



## TPOS 2020 Monthly Status Report May 2015

### Monthly Status Report (MSR)

Release Date:

June 5, 2015

#### Summary:

This month TPOS 2020 entered a new phase as several of the Task Teams are now well through the process of establishing their memberships and have begun to conduct and schedule meetings. Their initial focus is on determining near-term support needs for in-person meetings and the generation of 'strawman' proposals designed to focus resource generating activities and early needs for cross-project collaboration. The Distributed Project Office members were kept busy supporting these early efforts and evaluating communication and document sharing requirements.

This month also saw the early engagement of the Resources Forum (TRF) as Chairman Craig McLean released two letters to TRF-1 participants. The second of these letters constituted a 'call to action' requesting that members confirm their desire to participate, and sought information required to maximize the opportunity to meet and engage during the remainder of the calendar year.

#### Highlights:

##### Steering Committee/Co-chairs:

- Provided briefs to key community members including the Global Ocean Observing Strategy SC-4 being conducted at the Australian Institute for Marine Science in Townsville, Australia

##### Resource Forum:

- A letter of thanks was sent to TRF-1 participants requesting they review the TRF-1 Report that has now been completed for release
- A call to action letter was also sent from Chair Craig McLean requesting formal membership nominations and self-nomination for a TRF co-Chair

##### Backbone Task Team:

- The inaugural video conference was conducted and plans for an in-person session have been confirmed for September, 2015 along with the drafting of initial strawman plans to help guide planning and resource identification

##### Planetary Boundary Layer Task Team:

- The inaugural video conference was conducted, along with the identification topics for initial strawman plans to help guide planning and resource identification

##### Biogeochemistry Task Team:

- This TT has confirmed all but a few of its members. Discussions for a technology development project are in process.

The Monthly Status Reports can be found at: [www.tpos2020.org/monthly-status-report](http://www.tpos2020.org/monthly-status-report)

#### Additional Information:

Please visit the website at: [www.tpos2020.org](http://www.tpos2020.org)  
Send comments and questions to: [info@tpos2020.org](mailto:info@tpos2020.org)  
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### Release Date: June 5, 2015

The TPOS 2020 Project will evaluate, and where necessary advocate change in all elements that contribute to the Tropical Pacific Observing System (TPOS), based on a current understanding and technical capability. The project aims for enhanced effectiveness for all TPOS stakeholders, and informed by the development and on-going requirements of the operational prediction models that are primary users of TPOS data. TPOS 2020 embraces the integration of diverse sampling technologies, with a deliberate focus on robustness and sustainability, and will deliver a legacy of improved governance, coordination and supporting arrangements.

The Project will work within the Framework for Ocean Observing developed by the Global Ocean Observing System (GOOS) and use GOOS as a reporting mechanism to other relevant intergovernmental coordination mechanisms. A sustainable TPOS will be the principle outcome and legacy for GOOS. As such, TPOS 2020 will operate primarily as an independent Project and work through its sponsors to ensure all dependencies and links are appropriately managed. Four primary elements are included in the governance of the Project:

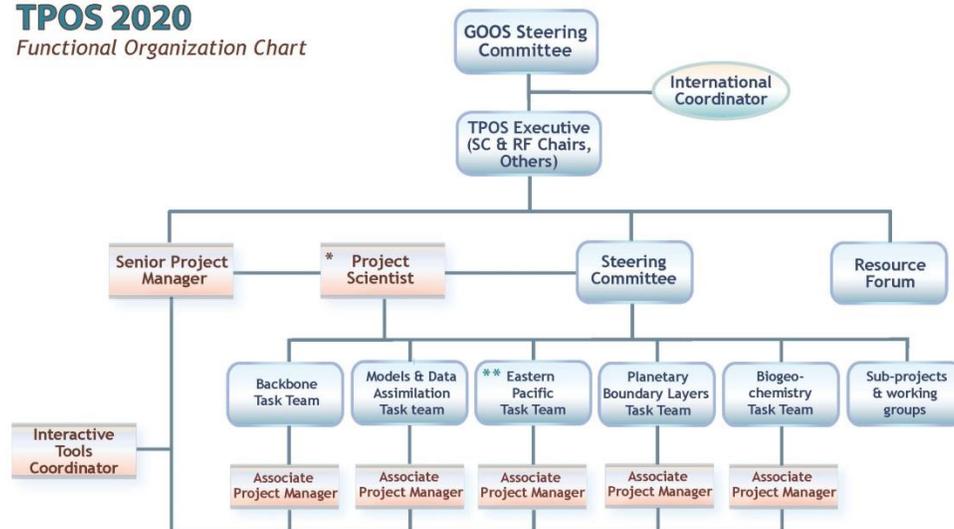
- A TPOS 2020 Steering Committee responsible for oversight, coordination, and guidance to the Task Teams, Sub-projects and Working Groups.
- A Resources Forum drawn from sponsors and responsible for coordinating resources.
- An Executive populated from the leadership of the above and responsible for reporting.
- A Distributed Project Office focused on coordination activities, supported and resourced by the sponsors.

