoto Two Weeks Ago at NPOMS-3

5th In-Region DBCP Western Indian Ocean Capacity Building Workshop WIO-5

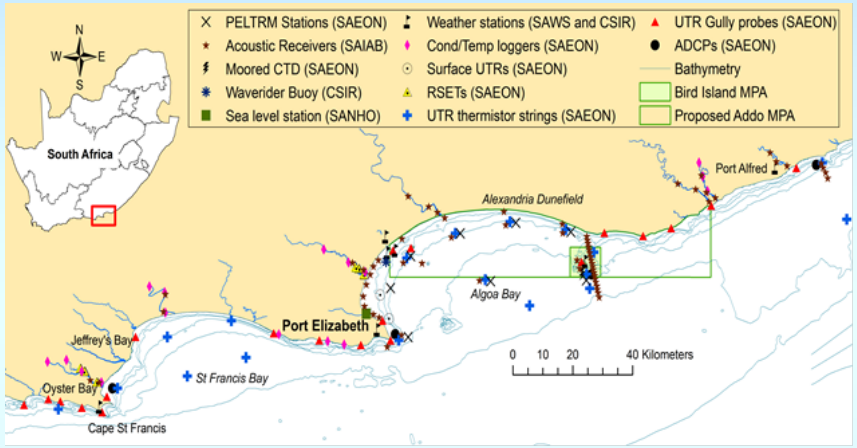
Fifth DBCP In-Region Capacity Building Workshop for the Western Indian Ocean (WIO-5)

Port Elizabeth, South Africa
12-15 May 2014

www.jcomm.info/wio-dbcp5

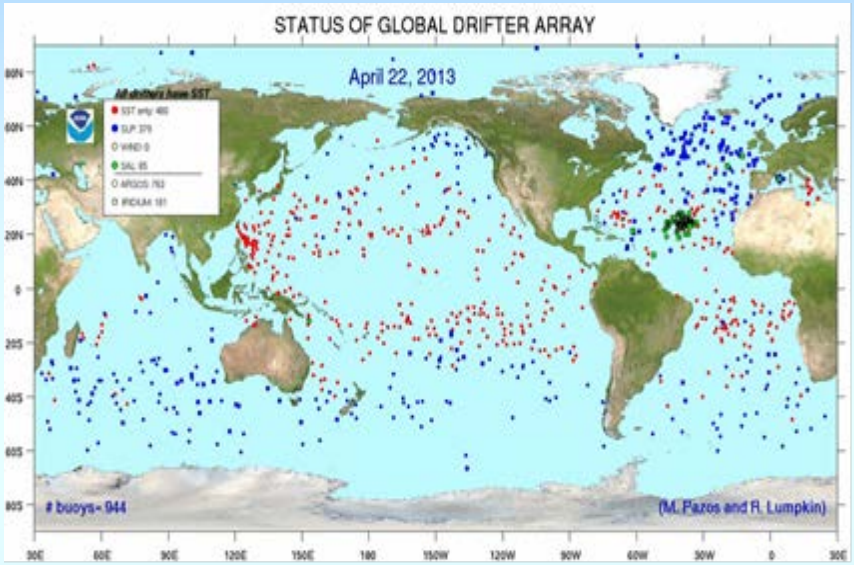
- Hosted By the South African Weather Service, South African Environmental Observation Network (SAEON), International Met Systems (InterMet)
- Twenty Two Participants & Contributors from WMO Regional Associations I & II

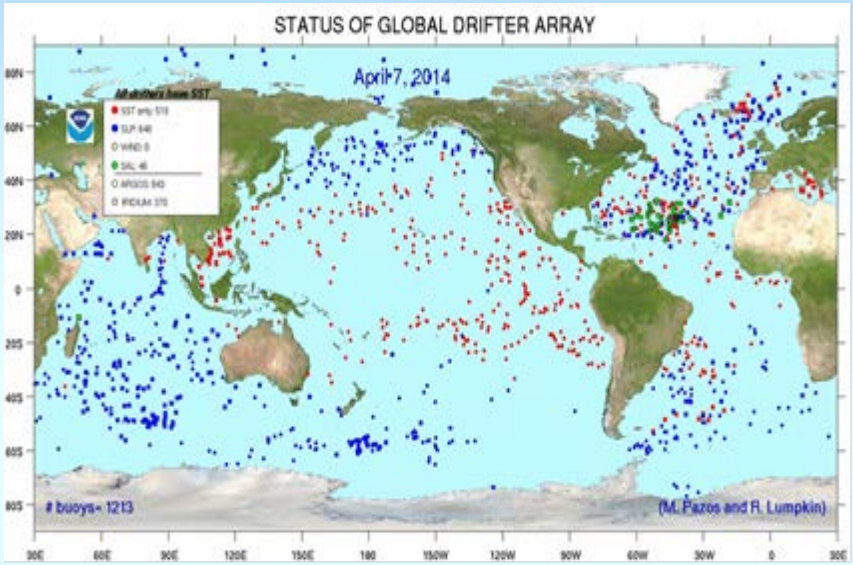
Algoa Bay Sentinel Site: A Prototype Cost-Effective Monitoring Program



