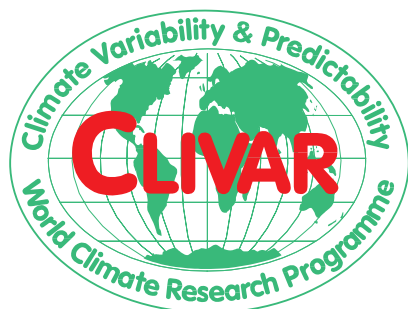


# WCRP REPORT

World Climate Research Programme



Project Report

## **Report of the 6th Session of the Pacific Panel Meeting Report**

GUAYAQUIL, ECUADOR  
15 – 16 OCTOBER 2010

*ICPO Publication Series No. 173*

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CLIVAR is a component of the World Climate Research Programme (WCRP). WCRP is sponsored by the World Meteorological Organisation, the International Council for Science and the Intergovernmental Oceanographic Commission of UNESCO. The scientific planning and development of CLIVAR is under the guidance of the JSC Scientific Steering Group for CLIVAR assisted by the CLIVAR International Project Office. The Joint Scientific Committee (JSC) is the main body of WMO-ICSU-IOC formulating overall WCRP scientific concepts.

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## **ACTION ITEMS**

**ACTION:** Stimulate discussion on the Pacific Eastern boundary region and involve South American scientists (**Rodney Martinez, co-chairs**)

**ACTION:** Circulate paper on Stochastic ENSO to contributors and collect inputs (**Matthieu Lengaigne**)

**ACTION:** Contact other CLIVAR panels to discuss tropical cyclones (**Matthieu Lengaigne**)

**AGREEMENT:** Agree to provide scientific oversight on evolving and implementing the expansion of Pacific Tropical array (**Mike McPhaden, co-chairs, ICPO**)

**ACTION:** Submit to the SSG, jointly with IOP, proposal of ITF Task Force (**Janet Sprintall, Yukio Masumoto, co-chairs**)

**ACTION:** discuss with SSG on the possibility of making the ITF Task Force a long term body to oversee the sustained observation of the ITF (**co-chairs**)

**ACTION:** Prepare a Pacific Regional climate change synthesis paper on behalf of the Pacific Panel (**Axel Timmerman**)

**ACTION:** Prepare a Review Paper on the South Pacific Convergence Zone (**Scott Power**)

**ACTION:** Develop a Framework and coordinated analysis of atmospheric experiments for the SPCZ (**Matthieu Lengaigne, Ken Takahashi**)

**ACTION:** Circulate FOCUS science proposal to panel members for comments (**Boris Dewitte**)

**ACTION:** Inform OOPC on the scientific needs to advocate for sustained glider observations in Solomon Seas (**Billy Kesler, Toshio Suga**)

**ACTION:** Propose session on SPICE/SPCZ at the 10ICSHMO (**Alex Ganachaud, Matthieu Lengaigne**)

**ACTION:** Consider review paper on Western Boundary Currents and impact on climate for submission to BAMS (**Lixin Wu, Bo Qiu, Alex Ganachaud, Billy Kessler, Janet Sprintall**)

**ACTION:** Discuss with NPOCE PIs the possibility of investigating the formation of the Equatorial Undercurrent in the region north of New Guinea (**Lixin Wu, Wenju Cai**)

**ACTION:** Write to the Argo Steering Team about Argo trajectory files (**Billy Kessler, co-chairs**)

**ACTION:** Propose joint session at the Annual PICES meeting (**Toshio Suga, co-chairs**)

**ACTION:** Invite PICES representative for next PP meeting (**co-chairs**)

**ACTION:** Contact Hiroaki Saito to develop links between FUTURE and PP (**Toshio Suga**)

**ACTION:** Contact Masao Ishii about PACIFICA and seek collaboration with PP (**Toshio Suga**)

**ACTION:** Panel members to review OOPC Impact pages and provide feedback to OOPC (**all**)

**ACTION:** Include examples on impacts for Western South America on OOPC's webpage.  
(**Rodney Martinez**)

## **1. Pacific Panel overview and Terms of reference**

The CLIVAR Pacific Panel is a part of the CLIVAR organization. The panel is in charge of implementing the CLIVAR science plan in the Pacific sector. More specifically its Terms of Reference are:

1. To oversee and facilitate the implementation of CLIVAR in the Pacific sector in order to meet the objectives outlined in the Science and Initial Implementation Plans particularly with respect to:

- Expanding and Improving ENSO predictions
- Variability and predictability of the Asian-Australian Monsoon system
- Indo-Pacific Decadal Variability

And also on Pacific impacts on:

- Variability and predictability of the American Monsoon system
- Southern Ocean Climate variability
- Climate change prediction/detection and attribution

2. To develop broadscale atmospheric sampling plans and processes studies to complement the oceanic observations planned for the Pacific and as an integral component of the strategy to improve atmospheric and coupled models. To work with agencies and nations to sustain broadscale atmospheric sampling in the Pacific.

3. To coordinate the activities of the Pacific nations, facilitating cooperative efforts and coordinating work within the boundaries of the various nations as well as outside those boundaries. To provide a forum for exchange and discussion of national plans in the Pacific.

4. To organize and conduct workshops that will entrain oceanographers, atmospheric scientists, and other investigators from the Pacific nations, that will lead to formulation of plans for broadscale sampling and for sampling locations of high interest (such as boundary currents), and will coordinate not only the field activities but also the modeling, empirical, and paleo studies in the Pacific.

5. To collaborate with WCRP WG on Coupled Modeling, the CLIVAR WG on Seasonal-Interannual Prediction and the WG on Ocean Model Development in order to design appropriate numerical experiments. To be aware of the requirements of these groups for data sets needed to validate models.

6. To liaise with the Ocean Observation Panel for Climate (OOPC), with the Joint Commission for Oceanography and Marine Meteorology (JCOMM), with the Atmospheric Observations Panel for Climate (AOPC), and other relevant groups to ensure that CLIVAR benefits from and contributes to observations in GOOS and GCOS

7. To advise the CLIVAR SSG of progress and obstacles toward successful implementation of CLIVAR in the Pacific.

## **2. PP-6 setting and charge to the meeting**

Wenju Cai and Alex Ganachaud, PP co-chairs, welcomed all panel members and invitees. Apologies were sent by Markus Jochum, Franco Molteni, Scott Power and Yukari Takayabu. Meeting attendees reviewed action items from the 5<sup>th</sup> Pacific Panel meeting (PP-5), 31<sup>st</sup> Session of the WCRP Joint Scientific Committee (JSC-31) and 17<sup>th</sup> Session of the CLIVAR Scientific Steering Group (SSG-17). One point raised in this discussion was the request of the CLIVAR

SSG to involve more South American scientists in issues related to the Pacific Panel. After a brief discussion, the panel agreed that it should start discussions with local scientists about the Eastern boundary region.

**ACTION:** Stimulate discussion on the Pacific Eastern boundary region and involve South American scientists (**Rodney Martinez, co-chairs**)

There were two uncompleted action items from the last Pacific Panel meeting. These have now been included as actions items from this meeting.

**ACTION:** Circulate paper on Stochastic ENSO to contributors and collect inputs (**Matthieu Lengaigne**)

**ACTION:** Contact other CLIVAR panels to discuss tropical cyclones (**Matthieu Lengaigne**)

Cai and Ganachaud also gave a brief introduction about the components of CLIVAR and the dimensions of its science, including CLIVAR's mission and primary science focus. He also reminded the panel about CLIVAR's proposed seven "Imperatives" that will guide the evolution of the CLIVAR science. It is for the panel to link its activities to the imperatives listed below:

- I. Anthropogenic climate change
- II. Decadal variability, predictability and prediction
- III. Intraseasonal and seasonal predictability and prediction
- IV. Improved atmosphere and ocean components of Earth System Models
- V. Data synthesis, analysis, reanalysis and uncertainty
- VI. Ocean observing system
- VII. Capacity building

## **2. ENSO session**

The present panel meeting followed the successful "International Workshop on ENSO, Decadal Variability and Climate Change in South America", organised by CLIVAR and CIIFEN. The panel recognised the interesting presentations that covered a wide range of topics including physical processes in the eastern Pacific and their influence on the regional climate; ocean-atmosphere-land interactions; and, local, regional, and global scale perspectives on the consequences of climate variability and change in South America.

Matthieu Lengaigne presented on behalf of Eric Guilyardi a strategy and plans for ENSO evaluation for CMIP5. Several ENSO metrics have been defined (basic ENSO metrics, background systematic errors, ...), and ten of those have contribute to the CLIVAR CLIVAR Repository for Evaluating Ocean Simulations (REOS). They have been tested on CMIP3 results and after further refinement, it is planned that they will contribute to CMIP5 metrics. This will also be discussed at the CLIVAR-sponsored workshop "New strategies for evaluating ENSO processes in climate models" in Paris on 17-19 November 2011.

Soon-Il An discussed the impacts of mean state on ENSO properties. The motivation for such analysis is that the number of occurrence of Central Pacific type El Niño has been increased during the recent decades, and expected to be increasing under the future warm climate. Results show that wind-stress and thermocline are dynamically consistent for all ENSO patterns. The El

Niño's flavour are shown to be modulated in decadal time scale and closely related to the Pacific decadal mode, and Eastern Pacific El Niño and Central Pacific La Niña occur at the same time.

Franco Molteni reported via a teleconference system that ECMWF is developing a new seasonal forecast system based on an IFS-NEMO coupled model and a 3-D VAR ocean data assimilation (NEMOVAR). The IFS-NEMO coupled model is affected by too strong easterly winds and a cold SST bias in the Pacific equatorial cold tongue. Model forecast skill to predict SST is similar to Sys-3 in the NINO regions, but is degraded over the West Pacific, especially in winter. However, forecast skill is increased in the tropical Atlantic. He also discussed experiments for decadal prediction which shows that with either anomaly initialization or wind stress and heat flux correction, it shows sign of extended ENSO predictability in the 3-to-4 year range, although the correlation is affected by the time of observed ENSO peaks with regard to the initial dates of the forecasts and the small ensemble size. Although anomaly initialization enhances SST predictability, it does not correct deficiencies in ENSO variability and teleconnection patterns. Flux-corrected simulations tend to have over-active ENSO.

### 3. Interbasin Linkages session

Mike McPhaden reported on the implementation status of the Indian Ocean Observing System (IndOOS). The motivation for this observing system is to have an improved description, understanding, and ability to predict the monsoons. However, other science drivers for the Indian Ocean are equally important and justify the IndOOS implementation. These science drivers span over several timescales as well as interaction with ocean biogeochemistry. The Indian Ocean Panel (IOP), by request of the Tropical Moored Buoy Implementation Panel (TIP), has agreed to become the scientific oversight body for any RAMA array expansion proposals. TIP has made a similar request to the Pacific Panel so that the panel could become the scientific oversight body for any TAO-TRITON array expansion proposals. The proposed protocol would be as following

- a. Interested group submits proposal (scientific rationale, technical feasibility, system compatibility, data policy) to the Pacific Panel
- b. Proposal sent out to three reviewers
- c. Proposal revised & resubmitted to Pacific Panel
- d. Successful projects commissioned for three-year pilot phase
- e. Successful pilot leads to permanent inclusion into array

After some discussion, the panel has agreed to become the scientific oversight body for any TAO-TRITON array expansion proposals.