It is through its partnerships and governance structure that TPOS 2020 will design a modern, sustained tropical Pacific observing system that meets both science and societal needs.

The project prospectus can be located online at: [www.tpos2020.org/prospectus](http://www.tpos2020.org/prospectus)

### TPOS 2020

Functional Organization Chart



\* This role is currently being explored and developed

\*\* This Task Team and its role are still under consideration

## KEY ACCOMPLISHMENTS AND NEAR-TERM PROJECT MILESTONES

### **Steering Committee**

- Co-Chairs: Dr. Neville Smith, Retired / Dr. William “Billy” Kessler, NOAA PMEL

#### Current Month Activities:

- Billy Kessler briefed NOAA NCEP, CPC leadership via teleconference
- A TPOS 2020 Overview document was prepared for the GOOS SC-4 meeting on May 24-26, 2015
- Billy Kessler briefed the GOOS SC via videoconference on May 22, providing a science overview, project office status, and the importance of resource forum engagement
- Bilateral sessions are being coordinated among Resource Forum members to be conducted during the IOC Assembly Sessions in Paris conducted during June 18-25, 2015

#### Upcoming Activities:

- Conduct planning for the SC-2 meeting in Hobart Australia on 14-17 October
- Consult on and approve TPOS 2020 Engagement Plan
- Finalize the Modelling and Data Assimilation TT to address questions and concerns and formalize chairmanship and scope and strategy
- Work with Sub-groups and Working groups to establish leadership and scope (eg Eastern Pacific TT; proposed upwelling project)
- Support formation of TT, Sub-groups, and Working Group membership formation and approval
- Work with TRF leadership, SC and TRF members to articulate a strategy and initial plans for engagement

#### Last Month's Activities:

- Launched negotiations with the First Institute of Oceanography (FIO) with the possible goal of establishing in-kind support for a Distributed Project Office (DPO) node to be located at the International CLIVAR office in Qingdao, China in late 2015.
- Conducted SC-1 Interim videoconference. Actions are being reviewed by the SC and tracked by the DPO.
- Weidong Yu provided a TPOS 2020 brief to the OOPC.
  - Addressed CLIVAR questions regarding linkages among modeling groups and experts and TPOS 2020. While there is some involvement among the modeling community it is somewhat strained by an existing over-commitment among its members. It is expected that the DPO node hosted inside CLIVAR ICGPO will help with more efficient communications.
  - It was suggested to look to the CLIVAR Indian Ocean Panel experience in getting modellers in the planning loop.
  - It was suggested that TPOS 2020 present at the GODAE meeting later this year.
  - The question of data management and document access was raised.
- Contributed to a session abstract to be conducted at the Ocean Sciences Meeting in 2016 titled: “Regional and thematic innovation supporting global sustained ocean observing.”
- Billy Kessler met with NOAA Climate Working Group, which reports to the NOAA Scientific Advisory Board.
  - Discussion of existing budgets and timelines for getting funding for studies in time to be meaningful to the project
  - Discussion of importance of not rushing the process and making sure the science goals and efforts target the needs of the modelling and forecasting centers, along with research.
  - Discussion on engagement of operational community and coordination across agencies
  - Discussion on the importance of process studies in order to understand the parameters that need to be fed into the models

#### Published/Posted Materials:

- Mar. 2015: Published article in WMO Bulletin: “Progress in Observing and Predicting ENSO”, (Vol 64 (1) –

2015)

