



February 2016 Monthly Status Report

Monthly Status Report (MSR)

Release Date: March 15, 2016

Summary:

This month the Project is very pleased to announce the addition of Dr. Guang Yang as an Associate Project Manager. Dr. Yang is sponsored by FIO and hosted by the International CLIVAR office. The new DPO node is located in Qingdao, China. Welcome Dr. Yang!

Beyond this important addition, the project was highly focused on the ongoing drafting of the 'zero-order' draft of the Interim Report. Several meetings were conducted in support of this important endeavor. The report will primarily contain the initial consideration of options for the Backbone design and an initial overview of early Task Team activities.

Highlights:

Steering Committee:

- At the Ocean Sciences meeting in New Orleans, USA, Feb. 22-26, TPOS 2020 was featured during a Session on sustained observing systems and a Town Hall focused on implementation strategies.
- Several SC members supported and attended the China-Japan-Korea workshop sponsored by SOA and hosted by FIO in Qingdao on Feb. 29 -March 1, 2016.

Backbone Task Team:

- The TT conducted two meetings focused on the Interim Report. A WebEx session was held on February 4th and a face-to-face meeting of members in attendance at the Ocean Sciences meeting in New Orleans was held on February 24th.
- A revised version of the draft report is under author review and is being prepared for further review by SC members and expert reviewers.

Western Pacific Task Team:

- Task Team fully formed and adopted its Terms of Reference. This information has been posted on the TPOS 2020 website: <http://tpos2020.org/western-pacific-task-team/>

Distributed Project Office:

- Released and posted a new version of the TPOS 2020 Slide Set: <http://tpos2020.org/tpos-2020-slide-set/>
- Revised version of the TPOS 2020 organization chart was released (see page 2 of this report).

➤ The SC Co-Chairs are coordinating Poster Cluster focused on TPOS at the upcoming CLIVAR open science conference on 19-25 September 2016: <http://www.clivar2016.org/>

- **Deadline for abstracts is Mar 25, 2016. (Please contact the Co-Chairs for more information.)**

The Monthly Status Reports can be found at: www.tpos2020.org/monthly-status-report

Additional Information:

Please visit the website at: www.tpos2020.org
Send comments and questions to: info@tpos2020.org
Follow us on Twitter: [@TPOS2020](https://twitter.com/TPOS2020)

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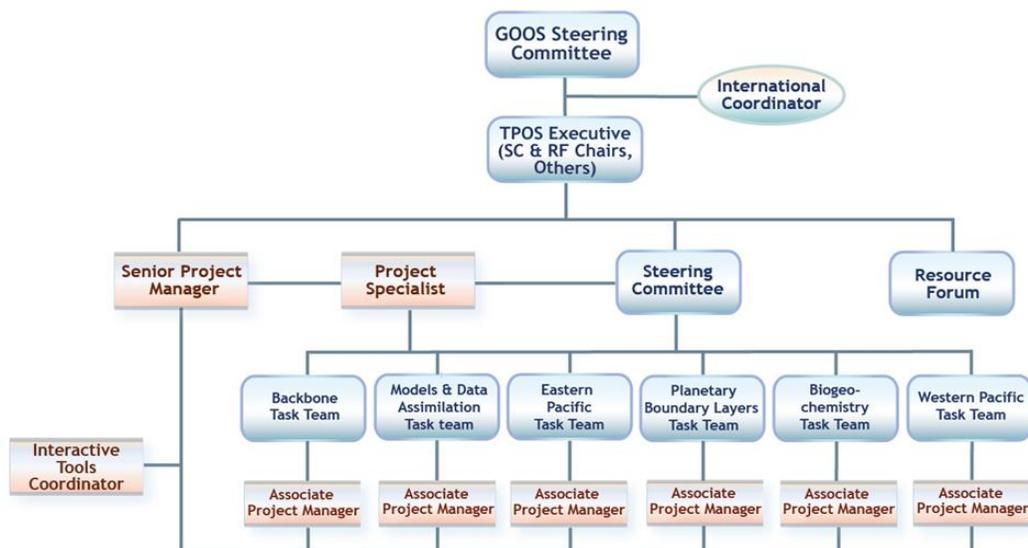
Background: The TPOS 2020 Project will evaluate, and where necessary advocate change in all elements that contribute to the Tropical Pacific Observing System (TPOS), based on a current understanding and technical capability. The project aims for enhanced effectiveness for all TPOS stakeholders, and informed 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



KEY ACCOMPLISHMENTS AND NEAR-TERM PROJECT MILESTONES

Steering Committee

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

Current Month Activities:

