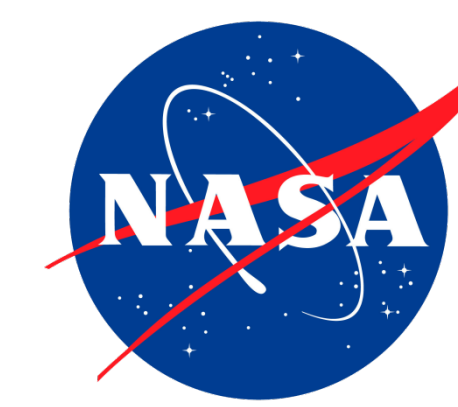
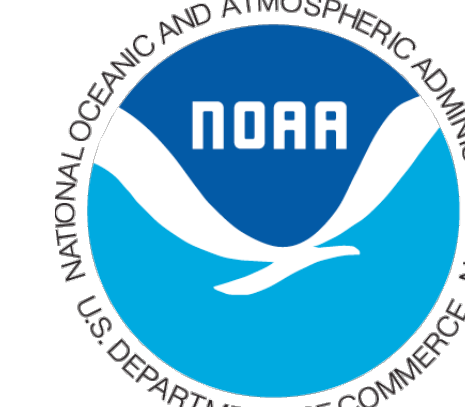




CSPP Acquisition and Verification of NPP VIIRS SDRS



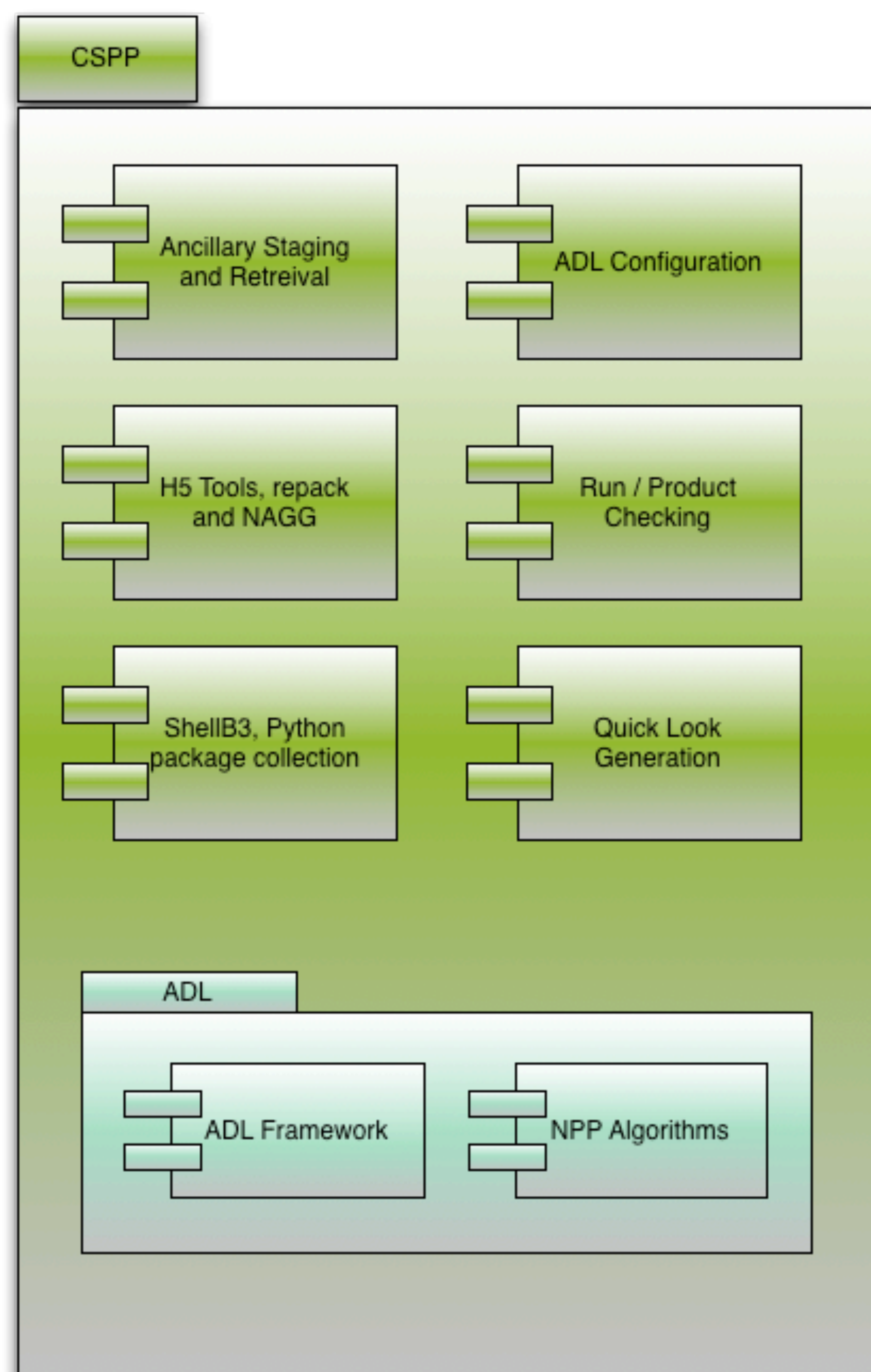
S. Mindock, R. Garcia, G. Martin, K. Strabala, E. Schiffer, G. Cureton, L. Gumley, H.L. Huang
CIMSS/SSEC, University of Wisconsin-Madison