**AGREEMENT:** Agree to provide scientific oversight on evolving and implementing the expansion of Pacific Tropical array (**Mike McPhaden, co-chairs, ICPO**)

One of the main topics of this session was the discussion about research and projects in the Indonesian Throughflow (ITF) region. Janet Sprintall gave an overview of the scientific knowledge of the ITF role in global circulation. The Indonesian region bridges and connects both the Pacific and Indian Oceans, and affects the basin-scale circulation in both oceans. She also pointed out that the goal of the ITF community is to identify the scientific gaps, and develop an integrated strategy towards an international sustained ITF Observing System. It is necessary the development of a coordinated strategy for international collaboration between existing and planned observational and modeling studies to improve estimates of variability of ITF mass and heat transport on time scales of relevance to climate. Yukio Masumoto, co-chair of the Indian Ocean Panel (IOP), presented a proposal that IOP and the Pacific Panel would jointly submit to the CLIVAR Scientific Steering Group (SSG) to setup an ITF Task Force.

**ACTION:** Submit to the SSG, jointly with IOP, proposal of ITF Task Force (**Janet Sprintall, Yukio Masumoto, co-chairs**)

**ACTION:** discuss with SSG on the possibility of making the ITF Task Force a long term body to oversee the sustained observation of the ITF (**co-chairs**)

#### **4. South Pacific Session**

Another important topic of discussion that would orientate the focus of the Pacific Panel activities in the near future is about the South Pacific Region. Axel Timmermann presented some of the work being done on regional sea level trends in the Indo-Pacific region. Recent regional sea-level trends in Indo-Pacific are largely wind-driven and there is a robust regional sea-level response pattern to CO<sub>2</sub> doubling which emerges as a response to SST-induced changes in wind-stress curl (Ekman pumping). Wind-induced sea-level changes can delay sea-level rise in some regions in the Southwestern Pacific by up to several decades. Some models do not capture well the magnitude of recent sea level trends although the pattern of those trends is well captured. There is a strong opportunity for the Pacific Panel to further explore links with sea level research community.

**ACTION:** Prepare a Pacific Regional climate change synthesis paper on behalf of the Pacific Panel (**Axel Timmerman**)

Matthieu Lengaigne reported on the International workshop on the South Pacific Convergence Zone (SPCZ) that was held in Samoa from 24-26 August 2010. Thirty participants attended the workshop which brought together the world's leading experts on the SPCZ together with representatives from the National Meteorological Services in those partner countries impacted by the SPCZ. This workshop was the first international meeting on the SPCZ and was supported by the Pacific Panel and sponsored by the Pacific Climate Change Science Program (PCCSP) and several other international organisations. The objectives of the workshop were to discuss: (i) Structure and other properties of the SPCZ; (ii) Impact of the SPCZ on the region; (iii) Underlying physics of the SPCZ; (iv) Variability and trends in SPCZ properties; (v) Ability to simulate the SPCZ using climate models; and, (vi) Impact of global warming on the SPCZ to advance the understanding of the structure, physics, properties and impact of the SPCZ together with its simulation.

The main gaps in research identified at the workshop were the need for a detailed history of the advancement in our understanding of the identification and understanding in of the SPCZ and an increased understanding of the reasons why the SPCZ exists, especially the role of orographic forcing, air-sea coupling and synoptic variability. Also it is necessary to understand the extent to which air-sea coupling is important to the existence of the SPCZ and role of local coupling in SPCZ changes. Three main follow-up actions have been agreed at the workshop: (i) development of a review paper on the SPCZ based on the workshop, with (ii) promised individual papers by the participating scientists, and (iii) the setting up of an e-discussion group to keep all participants involved in the development of the science on the SPCZ. Other specific actions were (i) the definition of simplified atmospheric model runs to improve understanding of the cause the SPCZ; (ii) regional modelling to improve understanding of the role of synoptic activity and impact of climate change on SPCZ characteristics; (iii) AGCM sensitivity experiments to infer the role of orography forcing; and, (iv) radio-sounding to improve our knowledge of vertical atmospheric profile (especially humidity) in the SPCZ region.



