



Project Management Plan

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Project Website: www.tpos2020.org

Document Tracking Sheet

Version	Date	Author(s)	Changes Overview	Approval
0-0	10/1/14	McCurdy/Hill	Initial Draft	Not scheduled
0-1	10/25/14	McCurdy/Smith	Content and Structural Changes	Not scheduled
1-0	01/22/15	McCurdy	Content Changes to Reflect PEP V1	Not Scheduled

This document will be reviewed and revised annually, or as directed by the TPOS 2020 Executive.

2014 / 2015 Project Management and Distributed Project Office Timeline:

October – December 2014:

- Project Plan Drafted and Approved
- Subsequent Plans to be Drafted and Approved
 - Project Execution Plan

January – March 2015:

- Known DPO Resource Needs Identified
- DPO Gaps and Identified and Requirements Gathering Plan in Place
- Engagement Action Plan Developed

April – June 2015:

- DPO Reaches a Steady-state of Operations (Scheduling, Risk and Changes Control, Reporting)

July – September 2015:

- Gaps, Requirements Articulated
- Additional Resources Identified
- DPO Activities Evaluated and Modified

October 2015:

- Project Plans Updated

Executive Summary

The TPOS 2020 Project will evaluate, and where necessary change, all elements that contribute to the Tropical Pacific Observing System (TPOS¹) based on a modern understanding of tropical Pacific science. The project aims for enhanced effectiveness for all stakeholders, informed by the development and 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.

TPOS 2020 will operate as an independent Project and work through its sponsors to ensure all dependencies and links are appropriately managed. As such, four primary elements are included in the governance of the Project:

- A TPOS 2020 Steering Committee responsible for oversight and coordination.
- 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 Project Office focused on coordination activities supported and resourced by the sponsors.

TPOS 2020 is a focused, finite term project, beginning in 2014 and completing in 2020, with its primary outcome being an internationally-coordinated and supported sustainable observing system for the Tropical Pacific Ocean. The Project will work within the Framework for Ocean Observing developed by the Global Ocean Observing System (GOOS) and use this as a reporting mechanism to other relevant coordination mechanisms. A sustained TPOS will be its principle outcome and legacy for GOOS.

Since the TPOS does not and will not exist in isolation, the TPOS 2020 project welcomes partnerships with other global ocean observing communities, the meteorological community, and the operational centers that use TPOS data for ocean state estimates and forecast initialization; along with coastal and regional ocean communities. The Project must facilitate and embrace observing element contributions from multiple agencies and countries, through a coordinated portfolio of resources and high-level oversight of the scientific and technical design, sub-projects and interfaces to the user community.

Toward this end a TPOS 2020 Steering Committee (SC) was formed in 2014 and subsequently formed five Task Teams with the challenge of organizing activities. It is through this structure and partnerships that TPOS 2020 will design a modern, sustained tropical Pacific observing system that meets both science and societal needs.

¹ TPOS is used when referring to the observing system, and TPOS 2020 is used when referring to the project.

Project Execution

This Plan supports the TPOS 2020 goal to achieve a significant change in all elements that contribute to the TPOS, including greater and continued efficiency, greater effectiveness, enhanced robustness and sustainability, and improved governance, coordination and supporting arrangements, and to facilitate and embrace contributions from multiple agencies and countries. The structure for TPOS 2020 consists of inter alia, of a Steering Committee to oversee scientific objectives, technical design and implementation issues, and a Resources Forum with representatives from sponsors.

TPOS 2020 will employ a “lite” Project Management model, with the focus on coordination and oversight of the resources and scientific and technical aspects. The Project will report to the GOOS Steering Committee but otherwise will exercise significant autonomy.

The key governance elements are:

- A TPOS 2020 Steering Committee responsible for oversight of in-scope activities, the System design and implementation plan, and coordination with other relevant scientific/expert panels and bodies.
- A Resources Panel/Forum broadly representative of the sponsors of TPOS 2020 and responsible for coordinating the variety of resources needed for the Project to succeed.
- An Executive, populated from the leadership of the Steering Committee and the Resource Forum and responsible for reporting and communication.
- A Distributed Project Office (DPO) consisting of the equivalent of three or more full-time employee, as appropriate, with the office and coordination activities supported and resourced by the sponsors.
- Task Teams, Sub-projects, workshops, plans, and lines of support that will evaluate activities required to meet science, technological, and data needs of the project.

Scope Management

ENSO Research is still the dominant driver for many of the important TPOS requirements. Currently, the presence of significant systematic errors in coupled atmosphere-ocean models present serious limitations, however, in the future the use of TPOS observations and process studies will lead to improved model formulation.