Overview

The Community Satellite Processing Package (CSPP) has been developed at the UW-Madison Space Science and Engineering Center to support the Direct Broadcast Community (DB). The CSPP SDR software package includes the Suomi NPP VIIRS SDR algorithm as provided by the Algorithm Development Library (ADL). The CSPP SDR package provides DB users the opportunity to process VIIRS data as collected by a Suomi NPP capable antennas. The poster illustrates how additional software packages and ancillary support servers are coupled with ADL to provide this capability. The poster also describes the process employed by the CSPP team members at SSEC ensure the accuracy of the SDR products. Comparisons of IDPS SDRs to CSPP SDRs are highlighted.

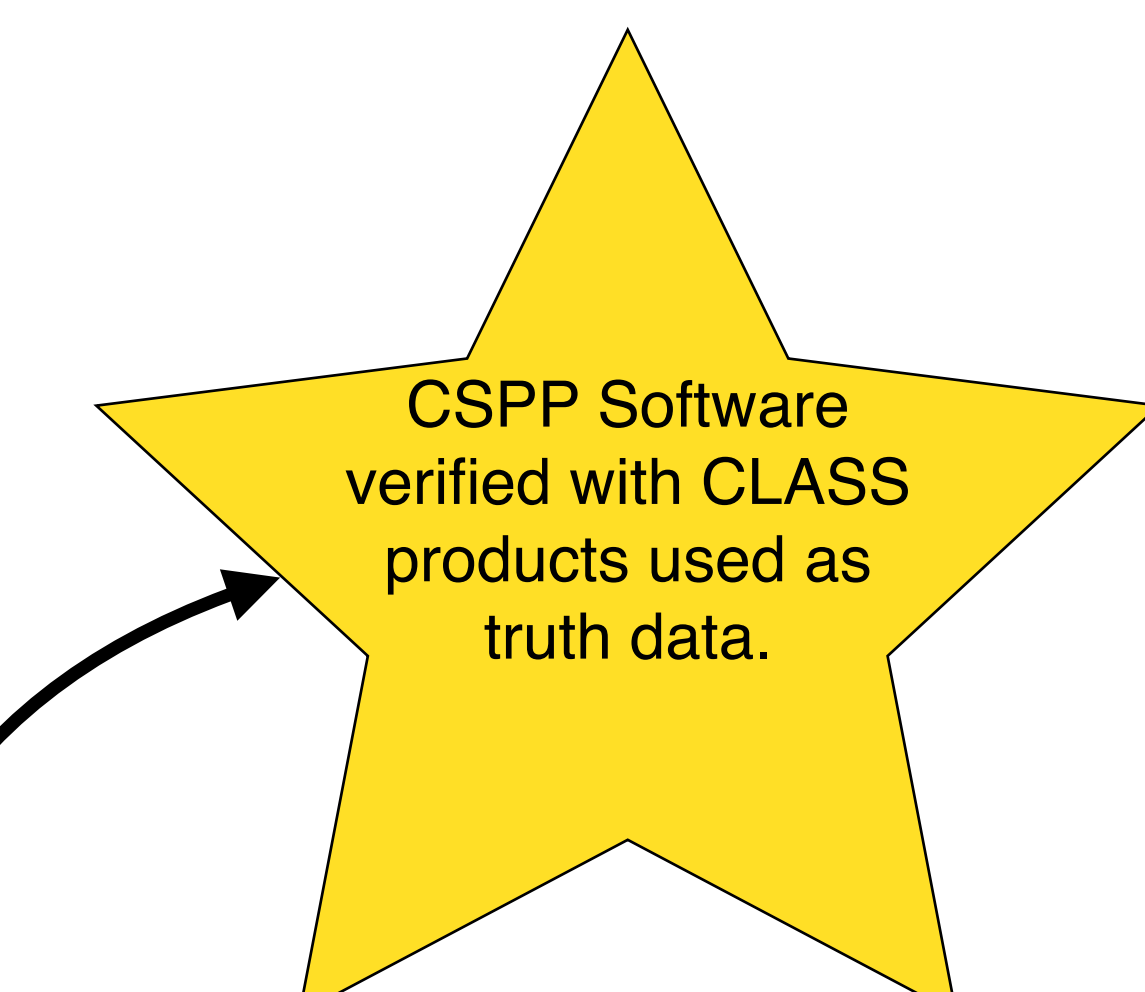
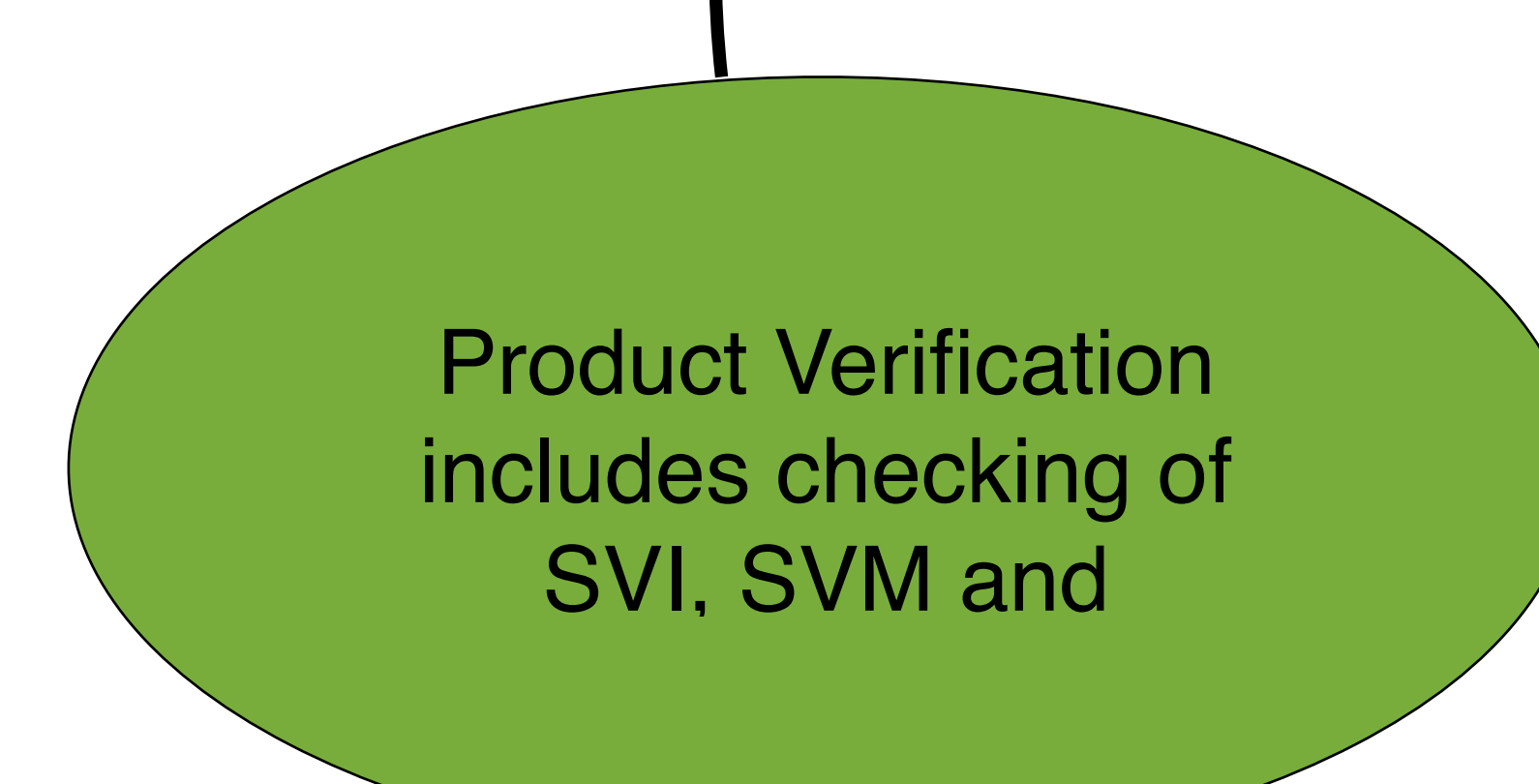
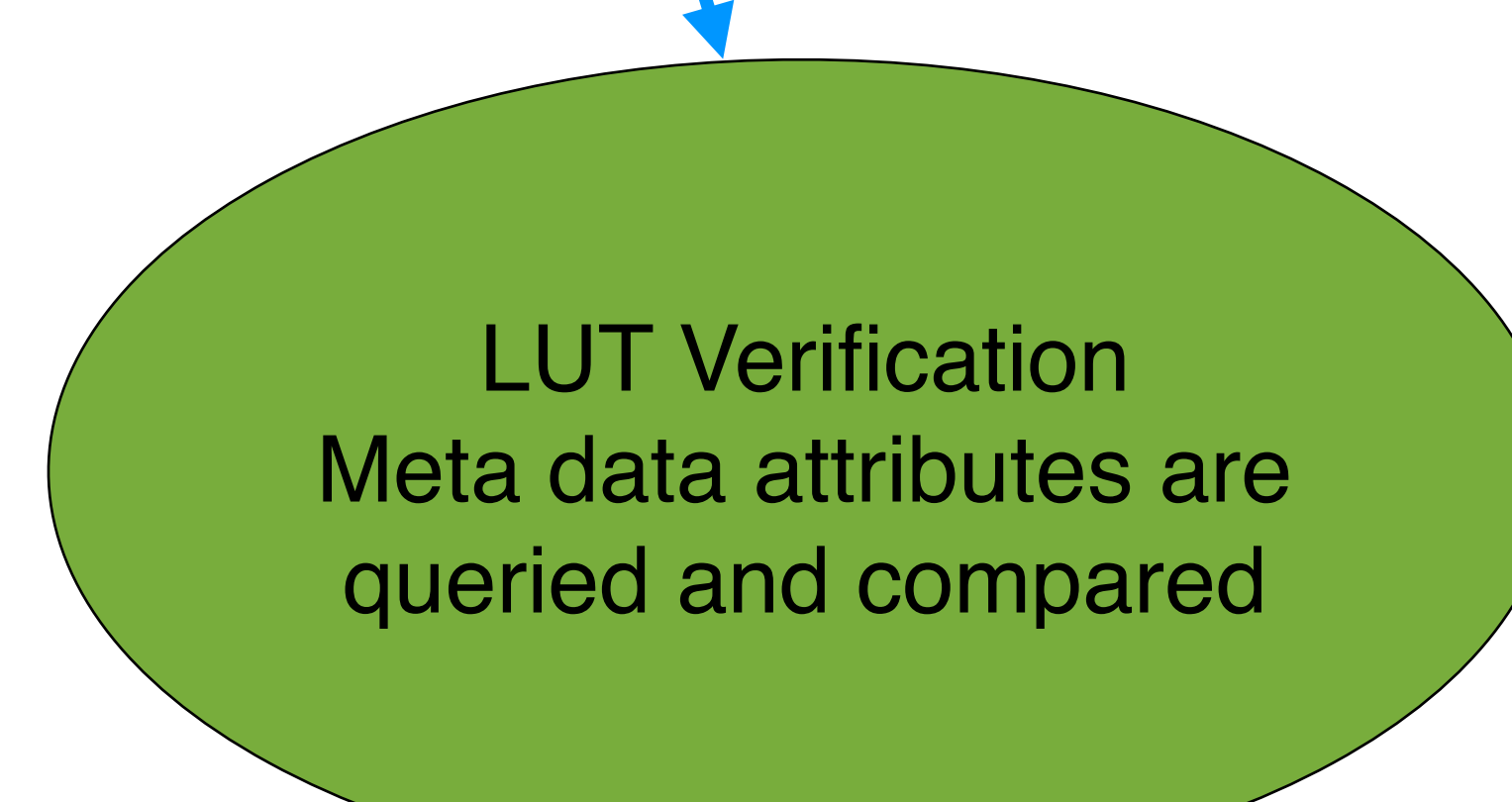
What is CSPP SDR?

