# A Low-Cost and Efficient Way to Archive Calibration/Validation Findings for Satellite Data

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## Background

Operational satellite products such as Sensor Data Records (SDRs) and Environmental Data Records (EDRs) undergo vigorous Calibration/Validation (Cal/Val) studies throughout their mission life, especially prior to the initial public release.

Recognizing the importance of preserving details of these Cal/Val methods and results or "findings" for current and future missions, e.g., the Suomi National Polar-orbiting Partnership (Suomi NPP) and Joint Polar Satellite System (JPSS), as well as for the climate community, a web-based tool was developed in a joint effort of NOAA's National Climatic Data Center (NCDC), NOAA's Comprehensive Large Array-data Stewardship System (CLASS), and the Government Resource for Algorithm Verification, Independent Testing, and Evaluation (GRAVITE), the Cal/Val support infrastructure at the JPSS Program Office.

## Goals Of Preserving Cal/Val Study Findings

- To provide traceability of product quality statements
- To increase scientific defensibility and public confidence in weather and climate satellite products
- To provide a reliable resource for advancing remote sensing science
- To establish a baseline or reference for future product algorithm development and evaluation

## Acknowledgement

The collaboration among the NOAA/NCDC, NOAA/NASA GRAVITE, NOAA/CLASS, and Suomi NPP Cal/Val Program is critical for this project. We thank the Integrated Product Team members from each of these organizations.

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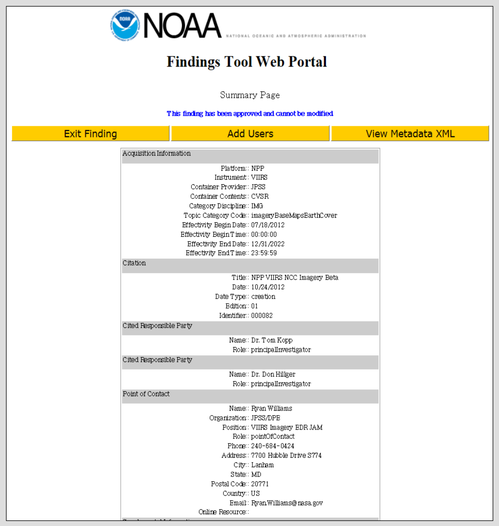
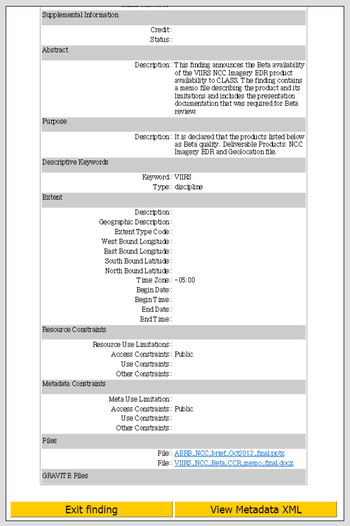
## Getting Started

Suomi NPP Cal/Val investigators access the Finding Tool web portal at https://archivist.ipo.noaa.gov/ArchivistProject/.

Investigators populate new findings using a pre-defined template.



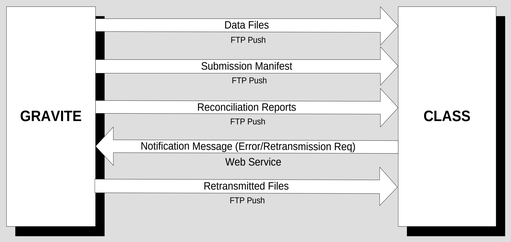

**To produce a finding:**

- Follow interfaces to provide information about mission, sensor, data and data quality, Cal/Val study, and contact information (working and saving the template along the way, in parallel to execution of the Cal/Val study)
- Upload files (data, images, source code, etc.)
- Submit when ready for review

## Review Process

- ✓ Review for completeness of a finding container
- ✓ Review for International Traffic in Arms Regulations (ITAR) and other restricted information
- ✓ Scientific review, leveraging the Subject Matter Experts (SMEs) of the Suomi NPP Cal/Val Program
- ✓ Scientific data stewardship review

## Archive Process




*Data flow between GRAVITE and CLASS*

## Summary

A web-based tool is created to provide a low-cost and efficient way to generate, review, and archive Cal/Val study results. The tool offers the following capabilities/ functionalities to streamline the study submission and archive process:

- Intuitive interface for entering study information
- Capability to attach files (from a local computer or the GRAVITE database)
- Capability to generate the study finding container with a pre-defined file-naming convention and ISO 19115-2 compliant metadata based on the information provided
- Capability to generate the required manifest file that CLASS can use to validate and ingest the finding container

## Best Practice

Sufficient information should be included for traceability and reproducibility and to ensure scientific transparency. The data citation will provide credit to the finding authors.

### What Should Be Included:

- Study information (background, detailed steps for analysis, Cal/Val methods and results, etc.)
- Data used or data referenced if archived
- Source code

### What Should Not Be Included:

- ITAR or other restricted information

## Finding Access

The CLASS website provides an interface for the query and download of finding containers: http://www.class.noaa.gov/.

- Select "NPP Cal/Val Investigator Containers (NP_CONTR)" from drop-down menu