



JPSS NESDIS Unique Products (NUPs)

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Outline



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- Approval Process for NUP Development
- Lifecycle of a NUP
- S-NPP and JPSS-1 NUP Schedule and Plans
- Summary



NESDIS Unique Products Overview



- NESDIS Unique Products (NUPs) are observable parameters derived from Suomi NPP Sensor and Temperature Data Records in accordance with the science product requirements in the JPSS Level 1 Requirements Document (L1RD) and its Supplement
- Algorithm development follows the Satellite Product and Services Review Board Process
- Algorithms and corresponding Delivered Algorithm Packages (DAPs) are developed by STAR with OSPO Product Area Leads (PALs) participation
- Software runs within NPP Data Exploitation (NDE), a subsystem of the Environmental Satellite Processing Center (ESPC)
- Consumer requirements are defined in coordination with OSPO PALs, STAR, NDE and end users
 - Format, geographic coverage, map projection, time aggregation, grid spacing, compression approach, and preferred method of distribution
- Products are made available by subscription to real-time operational end users
- NUPs are/will be provided to NOAA Comprehensive Large Array-data Stewardship System (CLASS) for long-term archiving



NESDIS Unique Products Prioritized Listing



Critical

VIIRS

Green Vegetation Fraction
Polar Winds
Sea Surface Temperature
(ACSPO)

ATMS

Land Surface Emissivity (MIRS)

Supplemental High

CrIS

Outgoing Longwave Radiation (NUCAPS)
Infrared Ozone Profile (NUCAPS)

CrIS/ATMS

Atm Moisture Profile (NUCAPS)
Atm Temperature Profile (NUCAPS)

ATMS

Cloud Liquid Water (MIRS)
Rainfall Rate (MIRS)
Sea Ice Concentration (MIRS)
Snow Cover (MIRS)
Snow Water Equivalent (MIRS)
Total Precipitable Water (MIRS)

Supplemental Low

ATMS

Land Surface Temperature (MIRS)
Moisture Profile (MIRS)
Temperature Profile (MIRS)

CrIS

Trace Gases (CO, CO₂, CH₄) (NUCAPS)

VIIRS

Vegetation Health Product Suite

Critical: Products with critical impact to NOAA Line Office operations and/or outcomes
Supplemental High: Products with high impact to NOAA Line Office operations and/or outcomes
Supplemental Low: Products with lower impact to NOAA Line Office operations and/or outcomes



NESDIS Unique Products

Blended Products



- The JPSS L1RD Supplement includes a requirement to, “support modifications to ESPC blended products” (L1RDS-2260)

Critical

- Blended Sea Surface Temperature (with VIIRS)
- Blended Sea Surface Temperature (with AMSR2)

Supplemental High

- Blended Snow Cover (with VIIRS)
- Blended Snow Cover (with AMSR2)
- Blended Rainfall Rate (with ATMS)
- Blended Rainfall Rate (with AMSR2)
- Blended Total Precipitable Water (with ATMS)
- Blended Total Precipitable Water (with AMSR2)
- Blended Ozone (with OMPS NP)
- Blended Ozone (with OMPS CrIS)
- Blended Soil Moisture (with AMSR2)

Supplemental Low

- Blended Land Surface Temperature (with VIIRS)

Blended Product: A data product that is dependent on direct measurements from sensors on more than one satellite