Fifth In-Region Western Indian Ocean (WIO-5)
Capacity Building Workshop
FIELD TRIP
14 May 2014

Resolution 1 –
Maintain Western Indian Ocean Drifter Array





Action: Interested participating African Met/Ocean Institutes are invited to provide a brief deployment plan to Primary and Secondary to include with their delivery address for the drifters shipment of when and how these drifters will be deployed.

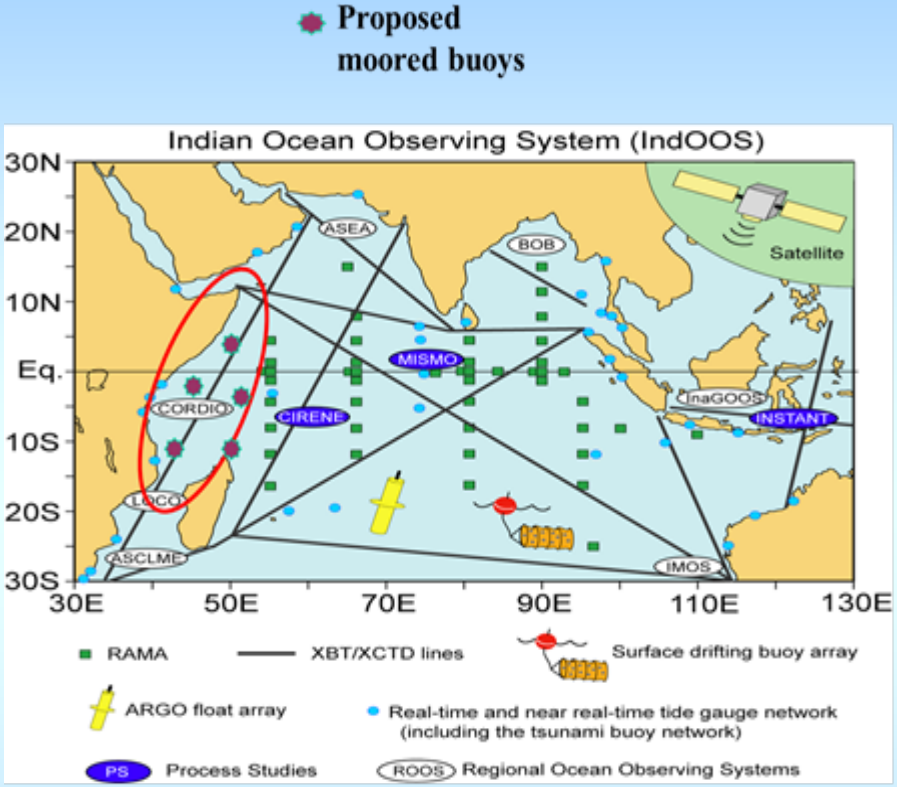
Primary: DBCP/IBPIO
Secondary: NOAA/SIO Global Drifter Program

Resolution 2 - Implement an Offshore Mooring Array

Scientific Justification for Mooring Array

- Intra-seasonal variability of the Somali jet over the East African coast and the Mascarene pressures,
- The response of the Somali current to the intraseasonal variability of the Somali Jet,
- The dynamical and thermal feedback mechanisms between the cool temperatures in the filament and the modified wind stress,
- The characteristics of the atmospheric convergence and divergence over the upwelling region and their influence on the climate of east African coast,
- Specifically investigate how the SST and surface wind coupling affect vertical profile of the atmospheric boundary layer.

- **Action: Identify a Sponsor able to implement and sustain these five important met/ocean moorings off the East Coast of Africa.**



Resolution 3 – Establish a Western Indian Ocean (WIO) JCOMM Ship Observation Team (SOT) Pilot Project

- Development of a JCOMM Ship Observations Team (SOT) Pilot Project to act as co-operative venture among countries within the Indian Ocean to enhance the provision of marine meteorological and oceanographic data in support of a diversity of national, regional and global programmes.

