SWOT APPLICATIONS

Looking to Launch and Beyond!

SWOT Applications Launch Activities

Alongside the SWOT Project and the SWOT Science Team, the SWOT Applications Team is looking forward to a successful launch of SWOT in early December 2022 from California's Vandenberg Space Force Base. We continue to support the SWOT Early Adopters (EA) in their preparations for operationalizing SWOT in their science data systems in 2023. We participated in the SWOT Science Team Meeting in June with an update on Applications program highlights and plans. Check out the presentations at the 9th SWOT Applications Meeting in early September 2022, which included overviews and status updates from many of our SWOT EAs. Recordings of talks will be available at that link soon and read the summary below.

SWOT LAUNCH/PREP RESOURCES: View and share these products & information links from our Media and Communication groups, including where to watch the launch. Enjoy!

- A video highlighting SWOT Applications
- The SWOT L-30 (launch minus 30 days) briefing
- SWOT Press Kit
- 5 Things to Know About SWOT
- Youtube Social Media event (starts at about 11 min in)
- Watch a **livestream of the SWOT launch**, currently scheduled for 3:46 am on 12 December 2022 at NASA Live or at NASA YouTube.

Watch for more features and media highlights about SWOT in the news and on NASA social media outlets in the coming weeks. It's an exciting time for us all!

SWOT Early Adopter Highlights

Below we highlight the projects of our newest SWOT Early Adopters! **ICUBE-SERTIT** (Strasbourg, France); **Megellium** (Toulouse, France), and **FUNCEME** (Ceará, Brazil).

These SWOT Early Adopters are building literacy and user preparedness for SWOT in advance of validated data availability in 2023. We expect these agencies to yield highly-visible success stories on SWOT applications by addressing critical societal needs at local, regional or global scales.

Our SWOT Early Adopters will demonstrate the return on public investment of SWOT by demonstrating the value of SWOT data and information products.

SWOT Applications at a Glance

9   Application Meetings & Workshops

3   Virtual Hackathons

25   SWOT Early Adopters

17   Articles & peer-reviewed papers on SWOT Applications

- Online Education & Training
- 100+ citizen science LAKES GAUGED by Early Adopters for SWOT cal/val
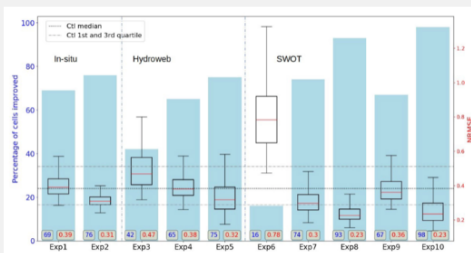- Field Data sharing with SWOT Science Team for product development

FUNCEME

Title:
Assessment of SWOT data for the detection, characterization, and monitoring of small reservoirs in the Brazilian Northeast

Leads:
Dr. Eduardo Sávio Passos Rodrigues Martins; Dr. Marielle Gosset; Dr. Alfredo Ribeiro Neto; Dr. Antonio Geraldo Ferreira; Rafael Reis Alencar Oliveira, PhD Student

In the semi-arid Northeast (Nordeste; NE) of Brazil, water resources are disseminated through more than twenty thousand reservoirs ranging from 0.5 to 25,000 ha, including state monitored reservoirs larger than 5,000 hectares, and small farm reservoirs of less than 1 ha. Over the years, and as the region has experienced several severe droughts, the number of small reservoirs has grown chaotically. SWOT data will be useful for model calibration/validation; and during the model real time operation, SWOT data could be assimilated for dynamical constraint of the model's trajectories.
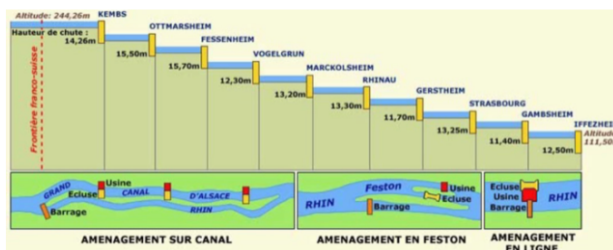
Read More >

Magellium

Title:
Assimilating SWOT observations into a large scale hydrological model: case studies over African ungauged basins

Leads:
Dr. Vanessa Pedinotti

Rivers in Southeast Asia such as the Chindwin River in Myanmar, Tonle Sap River in Cambodia, the transboundary Mekong River and other major rivers in Lower Mekong countries, are prone to flooding. For flood preparedness and disaster response planning, stakeholders require accurate prediction, modeling or monitoring of inundation extent during flood events.

