



GOES-R Sectorized Cloud and Moisture Imagery Products



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Improved Spatial and Spectral Resolution

Improved Temporal Resolution

GOES-R					GOES-13/GOES-15	
Future GOES imager (ABI) band	Wavelength range (μm)	Central Wavelength (μm)	Nominal Subsatellite IGFOV (km)	Sample Use	Nominal Subsatellite IGFOV	Wavelength (μm)
1	0.45-0.49	0.47	1	Daytime aerosol over land, coastal water mapping		
2	0.59-0.69	0.64	0.5	Daytime clouds fog, insolation, winds	1 km	0.52-0.71
3	0.846-0.885	0.865	1	Daytime vegetation/burn scar and aerosol over water, winds		
4	1.371-1.386	1.378	2	Daytime cirrus cloud		
5	1.58-1.64	1.61	1	Daytime cloud-top phase and particle size, snow		
6	2.225-2.275	2.25	2	Daytime land/cloud properties, particle size, vegetation, snow		
7	3.80-4.00	3.90	2	Surface and cloud, fog at night, fire, winds	4 km	3.73-4.07
8	5.77-6.6	6.19	2	High-level atmospheric water vapor, winds, rainfall		
9	6.75-7.15	6.95	2	Midlevel atmospheric water vapor, winds, rainfall	4 km	5.80-7.30
10	7.24-7.44	7.34	2	Lower-level water vapor, winds, and SO ₂		
11	8.3-8.7	8.5	2	Total water stability cloud phase, dust, SO ₂ rainfall		
12	9.42-9.8	9.61	2	Total ozone, turbulence, and winds		
13	10.1-10.6	10.35	2	Surface and cloud		
14	10.8-11.6	11.2	2	Imagery, SST, clouds, rainfall	4 km	10.20-11.20
15	11.8-12.8	12.3	2	Total water, ash, and SST		
16	13.0-13.6	13.3	2	Air temperature, cloud heights and amounts	8 km (13)/4 km (15)	13.00-13.70

Schmit et al, 2005

Refresh Rates

	GOES-R Full Disk/ CONUS/Mesoscale Scan Mode	GOES-R Full Disk Scan Mode	Today
Full Disk	15 Minutes	5 Minutes	3 Hours
Regional Alaska Hawaii Puerto Rico	15 Minutes	5 Minutes	15-30 Minutes
CONUS	5 Minutes	5 Minutes	15 Minutes
Rapid Scan Operations	--	--	7.5 Minutes
1 Mesoscale Sector	30 Seconds	N/A	N/A
2 Mesoscale Sectors	60 Seconds	N/A	N/A

Enhanced Product Tailoring

GOES-R Sectorized Cloud & Moisture Imagery (CMI) Data Streaming from Ground Segment to AWIPS NCF

Six Configurable Parameters

Representative Products

- Spatial Resolution— 0.5 to 28 km**
- Periodicity—multiple of refresh rate**
- Geographic Corner Points**
- Map Projection— Fixed grid
Polar Stereographic
Mercator
Lambert Conformal**
- Bit Depth— 8 to 14**
- Spectral Band— see above**

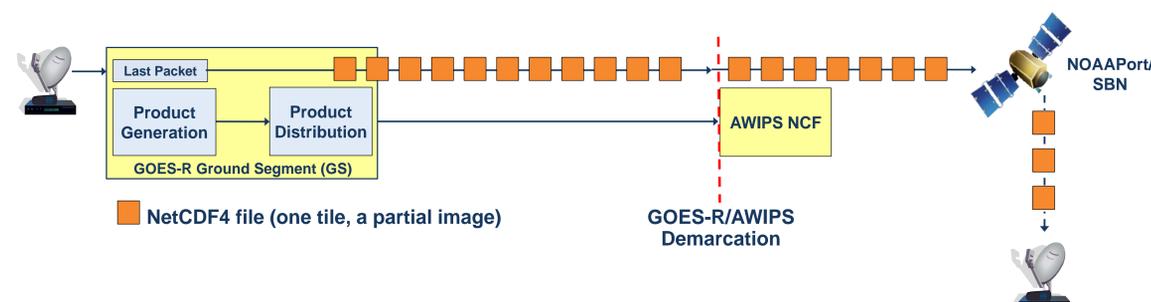
Appendix E Table 1: AWIPS Sectorized Product Set Characteristics in Mode 3

