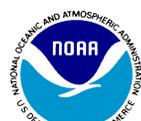


AWG IMAGERY TEAM: GOES-16 ABI POST LAUNCH TEST



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With help from many, many others (Dan Lindsey, Steve Miller, etc.)!



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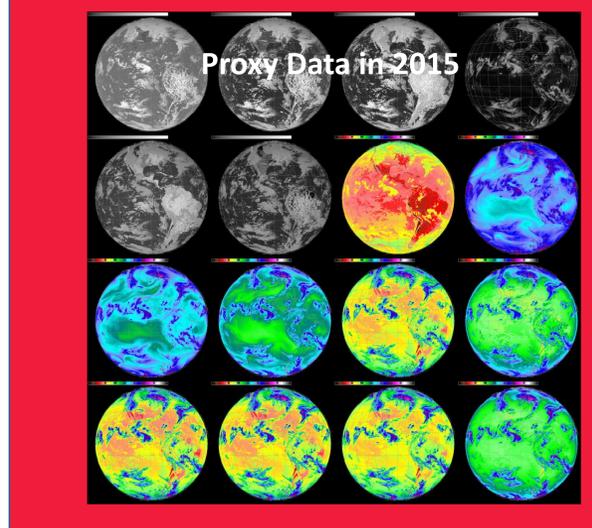
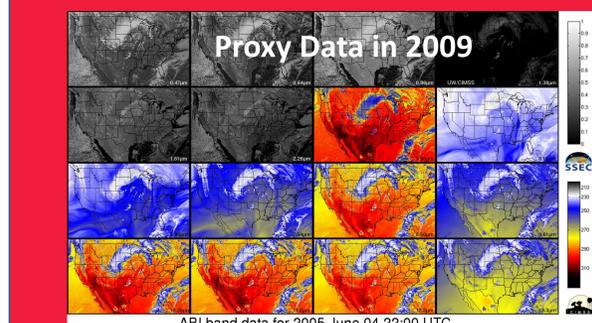
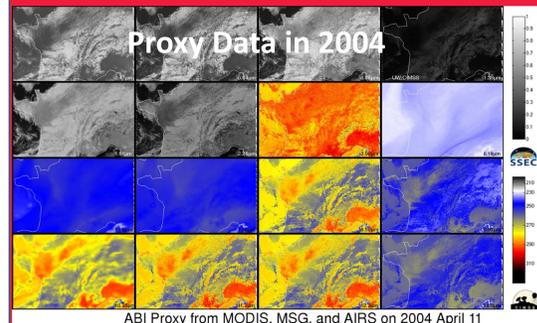


History

- ASPB, with SSEC/CIMSS and others work together to prepare the nation for the Advanced Baseline Imager (ABI) on GOES-R
- Spectral band selection studies for ABI started in 1999, before the GOES-R Program Office.
- By 2004 CIMSS had started generating proxy datasets for GOES-R scientists to use
 - First existing satellites (MODIS, AIRS, Meteosat, GOES) were used
 - Eventually high-resolution NWP model data were used to generate highly realistic simulated ABI data
 - Proxy data from NWP used by ABI ground system vendor in their GRB simulator, which was shipped to many users.
 - Efforts to generate proxy data from NWP continued beyond the launch of GOES-R and proved to be crucial in preparing the government, academia, and industry for the eventual use of real ABI data.
- 2007 GOES-R Algorithm Working Group (AWG) formed; CIMSS, with NOAA's Advanced Satellite Products Branch (ASPB), became lead algorithm developers on 17 out of 24 ABI baseline (Level 2) products.
 - CIMSS also contributes to the GOES-R Calibration Working Group (CWG) activities.
- Visualization team preparing McIDAS (-X and -V) for eventual ABI data
- CIMSS helped assess L2 product impacts of over 13 instrument waivers for GOES-R through -U
 - File comparison tool called Glance compares contents from 2 files, is still in use by GOES-R Program
- Community Satellite Processing Package (CSPP) for GEOs, for direct-broadcast users and provided to NWS Centers
- User Preparation, Education, Training, Outreach, & Satellite Liaisons