- Explore resulting options and present conclusions to the Eighth Session of the JCOMM Ship Observations Team (SOT) meeting on 1 May 2015 in South Africa.
  Primary: Kenya Meteorological Agency & Kenya Marine and Fisheries Institute
  Secondary: JCOMM Ship Observations Team (SOT)

- Action: DBCP and/or JCOMM send Letter(s) to KMFRI expressing their interest and scientific objectives in having the RV *Mtafiti* contribute to WIO SOT Pilot Project.

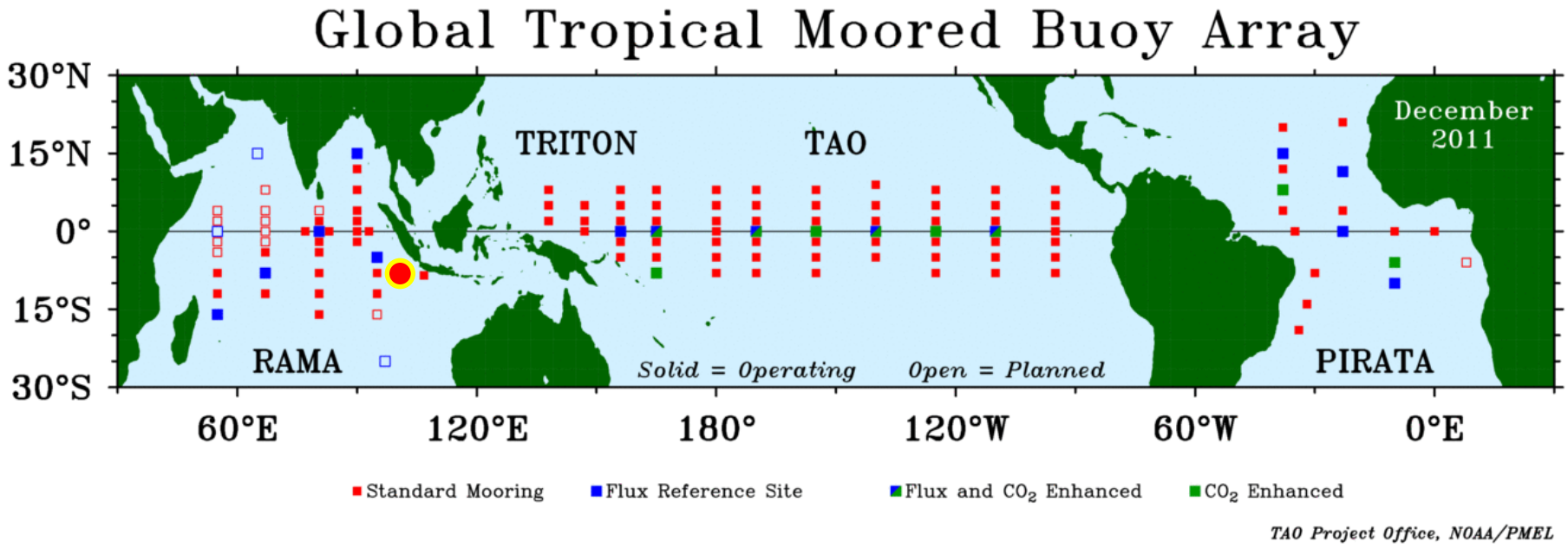
Resolution 4 - Implement a Glider Capability in the Western Indian Ocean

- Noting the continuing threat of piracy in the WIO, the rapid emergence of surface and sub-surface gliders as an efficient and reliable technology, and the current planning for the International Indian Ocean Expedition - II, JCOMM is urged to co-ordinate the establishment of a sustained glider capability in the WIO, by means of a pilot project or otherwise.

- Action: DBCP/WMO-JCOMM/OPA to work with IIOE-2 to examine capability of Regional Gliders

- Primary: JCOMM Data Buoy Cooperation Panel (DBCP) Secondary: International Indian Ocean Expedition-2 (IIOE-2) Coordinating Body.

China FIO *Bailong* Buoy Position



Two (2) FIO Training Opportunities for African Colleagues at FIO in Qingdao

- FIO treats Western Indian Ocean Capacity Building as one of its priorities
- FIO contributed to Training activities at FIO at the master or PhD level
- The two trainees visited FIO for 3 months, fully supported by FIO, including the round trip economic flight, local accommodation and subsidy.
- One trainee focused on the data analysis (RAMA data and others) and scientific application,
- The other trainee focused on the technical develop, including the AWS integration and or Bailong buoy technology.