The CSPP SDR software package is composed of several software packages. These packages are knit together to simplify the process of producing NPP SDRs from RDRs.



Verification Technique

The CSPP SDR software development team leverages the existence of the NPP archive provided by CLASS. This data is normally ingested and archived at CIMSS by the Atmosphere PEATE and is easily accessible. The CSPP verification process includes comparisons of archived NPP RDR and SDR data to the corresponding products produced by CSPP SDR. Meta data and data sets from the products are compared. Differences are logged, investigated and resolved



Test Scenarios

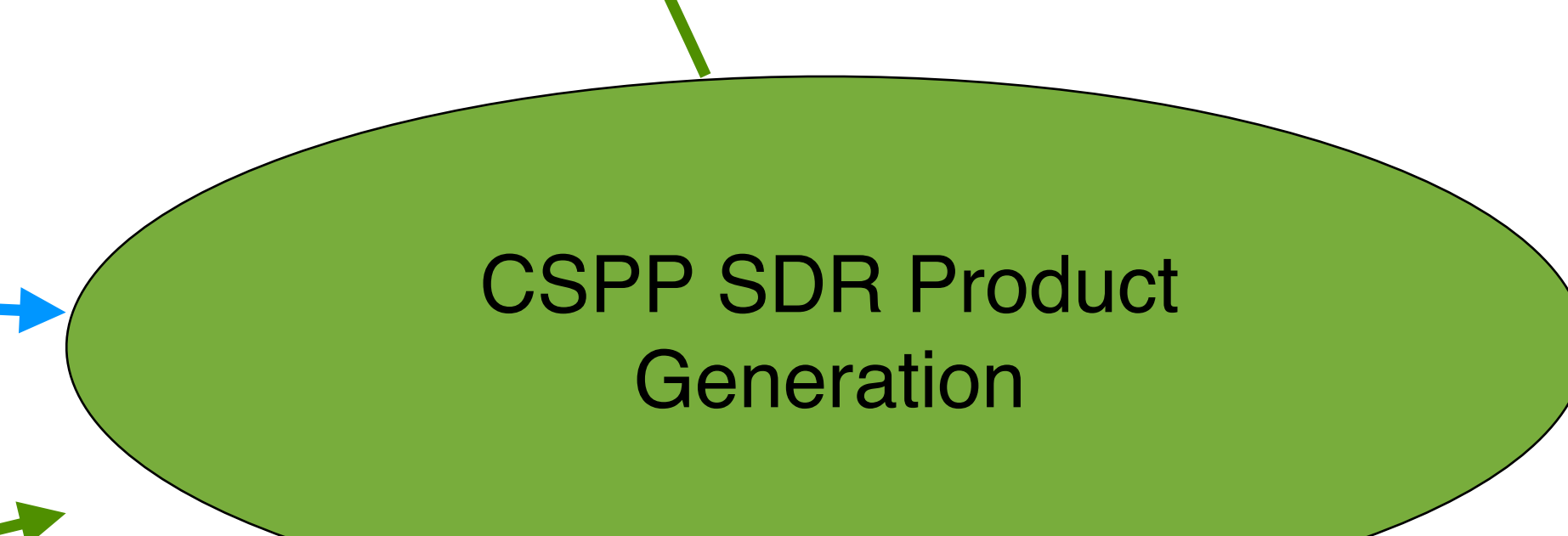
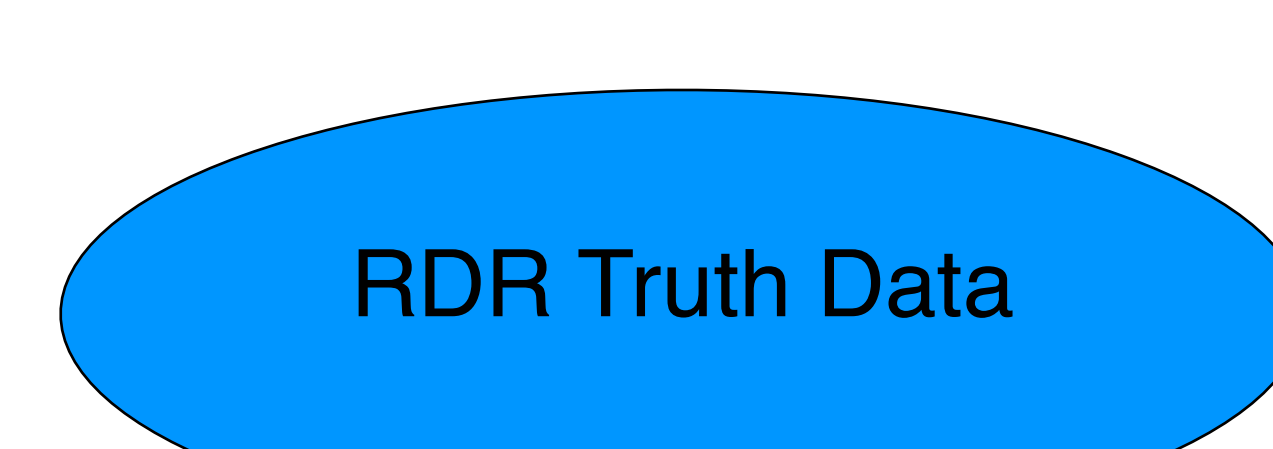
The product validation process uses two primary scenarios to check the validity of CSPP SDR products. The first scenario uses a known CLASS NPP RDR as input to the CSPP SDR software. The products produced by CSPP are then checked against the corresponding CLASS NPP SDRs. Both metadata and data sets are checked. The second scenario replaces the CLASS NPP RDR with a locally obtained RDR. Verification steps are then repeated.

