



# TPOS 2020

## Monthly Status Report

### July 2015

#### Monthly Status Report (MSR)

Release Date:

August 12, 2015

#### Summary:

As we progress through the slow months of summer, the Project continues to take on momentum. The established groups and Task Teams maintain a steady-state of activity as they prepare for upcoming videoconferences and face-to-face meetings. At the same time, the areas of the Project not yet as active have begun to take on considerable traction. All of this activity gearing TPOS 2020 toward a highly engaging and success-driven Steering Committee meeting in mid-October.

#### Highlights:

##### Project Overall:

- Project Slide Set Released and posted on the website (See: Gallery > Slides > TPOS 2020 Slide Set)

##### Steering Committee:

- Draft Agenda for TPOS 2020 SC-2 has been reviewed and is under revision.

##### Resource Forum:

- TRF-1 Report Released and posted.
- TRF Membership and Primary Contacts documented and confirmed.

##### Backbone Task Team:

- Preparations for the first Backbone TT face to face meeting (BBTT-1), are underway and being reviewed by Team and Project members.
- Attendance gaps and needs for the face to face meeting in September have been identified:
  - It was determined that the modelling community may not be represented among the current attendee list.

##### Planetary Boundary Layer Task Team:

- The Task Team strawmen being considered are listed below. Formal recommendations in the form of White Papers will be drafted prior to SC-2. Topics:
  - SPURS-2 Enhancements
  - YMC Enhancements
  - MJO/diurnal cycle process study
  - Pacific Upwelling and Mixing Physics
  - Diurnal Cycle Rectification and Interaction with Multiscale Variability
  - Double ITCZ

##### Eastern Pacific Task Team:

- Terms of Reference were approved and posted to the website (see Groups and Outcomes)
- Membership invited and confirmed (see Groups and Outcomes)
- First teleconference scheduled in August

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)

Follow us on Twitter: [@TPOS2020](https://twitter.com/TPOS2020)

## Monthly Status Report (MSR)

### Release Date: August 12, 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:

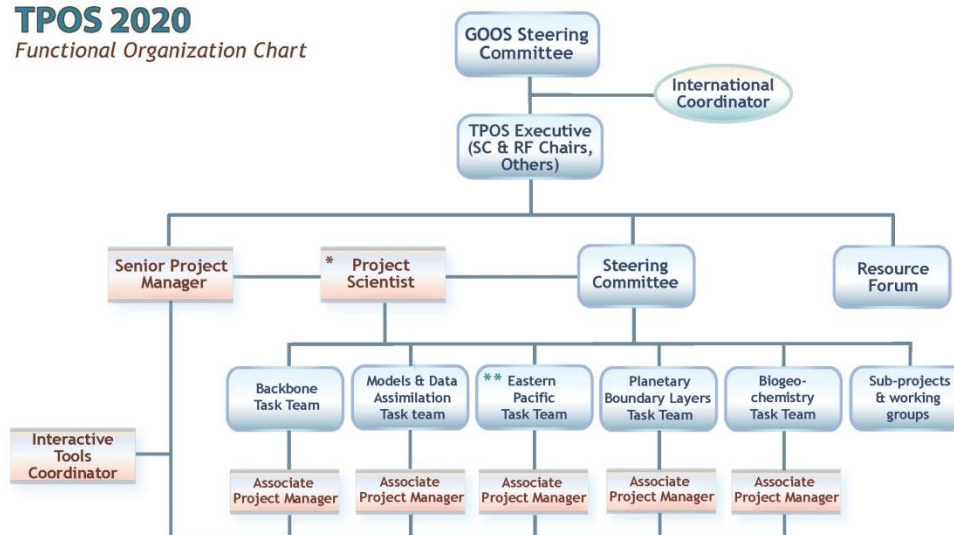
- A TPOS 2020 Steering Committee responsible for oversight, coordination, and guidance to the Task Teams, Sub-projects and Working Groups.
- A Resources Forum drawn from sponsors and responsible for coordinating resources.
- An Executive populated from the leadership of the above and responsible for 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 attended the 4<sup>th</sup> CLIVAR ENSO Workshop in Paris, France. Information and dialog at this session is being used to guide the formation of the Modelling and Data Assimilation Task Team.
- Billy Kessler provided a 15 minute presentation at US CLIVAR Summit in Tucson, Arizona. Arun Kumar and Tom Farrar were also in attendance. Comments focused on a view of sampling needs in 2030 and how to plan and design such a system in 2016.
- Neville Smith launched a campaign to reach out to TPOS 2020 Resource Forum and SC members in an effort to better understand their needs and expectations for the Project. This effort will be ongoing during 2015 and 2016 as the effort requires.
- A Draft Agenda for SC-2 was reviewed and commented upon.