**ACTION:** Prepare a Review Paper on the South Pacific Convergence Zone (**Scott Power**)

**ACTION:** Develop a Framework and coordinated analysis of atmospheric experiments for the SPCZ (**Matthieu Lengaigne, Ken Takahashi**)

Boris Dewitte presented the main objectives of a new research proposal (FOCUS) on climatic forcing of the upwelling systems of the South-Eastern Pacific. The panel has welcomed the presentation and as for Boris request on comments, the panel tasked Boris to circulate the science proposal to panel members.

**ACTION:** Circulate FOCUS science proposal to panel members for comments (**Boris DeWitte**)

## **5. Western Boundary Currents Session**

A third focus of the Pacific Panel is on projects being developed on the Western Boundary Currents (WBC) systems. Several projects are in place in the region and the Pacific Panel is promoting the coordination of those projects in order to identify gaps in the understanding of the circulation in the region and their possible impact on climate. Billy Kessler is measuring the New Guinea Coastal Undercurrent with ocean gliders, as they are the only way to measure these narrow, close-to-shore currents. As they are small and relatively cheap, it is shown that these autonomous instruments can produce a time series if measurements are done routinely at low cost. The New Guinea Coastal Undercurrent and its variation has been a major gap in ENSO diagnosis and the link between extra-tropics and tropics. This gap is now being filled. However, there is a need for sustaining these observations.

**ACTION:** Inform OOPC on the scientific needs to advocate for sustained glider observations in Solomon Seas (**Billy Kessler, Toshio Suga**)

Alex Ganachaud presented the latest results of the Southwest Pacific Ocean Circulation and Climate Experiment (SPICE). SPICE is one of the CLIVAR endorsed projects. The two overall objectives of SPICE are to understand the southwest Pacific in climate, and to understand local oceanic environment influences. Intensive efforts in observations and modelling are underway in the Coral Sea, Solomon Sea and Tasman Sea. New findings show that currents in the region can be very deep, with a large variability. The way SPICE was envisioned makes it the ideal project to observe and measure this variability. Alex also mentioned about the planning stages of South Pacific Ocean Time Series (SPOT) station, similarly to the Hawaii Ocean Time-series (HOT).

**ACTION:** Propose session on SPICE/SPCZ at the 10ICSHMO (**Alex Ganachaud, Matthieu Lengaigne**)

The Northwestern Pacific Ocean Circulation and Climate Experiment (NPOCE) is another CLIVAR endorsed project, and Lixin Wu presented an update on their activities. A successful cruise to the western Pacific to deploy two moorings at 18N and 8N and launch Argo floats and drifters has taken place, and a new “973” project just funded and committed to deploy one mooring at 18N. NPOCE has also organised an extended workshop entitled “Multi-scale and multi-disciplinary processes in the Western Pacific” was held in Qingdao, in June 2010. Lixin has also briefly presented the outcomes of the “International Symposium on Boundary Current dynamics: its connection with open-ocean and coastal processes and responses to global climate change.” It was a well attended workshop with 52 oral and 38 poster presentations, and a meeting summary will be submitted to BAMS, and a special JGR issue is also being planned.

Bo Qiu presented plans and updates on the OKMC (Origins of the Kuroshio and Mindanao Current) Project. OKMC plans to address several scientific questions: What is the impact of NEC-MC-Kuroshio variability on the ambient circulations (e.g. ITF, NECC, Mindanao C. bifurcation)?; In contrast to the baroclinic vorticity dynamics, what roles do the nonlinear ocean dynamics play? Compared to dynamics, our understanding of the regional thermodynamics is less advanced, e.g. barrier layer formation, eddy heat transport, subducted spiciness signals, etc... There are plan to use gliders for two years to monitor the currents in the region. Bo Qiu also presented a new project, which is part of the Korean-led GAIA (Tropical Western Pacific Climate Experiment) project, and is being developed by Kelvin Richards – MIXET (Mixing in the Equatorial Thermocline). MIXET plans to deploy moored instruments in addition to several cruises in the western Pacific.