1. Process in put RDR
2. Obtain corresponding CLASS SDR products.
3. Compare selected metadata attributes between corresponding products. This information is used to verify that CSPP is using the same LUTs as used by CALL NPP products.
4. Compare selected data sets. This includes SVI, SVM and geolocation bands. This is a check on the Science data produced. Machine tolerances are taken into account.

Truth Data

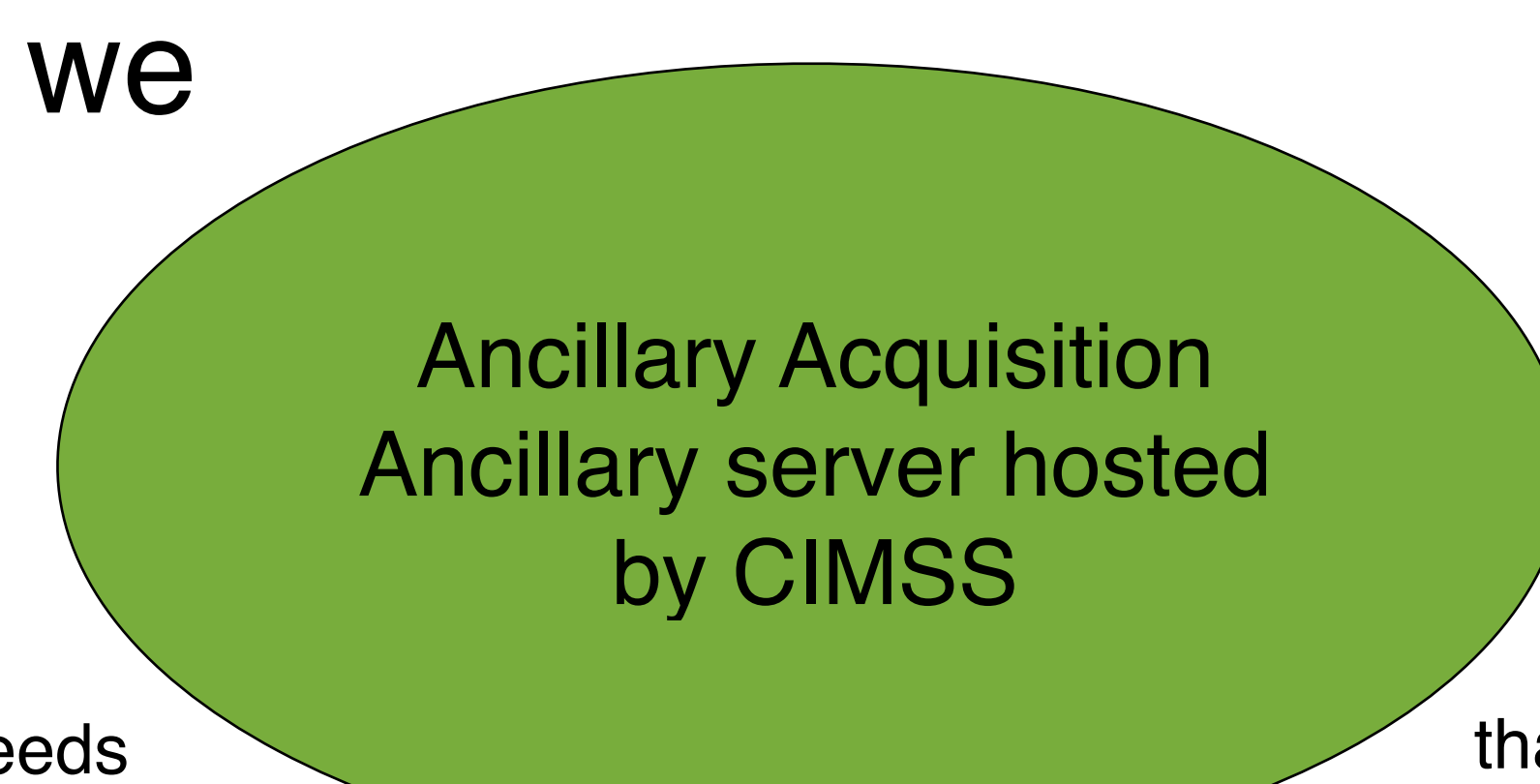
The Truth Data used for comparison is retrieved from the Atmosphere PEATE where it is acquired from CLASS. Source code and NPP documentation may also be consulted.

