

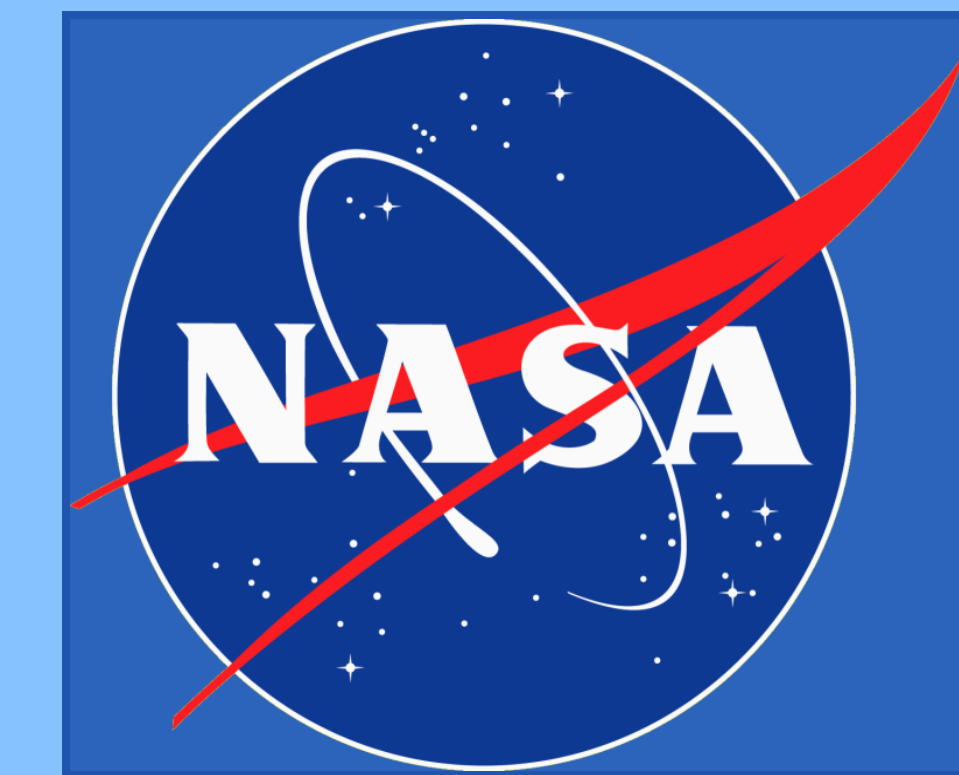


ATMOSPHERIC SCIENCE DATA CENTER

A13M-2352 Facilitating Field Observations Based Atmospheric Composition Research via. SOOT

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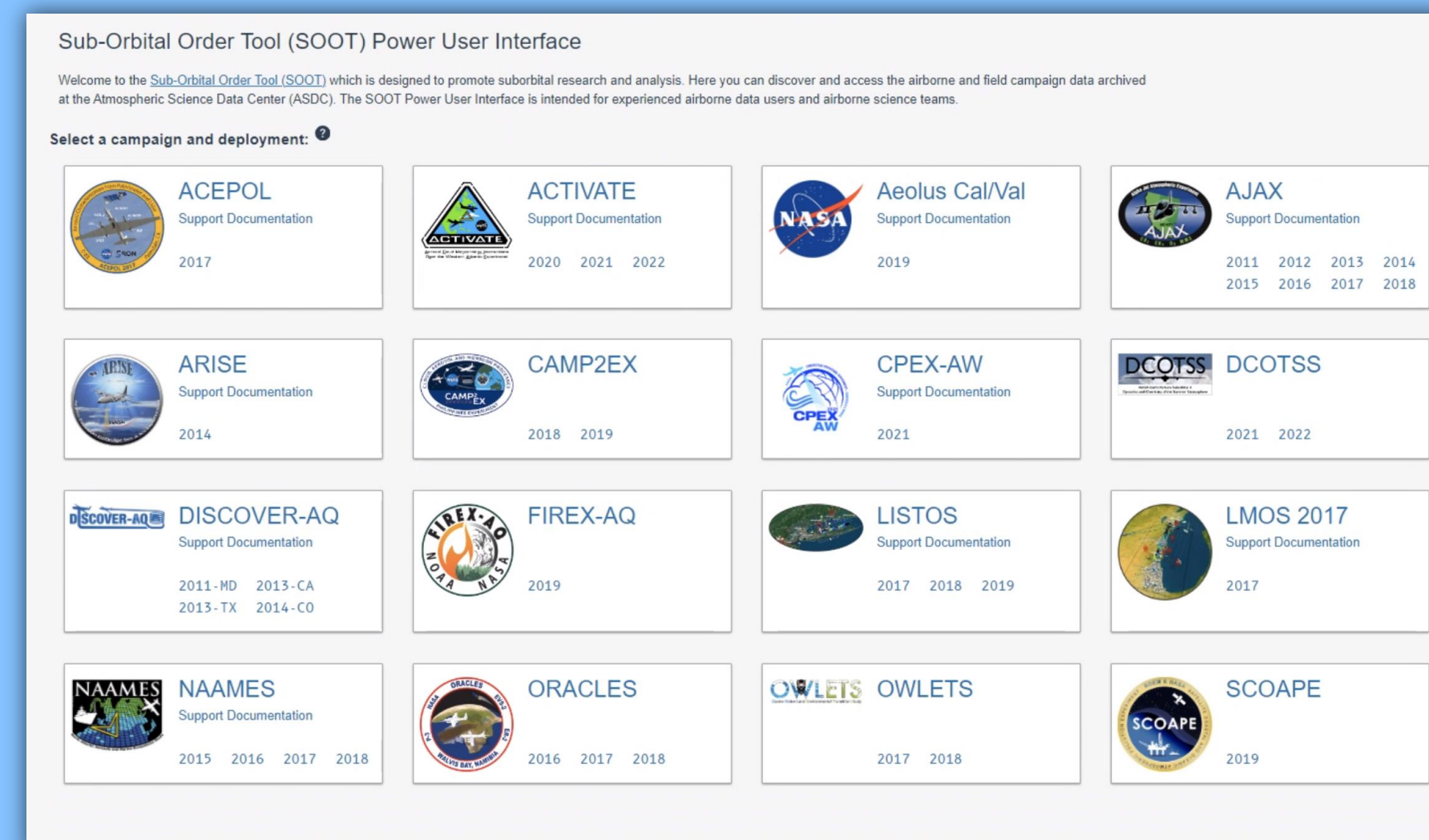


Overview

The NASA Atmospheric Science Data Center (ASDC) has developed the Sub-Orbital Order Tool (SOOT) to complement the NASA Earthdata Search collection centric tool.