- Assisted in the coordination of items for inclusion in the creation of the Interim Report Rough Draft being led by the Backbone TT Co-Chairs.
- Revised the limited list of 'zero order draft' reviewers designed to provide expert review and input into the initial draft of the Interim Report.
- Katy Hill presented on TPOS 2020 during the Session: Regional and Thematic Innovation Supporting Global Sustained Ocean Observing Initiatives, "Towards a Tropical Pacific Observing System for 2020 and Beyond"
- Billy Kessler presented on TPOS 2020 during the Town Hall: Implementing Basin Scale In Situ Ocean Observing Systems
- Andrea McCurdy and Katy Hill briefed the GOOS Interim Steering Committee on TPOS activities
- Provided guidance and feedback for the creation of a poster for presentation at the GCOS Science meeting in early March.
- Provided guidance and feedback for the new version of the TPOS 2020 Slide Set.
- Several members of the SC were highly engaged in the planning for- and attendance at- the China-Japan-Korea workshop sponsored by SOA and hosted by FIO in Qingdao on Feb. 29 -March 1, 2016. Several TPOS 2020 SC Members were in attendance, and member institutions represented. (A more detailed report will be provided in the March MSR.)

Upcoming Activities:

- Work with Task Team Co-Chairs to finalize content of the Interim Report Rough Draft and support its initial review
- Presentation of the TPOS 2020 poster at the GCOS Science meeting
- Coordinate the creation of a Poster cluster for presentation at the CLIVAR open science conference.
- Work with the DPO to establish an Engagement Action Panel and timeline
- Work with the TTs to plan for upcoming meetings and cross-project needs

Last Month's Activities:

- Assisted in the review of the Interim Report Rough Draft outline
- Neville Smith and Katy Hill conducted a series of meetings in Geneva to discuss TPOS. Meetings included a session with Co-Chair of JCOMM, John Stander, Michel Rixen and Mike Sparrow from the WCRP Joint Project Office, and with a number of people from the WMO Observations Program (Wenjian Zhang – Director Observation and Information Systems, Etienne Charpentier, and Lars Peter Riishojgaard) and GCOS (Carolin Richter).
 - The meetings were arranged, in part, to explore avenues by which to secure greater engagement with Met Agencies. The meetings were designed to assist colleagues in their efforts to increase their involvement with TPOS 2020 through more explicit endorsement of the Project/Observing System from the WMO.
 - Generally the responses were positive and constructive. Several suggestions for involvement were given along with encouragement to begin the engagement process earlier rather than later; potentially as part of the early transition activities to be conducted this year.
- Weidong Yu was highly active gathering input and participation in the upcoming China-Japan-Korea workshop sponsored by SOA and hosted by FIO in Qingdao on Feb. 29 -March 1, 2016. Several TPOS 2020 SC Members will be in attendance, and member institutions represented. TPOS and TPOS-related related discussions will be a part of sessions focused on Ocean and Climate Change.

Published/Posted Materials:

- November 2015: TPOS 2020 SC-2 Report
- October 2015: CLIVAR Exchanges Article: *TPOS 2020 Project: The Role of Research and Innovation*
http://www.clivar.org/sites/default/files/documents/Exchanges_OceanObs_No67_0.pdf
- June 2015: The Mercator-Ocean Scientific Newsletter: "TPOS2020: TROPICAL PACIFIC OBSERVING SYSTEM FOR 2020" By S. Cravatte, A. Ganachaud, B. Dewitte, F. Hernandez, Newsletter #52 (<http://goo.gl/rKbvH6>)
- 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:

- No updates this month.

Upcoming Activities:

- 2015 and 2016 Milestones and opportunities for meetings reviewed by members.

Last Month's Activities:

- No reported activities this month.

Published/Posted Materials:

- July 2015: TRF-1 Report (available on the TPOS 2020 website)
- 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

Executive

This Month's Activities:

- No reported outcomes this month

Upcoming Activities:

- No activities planned.

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

Backbone Task Team

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

This Month's Activities:

- Conducted a WebEx meeting to discuss the progress of the Interim Report on the 4th February with co-chairs of all TTs attending.
- The meeting discussed the progress of the report and entertained suggested modifications – these actions were tracked and incorporated as appropriate into the report.
- A formatted and revised version of the report has been produced and distributed by the BB TT Co-Chairs to lead authors.

