

STATUS OF PRE-LAUNCH ACTIVITIES FOR THE NPOESS COMMUNITY COLLABORATIVE CALIBRATION/VALIDATION PROGRAM FOR THE NPOESS PREPARATORY PROJECT

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The National Polar-orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP) Calibration/Validation (Cal/Val) team is currently executing pre-launch activities and planning post-launch activities to efficiently integrate the NPOESS Sensor Data Records (SDRs) and Environmental Data Records (EDRs) into Customer applications to reduce risk in achieving NPOESS Mission Success. The NPP Cal/Val Team, led by the Integrated Program Office (IPO), includes members from the Contractor team producing the data products and subject matter experts from the Customer and User communities, bringing together the expertise with the production algorithms, product use, and science community. Northrop Grumman Aerospace Systems (NGAS) is the prime contractor for the NPOESS program.

The Collaborative Cal/Val Program has two main objectives. The first is to provide risk reduction for the NPOESS mission of providing environmental observations to meet civilian requirements and military missions. The program will provide the NPOESS Customers with operationally viable, validated, useful data products and provide investigations into product defects and inconsistencies of specific impact to customers. The second objective is to facilitate the fullest possible exploitation of the unique data provided from NPP/NPOESS by the science, commerce, climate, and academic communities. The Cal/Val Program will provide general NPOESS Program information to all users about the data products, sensors, and algorithms, as well as provide technical support to the broad research and development community in their assessment and exploitation of NPOESS data. In addition, the Cal/Val Program will support the NOAA and NASA initiatives by sharing data, software tools, and information as needed.

The NPOESS program stands on the shoulders of the many satellite missions, flown by the three sponsoring agencies, and the Cal/Val program is guided by the numerous lessons learned from these programs. Emphasis has been placed on the careful calibration and characterization of

the instruments pre- and post-launch due to the criticality of the SDRs to producing usable EDRs and other user derived products. The SDR and EDR cal/val teams are populated with Customers and users, who not only provide the specific expertise needed but will ensure their satisfaction with the resulting data products through their participation in the process. Customer proficiency with the NGAS developed operational algorithms will make the cal/val process more efficient and assist the Customer in integrating the products into their existing systems. Existing space-borne assets, global models, surface networks and data assimilation provide a cost effective and comprehensive view of sensor and algorithm performance and will be used by all teams, and targeted campaigns and special studies will be planned and executed as needed.

For the calibration of the NPOESS sensors and the validation of the data products, the Government structured the leadership of the cal/val effort to reflect the residence of expertise and access to key entities in the process. For the SDRs, for which cal/val involves a thorough knowledge of the design and testing of the sensor and physical access to the sensor and sensor vendor information, NGAS has the lead. The Government has appointed a Sensor Scientist to work closely with the NGAS instrument lead throughout the cal/val process. For the EDRs, the validation expertise lies with the Customers, or operational users, of the data products and the academic researchers who study the data. Therefore, the leadership of the EDR validation teams was chosen for each discipline from the Customer community. In most cases, the lead is from the primary Customer of the discipline data products. The Government Validation lead is paired with a lead from NGAS who has been involved with their own cal/val activities and algorithm development through the NPOESS development process. To plan and execute the activities, the IPO has funded teams subject matter experts from the sensor and data product communities selected by the Government leads. These teams work side-by-side with their contractor counterparts. The leads are identified below:

Sensor Data Records (SDRs)

- VIIRS – Lushalan Liao, NGAS & Frank DeLuccia, Aerospace
- CrIS - Denise Hagan, NGAS & Gail Bingham, USU/SDL

- OMPS –Bhaswar Sen, NGAS & Scott Janz, NASA/GSFC; (Limb-Glenn Jaross, NASA/GSFC)
- ATMS – Ed Kim, NASA/GSFC, Giovanni DiAmici, NGAS, & Bill Blackwell, MIT/LL

Environmental Data Records (EDRs)

- VIIRS Atmosphere: David Starr, NASA/GSFC & Eric Wong, NGAS
- VIIRS Land: Jeff Privette, NOAA/NESDIS/NCDC & Alain Sei, NGAS
- VIIRS Ocean: Bob Arnone, NRL Stennis & Sid Jackson, NGAS
- VIIRS Imagery/Cloud Mask: Tom Kopp, Aerospace at AFWA & Keith Hutchison, NGAS
- CrIS/ATMS Sounding: Chris Barnet, NOAA/NESDIS/STAR & Denise Hagan, NGAS
- OMPS Ozone: Larry Flynn, NOAA/NESDIS/STAR & Bhaswar Sen, NGAS; (Limb-Didier Rault, NASA/LARC)

This presentation will highlight the progress made in the past year in defining the post-launch activity schedule, involvement of the science and operational data users, and techniques and correlative data used.