#### Upcoming Activities:

- SC-2 plans and presentation guidance will be generated and sent for comment.
- Based on conversations emanating from the Paris Workshop, along with input provided from community members thus far during the Project, the co-Chairs plan to seek agreement among SC members on a Modelling and Data Assimilation TT path forward.
- Support the convening of the inaugural meeting of the Eastern Pacific Task Team (see this section of the report for more details).
- Conduct a planning session designed to form agreement on the structure and purpose of a Western Pacific Group.
- Formalize plans for engagement based on the Engagement Plan including a timeline and Advisory Action Panel member suggestions.

#### Last Month’s Activities:

- Billy Kessler (presented) on TPOS 2020, Dean Roemmich, Arun Kumar, Meghan Cronin (attended) the NOAA Climate Observation Division, 9th COD Community Workshop, NOAA Center for Weather and Climate Prediction, College Park, MD, 15-17 June
- Weidong Yu presented on TPOS 2020 at the IOC Assembly, JCOMM side event in Paris during 18-25 June
- Draft agenda for SC-2 under initial consideration

#### Published/Posted Materials:

- 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/rKbv6>)
- 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](mailto:amccurdy@oceanleadership.org)

## **Resources Forum**

- Chair: Craig McLean, NOAA Oceanic and Atmospheric Research

Current Month Activities:

- TRF-1 Report Released and posted (See: Documents > TPOS 2020 Released Documents)
- Responses to Interim TRF Chair, Craig McLean's letters have been collated and reviewed.
- Membership in the TRF has been formalized and membership posted on the website. (See: Groups and Outcomes > Resources Forum > RF Members&Affiliation)

Upcoming Activities:

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

Last Month's Activities:

- Interim TRF Chair, Craig McLean met with JAMSTEC Executive Director, Dr. Yoshihisa Shirayama while in Washington, D.C. for the Japan Society for the Promotion of Science Forum on 12 June
- Interim TRF Chair, Craig McLean met with SOA's Director for International Affairs Dr. Haiwen Zhang and Dr. Weidong Yu while in Paris for the IOC General Assembly

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](mailto:amccurdy@oceanleadership.org)

## **Executive**

This Month's Activities:

- No reported outcomes this month

Upcoming Activities:

- Formal responsibilities and ToR to be drafted in summer 2015

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:

- Preparations for the first Backbone TT face to face meeting (BBTT-1) are underway and under review by Team and Project members.
- Notes from the second TT meeting are under review.
- Attendance gaps and needs for the face to face meeting in September have been identified.
  - It was determined that the modelling community may not be represented among the current attendee list.

Upcoming Activities:

- Continue to ensure proper linkages between the PBL and BGC TTs through tracked Actions.
- Formalize plans and activities for the face to face meeting.
- Review and modify Strawmen in preparation for the September meeting
- Led by the co-Chairs, team members will prepare a summary of Backbone TT activities for the GODAE meeting in November.

Last Month's Activities:

- The second teleconference was conducted on June 23
  - Five strawman design slide sets were presented and requirements were reviewed
  - The TT will form two different subgroups to further develop strawmen based on the agreed to commonalities and difference presented in the initial 5 presentations
  - Co-Chairs from both the BGC and PBL TTs were in attendance
- An in person session is being planned on 16-18 September in Noumea, New Caledonia
- Susan Wijffels is invited to present a TPOS 2020 and Backbone TT summary at the OceanView GODAE workshop in Sydney in November

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](mailto: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:

- Third videoconference was conducted on 28 July
- By August 1, 2-page strawmen will be conceived based on topics established in the second teleconference. A template was distributed for the 2-pagers.
- The strawmen ideas should be fleshed out by August 1, with more formal recommendations (in the form of White Papers) due prior to SC-2. Strawmen topics:
  - SPURS-2 Enhancements
  - YMC Enhancements
  - MJO/diurnal cycle process study
  - Pacific Upwelling and Mixing Physics
  - Diurnal Cycle Rectification and Interaction with Multiscale Variability
  - Double ITCZ
- The PBL TT Co-chairs have drafted a questionnaire to gather community input on PBL needs for the sustained observing system. The draft was circulated to members and discussed during the second teleconference and will be distributed to the community in August after task team approval.
- A work plan leading up to the BB-TT meeting and SC-2 meeting was laid out.
  - August 1, deadline for 2-page strawman whitepapers
  - August 3, Questionnaire to be distributed
  - September 10, Deadline for Questionnaire responses
  - September 15, Questionnaire responses synthesized into a presentation of results for input into the Backbone Task Team meeting (Sept. 16-18)
  - October 14, Questionnaire responses synthesized into a White Paper report for the TPOS2020 Steering Committee (SC-2) Meeting

### Upcoming Activities:

- August 1 deadline for strawman 2 pagers
- Fourth WebEx session is planned for late August or early September
- Distribution of Questionnaire to the PBL community

### Last Month's Activities:

- Second videoconference was conducted on 4 June
- Current activities are focused on a set of near-term (term of the project) and sustained activities:
  - The near-term work plan is have several recommendations for studies that should be done to determine the sustained observations (long term needs) and process studies (shorter term needs).
  - The TT may also make recommendations to research areas for future Climate Process Teams.
  - Related to sustained observations, the TT will examine the value of both regularly gridded sites, such as what already exists in TAO/TRITON vs a more 'regime' oriented approach where placement is guided more by the processes being observed.
- The strawmen ideas should be fleshed out by August 1, with more formal recommendations (in the form of a white paper) due prior to SC-2