- Designed with a variable-centric approach to facilitate research data use for both a general user and power user to find and access in-situ and remote sensing data products.
 - A general user is someone who has a basic understanding of atmospheric science related to atmospheric composition, but not necessarily familiarity to suborbital field campaigns.
 - A power user has in-depth atmospheric science knowledge and a good understanding of field study operations.
- Currently contains 16 field campaigns. Additional campaigns are being ingested.
- Offers domain-relevant contextual information archive.
- Accommodates the field study data reporting standards and requires metadata currently beyond those required by the Earth Observing System Data and Information System (EOSDIS) Common Metadata Repository (CMR) standards.
- The power user interface (PUI) release was a success. The general user interface is planned.
- Generates value-added data products (currently in beta testing), e.g., the merge service.
- Merge files generated by the science team are available in both .ict and .nc format.
- API based infrastructure that allows for machine-to-machine interoperability consistent with FAIR principles.

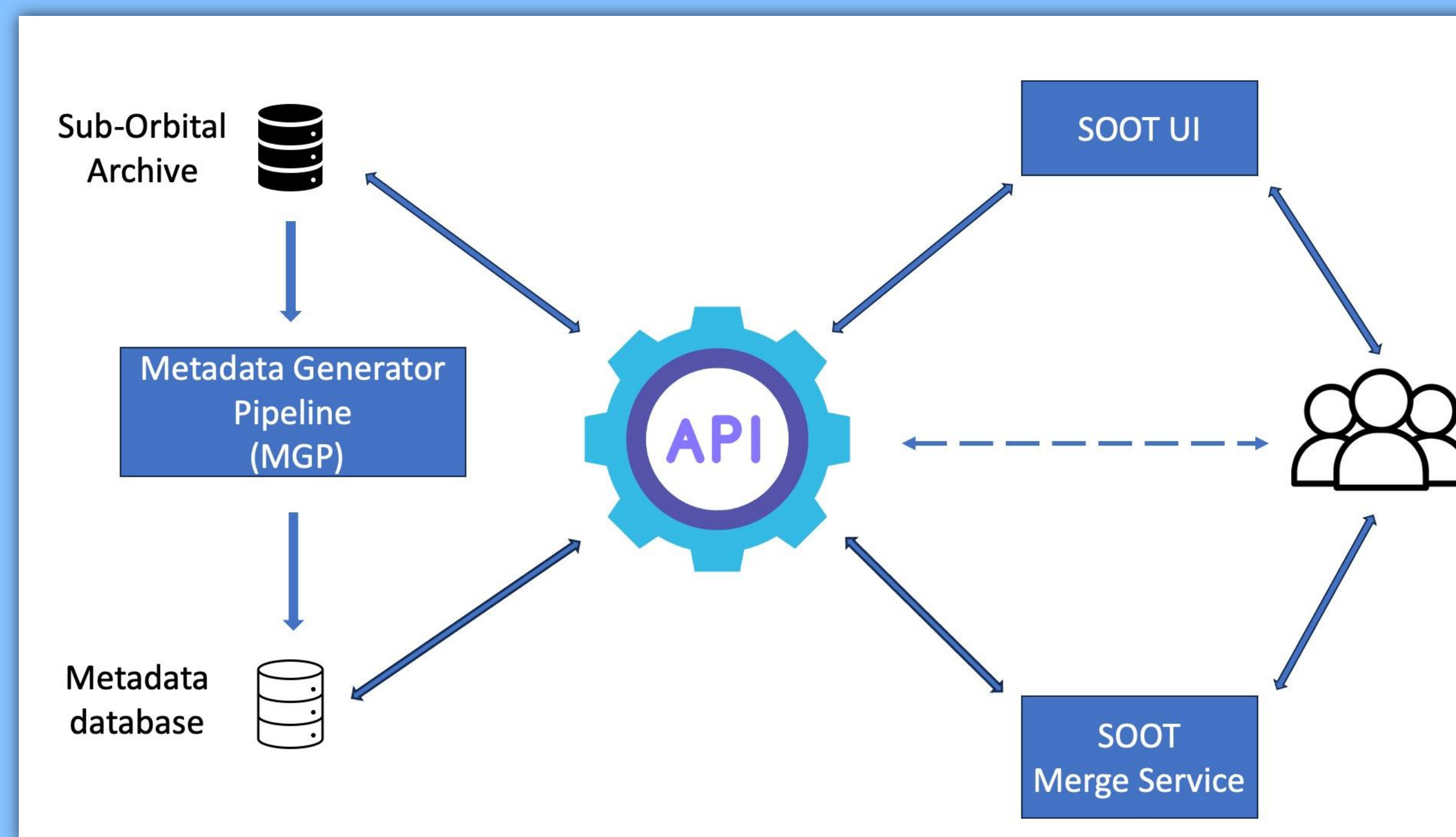
SOOT Data Holdings



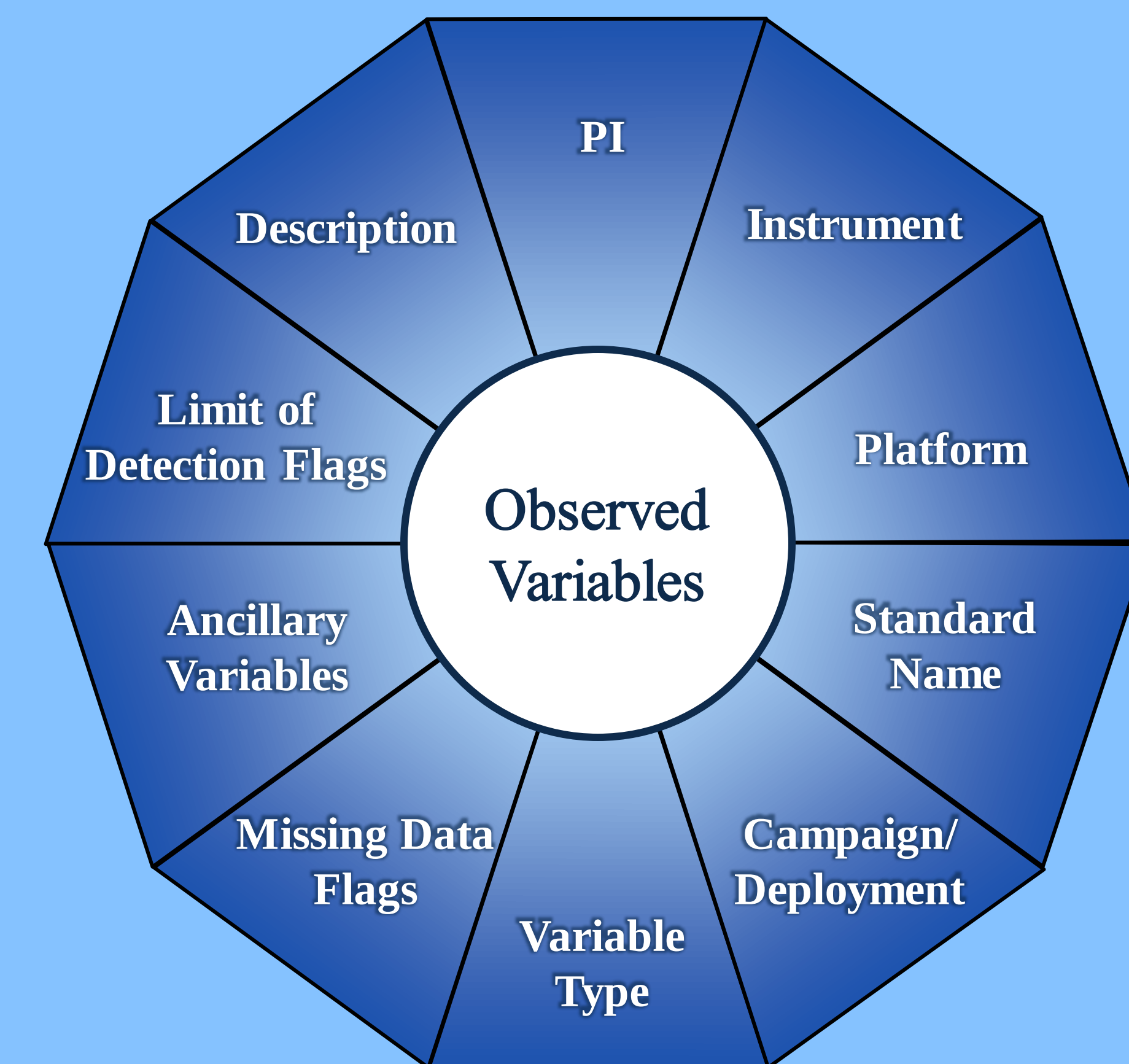
Future Plans

- Future Plans
- General User Interface (GUI)
 - NetCDF merge output
 - API
 - Enterprise Services integrated into Earthdata Search