- Feb. 2015: US CLIVAR Variations: “ENSO observing system: Past, present, and future”
- Dec. 2014: TPOS 2020 Project Prospectus
- Dec. 2014 TPOS 2020 SC-1 Report
- Mar. 2014: Terms of Reference for TTs

Project Function:

The SC will provide scientific and technical oversight for the planning, system design, and implementation of the TPOS. This group will assess the evolving set of requirements through dialogue with relevant users and stakeholders, and coordinate a set of (pilot) projects designed to test and evaluate options. The SC will assess potential technology options for delivering a more effective and efficient TPOS including relevant scientific/expert panels and bodies. Together with the Resources Forum, the SC will manage communication and reporting.

Point of Contact:

Sr. Project Manager, Andrea McCurdy-> amccurdy@oceanleadership.org

## **Resources Forum**

- Chair: Craig McLean, NOAA Oceanic and Atmospheric Research

Current Month Activities:

- A letter of thanks and acknowledgment was sent from Interim Chair Craig McLean to participants of the initial Resource Forum teleconference held in October, 2014
- A second letter was also sent from Interim Chair Craig McLean requesting the following information be provided by mid-June:
  - A formal nomination of a Resource Forum member
  - A formal point of contact
  - A list of possible meeting venues; allowing for more formal conversations among Resource Forum members
  - A nomination, or self-nomination of a co-Chair to serve with Craig
- TRF-1 Report Released version was prepared

Upcoming Activities:

- Bilateral meetings among members of IOC Assembly attending the session in Paris, France
- Formal Membership confirmed
- 2015 Milestones and opportunities for meetings reviewed by members

Last Month's Activities:

- TRF-1 Report Consultative Draft prepared for member distribution and review

Published/Posted Materials:

- Mar. 2014: Terms of Reference (available on the TPOS 2020 website)

Project Function:

The TPOS 2020 TRF will facilitate and coordinate the provision of resources by member institutions required to advance TPOS 2020 activities based on recommendations from, and in consultation with, the TPOS SC. It will promote and encourage contributions from institutions, Official Development Assistance agencies, participating and non-participating countries, and expand membership of the TRF as necessary; including the exploration of bilateral and multi-lateral partnerships. The TRF will coordinate resources that may be applied to the TPOS, including necessary observing research, technology development/testing, modelling, scientific analysis, infrastructure (e.g., ship resources and/or deployment of observing assets), along with Project

Management and travel support.

Point of Contact:

Sr. Project Manager, Andrea McCurdy-> [amccurdy@oceanleadership.org](mailto:amccurdy@oceanleadership.org)

## **Executive**

This Month's Activities:

- No reported outcomes this month

Upcoming Activities:

- Formal responsibilities and ToR to be drafted in March and April

Published/Posted Materials:

- There are no published materials at this time.

Project Function:

Under development by the SC Co-chairs and TRF Chair

Point of Contact:

Sr. Project Manager, Andrea McCurdy-> [amccurdy@oceanleadership.org](mailto:amccurdy@oceanleadership.org)

## **Backbone Task Team**

- Co-Chairs: Susan Wijffels, CSIRO / Sophie Cravatte (SC Member), Centre IRD de Noumea

This Month's Activities:

- The inaugural video conference was conducted via WebEx among TT members and co-Chairs from other Task Teams
- Co-Chairs are creating near and mid-term meeting schedules, the next WebEx session is scheduled for June 23
- A second teleconference is planned for June and an in-person meeting is planned for September 16-18, 2015 in Noumea, New Caledonia
- Based on information provided by Arun Kumar a draft image has been created demonstrating the status of operational systems.
- Based on an estimated costing table of the various observations of TPOS the TT is creating strawman designs (from delivery to data)

Upcoming Activities:

- Susan Wijffels to approach GODEA to see if TPOS could get on the agenda in OceanView GODEA workshop in Sydney on November, to either make a presentation or have a little workshop on the side.
- Susan Wijffels, Sophie Cravatte and Billy Kessler to write a proposal for the Office of Climate in NOAA to ask support and expertise for data synthesis for TPOS
- Ken Ando to contact Dr Fuji to see if he would be interested to participate in the activities for the data synthesis project.

