



# **NPOESS Preparatory Project Calibration and Validation**

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**Data Products and Algorithms (DPA)**

**Joint Polar Satellite System**

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# Cal/Val Overview

## Program Level Objectives

- Accomplish the National Mission Capabilities for which the JPSS was chartered and funded
  - Ensure Product Operational Viability
    - > Provide the Customers with validated, useful data products for their applications
    - > Provide investigations into product defects and inconsistencies of specific impact to Customers
  - Demonstrate Level 1 Requirements Compliance
    - > Provide scientific validation of products
    - > Coordinate issue resolution to meet Program priorities
- Facilitate the fullest possible exploitation of the unique data provided from NPP/JPSS by the science, commerce, climate, and academic communities
  - Support Data Integration for Mission Systems
    - > Provide Cal/ required for initiation of use of data product by primary mission systems
    - > Coordinate product updates as required
  - Support User Community
    - > Provide general Program information to all users about data products, sensors, and algorithms
    - > Provide technical support to broad research and development community in their assessment and exploitation of JPSS data
    - > Support NASA and NOAA Climate initiatives by sharing data, software tools, and information as needed



# Cal/Val Overview

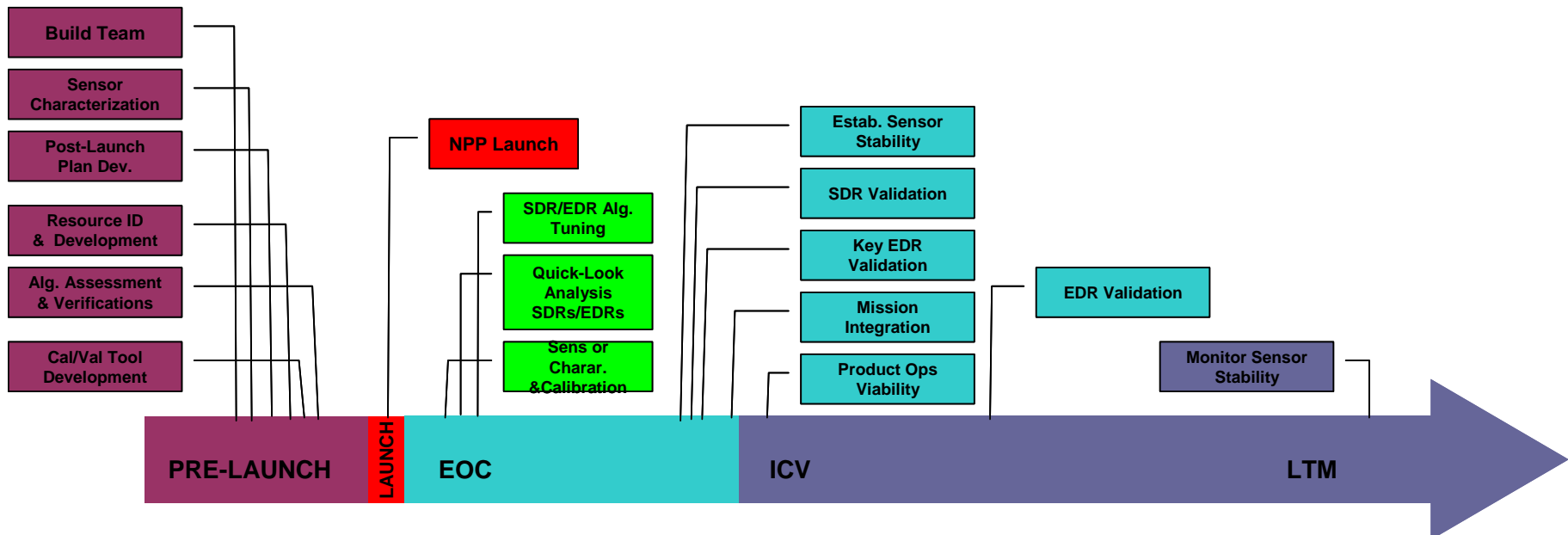
## Guiding Philosophy

- 1) Sensor Performance and Characterization are the cornerstone of all data products.
- 2) Experience and resources from Past Operational and Science Missions should be fully exploited and incorporated in the NPP and JPSS Programs.
- 3) Customer and User Satisfaction is Achieved through participation in the Cal/Val process.
- 4) Community Proficiency with Operational Algorithms is essential to efficient Cal/Val and Community buy-in.
- 5) Space-borne assets, Global models, Surface Networks and Data Assimilation provide a cost effective comprehensive view of sensor and algorithms performances.
- 6) Targeted Campaigns and Special Studies will be planned and executed as needed.
- 7) EDR Performance and corrective actions will be handled in accordance with established Program priorities.



# Cal/Val Phase Activities Defined for Each Product within Plan

- **Four Phases of Cal/Val:**
  1. Pre-Launch; all time prior to launch – Algorithm verification, sensor testing, and validation preparation
  2. Early Orbit Check-out (first 90 days) – System Calibration & Characterization
  3. Intensive Cal/Val (ICV); extending to approximately 24 months post-launch – xDR Validation