SOOT Architecture



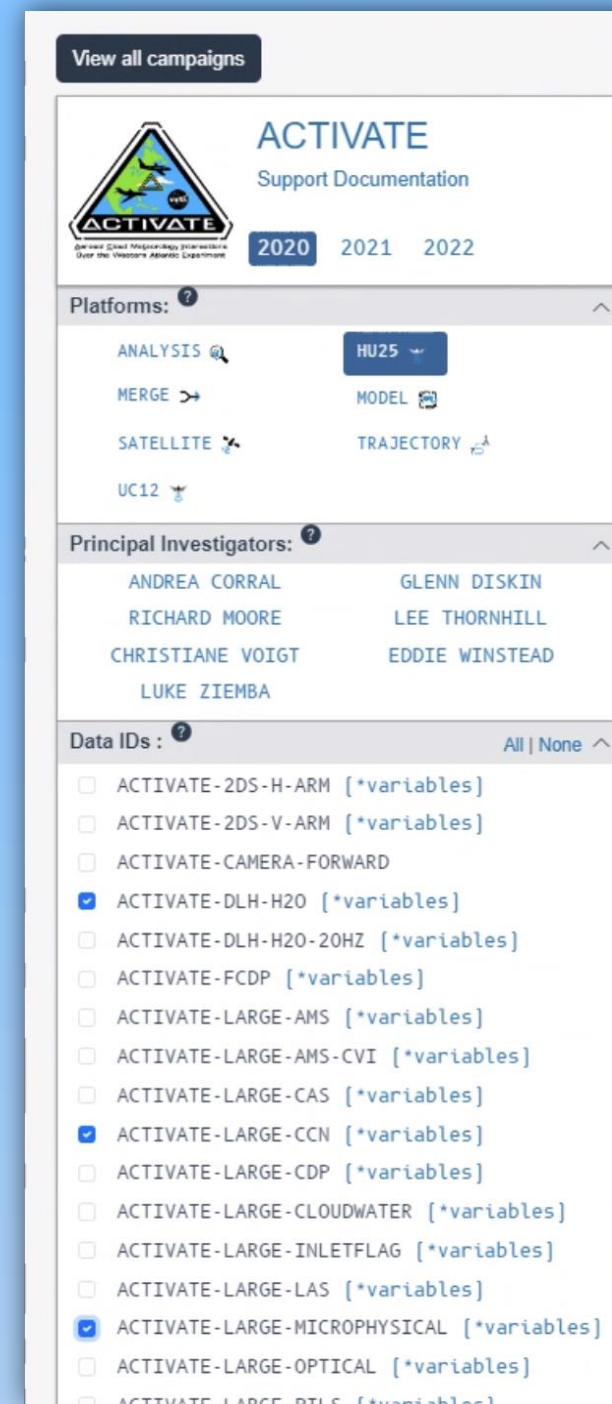
Example of Metadata Needs for SOOT



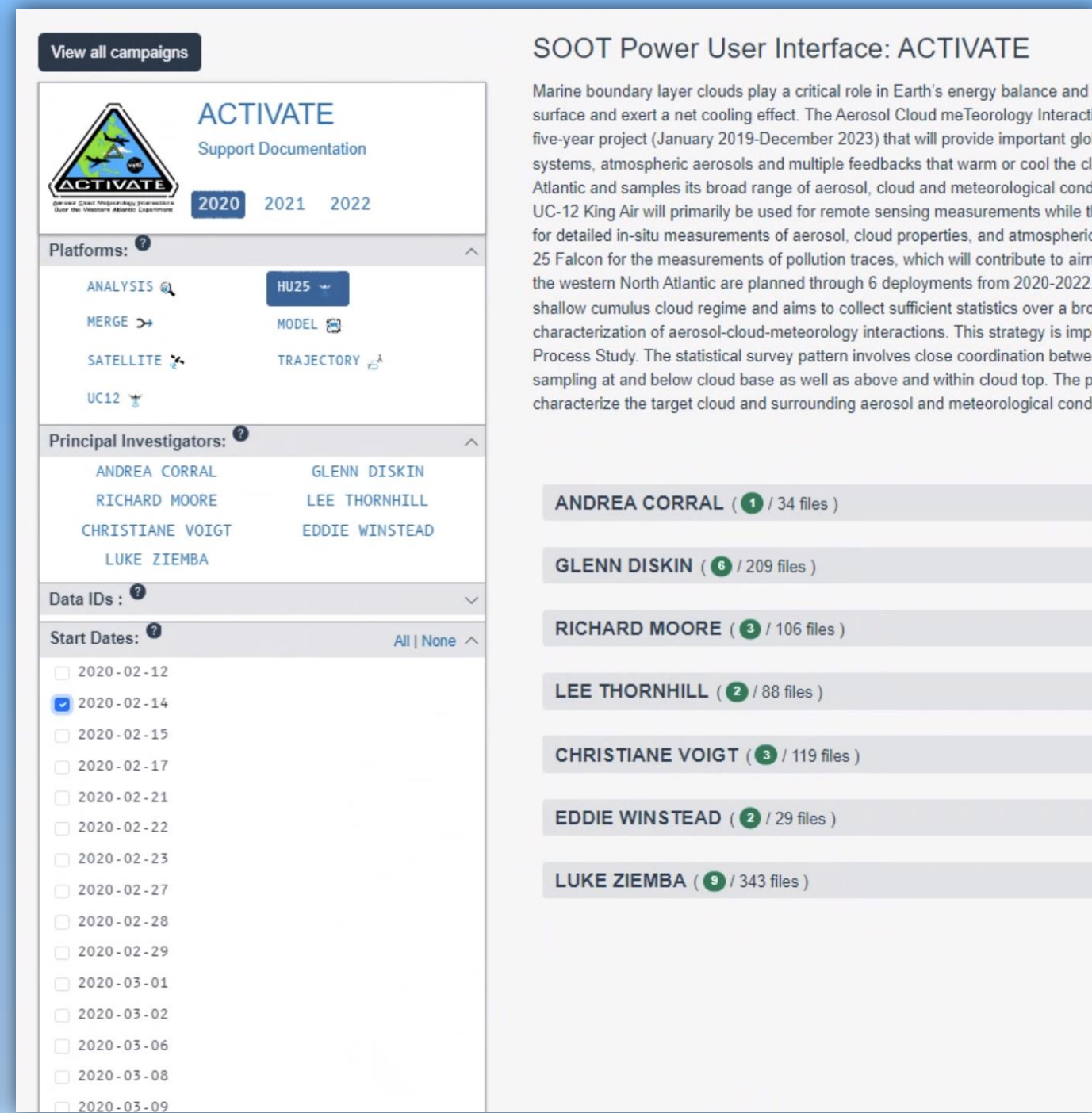