In general, areas identified as requiring increased observational focus included:

- Evaluation of the backbone of the observing network, including broad-scale aspects of the TPOS.
- Elaboration of the scientific need and feasibility of observing the planetary boundary layers, including air-sea fluxes, near surface processes and diurnal variability,
- Evaluation of approaches to observation of the eastern and western boundary regions,
- Development of rationales, requirements and strategy for biogeochemical observations, and
- Consideration of approaches to advancing modelling, data assimilation and synthesis so that observations can achieve their fullest impact.

Requirements Management

TPOS 2020 will be managed as a leading example of the use of the principles and processes of the Framework for Sustained Ocean Observing as guidelines for regional and thematic requirements setting, and observing system and data product evaluation. In alignment with the science themes, and through a focus on multi-disciplinary Essential Ocean Variables or EOVs, and as appropriate TPOS 2020 will work in conjunction with the GOOS Steering Committee, Physical/Climate, Biogeochemical/Carbon, and Biology/Ecosystem Expert Panels and other groups such as the OOPC, WRCP, and CLIVAR to focus the redesign and maturation of TPOS during the project period and throughout the lifecycle of the observing system.

Stakeholder Management

A critical role of the TRF will be to support the work and sub-project work of the Steering Committee as it conducts its design and planning activities for the future of TPOS.

As such there is an urgent need for the TPOS community to explore strategies to minimize the impact of the reduction in the TRITON array. TPOS 2020 will address the urgent need for communication and coordination among all partners:

- An assessment of risks to the observing system and associated mitigation
- Given TAO and TRITON issues, improved and regular communication is needed between all contributing and implementation partners
- Discussions with interested organisations should be initiated to broaden engagement in supporting the TPOS, enabling new partners to participate.
- Sufficient redundancy should be built in to ensure independent cross-platform quality checks and mitigate the risk of platform bias.
- Improved strategies for coordination and oversight of the observing system, including ongoing evaluation, are needed.
- Ongoing scientific oversight of the design, implementation, and evaluation of the TPOS and its components is needed.
- There should be a long-term plan for dedicated servicing support for the TPOS.

The DPO will work with the Steering Committee and the Project Tools described below to ensure that there is appropriate reporting and communications in place to keep internal and external stakeholders engaged and well informed.

Project Management Tools

During the development of TPOS in the next decade, further consideration of a management structure is needed. Currently driven by models in the Atlantic and the Indian Ocean, coordination is focused around requirements, facilitation, and scientific oversight, which has been cited as key to the success of these activities. However, there is currently no formal scientific or implementation oversight of the TPOS. As such the primary partners are not in focused communication. In order to facilitate the required dialogue and to effectively plan for- and evolve the observing system, scientific oversight and advocacy is now considered essential, among the three partners along with all interested parties.

Increasingly there is a need to routinely consider complete observing system asset deployment and maintenance needs. The deployment requirements for disparate observing networks are often considered separately, with the exception being P.I.s contacting each other to find efficiencies, e.g., by deploying Argo floats or drifters from a ship servicing moorings, or on repeat-hydrography cruises. As the ancillary measurements on the ships servicing the moorings have been reduced, for the broader observing system, dedicated cruises are becoming a shifting consideration during observing system design. To this end, the JCOMM in situ Observing Platform Support Centre (JCOMMOPS) ships coordinator is developing a database of ships and cruises to help find synergies. However, more deliberate planning and risk assessment activities would further benefit the community.

The DPO will develop communications, and coordination tools that will facilitate this integrated decision making, and provide access to relevant deployment and observing asset decision making tools. The following tools are required to track the commitments to various 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.

The tools and resources of TPOS 2020 will be described in detail in the Project Execution Plan (PEP) and consist primarily of the items listed in the following overview. The DPO will manage a suite of online and reporting tools that support these items and rely primarily on open source packages and resources.

Individual and Integrated Master Schedule

To determine the status of the observing system, metrics have been developed whereby progress can be assessed against a target deployment plan. However, the metrics and targets have historically been developed network by network, with a consequent lack of integration. The needs and usefulness of metrics to stakeholders also need to be considered, i.e., the status of observations by variable and delivery of products and information, and these are being developed at a global level through the OOPC and the JCOMM Observations Programme Area. The DPO will address this deficiency by creating project schedules based initially on the TPOS 2020 structure. These schedules will ultimately evolve to track development and maintenance of TPOS based on scientific and societal needs.