CSPP Truth Data
JPSS Common Data Format Control Book (CDFCB http://npp.gsfc.nasa.gov/science/documents.html)
Raytheon Common CM Used for source code and LUTS
CLASS Suomi NPP RDRs
CLASS Suomi NPP SDRs



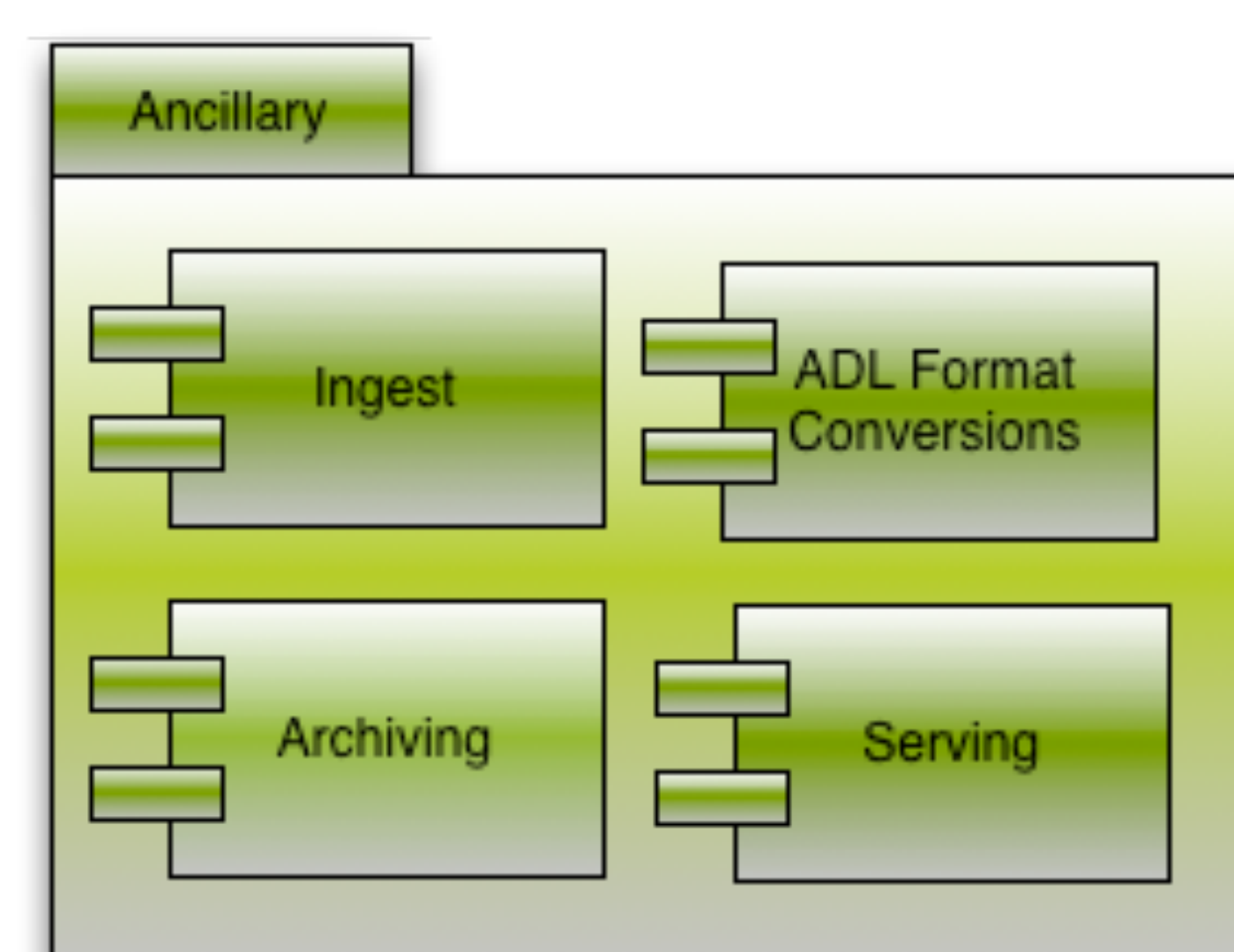
Why do we verify CSPP?