Last Month's Activities:

- The first Back Bone Task Team (BB TT) telecom was held on the 29/04/2015 with some co-chairs of the other task teams attending.
- The meeting was recorded and a written record is being prepared with an action items list.
- Assignments were given to subgroups of the BB TT to develop strawman designs for each individual requirements of the BB TT given by the SC

- The BB TT also reviewed and proposed slight revision to language provided in their ToR.
- Upcoming meetings were proposed and preliminarily agreed to:
  - A second meeting will be held in 5 weeks from the first meeting where the subgroups will present their strawman design and will be discussed in the group.
  - A face to face meeting is planned for the end of August beginning of September.

Published/Posted Materials:

- Dec. 2014: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes)

Project Function:

Through an integrated approach the Backbone TPOS will achieve its objectives through a combination of in situ and remote sensing approaches, augmented as appropriate with advice from models and data assimilation. Sampling for the Backbone has as its goal to:

- Observe and quantify the state of the ocean, on time scales from weekly to interannual/decadal;
- Provide data in support of, and to validate and improve, forecasting systems;
- Support calibration and validation of satellite measurements;
- Advance understanding of the climate system in the tropical Pacific, including through the provision of observing system infrastructure for process studies; and
- Maintenance and, as appropriate, extension of the tropical Pacific climate record.

Point of Contact:

Associate Project Manager, Ana Lara-Lopez-> Ana.Lara@utas.edu.au

### **Planetary Boundary Layers Task Team**

- Co-Chairs: Meghan Cronin, NOAA PMEL / Tom Farrar (SC Member), WHOI

This Month's Activities:

- Inaugural video conference conducted on May 18, well attended and productive
- Creating strawman overview documents on three separate topics:
  - Sustained TPOS PBL observations
  - Process studies
  - Climate Process Teams
- Consulted with SC member Bill Large on optimal modeler/modelling community involvement

Upcoming Activities:

- Second WebEx session scheduled for June 4, 2015
- Approve drafted strawman documents and distribute as appropriate
- Determine need for an in-person meeting this year, potentially prior to the SC-2 session in Hobart

Last Month's Activities:

- TT member letters of invitation were drafted and sent
- Online document sharing environment established
- Teleconference with Bill Large (SC member) and Gokhan Danabasoglu, Meghan Cronin, and Tom Farrar to explore the best way to secure modeler involvement, given the challenges in soliciting members thus far.

Published/Posted Materials:

- Dec. 2014: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes)

Project Function:

The observational needs regarding improved monitoring and modelling of ocean surface and near-surface processes are likely to have two components: sustained detailed observations and process studies. It is the

role of this Task Team to identify which requirements are best met via a sustained observing effort (> 5 years-11), and which can be addressed with specific short-term process campaigns.

Point of Contact:

Deputy Project Manager, Lucia Upchurch-> lucia.upchurch@noaa.gov

## **Modelling and Data Assimilation Task Team Discussion (recorded from SC-1 Interim call)**

This Month's Activities:

- Ongoing exploration of how to best meet the needs of the modelling community, several ideas have been generated and solutions being discussed and follow-up activities underway

Upcoming Activities:

- Explore the feasibility of identifying a rapporteur in key modelling groups that can report back to TPOS 2020 on their activities and possible linkages. These may or may not be TT members.
- Explore how TPOS 2020 might benefit from the recently announced ONR model improvement project EoI. As well as identify potential collaborations among TPOS 2020 members interested in participating. (Note: Dake suggested there are groups within China that may be interested in responding.)
- SC Members to generate short summaries of what they perceive as TPOS M&DA needs, and how we might go about meeting those needs.

Last Month's Activities:

During the SC-1 Interim Teleconference a discussion of TT modeling approach and needs were discussed:

- Planetary Boundary Layer TT:
  - Desire to come up with a plan that makes sense for modellers even if the choices are not made directly from their perspective.
  - Need input from what forecaster need
  - Still discussing how to represent modelling in TT
- Biogeochemistry TT:
  - This TT has two modellers on board and they feel quite good about this expected contribution
  - They see the interaction as one that requires two directions: They need input on what are parameters that will result in the best progress on improvement and the TT will give advice on the observing system's ability to measure.
- Backbone TT:
  - They have a modeller on the TT but they will likely not be able to fill the gap completely given the breadth of their needs.
  - They see four things that they will require from the modelling TT:
    - Interaction on model initialisation
    - Interaction on model validation
    - Process requirements for improving parameterizations
    - Look to using high resolution models to assist with sampling design experiments
- Eastern Pacific:
  - They have two needs:
    - Data leading to better forecasts, removing the biases that are strong in this region
    - Improvement through process studies and then the support of a TAO line at 95W based on study outcomes