Toshio Suga presented some of JAMSTEC's current and planned observational activities in the Pacific region as well as a new Japanese initiative on extra-tropical air-sea interaction study. This funded project on extra-tropical air sea interaction is being led by Hisahi Nakamura. The rationale for this project is that warm WBCs transport heat from the tropics into mid-latitudes to release into the atmosphere intensively on the warmer sides of oceanic frontal zones (OFZ). Along "storm-tracks" that tend to be anchored around the major OFZs, atmospheric eddies recurrently develop to transport heat into higher latitudes. This project has several components on ocean-atmosphere observations to better understand the interaction in the East-Asian Monsoon region.

The panel discussed synergy, science and logistics coordination for all ongoing projects in the WBC region. It is felt that experiments should be moving towards routine monitoring, with time series. IMOS has provided five years of funding and observations with glider and moorings have been funded. There are some particular regions that have few observations but are difficult to setup process studies. The formation of Equatorial Undercurrent is a typical example. The region north of New Guinea could be a good candidate area, and using instrumentation part of NPOCE might be the best way to proceed.

**ACTION:** Consider review paper on Western Boundary Currents and impact on climate for submission to BAMS (**Lixin Wu, Bo Qiu, Alex Ganachaud, Billy Kessler, Janet Sprintall**)

**ACTION:** Discuss with NPOCE PIs the possibility of investigating the formation of the Equatorial Undercurrent in the region north of New Guinea (**Lixin Wu, Wenju Cai**)

## **6. Panel Business Session**

Billy Kessler has raised the issue that information in the Argo float drift data is very important but it is not made available. The Pacific Panel should contact the Argo Science Team and stress the importance of such data.

**ACTION:** Write to the Argo Steering Team about Argo trajectory files (**Billy Kessler, co-chairs**)

The panel has discussed a greater engagement with "green" programmes, particularly with PICES. Toshio Suga made a brief presentation on the CLIVAR Pacific activities at the 2010 PICES Annual meeting, and proposed possible collaboration between the CLIVAR Pacific Panel and PICES at the POC (Physical Oceanography and Climate Scientific Committee) of PICES. The POC is very interested in co-sponsoring a session with the Pacific Panel possible in

the PICES annual meeting in autumn, 2012, which will be held in Hiroshima, Japan. The Pacific Panel may contribute to the ICES-PICES-WCRP symposium during the ocean EXPO-2012, probably through SOC (CLIVAR SSG co-chair and ICPO director are CLIVAR's representatives) of the symposium. An invitation for a PICES representative to the next panel meeting was also welcomed.

**ACTION:** Propose joint session at the Annual PICES meeting (**Toshio Suga, co-chairs**)

**ACTION:** Invite PICES representative for next PP meeting (**co-chairs**)

The Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems (FUTURE) project is a contributing regional programme to IMBER and thus seems a place where CLIVAR PP can find a way to collaborate with IMBER. Hiroaki Saito is the chairman of FUTURE's Advisory Panel on Climate, Oceanographic Variability and Ecosystems (COVE) so it will be the best contact for any collaboration.

**ACTION:** Contact Hiroaki Saito to develop links between FUTURE and PP (**Toshio Suga**)

Another opportunity for collaboration is with the PACIFICA project. PACIFICA is the synthesized database of CO<sub>2</sub> and its related parameters for the interior of the Pacific Ocean. It now includes data sets from 265 cruises including the total of 14 cruises of CLIVAR Repeat Hydrography and many of several repeat lines such as 137°E, Line-P, station KNOT and A-line that is not in GLODAP. Masao Ishii is the leading expert in PACIFICA.

**ACTION:** Contact Masao Ishii about PACIFICA and seek collaboration with PP (**Toshio Suga**)

Toshio Suga, also a member of the Ocean Observations Panel for Climate (OOPC), reported on their activities and decision of their last meeting. One important issue that the Pacific Panel can contribute is to improve societal relevance of OOPC ocean climate indices by encouraging feedback on the "WikiClimateImpacts" project with specific impacts on South America.