At the direction of the TPOS 2020 Leadership the DPO will create a Work Breakdown Structure (WBS) and suite of schedules and an Integrated Master Schedule (IMS) that combines the activities, resources, and milestones of the following:

- Steering Committee
- Resource Forum
- Task Teams
- Sup-projects such as: Workshops, Process Studies, Ongoing projects
- Distributed Project Office

Using Microsoft Project (or a similar tool) the DPO will create individual and an IMS based on the Project's WBS and designed to track formalized project resources, cross-project dependencies, and associated deliverables.

Stakeholder and Sponsor Engagement

The TPOS 2020 Leadership is very concerned with the implementation of a highly targeted Engagement Action Plan that will address the very specialized needs and requirements of TPOS 2020 members and stakeholder nations. The DPO will manage an Engagement Plan (EAP) at the direction of the Project Leadership to address internal and external stakeholder and sponsor engagement needs. The DPO will work with a highly specialized communications team to create and iterate a highly dynamic engagement strategy. The Plan, and its implementation activities, will be developed in a collaborative fashion with a great deal of input from Project Leadership, SC members, and experts.

The EAP will be created and managed as a stand-alone Plan, with its role in the overall operation the project described in the PEP.

Reporting and Communications

Critical to the successful execution of a geographically distributed project is a sound and effective communications and reporting strategy. Below is a list of the key components of the project. The DPO will manage their development and use:

- Project Reports:
 - DPO-member weekly reports
 - TPOS 2020 Monthly Status Report (MSR)
 - SC and TRF Meeting Reports
 - Project Execution Plan (updated annually as needed)
 - Annual Work Plan
- Project Communications:
 - External web presence: news, schedules, project released documents
 - Project member Intranet: protected, virtual collaborative work spaces and tools
 - Press communications and outreach
 - Configuration management: file naming, formatting, version tracking
 - Branding: messaging, document look and feel

Additional detail regarding the content, distribution, and use of these resources is further articulated in the PEP.

Project Change Control

In order to more formally track and assess the impact on the resources being provided to TPOS 2020, as well as those being delayed or withdrawn, the project will adopt a change control process. The tool will be designed to allow for both the evaluation and publication of changes in TPOS 2020 and related pilots, projects, and milestones. A change control board will be identified with the charge of determining when a change control session is required and convening impacted parties.

To help facilitate the change control process, the PEP will contain a change control 'request' form that will be used by project members to articulate and socialize changes that may impact other areas of the project and their activities.

Risk and Opportunity Assessment

The lead time required for planning and implementation can lead to a plethora of deployment and maintenance vulnerabilities. Significant lead time is needed for procuring ship time, securing expertise, and procurement of customs clearance processes, etc; making it difficult to respond to short-term challenges. Therefore, ongoing tracking and consideration of risk and opportunities is required in order to anticipate potential upcoming needs and synergies. This customized tool will be designed track the 'critical path' and report to impacted parties and stakeholders on the likelihood of schedule changes. It will also provide a mechanism and procedural protocol designed to generate a strategy to mitigate negative project impact and capitalize on potential positive results.

Initially project risk will be articulated via a Risk form. Multiple risks will be tracked, and made available for review via a single Project-wide risk spreadsheet. The publication and mitigation of project risks plans and processes is described by the PEP.

Resource and Availability Tracking

As in-kind support is a major factor in the success of TPOS 2020, the DPO will establish a resource tracking spreadsheet managed at Ocean Leadership. The focus of this tool will be the ongoing management of funded and in-kind costs, and other contributions. Should resources for various efforts be funneled through Ocean Leadership, sufficient tracking tools will be generated to accommodate the needs of the funding sources. At the direction of the Executive, sponsors and stakeholders these reports will be summarized in the Monthly Status Reports.

Resource tracking, reporting and related activities will be described in the PEP.

DPO Assessment

The specifics associated with the role of the DPO and its nodes are defined according to a requirements-setting exercise conducted annually. The personnel needs of the DPO are assessed based on the input and reported issues provided by the DPO-member weekly reports. Based on these two activities, the Project Leadership, SC, TRF, and TT members will formally evaluate the role and effectiveness of the DPO. Annually, the Project Leadership will redefine and revise the role of the DPO.

DPO role modifications will be reflected in the annual assessment and revision of the PEP and AWP.

Executive Committee Advisory

The development and use of the Project Management Tools will be guided by the Steering Committee and Resource Forum. This body is populated from the TPOS 2020 Leadership.

As determined by the leadership, meeting frequency and meeting protocol will be developed along with the other requirements discussed in this Plan and the PEP.