

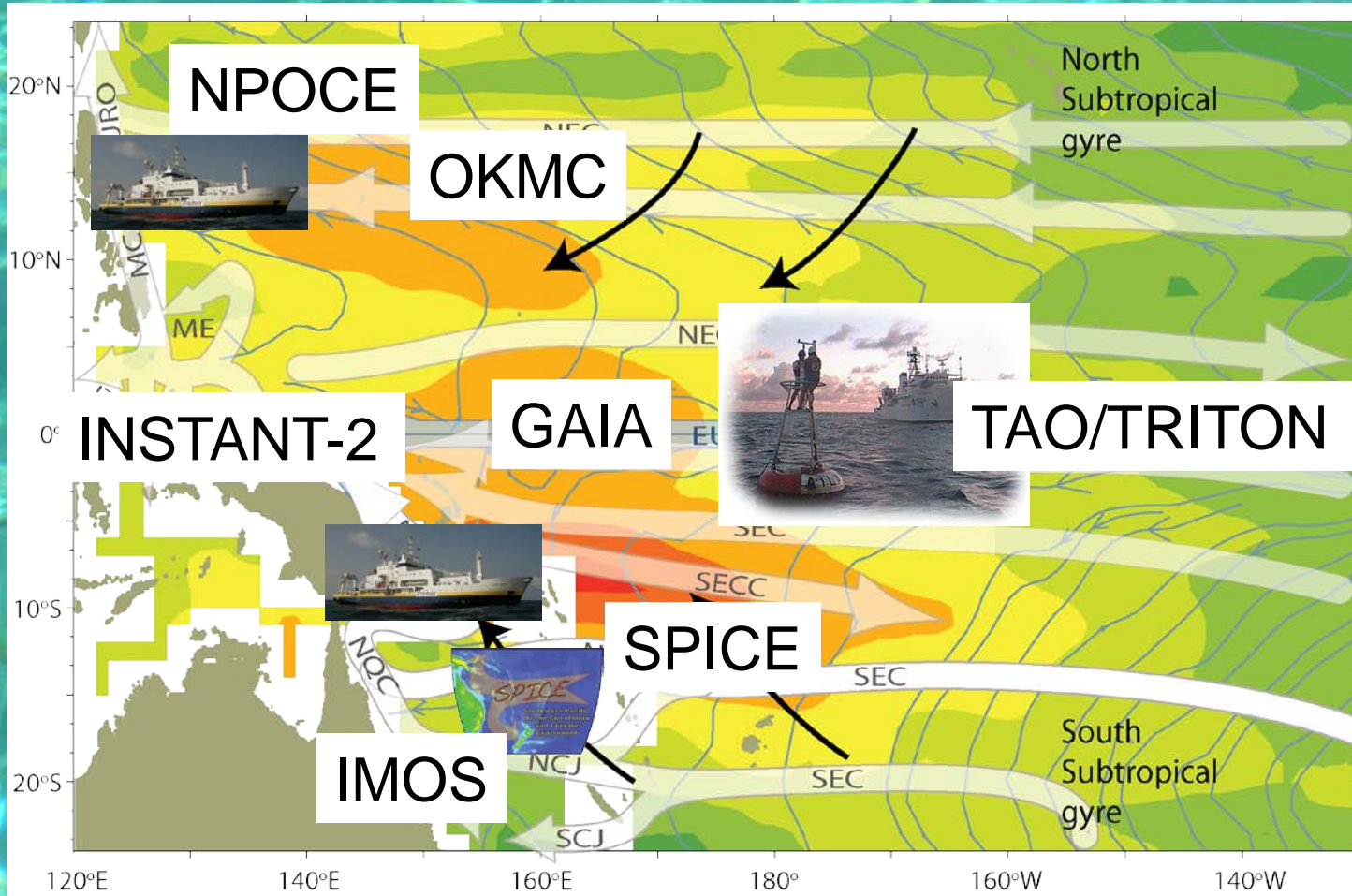


Pacific Panel Update

New terms of reference:

1. To oversee and facilitate the implementation of CLIVAR in the Pacific sector in order to meet the objectives outlined in the Science and Implementation Plans particularly with respect to: Improving ENSO predictions, ENSO dynamics on all timescales, Tropical-extratropical interactions, **Dynamics and impacts of the South Pacific Convergence Zone, Boundary current dynamics and impacts**, Indo-Pacific and Pacific-Atlantic Connections, Climate change prediction/detection and attribution, **Tropical cyclones, Sea level variability and vulnerability**
2. To encourage atmospheric 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 broad-scale 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 broad-scale sampling and for sampling locations of high interest, 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 (a) design appropriate numerical experiments; (b) identify major biases in model simulations of the Pacific; (c) 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 act as an oversight body for the expansion of TAO-TRITON.
8. To advise the CLIVAR SSG of progress and obstacles towards successful implementation of CLIVAR in the Pacific.

An upcoming West Pacific coordination for studying Warm Pool and Western boundary Currents



CLIVAR Newsletter, 2010

Progress from Southwest Pacific Ocean Circulation and Climate Experiment: SPICE (A. Ganachaud)

SPICE Main Objectives

- 1- Understand the southwest Pacific in climate
- 2- Understand local oceanic environment influences

Gliders
 (2005/06 and 2007/10)
Gourdeau et al., 2008
Kessler et al., talk

Cruise FLUSEC
 (2007)
Maes et al., 2010

XBT and Argo floats
 (2008-2010)
Maes et al., poster

Models:

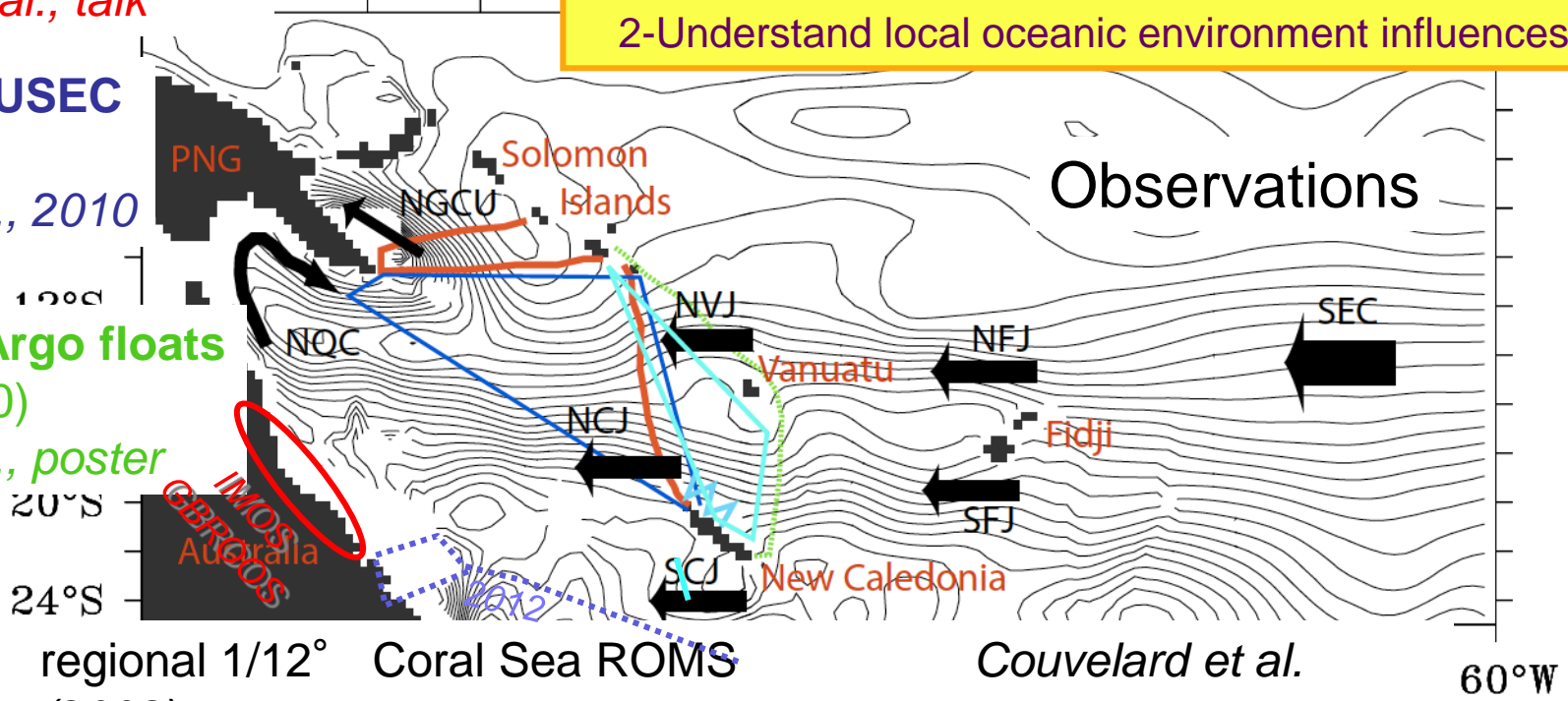
regional 1/12° Coral Sea ROMS (2008)