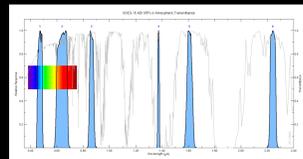
Advanced Baseline Imager (ABI) Baseline Products	
Aerosol Detection (Smoke and Dust)	@CIMSS/ASPB
Aerosol Optical Depth (AOD)	@CIMSS/ASPB
Clear Sky Masks	@CIMSS/ASPB
Cloud and Moisture Imagery	@CIMSS/ASPB
Cloud Optical Depth	@CIMSS/ASPB
Cloud Particle Size Distribution	@CIMSS/ASPB
Cloud Top Height	@CIMSS/ASPB
Cloud Top Phase	@CIMSS/ASPB
Cloud Top Pressure	@CIMSS/ASPB
Cloud Top Temperature	@CIMSS/ASPB
Derived Motion Winds	@CIMSS/ASPB*
Derived Stability Indices	@CIMSS/ASPB
Downward Shortwave Radiation: Surface	@CIMSS/ASPB*
Fine/Nox Spot Characterization	@CIMSS/ASPB*
Hurricane Intensity Estimation	@CIMSS/ASPB
Land Surface Temperature (Skin)	@CIMSS/ASPB
Legacy Vertical Moisture Profile	@CIMSS/ASPB
Legacy Vertical Temperature Profile	@CIMSS/ASPB
Radiances	@CIMSS/ASPB
Rainfall Rate / QPE	@CIMSS/ASPB
Reflected Shortwave Radiation: TOA	@CIMSS/ASPB
Sea Surface Temperature (Skin)	@CIMSS/ASPB
Snow Cover	@CIMSS/ASPB
Total Precipitable Water	@CIMSS/ASPB
Volcanic Ash: Detection and Height	@CIMSS/ASPB

Wavelength	Band #	Champion
0.47	1	Fred Moshier
0.64	2	Vern Suomi
0.86	3	Nagaraja Rao
1.38	4	Bo-Cai Gao
1.61	5	L. Stowe
2.25	6	M. King
3.9	7	Vern Suomi
6.16	8	Pierre Morel
6.93	9	W. L. Smith
7.34	10	Gary Elrod
8.5	11	S. Ackerman
9.61	12	Art Neuendorffer
10.33	13	W. P. Menzel
11.2	14	Vern Suomi
12.3	15	Vern Suomi
13.3	16	W. L. Smith



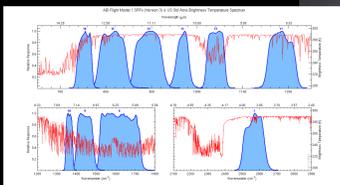
ABI: Bands 1-6 (Visible / NearIR)

ABI Band	Wavelength (µm)	Wavelength range (µm)	Sub-point pixel spacing (km)	Descriptive Name
1	0.47	0.45 - 0.49	1	"Blue"
2	0.64	0.60 - 0.68	0.5	"Red"
3	0.864	0.847 - 0.882	1	"Veggie"
4	1.373	1.366 - 1.380	2	"Cirrus"
5	1.61	1.59 - 1.63	1	"Snow/Ice"
6	2.24	2.22 - 2.27	2	"Cloud Particle Size"



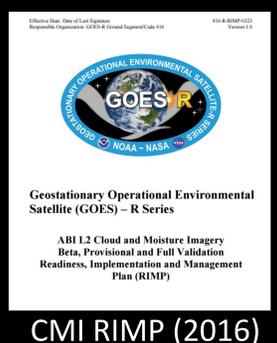
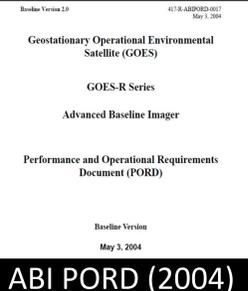
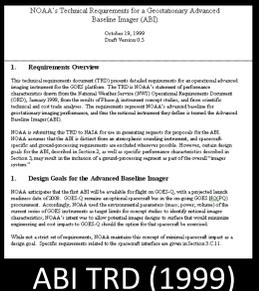
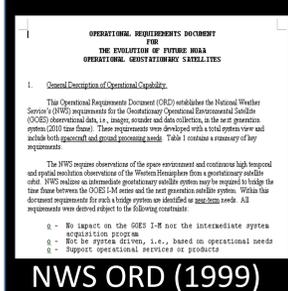
ABI: Bands 7-16 (Infrared)

