SWOT Early Adopters Guide

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swot.jpl.nasa.gov/applications
SWOT Early Adopter Program Guide

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DEFINITIONS:
Applications are defined as innovative uses and integration of future SWOT data products and simulated SWOT data products in decision-making activities and operational activities for societal benefit. This may include, but is not limited to, the use of future SWOT data in modeling, forecasting and/or operational activities.

Applied research will provide fundamental knowledge of how SWOT data products would be scaled and integrated into users’ policy, business and management activities to improve decision-making efforts.

Early Adopters (EAs) are a subset of users who have a direct or clearly defined use for future SWOT-like lake, reservoir, and river levels and sea surface height and other ocean data, and who are planning to apply their own resources (funding, personnel, facilities, etc.) to demonstrate the utility of SWOT data for their particular system, model or application.

SWOT Applications Working Group (SAWG) is a group comprised of the SWOT Applications Coordinators, SWOT science team members, project personnel, and representatives from key user communities who come together to coordinate and organize efforts to promote the use of SWOT simulated datasets for current and future applications, and to identify and reach out to and educate potential user communities about the utility and accessibility to future SWOT data.

Users include individuals or groups in the public or private sectors who may have specific uses for future SWOT data for applications at local to global scales.

PROGRAM DESCRIPTION:
The goal of the SWOT Early Adopter program is
1) to expand the user communities with tangible and potential applications that would benefit from the use of SWOT data sets,
2) to facilitate feedback on SWOT data products pre-launch, and
3) to accelerate the use and integration of SWOT products into applications post-launch by providing specific support to Early Adopters who commit to engage in pre-launch applied research.

This is a non-funded activity for projects to be completed with quantitative metrics prior to launch.
Potential Early Adopters may review the SWOT Applications Plan (available at http://swot.jpl.nasa.gov/applications/) for relevant information on the proposed SWOT mission objectives, applications focus areas, the SAWG members, and more. Additional information about the mission and science objectives may be found at the following links;

- SWOT web site; http://swot.jpl.nasa.gov
- SWOT Science web page; science objectives, science plan, and ST; https://swot.jpl.nasa.gov/science/
- AVISO+ website; http://www.aviso.altimetry.fr/en/home.html

In order to optimize efforts, we will concentrate on following focus areas of relevant applications;

**SWOT Applications Focus Areas**

- **Hydrology:**
  - Water governance (transboundary river) and estuaries management
  - Developing world water problems (water supply, drinking water, health)
  - Food security (flooding & drought) risk management
  - Reservoir storage and water management (energy, agriculture, civil engineering)
  - Transport

- **Oceanography:**
  - Coastal circulation, coastal erosion
  - Marine operations, open ocean issues
  - Fisheries

- **Climate and Weather forecast:**
  - Regional capabilities
  - Coastal impacts
  - Agricultural impacts

**Early Adopters agree to:**

1) Engage in pre-launch research that would enable integration of SWOT data after launch in their application;
2) Complete the proposed project with quantitative metrics prior to launch;
3) Partner with a SWOT Science Team (ST) member working in a supporting or auxiliary field;
4) Participate in SWOT Applications Working Group-driven activities related to SWOT mission data products and specific application needs; and
5) Participate in the implementation of the SWOT Mission Applications Plan by taking lead roles in SWOT applications research, meetings, workshops, and related activities.

**The SWOT Project agrees to:**
1) Incorporate the Early Adopter contributions into SWOT Mission Applications Planning;
2) Provide Early Adopters with proxies to SWOT data products developed by ST members or from Project data simulators, when available (via the NASA Physical Oceanography Distributed Active Archive Center, PODAAC, podaac.jpl.nasa.gov, or as otherwise provided from the SWOT Project or SAWG);
3) Provide Early Adopters with planned pre-launch calibration and validation (cal/val) data, modeling, and synergistic studies;
4) Provide opportunities for the Early Adopter to participate and present their contributions at SWOT applications research, meetings, workshops, or related activities.

**NOMINATION PROCESS:**
Prospective Early Adopters may request nomination to the SWOT Early Adopters Program from the SAWG on the SWOT website http://swot.jpl.nasa.gov/applications/. The opportunity will also be sent to relevant email listserves. The first announcement follows 1) the establishment of the SWOT Applications Working Group and 2) the second SWOT Applications Workshop. Subsequent announcements are made semi-annually, at a minimum. Application deadline will be indicated. The time between announcement and submission deadline is approximately three months (generally announced in the Fall timeframe).