SOOT Power User Interface – A User Walkthrough

Designed with 2 approaches in mind

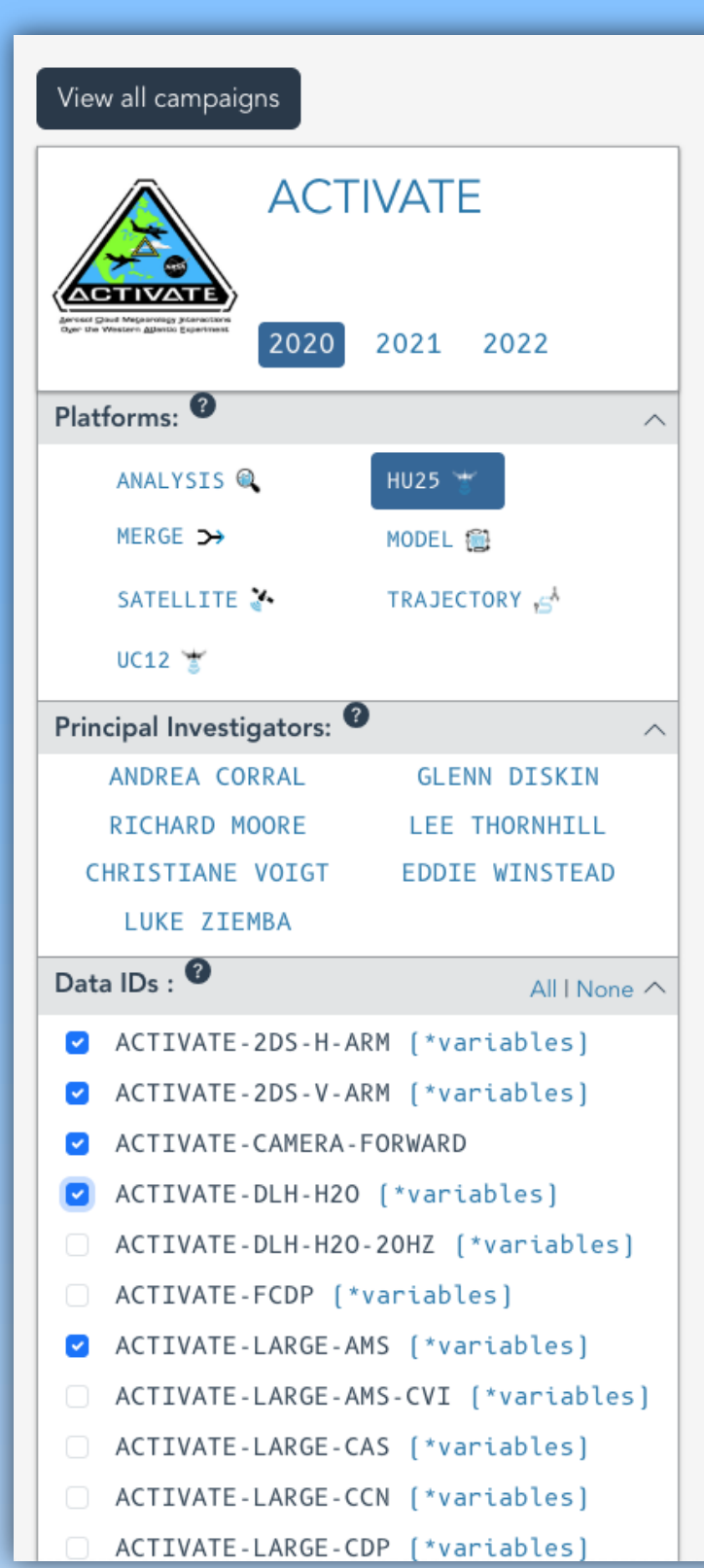
1. Survey Study: Few Variables for all Flights