Published/Posted Materials:

- Dec. 2014: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes)

Purpose in Project:

A significant fraction of the observational effort will need to be directed towards improved understanding of processes and mechanisms, which in turn should be coordinated with a program of improved model parameterisations and reduced systematic error; an additional benefit is that such data/model studies also contribute to improved design and reduced inefficiencies of the observing system.

Point of Contact:

Associate Project Manager, Hannah Dean-> hdean@oceanleadership.org

**Biogeochemistry Task Team**

- Co-Chairs: Adrienne Stutton, NOAA PMEL / Pete Strutton (SC Member), Univ. of Tasmania

This Month's Activities:

- Membership has been confirmed with the exception of a few remaining slots
- Discussions are underway for a technology development proposal and study

Upcoming Activities:

- Membership completely formed
- High-level schedule agreed to
- Strawman and funding proposal drafted

Last Month's Activities:

- Ongoing discussion of membership and associated invitation activities
- Agreed to begin exploring strawman strategies

Published/Posted Materials:

- Dec. 2014: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes)

Project Function:

The role of the Biogeochemistry Task Team (BGCTT) is to evaluate and recommend the most promising focii, and to provide advice on possible solutions. The Biogeochemistry Task Team will begin with carbon biogeochemistry as its core scientific concern. Here will be the consideration of the term biogeochemistry to include primary productivity (noting that the Backbone Observing System likely includes ocean color satellites) but not higher trophic levels (zooplankton to fish).

Point of Contact:

Associate Project Manager, Ana Lara-Lopez-> Ana.Lara@utas.edu.au

**Eastern Boundary Task Team**

This Month's Activities:

- Scope, membership, and ToR conversations are ongoing

Upcoming Activities:

- Lead(s) and members formally announced
- Continue negotiations leading to a draft ToR
- High-level schedule agreed to

Last Month's Activities:

- Terms of Reference have been drafted and under ongoing review with SC co-Chairs and proposed project lead
- Established preliminary list of approximately 12 members

Published/Posted Materials:

- No publications to date

Project Function:

Task Team to focus on the eastern Tropical Pacific boundary region; giving priority to engaging regional experts and institutions. In addition to defining needed observations, goals of the TT could include: (a) Capacity building for improved sustained observing capability; and (b) Facilitation of the development of a regional research project, which may contribute guidance toward a sustained observing system.

Point of Contact:

Associate Project Manager, TBD-> info@tpos2020.org

## **Sub-projects and Working Groups**

### **Western Boundary**

This Month's Activities:

- Scope, membership, and ToR conversations are ongoing

Upcoming Activities:

- Lead announced
- Draft of regional activities and proposed scope of activities
- Identify opportunities for ship and resource sharing given all of the activities being conducted in this region
- Next steps determined

Last Month's Activities:

- SC member, Ken Ando sent a summary of the activities of the western Pacific

Published/Posted Materials:

- No publications to date

Project Function:

This group will take advice on a project to be conducted in the Western Pacific. Once underway they will advise on mechanism for the project's development and oversight.

Point of Contact:

TBD-> info@tpos2020.org

### **Time Series/Climate Record**

This Month's Activities:

- The Backbone TT continues to explore the adoption of this activity

Upcoming Activities:

- Lead formally announced
- Scope finalised

Last Month's Activities:

- The Backbone TT is exploring the adoption of this activity

Published/Posted Materials:

- Nov. 2014: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes)

Project Function:

This small group consisting SC member and non-member experts will determine criteria for evaluating fixed-point time series, to elaborate on the purpose and utility of time series within TPOS and to identify the highest ranking sites and perhaps any further locations that should be investigated.

