Poster 357

An Overview of the GOES-R Ground Project Algorithm Process

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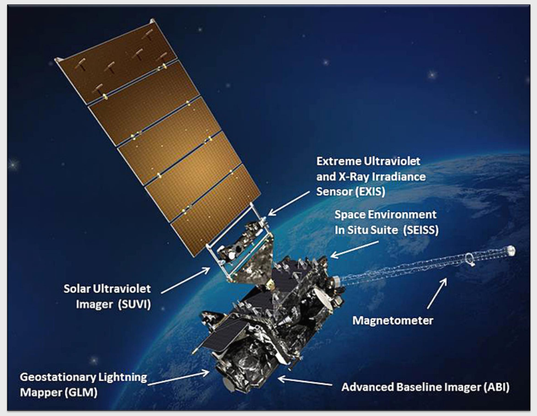
Image credit: Japan Meteorological Agency

The GOES-R science algorithm path from the NOAA/NESDIS science development teams to the NOAA Operational Environment Systems (OPS) utilizing algorithm patches for rapid change deployment. The Ground System can also deploy full builds (~3 months), patches (~1 month), and emergency patches (~1 week).



http://www.goes-r.gov/

Data Products	
SUVI L0 and L1b	Aerosol L2+
GLM L0 and L2+	Clouds L2+
EXIS L0 and L1b	Winds L2+
SEISS L0 and L1b	Fire L2+
MAG L0 and L1b	SST L2+
ABI L0 and L1b	Snow and Ice L2+
Volcanic Ash L2+	Soundings L2+
DSR/RSR L2+	LST L2+
Rainrate L2+	Hurricane Intensity L2+

Algorithm Change Process

1. The Calibration/Validation (Cal/Val) teams monitor the algorithms for potential risks and errors.
2. Change requests are proposed at Algorithm Action Review Team (AART) meetings.
3. Cal/Val teams develop and test changes offline using the ATT (Algorithm Test Toolkit) or other tools.
4. A DAP (Delivered Algorithm Package) containing test data and other information is created by the Cal/Val science teams.
5. The DAP is delivered to the GOES-R DE (Development Environment) for further testing.

DE Unit Test

1. The DAP is retrieved from the CM drobox and checked into Configuration Management (CM)
2. The integrity of the DAP is verified
3. The entire algorithm is built
4. A unit test is performed on the compiled code to test for internal consistency
5. An RPM (Red Hat Package Manager) is created for deployment

Algorithm Review Board (ARB)

The ARB is responsible for the science of the GOES-R ground system. The ARB reviews the change, completeness of the DAP, and approves the change to go into operations.

Operational Configurational Control Board (OCCB)

Approves the change for promotion to all 3 environments and to Harris for incorporation into next build.

Deployment Immediately via RPM

Deployment in next build

Final Testing

- Tested on DE for a length of time depending on the scope of the algorithm patch
- Tested on ITE for a length of time depending on the scope of the algorithm patch
- Promoted to OE

Work Request Board (WRB)

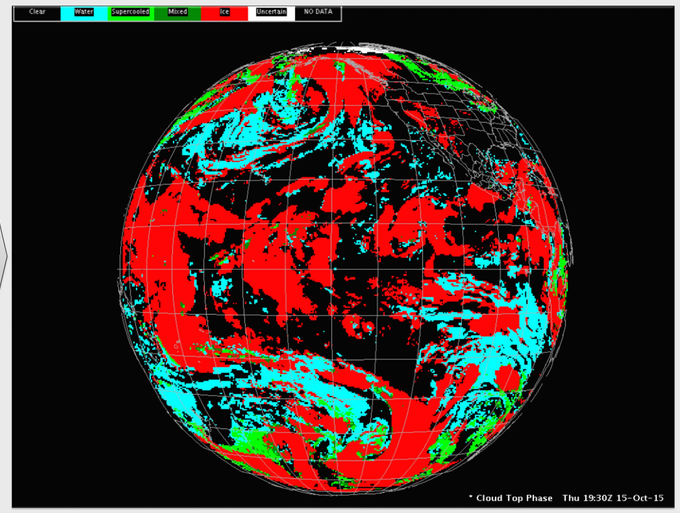
The Algorithm change will go through the WRB process to ensure implementation in the next build.

GS Integrator

Build Integration

NOAA OPS

NOAA OPS



Cloud Top Phase imagery from a pre-launch exercise created at NWS Headquarters

During Post-launch Testing (PLT) there will only be one build (~Launch+5), emergency patches and algorithm patches. The Algorithm Patch process will continue to allow GOES-R to make small code changes and LUT (Look-Up Tables) updates several times a week during extended validation. There are estimated to be ~50 algorithm patches during PLT and ~100 during extended validation

Related Talks and Posters

Matt Seybold, Preparing for GOES-R: Supporting User Readiness of Level 1b Data
Wayne MacKenzie, Preparing for GOES-R: Supporting User Readiness of L2+ Products
Ryan Williams, Application of a Consistent Algorithm Change Approach to the NESDIS Ground Systems
Elizabeth McMichael, Poster 734, Preparing for GOES-R: Post-Launch Product Tests and Activities
David Pogorzala, Poster 768, GRATDAT: A novel approach to monitoring and processing radiometric data from GOES-R ABI
Kathryn Miretzky, Poster 749, Preparing for GOES-R: Pre-launch Data Operations Exercises (DOE)