regional 1/12° Solomon Sea ORCA

Bluelink 1/10°

Couvelard et al.

Melet et al. (2010a, c)



SPICE: Future plans

Modelling

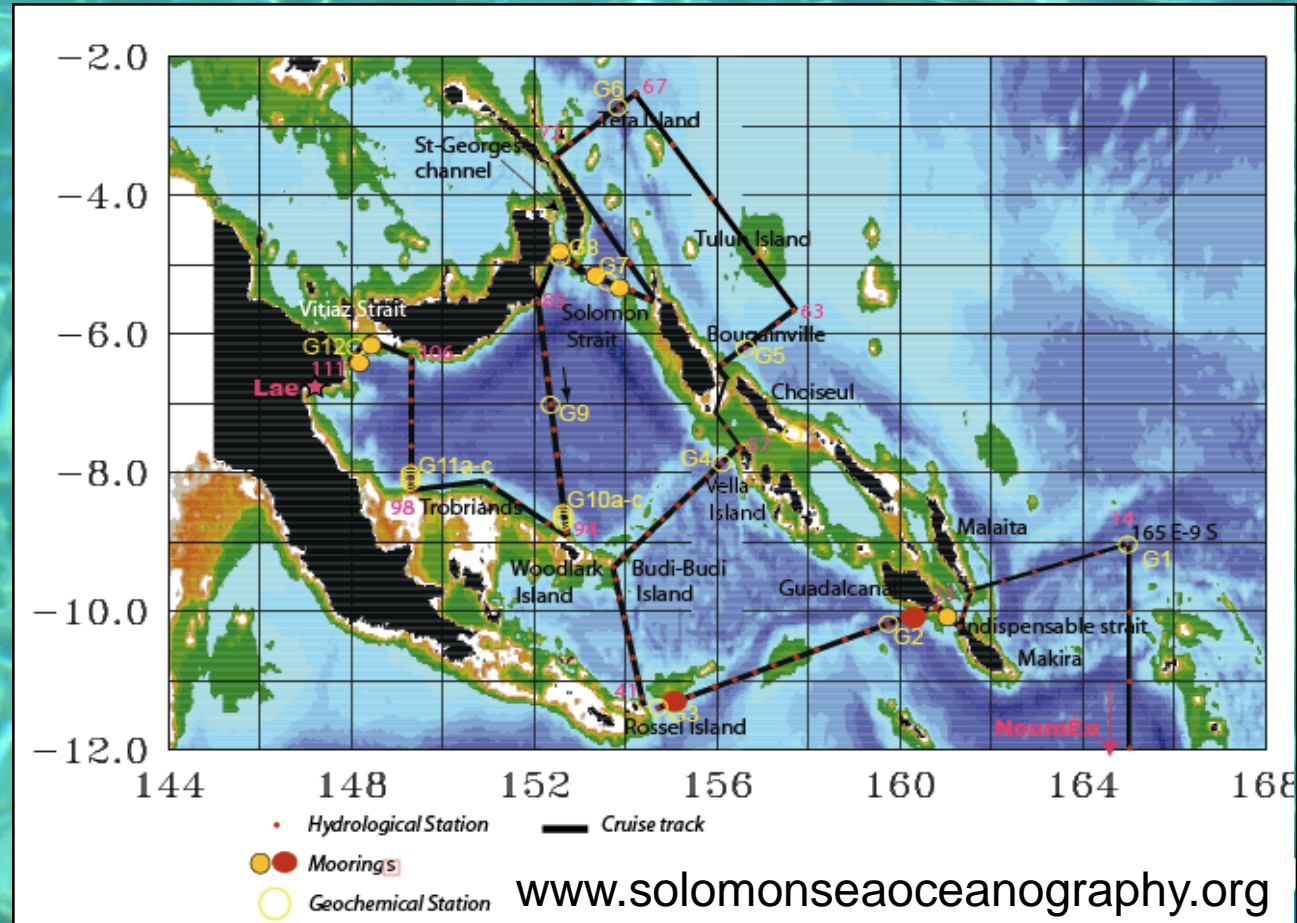
1/20° in Solomon Sea with ROMS (*McWilliams, Kessler, Chao, Hristova*)

