



## August 2016 Monthly Status Report

### Monthly Status Report (MSR) Release Date: September 20, 2016

#### Summary:

The **FIRST REPORT OF TPOS 2020** is posted online <http://tpos2020.org/first-report/> for community comment.

Of particular note, the report contains 18 Recommendations and 13 Actions. These recommendations are supported by the science and societal rationale articulated in the report's eight chapters. TPOS 2020 leadership encourages all that see this to please at a minimum review and comment on the eight-page Executive Summary, which contains the Report's Recommendations and Actions.

A companion spreadsheet is provided online and is designed to facilitate individual, agency, or institutional comments. We request that this review and comment take place by **23 September 2016**. This level of community input and feedback is vital to ensuring that TPOS design is fully reflective of the requirements and capability of sponsors and stakeholders.

With the Report out for review the Project leadership and meeting hosts turned their attention to planning for the third meeting of the Steering Committee hosted by Instituto Geofisico del Peru in Lima on 25 – 28 October. This four-day session will focus on the content of the First Report and ensuring that the Executive Summary is fully reflective of the Report's key findings and stakeholder requirements. The SC will also be challenged to consider the Recommendations and Actions in light of their institutional and agency directives throughout the duration of the TPOS 2020 Project and beyond.

#### Highlights:

- SC Co-Chair Billy Kessler conducted a series of briefs and informal discussions during a visit to NOAA's Silver Spring and College Park offices. Among the groups briefed were NOAA's National Weather Service-Oceanic and Atmospheric Research (NWS-OAR), NOAA Observing Systems Council (NOSC) and the leadership of the NOAA's National Data Buoy Center (NDBC).
- Backbone TT Co-Chair Sophie Cravatte gave a talk at the LEFE-IMAGO ITCZ workshop in Toulouse, France, titled "The TPOS2020 Project: which observations are needed in the Tropical Pacific Ocean for 2020?"

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)

## TPOS 2020 Overview and Structure

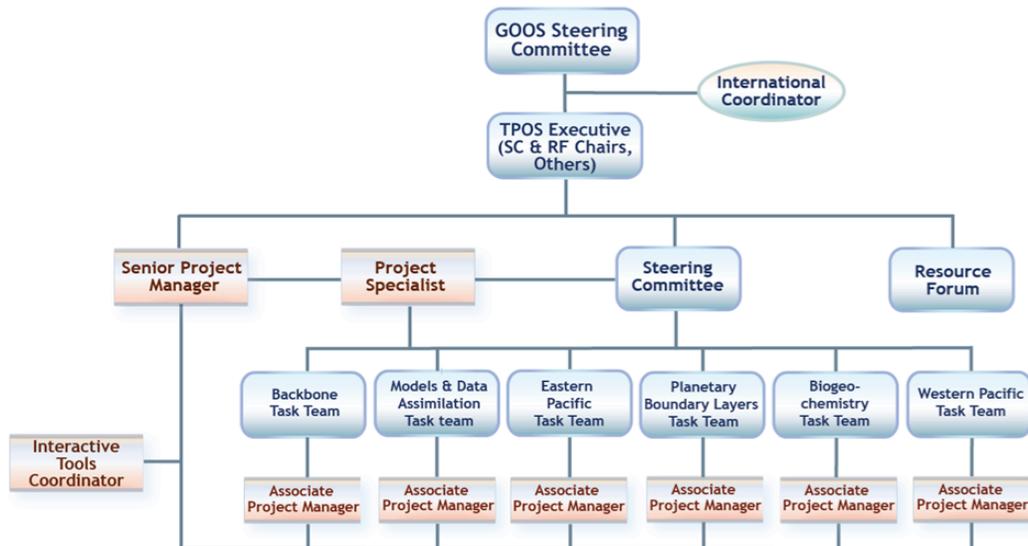
The TPOS 2020 Project will evaluate, and where necessary advocate change in all elements that contribute to the Tropical Pacific Observing System (TPOS), based on a current understanding and technical capability. The project aims for enhanced effectiveness for all TPOS stakeholders, and informed by the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



## KEY ACCOMPLISHMENTS AND NEAR-TERM PROJECT MILESTONES

### Steering Committee

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

### Current Month Activities:

- SC Co-Chair Billy Kessler conducted a series of briefs and informal discussions during a visit to NOAA’s Silver Spring and College Park offices. Among the groups briefed were NOAA’s National Weather Service-Oceanic and Atmospheric Research (NWS-OAR), NOAA Observing Systems Council (NOSC) and the leadership of the NOAA’s National Data Buoy Center (NDBC).
- The SC members promoted the review and comment of the First Report of TPOS 2020.

