



NOAA Report on the Status of Current and Future Satellite Systems

Presented to CGMS-47 Plenary session, agenda item D.05

NOAA Recent and Upcoming Launches

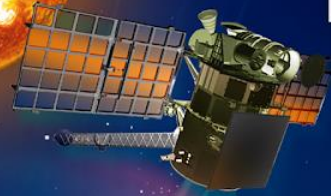
JASON-3

OPERATIONAL JULY 1, 2016



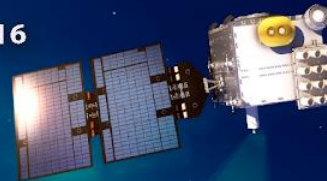
DSCOVR

OPERATIONAL JULY 27, 2016



COSMIC-2

COSMIC-2A - 2019



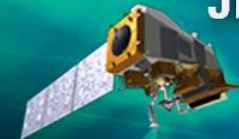
GOES-R SERIES

GOES-16 - OPERATIONAL Dec 18, 2017
GOES-17 - OPERATIONAL Feb 12, 2019
GOES-T - TBD
GOES-U - FY 2025

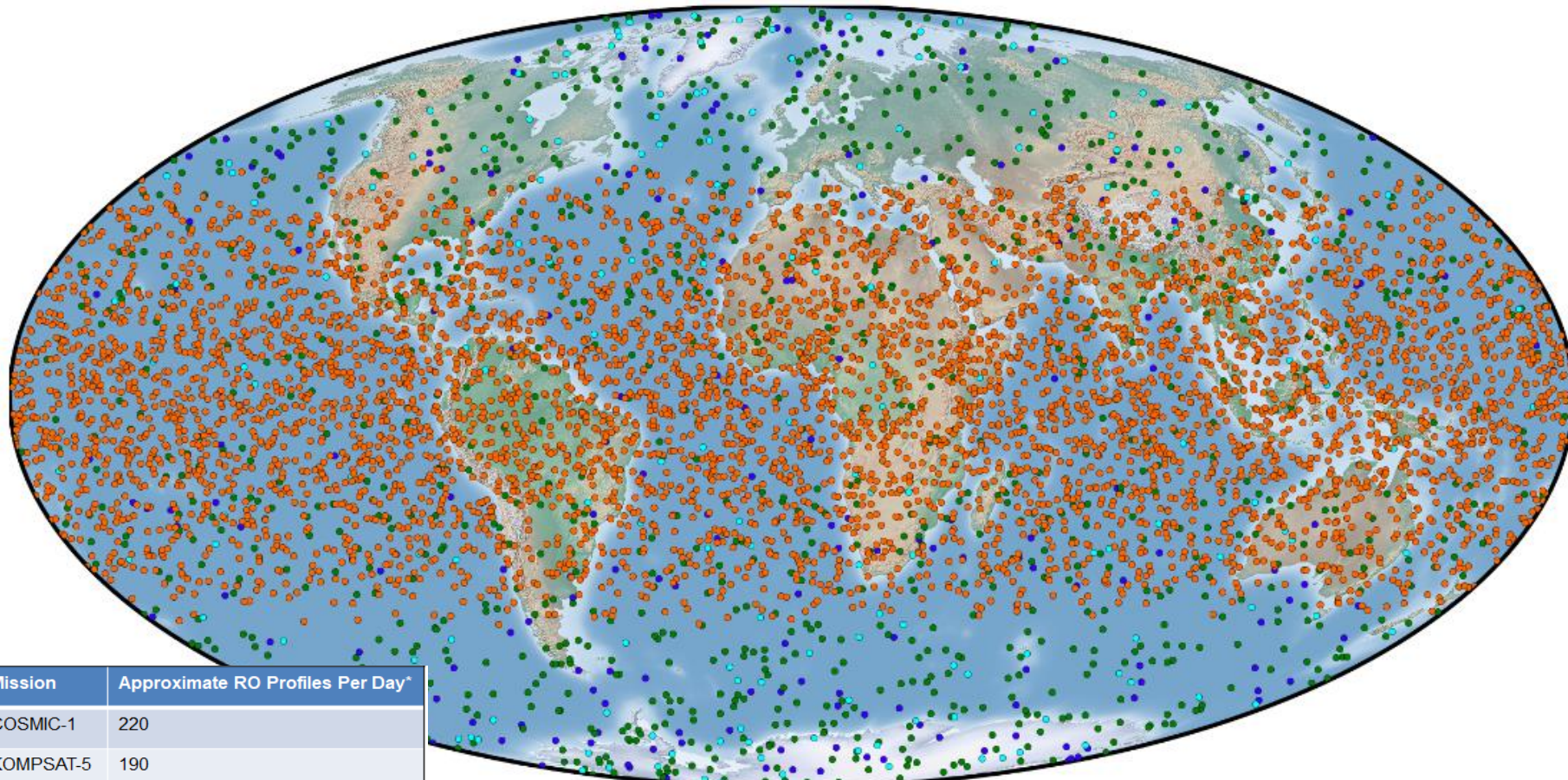


JPSS SERIES

NOAA-20 - OPERATIONAL May 30, 2018
JPSS-2 - FY 2022
JPSS-3 - FY 2026
JPSS-4 - FY 2031



COSMIC-2 Launch and RO Data Utilization



Mission	Approximate RO Profiles Per Day*
COSMIC-1	220
KOMPSAT-5	190
PAZ	160
METOP A+B	1050
COSMIC-2	4000 (threshold requirement) 5000 (anticipated)

• KOMPSAT-5 • Metop-AB • PAZ • COSMIC-2