2. Process Study: All Variables for 1 Flight

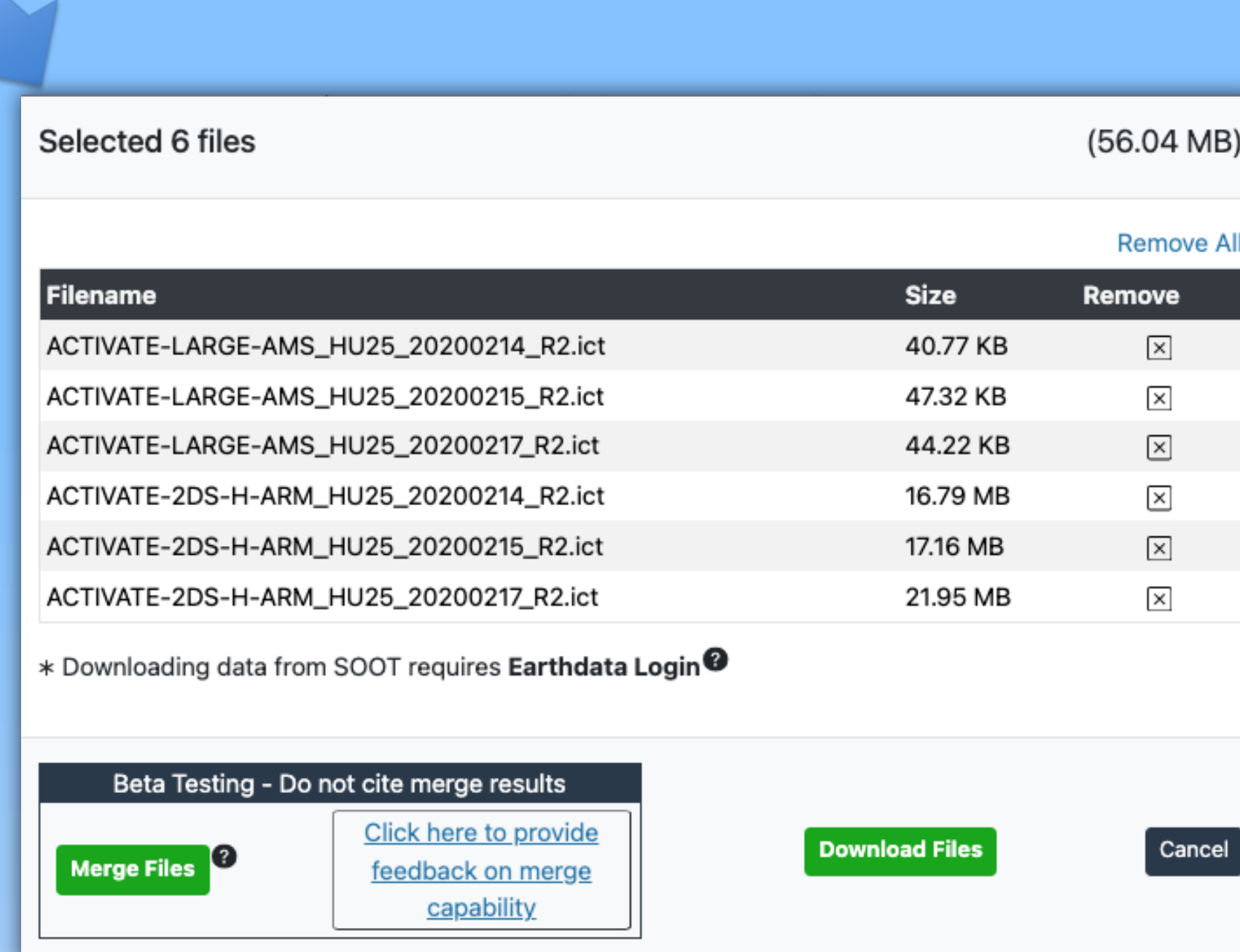


Step 1: SOOT - Filter/Select Files



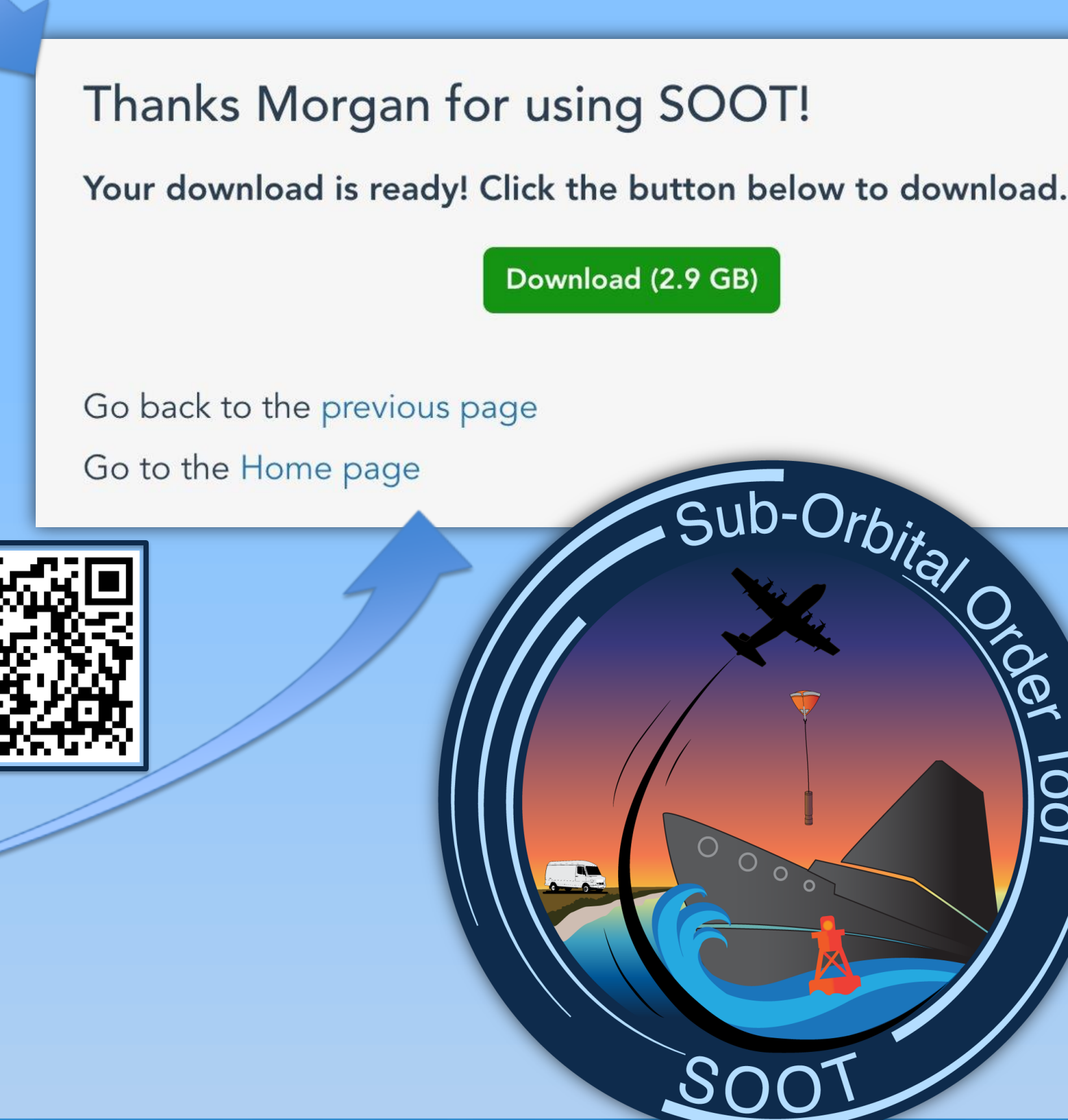
- As data are filtered, the number and size of the selected files are shown
- File selections can be made through the filters or the PI selection panes, e.g., PI name, dataID
- Switch between platforms to select and review additional files for download
- Once files are selected, click the green 'Review Selected Files' button to download or create merges for the mergeable files