**Nomination:**
The nomination process is simple. Early Adopters fill out the *SWOT Early Adopter Agreement (EAA)* form (see SWOT Applications web site) to provide a summary of proposed project and activities. This form includes a description of the applied research, and is submitted to the Applications Leads of the SAWG. The EAA provides the following information:
1. Title of Early Adopter application and Contact information;
2. Name of ST member affiliate (see *SWOT Science Team* member or members). Please confirm with this person in advance.
3. Description of system or model, including data currently used and ancillary data needs;
4. Approach to solve basic challenges in applying SWOT products and/or to move SWOT products into routine operations;
5. Foreseeable requirements for pre-launch simulated data products and plans for field experiment demonstration;
6. Milestones and quantitative metrics that will assess impacts of SWOT products on the application during the pre-launch phase; and
7. Post-launch implementation strategy (if any).

**SELECTION**
Selections are made by the SAWG, the SWOT Project Manager, and the SWOT Project Science Leads. The selection criteria are:
- Strength of end-user connection
- Potential for reaching ARL Level 7-9 post-launch (see http://www.nasa.gov/sites/default/files/files/ExpandedARLDefinitions4813.pdf)
- High chance of success
- Reasonable and justifiable metrics
• High impact application
• Appropriate understanding of SWOT and how it can support the project

The desired topics of accepted Early Adopter proposals would cover
• Diverse topics and societal needs
• Diverse SWOT products
• Diverse geography

The SAWG Chairs organize the nominations, creates a summary table, and distributes all the nominations to the selection committee approximately 45 days prior to the next ST meeting following the selection process. The SAWG meets following the ST meeting to review proposals, communicate findings with Project and Science Leads, and make a collective decision. The process is confidential until the selections are announced.

Announcing selections:
After selection of EA projects, the SAWG Chairs write a report that includes;
• Meeting attendees and discussion notes,
• A table of the nominations submitted,
• A table of the nominations selected with the SWOT ST contact identified,
• Draft emails that can be sent by the NASA Headquarters Program Applications Lead to each nominee,

The SAWG finalizes the report and NASA Headquarters sends all emails. At that time, the table of Early Adopters, affiliations, titles, and SWOT ST contacts is posted on the SWOT website. This happens within approximately one month of the decision.

CONTACTING THE NEW EA:
After the announcement, the SAWG Chairs contact each EA individually to finalize the EAA Exhibit 1 to the mutual agreement of the PI and the SWOT Project. The PIs arrange for signature by the representative of the institutions and returns the EAA to the SAWG Chairs. The SAWG Chairs arrange for signatures by the SWOT Project Scientist. Copies of the fully signed EAA are forwarded to the PI and all signatories.

The SWOT ST contact assigned to each new EA are expected to:
1) Help the Early Adopters get access to and resolve issues with SWOT pre-launch data sets;
2) Facilitate their research and receive feedback to the SWOT project on research metrics;
3) Report on EA successes, challenges and progress during SWOT ST meetings (in person when possible, or by proxy); and
4) Attend quarterly conference calls with all EA and the SAWG. This will be a chance for feedback from EA and updates on their research.

The SWOT Algorithms Working Group Chair and SWOT Data Systems Engineer are tasked to be the point of contact for algorithm and data questions (respectively), when necessary. The
SAWG Chairs are responsible for encouraging frequent and productive communications between EAs and their SWOT Project contacts.

SWOT Early Adopter program is integrated with SAWG activities and is carried out mainly through emails, telecons, workshops, tutorials and focus sessions organized by the SWOT Project and the SAWG. The SAWG also takes advantage of member attendance at conferences such as AGU and IGARSS to meet in person when possible.

**SWOT Applications activities:** Workshops and Tutorials are designed for large, broad attendances. Focus Sessions are designed for small thematic groups:

- **SWOT Applications Workshop:** A workshop is set up yearly or every two years and provides feedback to the NASA and CNES SWOT Mission about SWOT product applications. The workshop is designed to give an update of the mission to the community and to provide information about SWOT hydrology and oceanography data products on a broad scale. Users and Early Adopters are included in the program to provide examples of SWOT Applications. Workshops are held on-site (e.g., at NASA, NOAA or USGS, AVISO, for example), open to everyone, and organized by the SAWG and SWOT scientists. Reports are posted on the SWOT website.

- **NASA Applications Tutorial:** Tutorials differ from the SWOT Applications Workshop by including multiple NASA Decadal Survey Missions. Tutorials are designed to discuss products and applications of multiple NASA Decadal Survey Missions and address similar and/or complementary application opportunities to leverage and combine data sets. Like workshops, tutorials are held on-site (e.g., at USGS), open to everyone, and organized by the SAWG and Project Science Leads from multiple missions. Reports are posted on multiple mission websites.

- **SWOT Applications Focus Session:** Focus Sessions are generally half-day events added to already-organized meetings that have a concentration of SWOT users (such as the ST meetings, EGU, AGU, etc.). The goal is to provide user-specific support and information on SWOT products, related directly to the users’ mission objectives. In this case, the users organize the event and SWOT Scientists make presentations and facilitate discussions. Action items are summarized and distributed for follow-up.