Prepared by UCAR/COSMIC



*Post QC (Based on Feb 2019 for existing missions)

JPSS & GOES Enhancements



2 satellites operating, 2X the coverage

DNB

Day-Night Band provides adds night time view of clouds



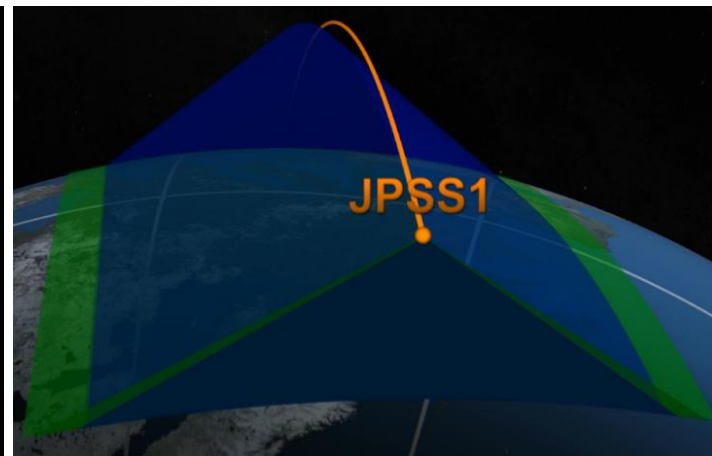
High resolution imagery and state of the art soundings to measure temperature & moisture



Polar data provides 85% of data used in numerical weather prediction

2X

Acquire data twice an orbit for lower latency



GOES-R THE FUTURE OF FORECASTING

3X MORE CHANNELS



Improves every product from current GOES Imager and will offer new products for severe weather forecasting, fire and smoke monitoring, volcanic ash advisories, and more.

4X BETTER RESOLUTION



The GOES-R series of satellites will offer images with greater clarity and 4x better resolution than earlier GOES satellites.