Like all software CSPP software needs to be tested. In addition to normal testing the integrity of the data products has to be verified. The process is complicated with NPP SDR algorithms because several types of ancillary and LUT data are used in the processing. The correct type, format and version of the data must be supplied in order for these products to be accurate. Given all of the variables involved in producing scientifically accurate products, verification is a necessity.

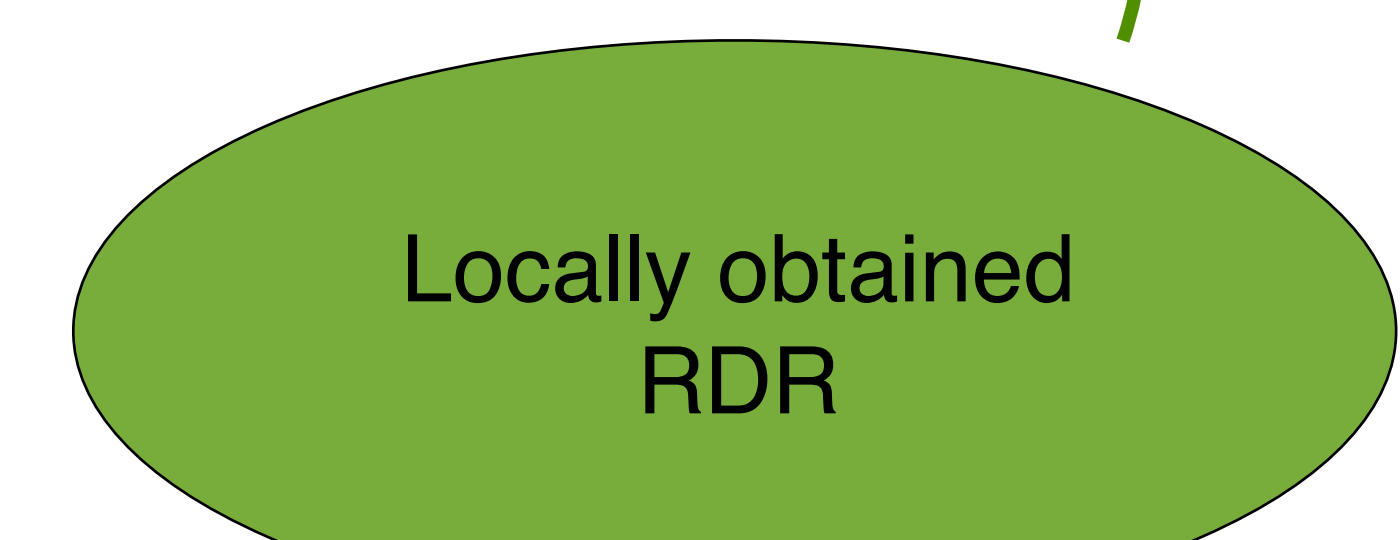


Ancillary Inputs

CSPP uses ancillary data downloaded from a server hosted by CIMSS. SDR truth data is used to ensure that the ancillary data supplied by the ancillary server and used for SDR generation is the same as the data used in the Truth SDRs.



CSPP Ancillary and LUT inputs
VIIRS SDR LUTS
TLE internal text and ascii files
Polar Wandar Blob and Ascii files



When locally obtained RDRs are used an additional step checks the metadata of the NPP CLASS RDRs against the input RDR