Upcoming Activities:

- Continue to track and incorporate changes associated with the Backbone and TT content and structure to be contained in the Interim Report.
- Draft and approval of the Interim Report Bibliography will be conducted.
- The initial draft of the Interim Report will be released to the TPOS 2020 SC members for a brief review and comment period prior to release of the report to a limited reviewer list composed of content experts.

Last Month's Activities:

- Generated the original Rough Draft of the Interim Report for author review and comment
- The final record of the November 2015 planning telecon was finalized and placed in the Intranet

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:

- (a) Observe and quantify the state of the ocean, on time scales from weekly to interannual/decadal;
- (b) Provide data in support of, and to validate and improve, forecasting systems;
- (c) Support calibration and validation of satellite measurements;

- (d) Advance understanding of the climate system in the tropical Pacific, including through the provision of observing system infrastructure for process studies; and
- (e) 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 Layer Task Team

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

This Month's Activities:

- Provided content and feedback regarding the Interim Report layout and structure.
- Co-Chairs attended face-to-face meeting while at the Ocean Sciences Meeting.

Upcoming Activities:

- Continue to contribute to the Interim Report as required.
- Review and update tracked Actions.

Last Month's Activities:

- Co-Chair Tom Farrar made TPOS 2020 contributions to Wentz report on satellite winds.

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

This Month's Activities:

- Based on notes and actions taken during the inaugural teleconference the TT is scheduling a follow-up meeting.
- Continued to contribute to the Interim Report as needed.

Upcoming Activities:

- Final membership and ToR will be posted to the website.
- Near and mid-term Actions agreed to and scheduled
- Continue to generate content for inclusion in the Interim Report, 2016

Last Month's Activities:

- Inaugural teleconference held on 07 Jan 2016; it was a fruitful and energetic discussion.
- Near-term Actions are being finalized for review and tracking.

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 parameterizations 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, Lucia Upchurch, interim-> lucia.upchurch@noaa.gov

Biogeochemistry Task Team

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

This Month's Activities:

- During the Interim Report videoconference the TT Chairs agreed to a level of BGC contribution and drafted content accordingly.
- Co-Chair, Sutton attended the face-to-face meeting while at Ocean Sciences.
- Contributed to the Interim Report as needed.

Upcoming Activities:

- Continued communication on how the draft Backbone observing system is evolving and how BGC requirements will be reflected in the Interim Report, 2016
- The TT is reviewing responses to their online questionnaire on BGC variables and needed technology evolution and development
- Analysis of model output to determine the important time and space scales to resolve.
- Analysis of model data to determine the best longitudes to focus process studies on source waters to the equatorial undercurrent (165°E, 110°W).

Last Month's Activities:

- The questionnaire focused on BGC variables and needed technology evolution/development was posted online
- The TT has received 17 responses to their online questionnaire to date
- Initial responses have been collated and are under review by TT members.

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

- Co-Chairs: Yolande Serra, University of Washington / Ken Takahashi (SC Member), Instituto Geofísico del Perú

This Month's Activities:

- The TT has been focused on providing content and input into the Interim Report.
- The TT is reviewing early responses to the online survey.

Upcoming Activities:

- Based on the survey results, the TT will engage atmospheric scientists, modellers and specialists in convection, among others in a dialog focused on a possible Eastern Pacific ITCZ/warm pool/cold tongue/stratus system strawman study.
- Take the Eastern Pacific equatorial-coastal waveguide & upwelling system ideas to the next stage in the form of a Pilot Project that might be used to test technology options and to provide further insights on the eastern Pacific elements of the Backbone and other contributions to TPOS.

Last Month's Activities:

- The EP-TT released an online questionnaire to gather input for process study and/or a field program for observations that would aid in correcting the errors associated with the double ITCZ

Published/Posted Materials:

- Jul. 2015: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes).

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, interim -> Lucia Upchurch, lucia.upchurch@noaa.gov

Western Pacific Task Team

This Month's Activities:

- Conducted very successful inaugural face-to-face meeting at Ocean Sciences on February 24.
- Agreed to TT Terms of Reference, finalized membership, and posted online.
- Welcomed Dr. Guang Yang as Associate Project Manager (located in Qingdao DPO node). He will work with the TT to meet objectives and goals.
- Supported activities in support of the China-Japan-ROK workshop conducted in late February, early March. (More details will be provided in the March MSR.)
- Provided content to the Interim Report as needed.
- Co-Chairs attended Interim Report face-to-face meeting while at Ocean Sciences.

Upcoming Activities:

- Post notes from inaugural face-to-face meeting during which activities suggested during the SC-2 were considered.
- Report on the activities, progress, and related activities stemming from the China-Korea- Japan workshop in late February and early March.
- Understand the opportunities that may have come from the high-level SOA-NOAA meeting in December 2015.