3rd In-Region DBCP North Pacific Ocean and Marginal Seas (NPOMS-3) Capacity Building Workshop
6-8 October 2014

DBCP NPOMS-3 Application of Regional Ocean Observations for Increasing Society's Understanding and Forecasting of Typhoons

KYOTO, JAPAN, 6-8 OCTOBER 2014

- Review recent, on-going and planned regional programs on typhoon and its interaction with the ocean,
- Discuss new advances in our understanding of the processes and mechanisms of typhoon-ocean interaction,
- Explore the possibility of regional collaboration to improve typhoon observation and prediction,
- Demonstrate the crucial role of ocean observations in the Western Pacific, such as for understanding and predicting regional cyclogenesis,
- www.jcomm.info/NPOMS-3

DBCP NPOMS-3

Application of Regional Ocean Observations for Increasing Society's Understanding and Forecasting of Typhoons

- Hosted by Disaster Prevention Research Institute (DPRI) and
- Graduate School of Advanced Integrated Studies in Human Survivability (GSAIS) Kyoto University, Japan

NPOMS-3 Summary

- Track forecasting has improved; intensity has not improved for 20 years
- More observations and buoys are needed in the North Western Pacific ocean to monitor cyclogenesis and typhoon prediction.
- SST is useful for computing an ocean heat content index, however new indices also include subsurface measurements,
- Promote communications with Met groups. Communications between Oceanographers and Meteorologists are important for increasing understanding and forecasting of typhoons. Under WMO/IOC framework collaboration can be enhanced
- China's 973 Typhoon Array was Implemented June 2014

Action: DBCP/WESTPAC Task Team

- **Task Team to be established between the IOC WESTPAC Secretariat and the DBCP to write a proposal (white paper) requesting IOC Member States Funding:**
  - **Establish rapid adaptive team to get instruments in/over the water for extreme events (Continued from NPOMS-2)**
  - **Impacts also need to be better observed and understood. Storm surge, modelling, flooding (WMO cross-cutting coastal inundation forecasting demonstration project). JCOMM expert Team on waves and coastal hazards.**

2015 Capacity Building Workshops Proposed to DBCP Executive Board

1. Pacific Islands-1: Palau, Micronesia, ~May

2. NPOMS-4: Busan, South Korea, November

DBCP NPOMS-4

Application of Regional Ocean Observations for Increasing Society's Understanding and Forecasting of Typhoons

- Host: Korea Institute for Ocean Science and Technology (KIOST)
- Location: Busan or Jeju South Korea
- Time: November 2015
- Participants: Korea, Japan, China, Philippines, Thailand, US, Taiwan, and others

NPOMS-4 Objectives

- Increase Regional Coordination, Data Sharing of Ocean Data for Better Understanding and Forecasting of Typhoons,
- Advance New NPOMS Training Center Proposed this week by Professor BG Lee of Korea,
- Implement and Consolidate IOC WESTPAC Typhoon Observing System
  - Fixed (e.g. China's 973 Typhoon Array in South China Sea)
  - Rapid Adaptive (Drifters/thermistors, Gliders, ..)

Improving Pacific Islanders' Access to Pacific Ocean Information

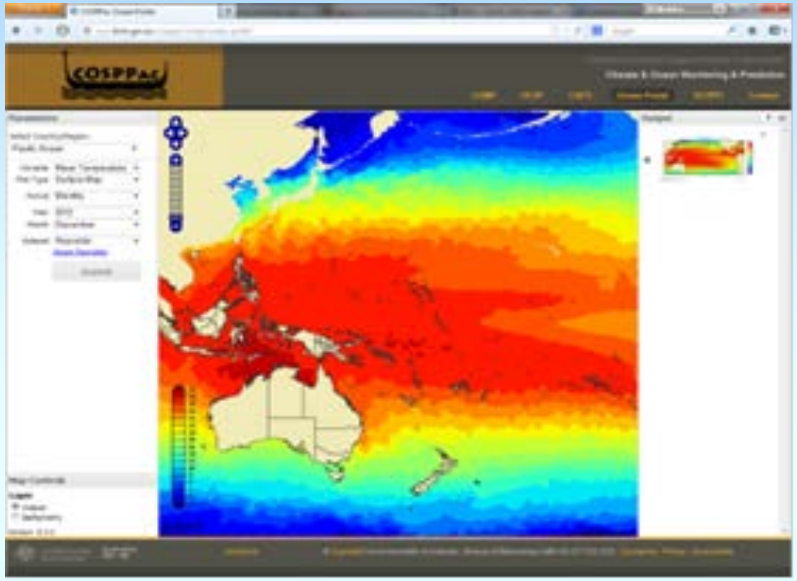
SPREP
Secretariat of the Pacific Regional Environment Programme