**ACTION:** Panel members to review OOPC Impact pages and provide feedback to OOPC (**all**)

**ACTION:** Include examples on impacts for Western South America on OOPC's webpage. (**Rodney Martinez**)

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## MEETING PARTICIPANTS

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**6<sup>TH</sup> PACIFIC PANEL MEETING  
GUAYAQUIL, ECUADOR  
15 – 16 OCTOBER 2010**

**AGENDA**

**Thursday 14<sup>th</sup> Oct 2010**

19:30hs: pre-panel meeting dinner (Hampton Inn)

**Friday 15<sup>th</sup> Oct 2010**

**8.30-9.00** Welcome and Logistics (*Wenju Cai, Alex Ganachaud & Rodney Martinez*)

- Action items from PP-5, JSC-31 and SSG-17 (Nico Caltabiano)
- Introduction to WCRP Implementation Plan and Strategy

**1. ENSO**

**09:00-09.20** ENSO evaluation for IPCC AR5: strategy and plan (*Matthieu Lengaigne for Eric Guilyardi*)

**09.20-09.40** ENSO and Climate Change: Perturbed Physics Ensemble (*Matt Collins*)

**09.40-10.00** Impact of mean state on ENSO properties (*Soon-Il An*)

**10.00-10.20** Coffee/Tea Break

**10:20-10.40** Advances in seasonal prediction at ECMWF (*F. Molteni via videoconference*)

**10.40-11.00** ENSO and Climate change related vulnerability in South America (*Rodney Martinez*)

**11.00-11.40** Discussion

**2. INTERBASIN LINKAGES**

**11.40-12.00** The Indian Ocean Observation system and synergies with the Pacific observation capability (*Mike McPhaden*)

**12:00-13:00** Lunch

**13:00-13.20** Toward a sustained ITF observation system: need and strategy (*Janet Sprintall*)

**13:20-13.40** ITF Working Group, tropical-buoy observation and CINDY (*Yukio Masumoto*)

**13:40-14:40** Discussion on ITF WG membership, objectives and agenda

### **3. SOUTH PACIFIC**

**14.40-15.00** Sea level projection of the Pacific Ocean (*Axel Timmermann via videoconference*)

**15.00-15.20** Coffee/Tea Break

**15.20-15.40** SPCZ workshop (Matthieu Lengaigne)

**15.40-16.00** Regional atmospheric interaction associated with the SPCZ (Ken Takahashi)

**16.00-16.20** Climatic forcing of the upwelling systems of the South-Eastern Pacific: The FOCUS project (Boris Dewitte)

**16.20-17.30** Discussion

- What can the panel do to help

**Saturday 16<sup>th</sup> Oct 2010**

#### **1. WESTERN BOUNDARY CURRENT**

**08.30-08.50** Ongoing glider observations of the SW Pacific equatorward WBC system (*Billy Kessler*)

**08.50-09.10** SPICE updates (*Alex Ganachaud*)

**09.10-09.30** NPOCE progress and outcomes of Qingdao WBC workshop (*Lixin Wu*)

**09.30-09.50** OKMC, plan and progress (*Bo Qiu*)

**09.50-10.10** JAMSTEC current and planned observational activities and a new Japanese initiative on extra-tropical air-sea interaction study (*Toshio Suga*)

**10.10-10.30** Coffee/Tea Break

**10.30-11.30** Discussion: synergy, science and logistics coordination

#### **5. PANEL BUSINESS (All welcome)**

**11.30-11.50** Links with green programs and FUTURE (Scientific Program of PICES) (*Toshio Suga*)

**11.50-12.00** Report on OOPC activities (*Toshio Suga*)

**12.00-13.30** Panel Business (*Wenju Cai and Alex Ganachaud*)

- review papers
- revision of PP objectives
- action items and next meeting