ABI Band	Wavelength (µm)	Wavelength range (µm)	Sub-point pixel spacing (km)	Descriptive Name
7	3.90	3.80 - 3.99	2	"Shortwave window"
8	6.19	5.79 - 6.59	2	"Upper-level Water Vapor"
9	6.93	6.72 - 7.14	2	"Mid-level Water Vapor"
10	7.34	7.24 - 7.43	2	"Lower/Mid-level Water Vapor"
11	8.44	8.23 - 8.66	2	"Cloud-top Phase"
12	9.61	9.42 - 9.80	2	"Ozone"
13	10.33	10.18 - 10.48	2	"Clean longwave window"
14	11.21	10.82 - 11.60	2	"Longwave window"
15	12.29	11.83 - 12.75	2	"Dirty longwave window"
16	13.28	12.99 - 13.56	2	"CO2"

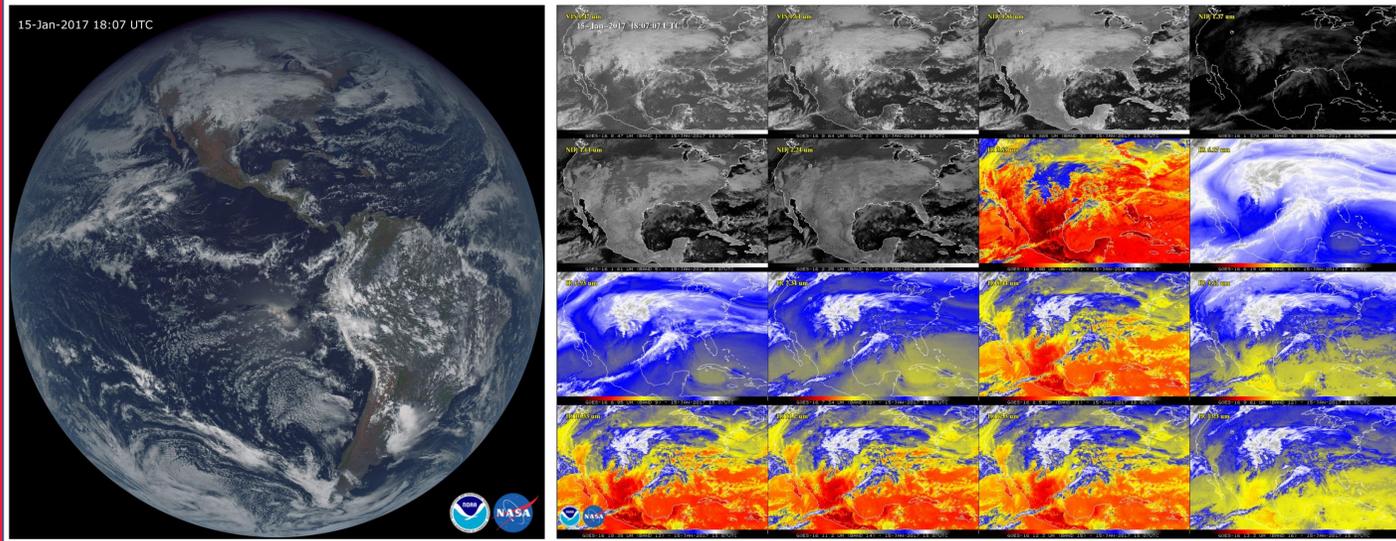


The Launch

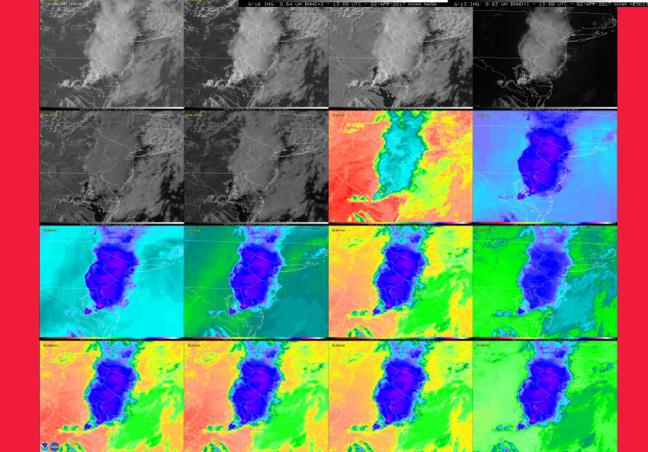
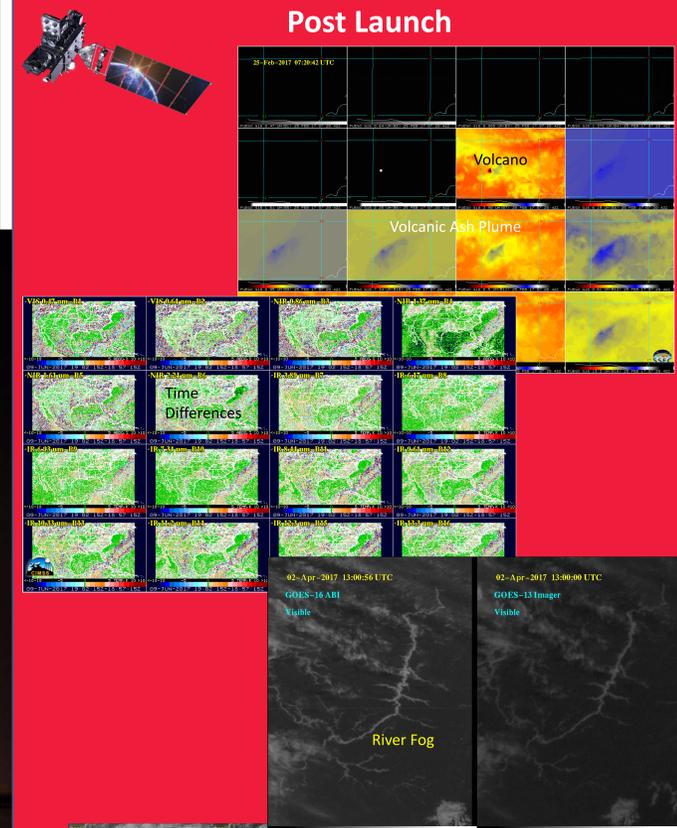
- GOES-R was launched from Cape Canaveral, FL on November 19, 2016 at 6:42pm EST (23:46 UTC).
- GOES-R reached geostationary orbit and was renamed GOES-16 on November 29, 2016.
- GOES-16 reached the check-out location of 89.5W on December 6, 2016.
- ABI "First Light" data, all 16 bands, were received on January 14, 2017 (via internet at CIMSS) and "First Light Images" were generated from January 15, 2017 data.
 - There were test visible data sent on January 7, 2017
 - Official press release was Jan 23, 2017 (First day of AMS)



ABI First Light Imagery From CIMSS



Post Launch



Imagery Status

- GOES-16 ABI Imagery has passed both its beta (March 2017) and provisional (Summer 2017) stages.
- (Non-operational) ABI Data is routinely flowing to users via a number of paths (GVAR, NOAAport, CLASS, etc.)

References & Links

<http://cimss.ssec.wisc.edu/goes-r/>
<http://www.goes-r.gov/>
<http://www.goes-r.gov/education/ABI-bands-quick-info.html>

Schmit, T. J., P. Griffith, M. M. Gunshor, J. M. Daniels, S. J. Goodman, and W. J. Lebar, 2017: A closer look at the ABI on the GOES-R series. Bull. Amer. Meteor. Soc., 98, 681-698, doi:10.1175/BAMS-D-15-00230.1.