

IGARSS 2010 ABSTRACT

INTERNATIONAL POLAR ORBITER PROCESSING PACKAGE (IPOPP)

OVERVIEW

The International Polar Orbiter Processing Package (IPOPP) is the primary processing package that will enable the Direct Readout community to process, visualize, and evaluate National Polar-orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP) Sensor and Environmental Data Records, which is a necessity for the Direct Readout community during the transition from the Earth Observing System (EOS) era to the NPOESS era. Direct Readout Laboratory (DRL) technologies developed for the NPP In-Situ Ground System (NISGS) will provide the framework for IPOPP. IPOPP will be:

- Freely available
- Portable to Linux x86 platforms
- Efficient to run on modest hardware
- Simple to install and easy to use
- Able to ingest and process Direct Broadcast overpasses of arbitrary size
- Able to produce core and regional value-added EDR products

SCIENCE PROCESSING ALGORITHM

The Science Processing Algorithm (SPA) wrapper is key to the success of IPOPP. Algorithm wrappers provide a common command and execution interface to encapsulate multi-discipline, multi-mission SPAs. The wrapper also provides a structured, standardized technique for packaging new or updated algorithms with minimal effort.

MODULAR COMPONENTS APPROACH

A Modular Components Approach (MCA) ensures that SPAs will function in a standalone environment, across platforms, to serve the needs of the broad Direct Readout community.

VISIBLE INFRARED IMAGING RADIOMETER SUITE (VIIRS) PRODUCTS IN IPOPP

VIIRS Environmental Data Records (EDRs) to be included in IPOPP are: Sea Surface Temperature; Ocean Color Chlorophyll; Albedo (Surface); Cloud Cover/Layers; Cloud Effective Particle Size; Cloud Optical Thickness; Cloud Top Height; Cloud Top Pressure; Cloud Top Temperature; Suspended Matter; Vegetation Index; Cloud Base Height; Ice Surface Temperature; Visible/IR imagery; Land Surface Temperature; Sea Ice; Snow Cover; and Surface Type. In addition, a number of other products have been identified as useful to the Direct Readout community, including True Color atmospherically corrected images; Single Field-of-View (FOV) cloud mask and phase; Cloud Infrared Properties; and Cloud Classification. These VIIRS products will be added to the IPOPP suite.

CROSSTRACK INFRARED SOUNDER (CrIS)/ADVANCED TECHNOLOGY MICROWAVE SOUNDER(ATMS) PRODUCTS IN IPOPP

CrIS/ATMS EDRs to be included in IPOPP are: Atmospheric Vertical Temperature Profile; Atmospheric Vertical Moisture Profile; Pressure Vertical Profile; and Clear Column Radiances. In addition, the Cooperative Institute for Meteorological Satellite Studies (CIMSS)/Space Science and Engineering Center (SSEC) will release a locally developed value-added high-spatial resolution regional cloud clearing and sounding product. In the period prior to NPP launch, the Advanced Very High Resolution Radiometer (AVHRR)/Infrared Atmospheric Sounding Interferometer (IASI) sensor suite onboard the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) MetOp spacecraft will be used as a pathfinder for IPOPP, since IASI is the closest analog to CrIS.

GOOGLE EARTH IMAGERY

Google Earth is a desktop application that allows one to view satellite imagery, maps, terrain and more, all in an easy to use interface.

John Overton, IPOPP, May 2008, cimss.ssec.wisc.edu/itwg/itsc/itsc16/proceedings/1_2_Overton.pdf

Patrick Coronado, IPOPP, Dec 2009, <http://directreadout.sci.gsfc.nasa.gov>

Liam Gumley, IPOPP and Google Earth, May 2009, www.ssec.wisc.edu/media