Read More >

ICUBE-SERTIT

Title:
Support for the development and validation of a priori water masks, databases and lake processing, and CALVAL SWOT HR activities

Leads:
Dr. Herve Yesou

SERTIT supports the CNES SWOT project team to build a priori data sets and to set up a Calval plan over the Rhine Tier 1 site within the Grand Est Region or France. The main objectives of the study are to provide support to the CNES team on:
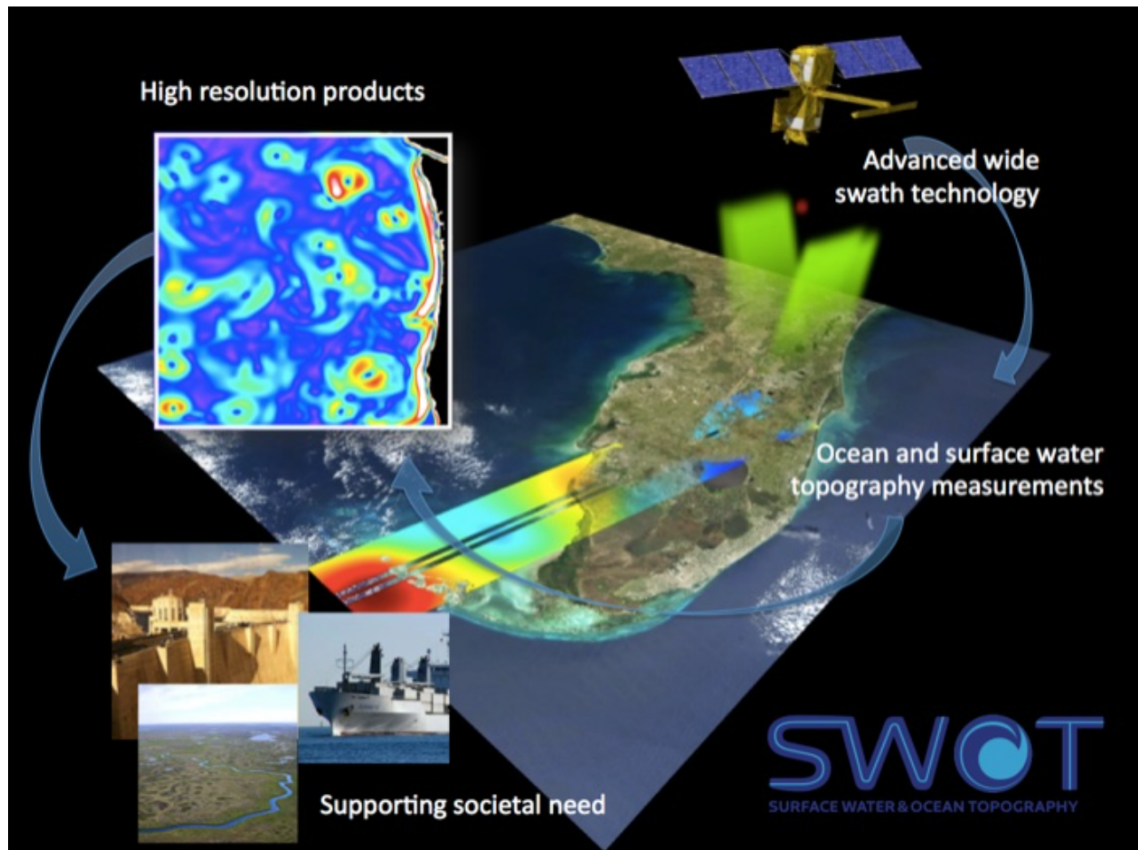
- The improvement of the a priori masks for the processing of SWOT HR L1 data, from several information sources,
- Validation of the a priori lake and river databases for SWOT HR L2 processing and products
- Validation of the lake algorithms

Read More >

Upcoming Meetings:

South America Water From Space, November 2022, Foz do Iguacu, Brazil
AGU Fall Meeting, December 2022, Chicago, IL & Online

SWOT Media Galleries

Visit links below for more information:

- swot.jpl.nasa.gov/applications
- www.aviso.altimetry.fr/en/applications.html
- depts.washington.edu/saswe/swot

SWOT Applications After Launch

After SWOT launches, the Science Team and SWOT Project will turn their attention to the spacecraft and instrument systems that make up this revolutionary platform. The first six months after launch will be the Calibration & Validation Phase. During this period, a three month 1-day-repeat-orbit phase with enhanced temporal resolution (sacrificing spatial resolution) will help optimize ground processing, and data and error budget validation. This period will be followed by the Science Phase, with 21-day repeat orbits over the SWOT measurement area. Later in 2023, SWOT data products will be available to all for science and operational uses.

SWOT is a pathfinding mission that will monitor the precious resource of Earth's surface water on a global scale – something that has not been possible before.

Applications activities highlights;

- Since 2012, the SWOT Applications program has expanded awareness of SWOT's societal value and generated anticipation for SWOT data among potential users.
- SWOT Applications program pioneered infrastructure for 24/7 community-driven online education/training for building technical literacy on SWOT.
- Many SWOT Early Adopters are funding application-critical science; providing cal/val infrastructure for lake data product, and adding value to Science Team activities.
- SWOT Early Adopter Program continues to grow -- spanning the Americas, Europe, Asia, & Africa—and represents the private, public and research sectors.