Data assimilation in ORCA 1/12° in Solomon Sea

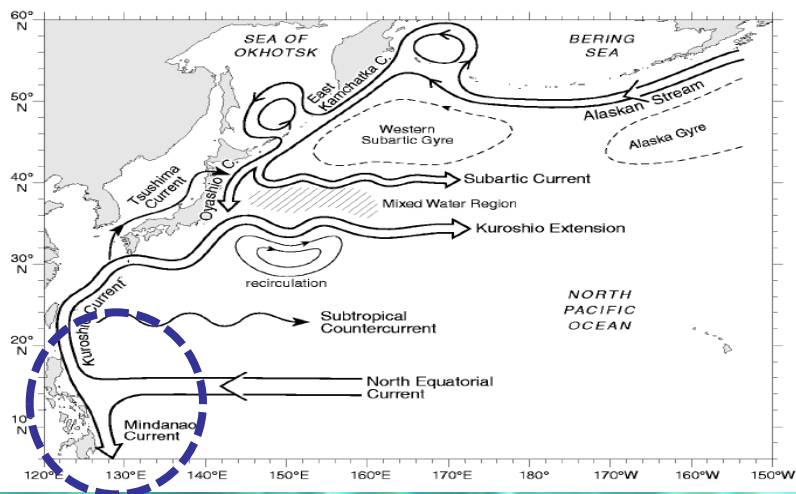
Observations:

Solomon Sea moorings

Multidisciplinary cruises



OKMC Project: Origins of the Kuroshio and Mindanao Current



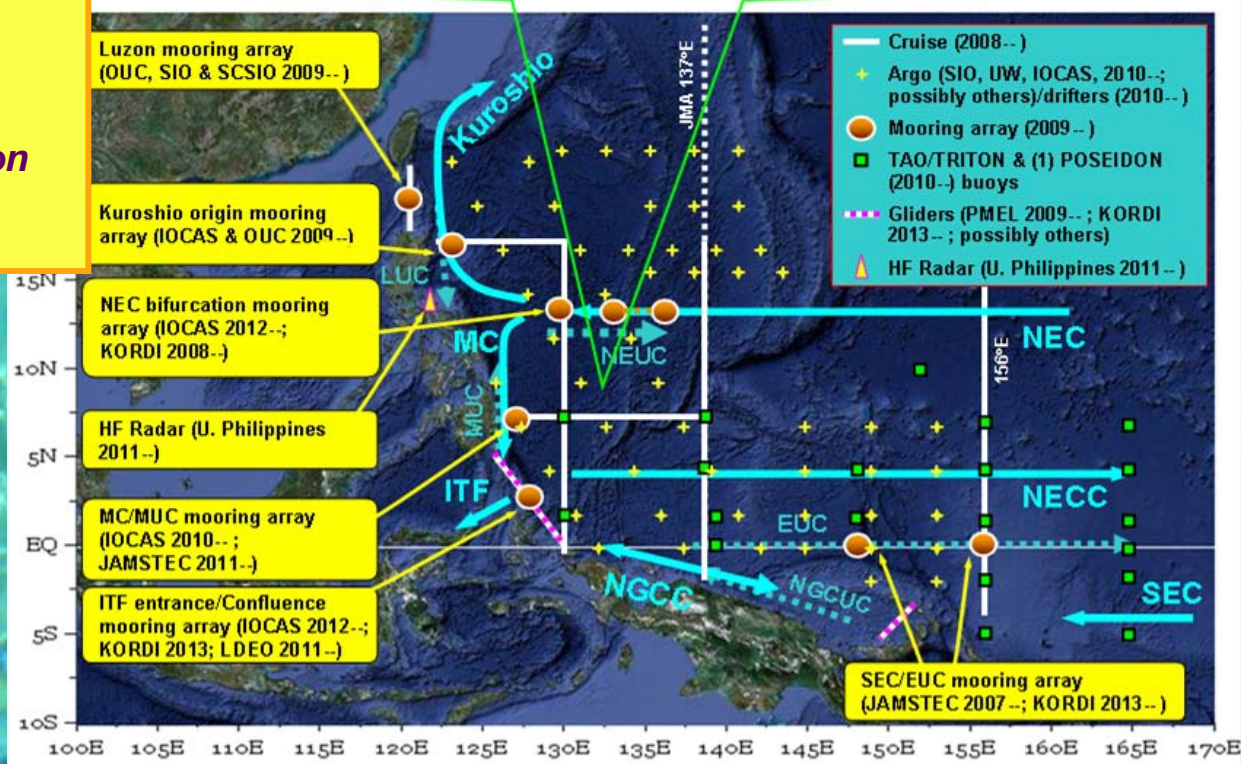
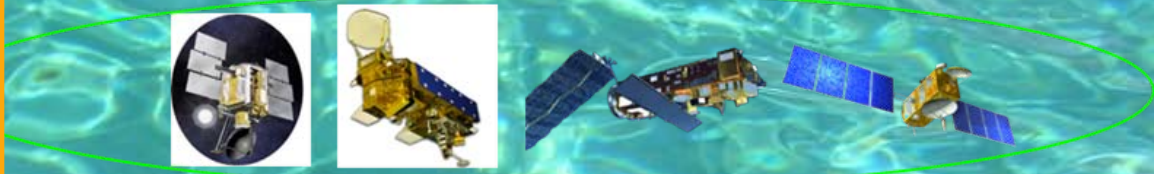
- Goals:
 - What is the impact of NEC-MC-Kuroshio variability on the ambient circulations (e.g. ITF, NECC, Mindanao C. bifurcation) ?
 - In contrast to the baroclinic vorticity dynamics, what roles do the nonlinear ocean dynamics play ?
 - Compared to dynamics, our understanding of the regional thermodynamics is less advanced, e.g. barrier layer formation, eddy heat transport, subducted spiciness signals, etc.

- ❑ A collaborative research program funded by ONR-DRI; started in December 2009.
- ❑ Participating US institutions include: SIO, UW-APL, U Hawaii, WHOI
- ❑ In-situ observations include: gliders, surface drifters, subsurface moorings, profiling floats (SOLO-II), other R/V-based measurements
- ❑ Other complementary methods: Satellite altimetry, eddy-resolving numerical modeling, data assimilation
- ❑ Intensive field measurements to take place in 2011-13

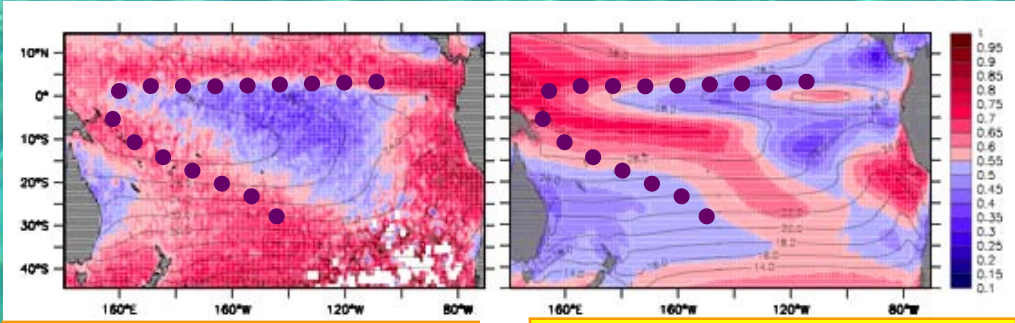
NPOCE Project: Origins of the Kuroshio and Mindanao Current (L. Wu)