Last Month's Activities:

- Began early consideration of activities that may be desirable in preparation for the China-Japan-ROK Summit in late February, early March.

Published/Posted Materials:

- Feb. 2016: Terms of Reference (available on the TPOS 2020 website, see: Groups and Outcomes).

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:

Guang Yang-> gyang@fio.org.cn

Distributed Project Office

This Month's Activities:

- Version 2 of the TPOS 2020 Slide Set has been released (it reflects progress made during the first project year and the messages and milestones agreed to at the SC-2 meeting).
- Supporting the versioning and formatting of the Interim Report to support the needs and desires of the report authors, most notably the Backbone TT Co-Chairs.
- Managing the articulation and tracking of Interim Report Actions for timely delivery into the Report.
- Drafted and managed the review and approval of a TPOS 2020 poster for presentation at the GCOS Science Conference in early March.
- Website 'development' site is currently under review by project members and final content is being drafted for posting.

Upcoming Activities:

- Creation of the Interim Report drafting and review process document
- Take advisement on preferred method for tracking and adjudicating Interim Report comment process.
- Formation of revised Intranet designed to create a more logical, secure, and data friendly platform for collaboration
- Ongoing review and input into the development website
- Extend invitations to Engagement Action Panel members
- Creation of Project Year Two Annual Work Plan and associate Integrated Master Schedule

Last Month's Activities:

- Consultative Draft of the TPOS 2020 Slide Set is under review
- Supported the initial drafting and posting of the 2016 Interim Report Rough Draft
- Development website created, design changes proposed have the goal of making content more accessible
- Engagement Plan, Engagement Action Plan, prepared for initial distribution and review by proposed Engagement Advisory Panel

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 OPPORTUNITIES

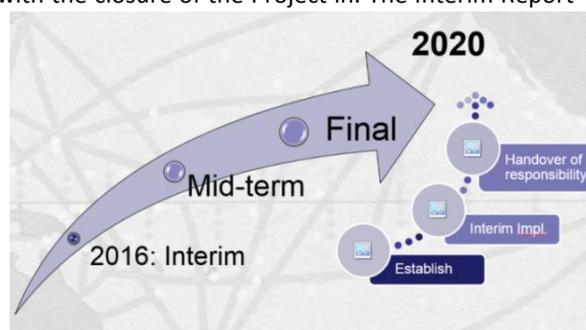
The draft timeline for 2016 Interim Report activities are provided below. This highly collaborative endeavor will be led by the Backbone TT with contributions from all project groups along with external authors and reviewers:

1. Selection of Coordinating Lead Authors was completed in January 2016
2. Preparation of 1st draft Interim Report outline was completed in December 2016
3. Formalize the Review Process:
 - First Review (by experts; March 2016).
 - Preparation of revised/2nd draft
 - Second Review (by stakeholders and experts; June-July 2016).
4. Preparation of final draft Report, October 2016
5. Acceptance of Report at the 3rd Session of the TPOS 2020 Steering Committee

PROJECT SCHEDULE

No Update: During the SC-2 the Co-Chairs outlined a staged process, with an initial “Interim Report” published in 2016; a Mid-term Report publish in 2018, and a Final Report with the closure of the Project in. The Interim Report would contain initial recommendations for the design of the Backbone (the outline was described at this meeting), but also a synopsis of initial results and plans for the various initiatives sponsored by TPOS 2020.

The Co-Chairs noted that nothing is “final” until 2020 but that interim reports or updates should progressively guide stakeholders on recommended changes, with indications on the degree of confidence (certainty). Within this context of phased reports, the Backbone Task Team can be regarded as the focus of consolidation and prioritization, with the other Teams leading innovation and change.



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:

- **February 2016: The project welcomed Dr. Guang Yang as Associated Project Manager sponsored by the First Institute of Oceanography and hosted by the International CLIVAR office in Qingdao, China.**
- October 2015: SC-2, CSIRO as host, IMOS and IMAS providing event support
- October 2015: SC-2 and Backbone TT participant travel assistance provided by NOAA, NASA, and IOC
- August 2015: PACE-NET PLUS is supporting expert speaker and participant travel, and local costs at the Backbone Task Team face to face meeting at IRD in Noumea, New Caledonia.
- August 2015: NOAA COD and NASA providing travel support for Backbone Task Team member travel and DPO support of the face to face meeting in New Caledonia.
- 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)