### Upcoming Activities:

- Finalize SC-3 Agenda and prepare accordingly
- Complete plans for EP TT Working session the morning of Oct 24 in Lima
- Conduct early review of the First Report comments
- Conduct an inaugural session on Transition Planning

### Last Month’s Activities:

- SC Co-Chairs led this month’s significant effort to respond to the expert reviewer comments to the 1<sup>st</sup> Order Draft and to lead contributed to changes required for the 2<sup>nd</sup> Order Draft due mid-summer for community review and comment

### 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](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-> [mccurdy@ucar.edu](mailto:mccurdy@ucar.edu)

## **Resources Forum**

- Chair: Craig McLean, NOAA Oceanic and Atmospheric Research

### Current Month Activities:

- No new activities to report this month.

### Upcoming Activities:

- Further consider possible plans for upcoming events and sessions

### Last Month's Activities:

- Continued collecting TRF member input related to their interest in a possible meeting of TRF members, and their program and project managers while attending the CLIVAR Open Science Meeting in Qingdao, China.

### 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-> [mccurdy@ucar.edu](mailto:mccurdy@ucar.edu)

## **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.

### Point of Contact:

Sr. Project Manager, Andrea McCurdy-> [mccurdy@ucar.edu](mailto:mccurdy@ucar.edu)

## **Backbone Task Team**

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

### This Month's Activities:

- Backbone TT Co-Chair Sophie Cravatte gave a talk at the LEFE-IMAGO ITCZ workshop in Toulouse, France, titled "The TPOS2020 Project: which observations are needed in the Tropical Pacific Ocean for 2020?"
- The TT Co-Chairs and members promoted the review and comment of the First Report of TPOS 2020.

### Upcoming Activities:

- Begin preparation for the SC-3

### Last Month's Activities:

- Chairs continue to work with SC Co-chairs and support the ongoing needs of the IR.

### 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 Layer Task Team**

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

### This Month's Activities:

- The TT Co-Chairs and members promoted the review and comment of the First Report of TPOS 2020.

### Upcoming Activities:

- Begin preparation for the SC-3

### Last Month's Activities:

- Continue to work with the SC Co-Chairs, lead authors, and TTs to complete the 2016-IR 2<sup>nd</sup> Order Draft
- Continue to work with the WP-TT to explore proposals on the following:
  - YMC Enhancements
  - Barrier Layer Physics
  - Eddy correlation flux measurements and surface waves
    - Diurnal cycle rectification to be integrated to all three of the studies mentioned above
  - Low Level Western Boundary Currents

#### 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**

- Co-Chairs: Arun Kumar, NOAA / Eric Guilyardi, IRD

#### This Month's Activities:

- The TT Co-Chairs and members promoted the review and comment of the First Report of TPOS 2020.

#### Upcoming Activities:

- Begin preparation for the SC-3

#### Last Month's Activities:

- The MDA TT met to establish its 2-4 priorities for "future directions" concerned with the importance and evolution of existing observations, detecting near-term and long-term observing efforts to detect intraseasonal and climate signals.
- The TT is working from two documents designed to guide their input into the 2016 IR:
  - Articulation of MDA priorities
  - Placeholder list of areas in the IR where MDA input and comment is required

#### Published/Posted Materials:

- Dec. 2014: Terms of Reference and Members (available on the TPOS 2020 website, see: Task Teams)

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

### **Biogeochemistry Task Team**

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

#### This Month's Activities:

- The TT Co-Chairs and members promoted the review and comment of the First Report of TPOS 2020.

#### Upcoming Activities:

- Begin preparation for SC-3

#### This Month's Activities:

- Provided IR comments which were collated and provided to Lucia Upchurch
- Further discussed additional content for the report related to the future direction of the observing system

#### 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**

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

#### This Month's Activities:

- The TT Co-Chairs and members promoted the review and comment of the First Report of TPOS 2020.

#### Upcoming Activities:

- Begin preparation for the SC-3

#### Last Month's Activities:

- The Co-Chairs provided collated comments on the 2016-IR
- The TT had a telecon to discuss ongoing issues such as:
  - 1) Inventory of observations in the eastern Pacific
  - 2) Process study plan addressing the missing observations realized from the inventory
  - 3) Observational strategy for coastal/Equatorial upwelling monitoring
- The TT is also drafting the following content for the 2016-IR
  - Update the double ITCZ content with references on the gap winds
  - Continue providing input to the data inventory as appropriate
  - Enhance the equatorial wave/coastal upwelling section to make reference to the oxygen minimum zone, water mass transports by zonal (Tsuchiya) jets and mesoscale eddies, including some references specific to the EP.
  - Work with the BGC TT to ensure their comments are provided
  - Prepare text on the EP perspective on the transition/implementation of TPOS2020

#### 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)

## **Western Pacific Task Team**

- Co-Chairs: Janet Sprintall, Scripps / Kentaro Ando, (SC Member) JAMSTEC

This Month's Activities:

The TT Co-Chairs and members promoted the review and comment of the First Report of TPOS 2020.