Step 2: Review Selected Files - Choose to Merge or Download Files

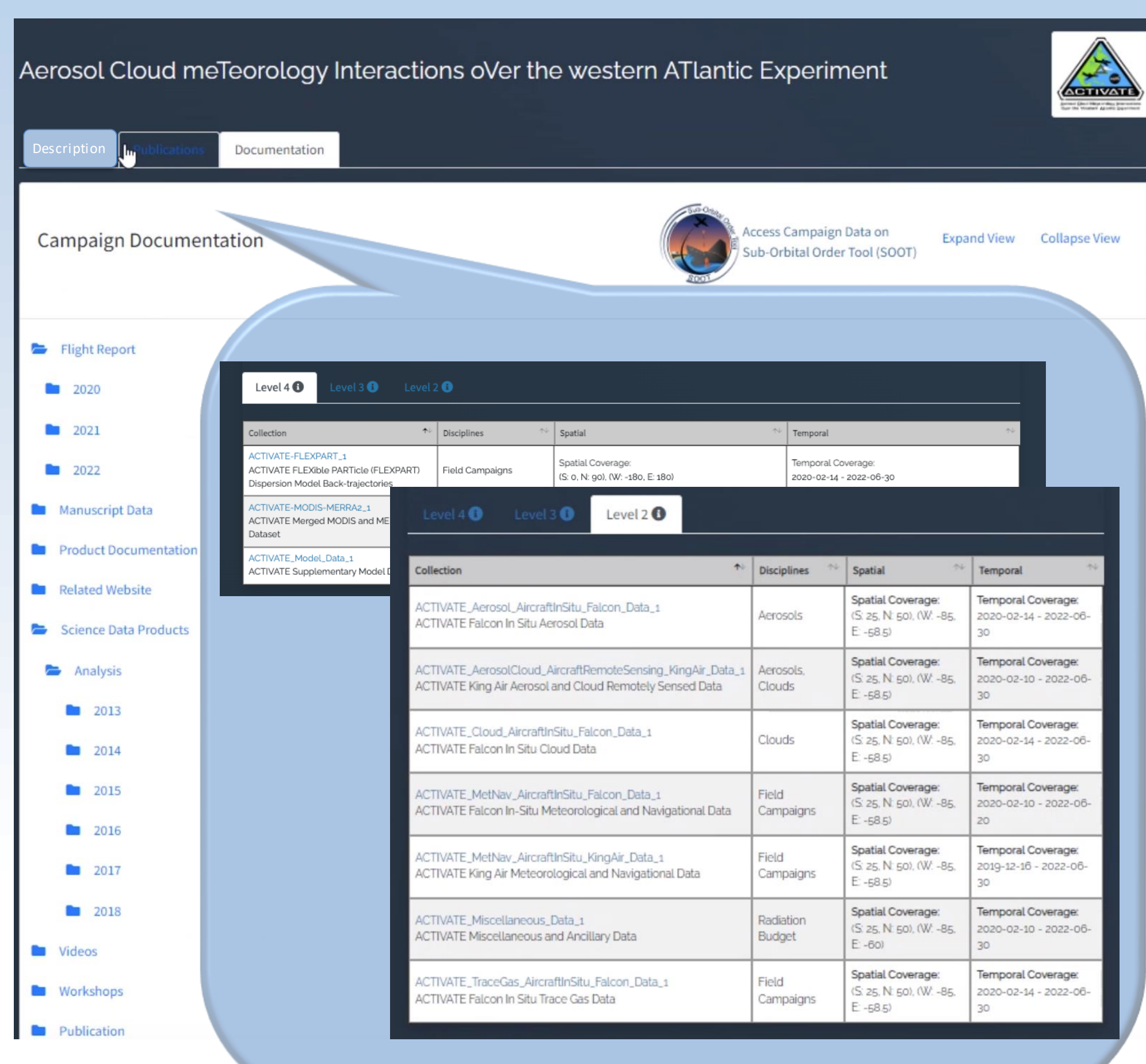
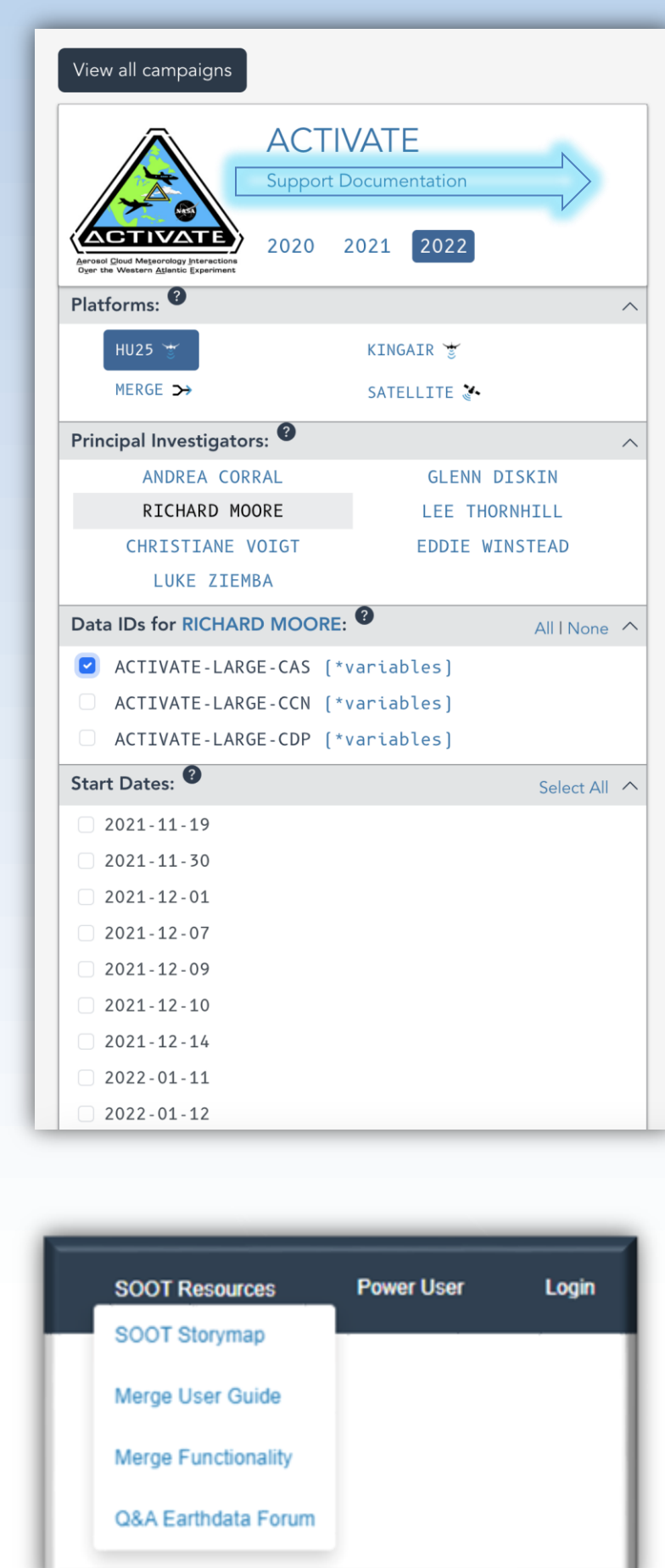