Sectorized Product ID	Satellite Orbital Slot	Sector	Map Projection	Refresh (minutes)	Resolution (km)	ABI Bands Used (central wavelength, micrometer)	Corner Points	Bit Depth	Latency (seconds)
1	GOES EAST	East CONUS	Lambert Conformal	5	0.5	0.64	See ABI Performance and Operational Requirements Document, 417-ABIPORD-0017	12	50.0
2	GOES EAST	East CONUS	Lambert Conformal	5	1	0.47, 0.865, 1.61	See ABI Performance and Operational Requirements Document, 417-ABIPORD-0017	12	50.0
3	GOES EAST	East CONUS	Lambert Conformal	5	2	1.378, 2.25, 3.90, 6.19, 6.95, 7.34, 8.5, 9.61, 10.35, 11.2, 12.3, 13.3	See ABI Performance and Operational Requirements Document, 417-ABIPORD-0017	12*	50.0
4	GOES EAST	Mesoscale (Flexible 1000 x 1000 km)	Lambert Conformal	0.5	0.5	0.64	N/A	12	23.0
5	GOES EAST	Mesoscale (Flexible 1000 x 1000 km)	Lambert Conformal	0.5	1	0.47, 0.865, 1.61	N/A	12	23.0
6	GOES EAST	Mesoscale (Flexible 1000 x 1000 km)	Lambert Conformal	0.5	2	1.378, 2.25, 3.90, 6.19, 6.95, 7.34, 8.5, 9.61, 10.35, 11.2, 12.3, 13.3	N/A	12*	23.0

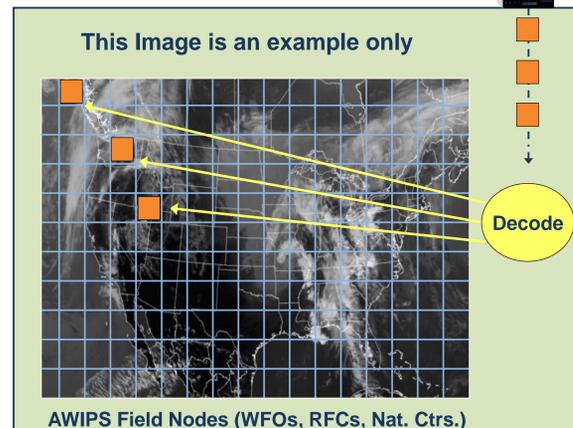
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Sectorized Product ID	Satellite Orbital Slot	Sector	Map Projection	Refresh (minutes)	Resolution (km)	ABI Bands Used (central wavelength, micrometer)	Corner Points	Bit Depth	Latency (seconds)
18	GOES WEST	Alaska regional	Polar Stereographic	15	2	1.378, 2.25, 3.90, 6.19, 6.95, 7.34, 8.5, 9.61, 10.35, 11.2, 12.3, 13.3	Approximate general coverage Lower Left: 42.085N 175.641W Lower Right: 42.085N 124.359W Upper Right: 63.975N 93.690W Upper Left: 63.975N 153.690E	12*	50.0
19	GOES WEST	Full Disk	Fixed Grid	15	6	0.47, 0.64, 0.865, 1.378, 1.61, 2.25, 3.90, 6.19, 6.95, 7.34, 8.5, 9.61, 10.35, 11.2, 12.3, 13.3	No corner point. Circle of the hemispheric earth view centered at the nadir longitude node when GOES West is 137W	12*	50.0
22	GOES WEST	Hawaii Regional	Mercator	15	0.5	0.64	Approximate general coverage Lower Left: 9.343N 167.315W Lower Right: 9.343N 145.878W Upper Right: 28.052N 145.878W Upper Left: 28.052N 167.315W	12	50

* 12 bits at all channels except 14 bits for the 3.9 Micrometer channel



- Key Points**
- Sectorized CMI data streaming from GOES-R Ground Segment (GS) into AWIPS.
 - Each netCDF4 file contains one tile.
 - Each tile is a subset of a complete satellite image.
 - Tile size will be configurable (e.g., 1024X1024 pixels).
 - Meets Latency Requirements*: 23 seconds for Mesoscale Scan; 50 seconds for Full Disk and CONUS scans



*Latency: Time between arrival of last data packet of an observation at the GOES-R GS and the arrival of the last bit of the corresponding GOES-R product at the AWIPS Demarcation Point.