  4. Long-Term Monitoring (LTM); through life of sensors
- **For each phase:**
  - Exit Criteria established
  - Activities summarized
  - Products mature through phases independently





# SDR Cal/Val Team Composition

## Sensor Data Records

**DPA Lead: Bruce Guenther**

**STAR Lead: Fuzhong Weng**

### Technical Leads

VIIRS SDR

Frank Deluccia

CrIS SDR

Yong Han

ATMS SDR

Edward Kim

OMPS SDR

Glen Jaross

CERES

Kory Priestley

### Management Leads

Changyong Cao

Yong Han

Tsan Mo

Xianqian (Fred) Wu

TBD



# EDR Cal/Val Team Composition

## Environmental Data Records

**DPA Lead: Carl Hoffman**

**STAR Lead: Ivan Csiszar**

	<b>Validation Leads</b>	<b>Application Leads</b>
Cryosphere	Jeff Privette	Jeff Key
Ozone	Larry Flynn	Larry Flynn
Land	Jeff Privette	Ivan Csiszar
SST	Bob Arnone	Alexander Ignatov
Imagery	Tom Kopp	Don Hillger
Sounding	Chris Barnet	Chris Barnet
Clouds	David Starr	Heidinger, Andy
Radiation Budget	Istvan Laszlo	Istvan Laszlo
Hydrology	Ralph Ferraro	Ralph Ferraro
Ocean Wind	Paul Chang	Paul Chang
Ocean Color	Bob Arnone	Menghua Wang
Aerosols	David Starr	Shobha Kondragunta



# Program Participants

- Each discipline team (see 2 previous charts) includes experienced investigators from government labs and the university research community
- Technical leadership over the sensor developments was provided by Northrop Grumman within the predecessor program, NPOESS
  - The original sensor scientists continue to be engaged by the JPSS
- Operational algorithms were developed or adapted by Northrop Grumman within the predecessor program, NPOESS
  - These original developers are working within the afore-mentioned cal/val teams & are a critical part of the teams
- Operational code was developed and integrated into the mission data system, the IDPS (Interface Data Processing Segment) by Raytheon
  - The Raytheon team has primary responsibility for running the operational systems and is deeply involved in the implementing aspects of the validation
- NASA has been a partner in the NPP mission and has provided key technical leadership in the predecessor program, NPOESS
  - It has independently selected and funded data processes capabilities (SDS PEATE's) and a science team that is well integrated with the JPSS NPP Cal/Val program



# Cal/Val Program Encourages Participation from the Community

- Discipline-based teams have been established
- Limited funding, heavy emphasis on leveraging existing programs
  - No JPSS-unique cruises or A/C campaigns at this time
- Contact team leads if you have something to contribute
  - Comparison with heritage products
  - Comparison with other satellite products
  - Comparison with in-situ data if available