- Files can be removed from the selected file list
- Additional files can be added by hitting "cancel" and go back to the previous file selection screen.
- Once file selections are set, one can choose to either download the files or create a merge from the selected files.
- Actively seeking users to test merge service and provide feedback. Beta Merge Service

Step 3: Download Files



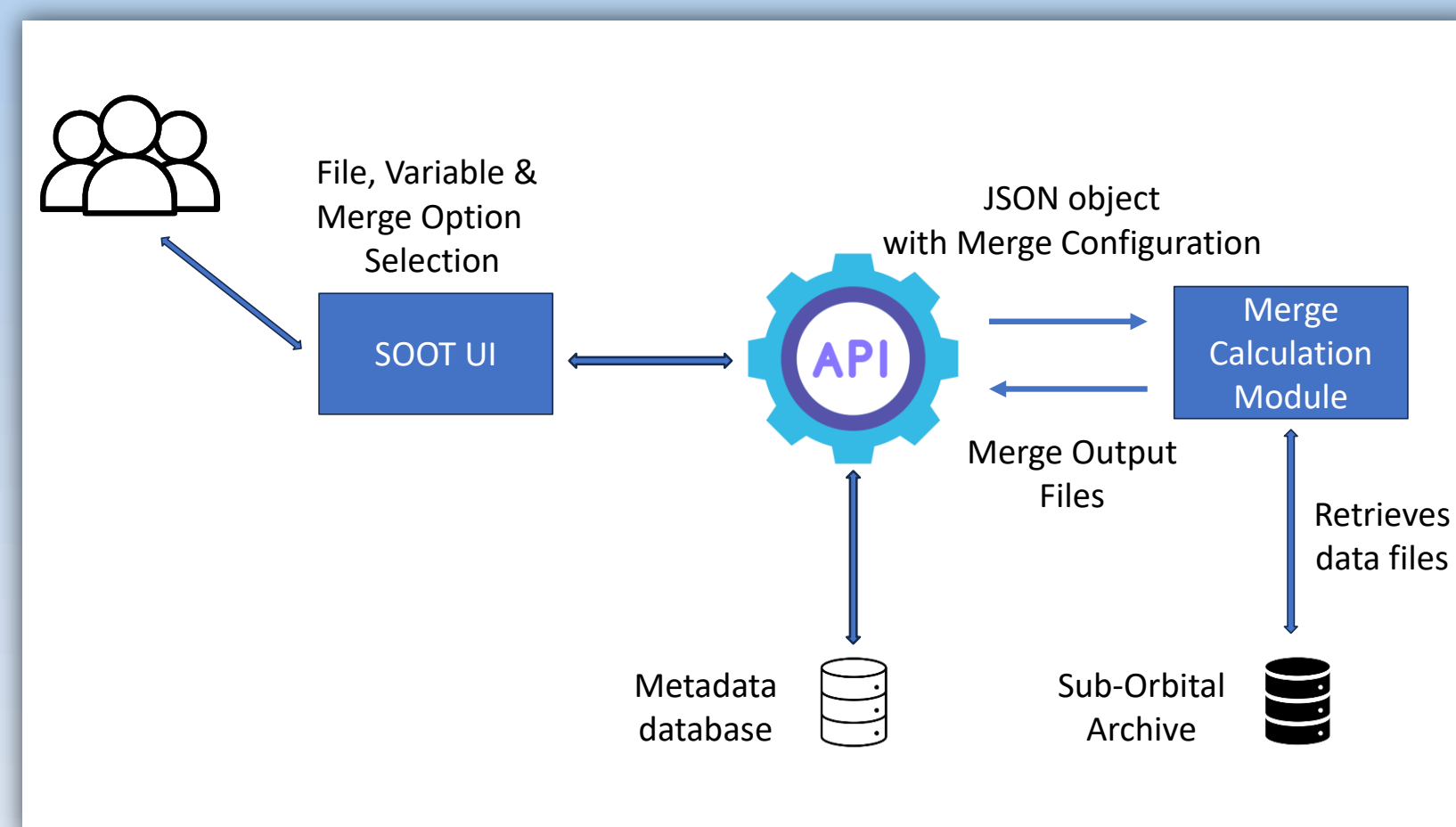
SOOT Support Documentation



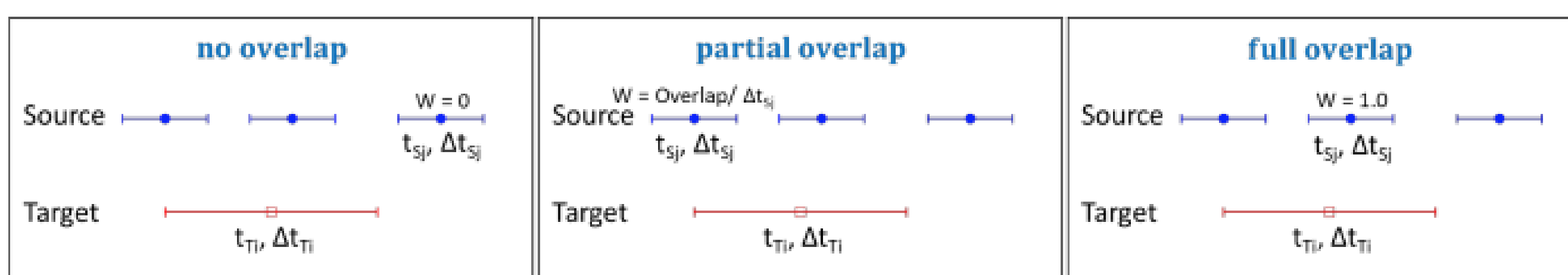
Try the Sub-Orbital Order Tool



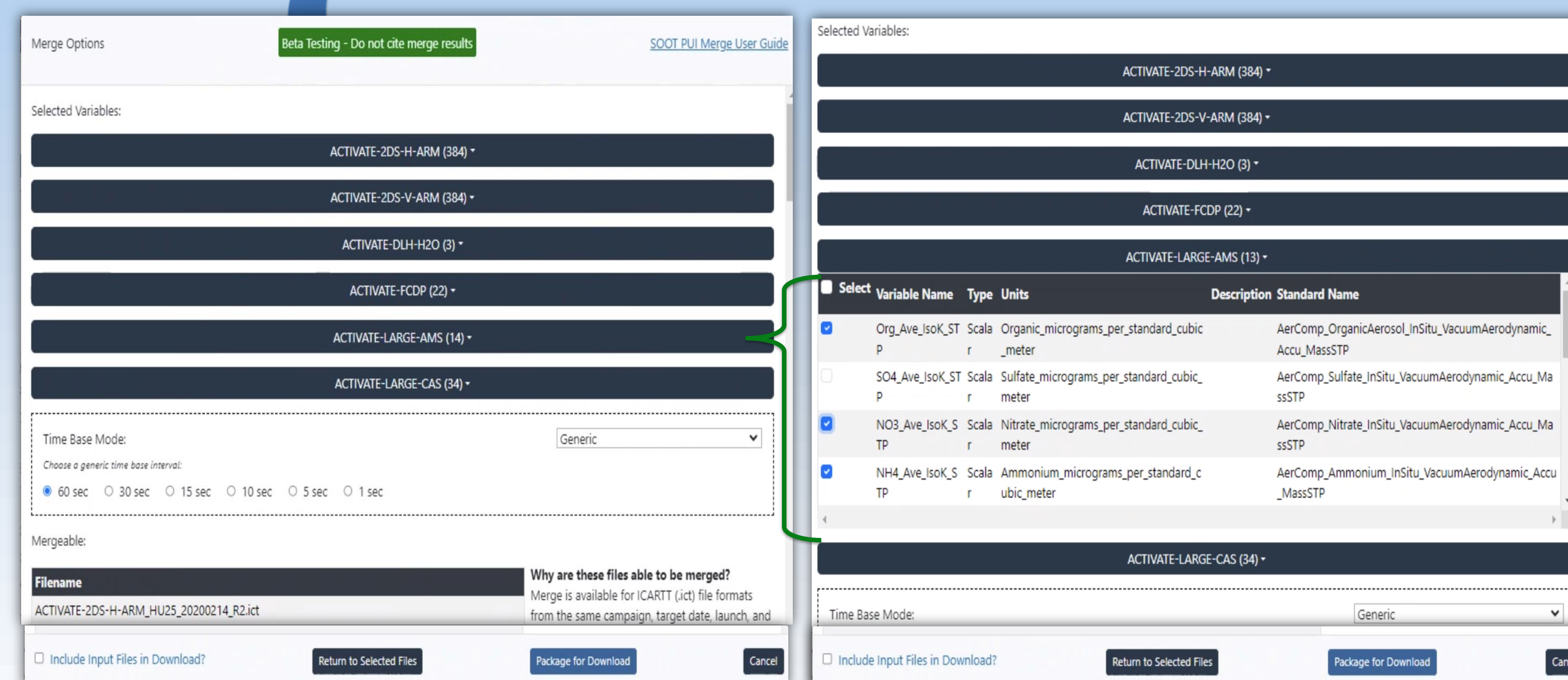
Step 2B: Merge Architecture & Algorithm



- Weighted time averages of different source data, i.e., individual measurement data, onto to the target (common) time base.
- Target time base can be a continuous time with a constant interval or the time base of an individual measurement.
- The weighting factor calculation is based on the overlap between a source sampling time interval and the target time interval or merge time interval.
- Calculation module handles scalar, vector, wind measurements, data flag (including missing data flags and detection limit flags) variables accordingly.



Step 2B: SOOT – Merge Service



- Two main steps are required to make a merge:
 - Variable Selection: All variables within the chosen files are selected by default. To edit the variable selection, expand dataID.
 - Time Base Selection: Choose either a generic time base, e.g., 60 sec, a customized time base of your own choosing, or a dataID time base, e.g., ACTIVATE-DLH-H2O to merge data based on that time base
- Currently only ICARTT files can be merged.