### 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](mailto:lucia.upchurch@noaa.gov)

## **Modelling and Data Assimilation Task Team Discussion**

This Month's Activities:

- Explore data assimilation issues that should be addressed during the SC-2 session
- Ongoing exploration of how to best meet the needs of the modelling community; several ideas have been generated and solutions are being discussed along with potential follow-up activities

Upcoming Activities:

- Draft Terms of Reference will be created and sent to SC members for review
- Leadership will be confirmed and group membership identified
- SC Members may be asked to generate short summaries of what they perceive as TPOS M&DA needs, and how the Project might go about meeting those needs

Last Month's Activities:

- Explored 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.
- Explored how TPOS 2020 might benefit from the recently announced ONR model improvement project. 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.

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](mailto:hdean@oceanleadership.org)

## **Biogeochemistry Task Team**

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

This Month's Activities:

- A record of the BGC TT meeting has been drafted and is under review

Upcoming Activities:

- A second videoconference is planned, date to be confirmed.

#### Last Month's Activities:

- The inaugural videoconference was held on 24 June
- The first BGC TT telecom was held successfully and members discussed:
  - What are the major science questions and objectives?
  - What are the most important time and space scales, or phenomena, that we need to quantify?
  - How far do we go beyond biogeochemistry to biology, ecology, fisheries?
  - Should it include trace metals and design infrastructure with them in mind for the future?
  - What are the core variables by platform?
  - Is there support the development of a proposal for a BGC Saildrone?

#### 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](mailto:Ana.Lara@utas.edu.au)

### **Eastern Boundary Task Team**

#### This Month's Activities:

- Terms of Reference were approved and posted to website
- Membership invited and confirmed
- Email list constructed

#### Upcoming Activities:

- First teleconference scheduled for planning and execution
- High-level schedule agreed to

#### Last Month's Activities:

- Consultative Draft Terms of Reference were circulated to the SC for comment and approval
- Established preliminary list of approximately 12 members

#### 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](mailto:lucia.upchurch@noaa.gov)



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

### **Western Boundary**

#### This Month's Activities:

- Scope, membership, and ToR conversations are ongoing

#### Upcoming Activities:

- Lead announced
- Conduct a telecon among lead and key SC members and agree to a team structure and purpose
- Next steps determined

#### Last Month's Activities:

- Scope, membership, and ToR conversations are ongoing

#### 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](mailto:info@tpos2020.org)

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

#### This Month's Activities:

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

#### Upcoming Activities:

- Confirm Backbone TT relationship to this activity

#### Last Month's Activities:

- The Backbone TT continues to explore 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](mailto:info@tpos2020.org)

### **Distributed Project Office**

#### This Month's Activities:

- Project Slide Set Released and posted on the Project website

- TRF Membership and POC list documented and confirmed.
- Draft Agenda for SC-2 created and revised.
- Engagement Plan and Engagement Action Plan placed under initial comment by a small number of internal and external reviewers.
- Semi-annual review of website core content conducted, and edits made.

Upcoming Activities:

- Support SC-2 plans and conduct activities as required
- Approval of Engagement Plan
- Engagement Plan Milestones drafted and agreed to
- Engagement Advisory Panel members identified and contacted
- Prepare TRF and SC Chair and Co-Chair briefing on Engagement Plans and Milestones

Last Month's Activities:

- Password projected Intranet established and released to the Project membership
- Consultative Draft of the Engagement Plan under review
- Ongoing planning and coordination of SC-2 related activities

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 Climate Observation and Monitoring Division of NOAA's Climate Program Office released a Federal Funding Opportunity on 2 July 2015 for "*In Situ* Technologies to Contribute to the Tropical Pacific Observing System (TPOS 2020) Project." In this solicitation, COM invites proposals to advance the readiness of *in situ* observing platforms (e.g. floats, gliders, moorings) and assess their potential to address observational requirements and gaps in the tropical Pacific Ocean region. These advancements will contribute to the Tropical Pacific Observing System (TPOS 2020) Project (<http://tpos2020.org/>). Technology proposed should be at a Technology Readiness Level between 4 and 8 ([http://www.sab.noaa.gov/Reports/RRT\\_Report-080604.pdf](http://www.sab.noaa.gov/Reports/RRT_Report-080604.pdf); Appendix V.A).

- LOI Deadline: 30 July 2015
- Proposal Deadline: 23 September 2015
- For more information please visit: <http://cpo.noaa.gov/GrantsandProjects/ClimateProgramOfficeFFO.aspx>

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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

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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.

## PROJECT SCHEDULE

During the next month 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 marked the beginning of concerted planning for the SC-2 session to be conducted at CSIRO in Hobart, Australia on 14-17 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)