



**Terms of Reference
for the Physical Oceanography Distributed
Active Archive Center
Early Adopters Program**

4 March 2019

Document Change Record

| Date | Author(s) | Change Description |
|-------------|---------------------|------------------------------|
| 23 Jan 2019 | Catalina M. Oaida | First Draft |
| 29 Jan 2019 | Michelle Gierach | Edits to First Draft |
| 29 Jan 2019 | Catalina M. Oaida | Second Draft |
| 26 Feb 2019 | Catalina M. Oaida | Third Draft |
| 1 Mar 2019 | Margaret Srinivasan | SWOT Applications Lead Edits |
| 4 Mar 2019 | Catalina M. Oaida | Final Draft |
| | | |
| | | |

I. Purpose

The purpose of this Terms of Reference (TOR) is to outline roles and responsibilities for the Physical Oceanography Distributed Active Archive Center (PO.DAAC) Cloud Early Adopters Program, and to ensure expectations are understood by both parties (PO.DAAC and Early Adopters) as to the level of utility of the Services and Datasets being tested. The commitment by Early Adopters to participate in pre-launch PO.DAAC Cloud development activities will play an important role in meeting the greater user community's expectations and needs when using PO.DAAC provided Datasets and Services in a Cloud environment. In exchange, the Early Adopters will have (i) the opportunity to provide first-hand input on their specific needs when using SWOT or SWOT-like data in their workflows, system, model, or application, as well as the chance to be among the first users to learn or transition to the Cloud using PO.DAAC supported data Services.

II. Background

The mission of the Physical Oceanography Distributed Active Archive Center (PO.DAAC), <https://podaac.jpl.nasa.gov>, which is an element of the Earth Observing System Data and Information System (EOSDIS), is to preserve NASA's ocean and climate data and make these universally accessible and meaningful. PO.DAAC is the primary archive for the Surface Water and Ocean Topography (SWOT) mission. Expected to launch in 2021, SWOT will be generating nearly 66 PB of data during the life of its mission (~20 TB/day), and will contribute datasets of great use to a wide variety of scientific and application communities. The new era of big data from Earth observations offers the opportunity to rethink the design of end-to-end data system architecture and services, particularly in a Cloud computing environment. In anticipation of this unprecedented volume of data, PO.DAAC is evolving to enable back- and front-end Cloud-based Services, including data storage, search and discovery, access, and analysis, in addition to the current, more established "download and analyze" paradigm. This effort is leveraging the Earth Science Data Information System (ESDIS) cloud-based data management system.

These new Services are complemented by a PO.DAAC user Engagement Plan, whose main objective is to ensure users are ready to utilize SWOT data in this new Cloud environment. The Cloud-based Services development and Engagement Plan are designed with a wide range of users in mind, including research scientists, value-added producers, decision makers, and other applications. The Engagement Plan and its implementation will include, among other things, development and testing of resources to facilitate the user's transition to discovering, accessing, and analyzing data on the Cloud. The Early Adopters Program is an essential part of NASA and PO.DAAC's efforts to develop capabilities that enable science and applications on the Cloud, and thus an important part of the Engagement Plan, to ensure new capabilities meet user needs.

III. Roles and Responsibilities

ESDIS and PO.DAAC plan to develop and implement the distribution, access, and usability of SWOT data in a Cloud environment, such that users can employ them as soon as SWOT science data is available. These Services will be rolled out in phases as progress is made, for testing by Early Adopters. Note that these services will be prototypes and thereby not free of bugs, nor final versions.

Early Adopters will:

- Test and provide feedback on Cloud Services;
- Beta test the data pipeline into their own workflows;
- Test and provide feedback on training materials, e.g., tutorials/jupyter notebooks/recipes for discovering, searching, accessing, utilizing (SWOT) data on the Cloud;
- Co-develop application-specific training materials (e.g., jupyter notebook/recipes) *Note PO.DAAC will not publicly re-distribute or publish the Early Adopter-provided source code without the approval of all parties and abide by existing data fair use practices and policies as stipulated by the respective site or site network organization;*
- Provide feedback on pain points regarding transitioning to the Cloud, e.g., barrier types: technical, institutional, knowledge, money, resources (e.g. IT);
- Suggest relevant datasets from their respective community of practice
 - For validation of, or comparison to, SWOT
 - Data that may complement SWOT data;
- Be ambassadors for PO.DAAC Cloud development activities.

The PO.DAAC will provide:

- Defined boundaries for Early Adopters to operate within;
- Access to PO.DAAC Services being developed, e.g., search, access, download, subset;
- Access to simulated and/or complementary SWOT datasets (as made available) - *Note that the purpose of the datasets made available as part of the Early Adopters Program is solely to test PO.DAAC Services, and thereby may not be applicable for scientific endeavors at this time;*
- Training materials, including recipes/tutorials;
- Specifications, guidance or best practices on how to develop recipes that can be used with PO.DAAC data on the Cloud.

IV. Meetings & Communication

The PO.DAAC Cloud Early Adopters Program will commence Spring of 2019 and is expected to end Summer/Fall of 2022. Meetings will consist of quarterly teleconferences, with the possibility of one in-person meeting/training as the SWOT launch nears and PO.DAAC developments significantly progress. Depending on budget availability, PO.DAAC may cover travel costs for such an in-person meeting at the Jet Propulsion Laboratory, California, USA. Materials and other information will be disseminated throughout the program duration. Early Adopters are welcome to reach out to the PO.DAAC Point of Contact listed below at any point during the duration of the PO.DAAC Cloud Early Adopters Program with related inquiries.

V. Limitations

Any and all roles and responsibilities listed in this TOR are subject to the availability of appropriated funds and budget priorities of each party. Nothing in this TOR, in and of itself, obligates the PO.DAAC Project or the Early Adopters to expend appropriations or to enter into any contract, assistance understanding, interagency understanding, or other financial obligation.

VI. Points of Contact

The following individual is designated the point of contact for the PO.DAAC Cloud Early Adopters Program:

Catalina M. Oaida, PhD

Science User Services Engineer

Raytheon Company

Jet Propulsion Laboratory

Pasadena, CA, USA

Email: Catalina.Oaida@jpl.nasa.gov

Tel (office): (+1) 626-744-5558