Scientific Foci

- The NPOCE scientific foci are archived into four research themes:
- Theme1: *Western Boundary Currents*
 - Theme2: *Interaction with Ambient Circulation Systems*
 - Theme3: *Roles in Warm Pool Maintenance and Variability*
 - Theme4: *Regional Air-Sea Interaction and Climatic Impacts*



PP coordination to improve our understanding of the South Pacific Convergence Zone and its climate impacts

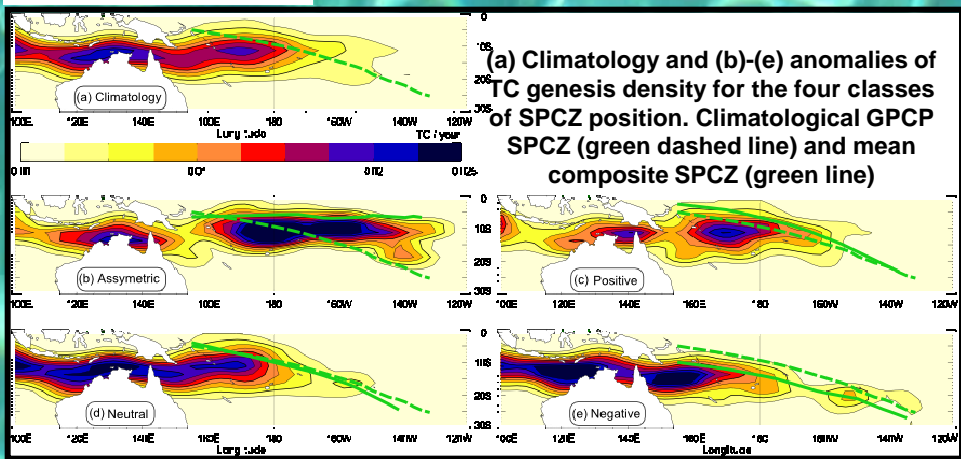


COADS cloudiness 1960-1970

20th century climate model

High convective activity, precipitation, wind convergence
 Achieved Item: SPCZ / PCCSP/CLIVAR workshop: Apia, August 2010
 (S. Power/M. Lengaigne)

Vincent, E. et al. 2010



Action Item:
 Coordinate atmospheric and coupled model experiments to better understand the SPCZ climatology and interannual variability



Pacific Climate Change Science Program

- A \$20 million program to help 14 developing island countries in the Pacific and East Timor gain a better understanding of how climate has changed in the past and how it may change in the future.
- Goals:
 - enhance the capacity of National Meteorological Services in participating countries to rehabilitate climate data (including tropical cyclone data), to document observed trends, and to manage and disseminate climate information for each partner country through the web
 - improve understanding of ENSO, the SPCZ, the ITCZ and the west Pacific monsoon and their impact on participating countries, assess ability of climate models to simulate these “drivers”, and determine how the drivers might change under further global warming
 - provide comprehensive and up-to-date climate change projections of and tailor them for application in vulnerability and impact assessment studies. Projections will be based on WCRP/CMIP3 output, finer-resolution climate models, and statistically downscaled results for selected cities
 - improve understanding of e.g. future changes in ocean temperature, salinity, acidification, and regional variations in sea level rise.



Ongoing ENSO business

- ENSO evaluation for CMIP5
 - Document the performance of ENSO and tropical simulation in CMIP coupled models
 - Help better understanding of processes in model and identify mechanisms
 - Establish Guidance for multi-models ensemble means
- Organisation of CLIVAR workshop in Paris (Nov 2010)
 - 50 participants
 - Produce recommendation for evaluation of ENSO in CMIP5 model



Main action Items

- Agree to provide scientific oversight on evolving and implementing the expansion of TAO Array
- Submit to SSG, in coordination with IOP, proposal for ITF Task Force (J. Sprintall, Y. Masumoto)
- Prepare a review paper on the South Pacific Convergence Zone
- Prepare a Pacific regional climate change synthesis
- Develop a framework and coordinated analysis of modelling experiments on SPCZ
- Consider a review paper on western boundary currents and impact on climate
- Circulate paper on ISV/ENSO relationship
- Discuss the possibility coordinated work on tropical cyclones with other panels