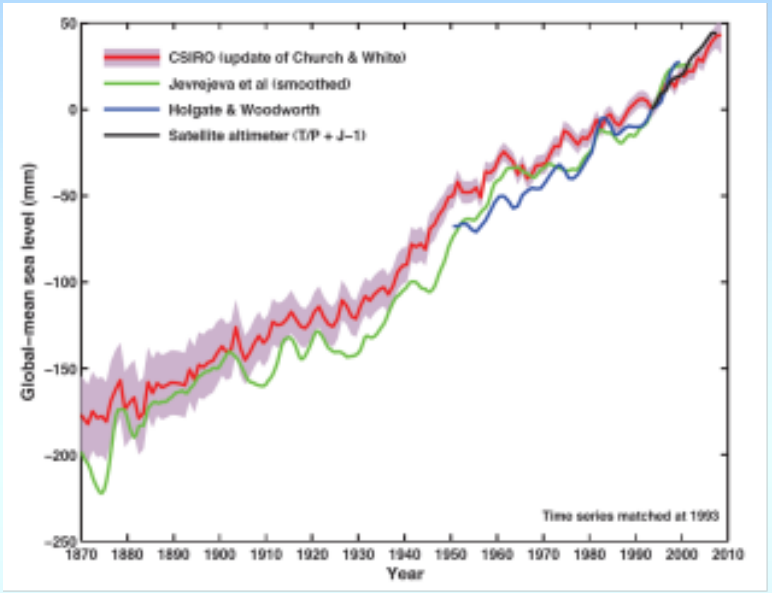
PI-GOOS

- Environmental and economic management in the Pacific has a strong oceanic focus. Over 98% of Pacific Island's EEZs consist of ocean which provides food, financial income, and controls the climate.

- While a wealth of publicly available data is collected about the Pacific Ocean, few Pacific islanders are aware of, or able to access, this information.

Pacific Ocean Drivers





- The Pacific Ocean is a major driver of global climate variability, particularly through the impacts of El Niño and La Niña conditions.
- As such, significant resources have been invested in the region to monitor changes in the behaviour of the ocean such as temperature, salinity, sea level and biological primary productivity

Purpose

- Need for a streamlined, regionally consistent approach to marine monitoring data,
- To bring together agencies from the Pacific Rim developed countries (e.g. NOAA, CSIRO, BoM, NIWA, KIOST, etc), SPREP, PIGOOS along with current and potential data users within the Pacific to showcase the data available, how it is accessed, and how it can be used.
- The Pacific audience will consist of marine managers (e.g. fisheries), meteorology and climate services (e.g. National Meteorological and Hydrological Services), port authorities, coastal zone managers and future environmental managers such as students,
- Participants will be invited from all Pacific Island countries and territories.

Expected Outcomes

- Regional Institutional capacity to manage their EEZs will be enhanced by enabling key personnel to access and interpret available data. This will benefit sectors such as fisheries, coastal zone management and climate services.

- A publication from the workshop will describe the datasets demonstrated at the workshop, and how they can be accessed. Specific country examples will be included which show how the data can be accessed and applied.

- Participants will be encouraged to share the training when back within their country, potentially with PI-GOOS support.

- A core group of 5-10 Pacific Island based personnel who have sufficient interest and technical capacity will be identified as a Marine Data Working Group. The group will continue to meet over the following three years to increase the use of oceanographic data in the Pacific Islands.

DBCP's First Pacific Islands Capacity Building Workshop (PI-1)

- Office of the President of Palau and PI-GOOS have offered to Host PI-1 May/June 2015

- Co-sponsorship will be made available to help support local logistics and travel

DBCP Capacity Building
Task Team (TT-CB) Intercessional Action Items for 2015

- Build stronger links to the JCOMM services (SFPA), observations (OCG), Data Management,
- Connect with IODE for ICT Advances,
- Develop Indicators (Metrics) to Measure Success, Refine DBCP Capacity Building,
- Align with Global Framework for Climate Services (GFCS) Development,
- Establish a close TT-CB Team to Implement All Workshop Resolutions.

Xie Xie

DBCP Capacity Building Task Team @ Your Service!

Fifth In-Region Western Indian Ocean (WIO-5)
Capacity Building Workshop
FIELD TRIP
14 May 2014

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