Point of Contact:

TBD-> info@tpos2020.org

## **Distributed Project Office**

This Month's Activities:

- Created the Released version of the TRF-1 Report
- Distributed Craig McLean's letter of thanks to TRF-1 participants
- Distributed Craig McLean's letter of engagement to TRF-1 participants (information to needed to facilitate future engagement has been requested)
- Conducted an initial visit to the IMOS facility in Hobart, Australian and met Associate Project Manager, Ana Lara-Lopez and support staff member Donna Seward, and CSIRA staff member Leonie Wyld
- Launched planning for SC-2 meeting in October
- Redrafted outline of the TPOS 2020 Engagement Plan

Upcoming Activities:

- Complete Engagement Action Plan
- Release reconfigured TPOS 2020 password protected Intranet
- Support TRF activities as required and formalize membership and points of contact
- Release project Slide Set

Last Month's Activities:

- Coordinated events supporting the SC-1 Interim WebEx
- Provided Actions taken during the SC-1 Interim call and submitted to SC members for review
- Made plans to visit IMOS to formally kick-off the DPO node and begin planning for the TPOS 2020 SC-2 meeting in October, 2015.
- Continued to support activities leading to the review and release of TRF-1 Report
- Received initial comments on the Draft Engagement Action Plan
- Created online document sharing environment for the Backbone TT

Published/Posted Materials:

- Released: Project Management Plan V1
- Consultative Draft: Project Execution Plan V1

Project Function:

The DPO will develop communications, and coordination tools that will facilitate integrated decision making, and provide access to relevant deployment and observing asset decision making tools. The DPO will support the suite of tools and activities required to track the commitments to all aspects of TPOS 2020 and to facilitate integrated decision making across networks, groups, agencies, and nations; during the project and throughout the lifecycle of the observing system beyond TPOS 2020.

## CROSS-PROJECT DEPENDENCIES AND STATUS

During the SC-Interim call in early April Dongchull Jeon provided an overview of KIOST activities that may be TPOS related. They are summarized below:

- 2016: 6 month ship plan. Crossing Western/Eastern Pacific
- Could bring research vessel to EP. (A CTD Survey across Equator might be basis for future plans)
- Coastal Current monitoring system near Peruvian coast; latter half of 2016, for 4 years, potential to hand to Peruvian agency
- Connection to Equatorial Upwelling in 2016: new research vessel can be committed to around 1 month, for scoping/testing ahead of a larger CP upwelling activity

In addition to the content provided above, over the next several months as TT, Sub-project, and Working group plans and schedules are drafted, this section will list arenas and events where project dependencies and opportunities for coordination will be focused. Examples may include:

- Ship Availability and Status
- TPOS 2020 Related Funding and Grants
- Technology Development and Deployment Updates
- Integration and Testing
- Risk Mitigation and Change Control (Risk Tables)

## PROJECT SCHEDULE

During the next two months the project will remain focused on the confirmation of remaining TT, sub-project, and working group membership and plans. Along with development of plans to work with the TRF members to understand and provide support for their activities and needs.

June marks the beginning of concerted planning for the SC-2 session to be conducted at CSIRO in Hobart, Australia on 17-17 October. With the assistance and support of CSIRO, IMOS and Ocean Leadership resources logistics and resources are being identified and secured.

In lieu of a formal project schedule, the project is currently being tracked through Action Tables generated at SC and TT meetings. These Action Tables were updated and presented in the April Monthly Status Report. In time this section of the MSR will provide select glimpses of the Integrated Master Schedule once it is produced. This tool will be brought together once the TTs, sub-projects, and working groups formulate their plans and deliverables.

## SPONSOR CONTRIBUTIONS

In addition to the in-kind self-support agreed to during the January TPOS Workshop, the following explicit sponsorships have been recorded thus far:

- April 2015: Launched DPO Node negotiations with the First Institute of Oceanography (FIO) of China, for possible initiation in late 2015
- Mar. 2015: Integrated Marine Observing System (IMOS), DPO Node (Associate Project Manager and SC-2 Support)
- Dec. 2014: NOAA Climate Office, DPO Support (0.5 FTE DPO Project Manager)
- October 2014: KIOST, SC-1 Hosting
- October 2014: GOOS support for SC-1; GCOS for WMO and IOC briefings
- Aug. 2014: NOAA PMEL – Project Management Support (0.2FTE DPO Deputy Project Manager)
- Aug. 2014: NASA - Interim Project Management Support (0.30 FTE in 2014)
- Jul. 2013: OOPC Project Management and Coordination (Secretariat)