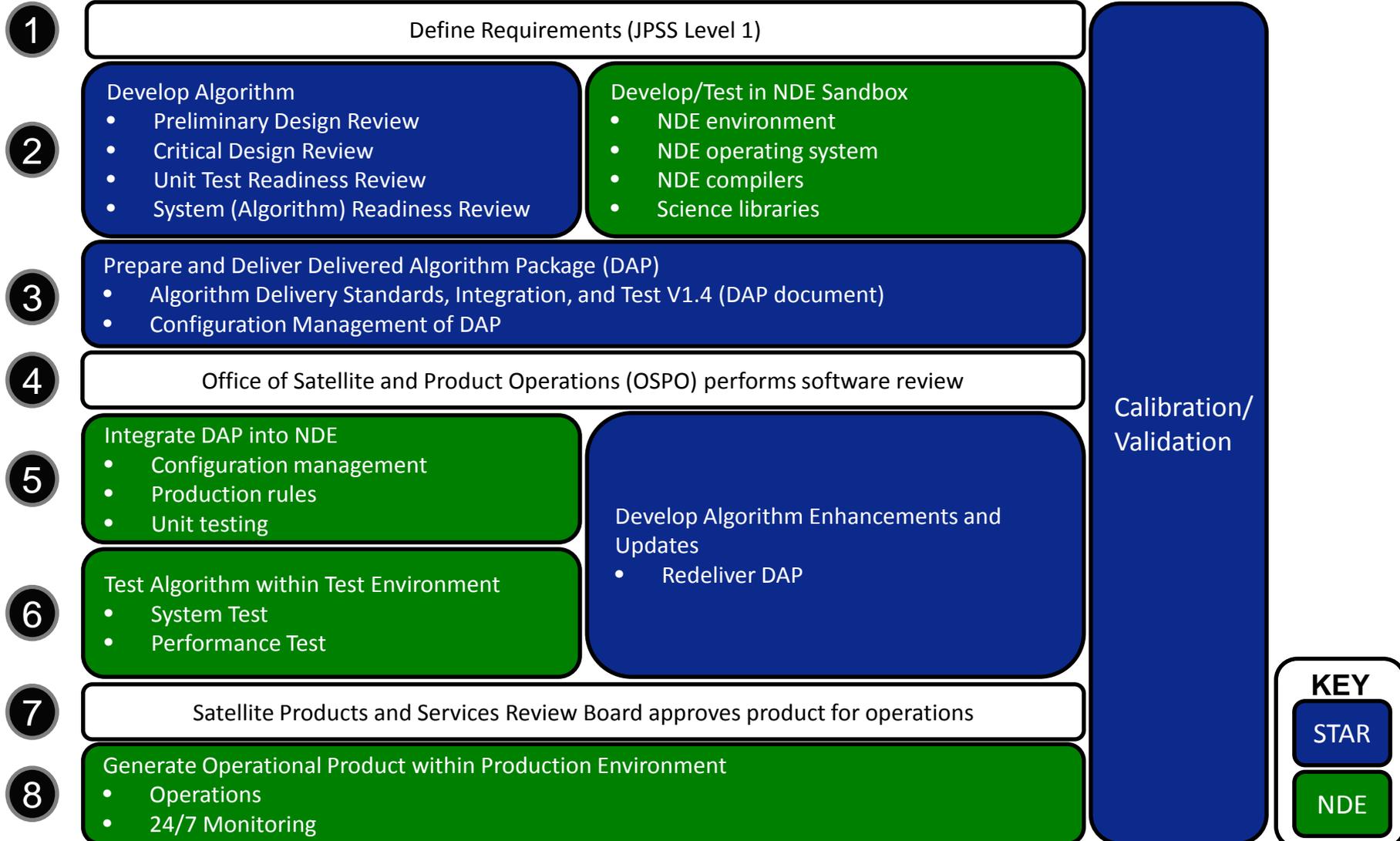
Approval Process for a NUP Project



1. Identify JPSS Level-1 and/or Level-2 Requirements
2. STAR and OSPO develop Project Plans that describe NUP requirements, capabilities, system architecture, plan of operations, project milestones, and funding needs
3. The SPSRB reviews and approves the Project Plans
4. STAR and OSPO brief new or updated Project Plans at FY Annual Review for Satellite Product Development (ARSPD)
5. An Executive Board (EB) and NOAA Low-earth Orbiting Requirements Working Group (LORWG) representatives prioritize the Project Plans and suggest recommendations and/or adjustments
6. The EB provides funding allocation recommendations to OSD
7. OSD updates the JPSS Product System Development and Implementation (PSDI) Technical Task Agreement (TTA) for JPSS funding consideration
8. STAR and OSPO submit purchase requests for approved projects and begin NUP development adhering to the Review Standards for SPSRB Satellite Product Development (http://projects.osd.noaa.gov/SPSRB/doc/SPSRB_Review_Std.pdf)



Lifecycle of a NUP





S-NPP and JPSS-1 NUPs Schedule and Plans



- **S-NPP JPSS L1RD NUPs will be operational for S-NPP by summer 2015**

Observable Parameter	Ops
Atm Moisture Profile (NUCAPS)	Oct-13
Atm Temperature Profile (NUCAPS)	Oct-13
Land Surface Emissivity (MIRS)	Dec-13
Cloud Liquid Water (MIRS)	Dec-13
Rainfall Rate (MIRS)	Dec-13
Sea Ice Concentration (MIRS)	Dec-13
Snow Cover (MIRS)	Dec-13

Observable Parameter	Ops
Snow Water Equivalent (MIRS)	Dec-13
Total Precipitable Water (MIRS)	Dec-13
Land Surface Temperature (MIRS)	Dec-13
Moisture Profile (MIRS)	Dec-13
Temperature Profile (MIRS)	Dec-13
Sea Surface Temperature (ACSPO)	Mar-14
VIIRS Polar Winds	May-14

Observable Parameter	Ops
Green Vegetation Fraction	Jun-14
CrIS Outgoing Longwave Radiation (NUCAPS)	Nov-14
Trace Gasses (NUCAPS)	Nov-14
Infrared Ozone Profile (NUCAPS)	Nov-14
Vegetation Health Suite	Jan-15

- **JPSS-1 NUP development will occur from FY16 through FY18**
 - Project Plans for FY16 JPSS-1 NUPs will be reviewed and approved by summer 2015
 - Algorithms to support the generation of Key Performance Parameters will be available before launch
 - Algorithms will be updated to handle two satellites
 - Algorithms will be updated after launch to capture JPSS-1 sensor performance characteristics



Summary



- NUPs are environmental observable parameters designed to meet the requirements in the JPSS Level-1 Requirements Document and its Supplement
- STAR, OSPO, and NDE participate in algorithm development, testing, activation, and identification of consumer requirements
- NUP algorithm development follows the SPSRB software development process
- S-NPP JPSS L1RD NUPs will be operational for S-NPP by Summer 2015
- JPSS-1 NUP Project development planning underway



Questions?