Upcoming Activities:

- Begin preparation for SC-3
- Continue to generate content for the ship and cruise inventory project

Last Month's Activities:

- Met via WebEx to review and discuss several proposals for inclusion in the 2016 Interim Report of TPOS2020.
- The TT is currently developing three proposals:
  - **Observing Western Boundary Current Systems: A Pilot Study Summary** This project is a pilot study aimed at understanding the space (horizontal and vertical) and time scales necessary to resolve the mass, heat and freshwater transports within the low latitude western boundary currents of the Pacific Ocean.
  - **Air-sea interaction at the eastern edge of Western Pacific Warm Pool** This project is an air-sea interaction process study focused on understanding the role of upper ocean salinity stratification in maintaining the warm SSTs at the eastern edge of the western Pacific warm pool
  - If possible, on the northern (and if possible southern edge) of warm pool
- The TT is also collaborating with the PBL-TT on another three potential proposals (YMC enhancement, MJO, and diurnal cycle)

Published/Posted Materials:

- Feb. 2016: Terms of Reference (available on the TPOS 2020 website, see: Task Teams).

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](mailto:gyang@fio.org.cn)

## **Distributed Project Office**

This Month's Activities:

- Supported ongoing work of ensuring that the community review of the Report is conducted as planned
- Working with host personnel at IGP to provide logistics support for the upcoming SC-3
- Generated the first draft of the SC-3 Agenda for comment and adaption
- Continued to work on TRF related planning

Upcoming Activities:

- Continue management and oversight of the First Report community review process, comment adjudication, and writing needs
- Ongoing planning activities for the SC-3 in late October
- Creation of Project Year Three Integrated Master Schedule
- Ongoing consideration and planning for TRF activities in 2016 and 2017

Last Month's Activities:

- Worked with the Co-Chairs and lead authors to present the expert reviewer comments for efficient review and adjudication
- Supported Lead Author, EP, MDA, PBL, WP, and SC WebEx session required to review comments and assign writing needs
- Conducted extensive efforts to ensure Report references and formatting were accurate and supported document ease of use

Published/Posted Materials:

- Released: Engagement Plan V2
- Released: Project Management Plan V1
- Released: 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.

Point of Contact:

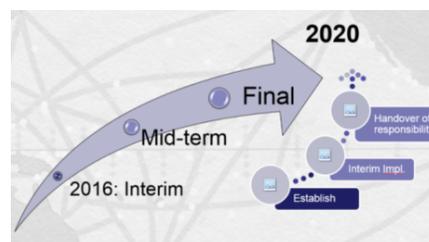
Senior Project Manager -> Andrea McCurdy, [mccurdy@ucar.edu](mailto:mccurdy@ucar.edu)

## CROSS-PROJECT DEPENDENCIES AND OPPORTUNITIES

1. The draft timeline 'First Report of TPOS 2020' 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:
2. Selection of Coordinating Lead Authors was completed in January 2016
3. Preparation of 1<sup>st</sup> draft Interim Report outline was completed in December 2016
4. Preparation and posting of the First Report of TPOS 2020 was completed and posted online. Deadline for comment is 23 September 2016.
5. Preparation of final Report, October 2016
6. Acceptance of Report at the 3rd Session of the TPOS 2020 Steering Committee, Released December 2016

## PROJECT SCHEDULE

- During the SC-2 the Co-Chairs outlined a staged process, with the First Report of TPOS 2020 in 2016; a Mid-term Report publish in 2018, and a Final Report with the closure of the Project in.
- The Project has also launched initial efforts toward the articulation of a TPOS 2020 Transition Plan.
- The WP-TT has also launched a ship and cruise availability document that will be posted on the website.



## 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:

- June 2016: NOAA announced \$4.5M in funding for new observing technologies for ENSO research and predictions: <http://cpo.noaa.gov/AboutCPO/AllNews/TabId/315/ArtMID/668/ArticleID/537981/NOAA-announces-45M-in-funding-for-new-observing-technologies-for-ENSO-research-and-predictions.aspx>
- 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)