5X FASTER SCANS

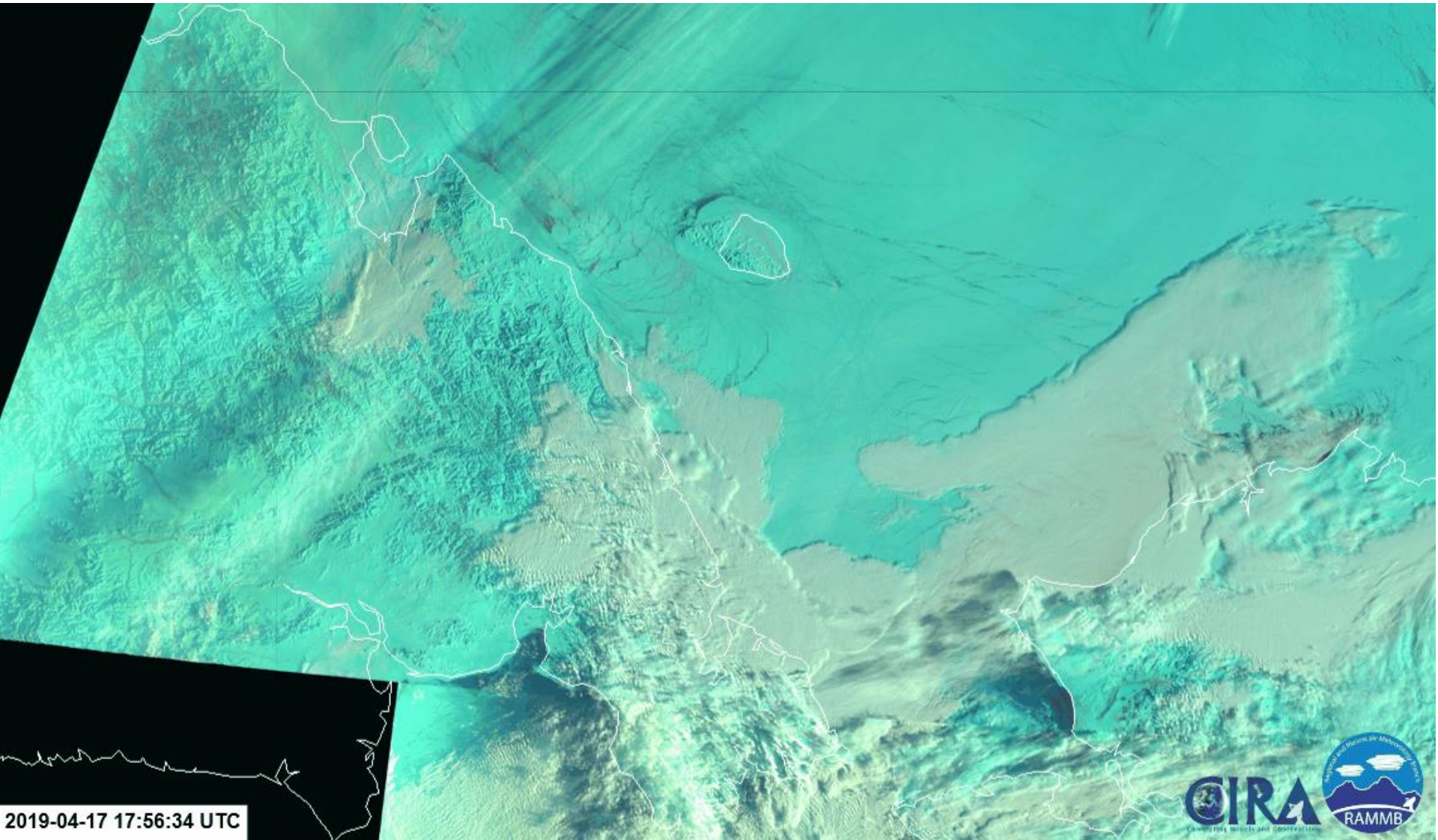


Faster scans every 30 seconds of severe weather events and can scan the entire full disk of the Earth 5x faster than before.

Similar improvements have occurred or soon will occur in other GEO platforms



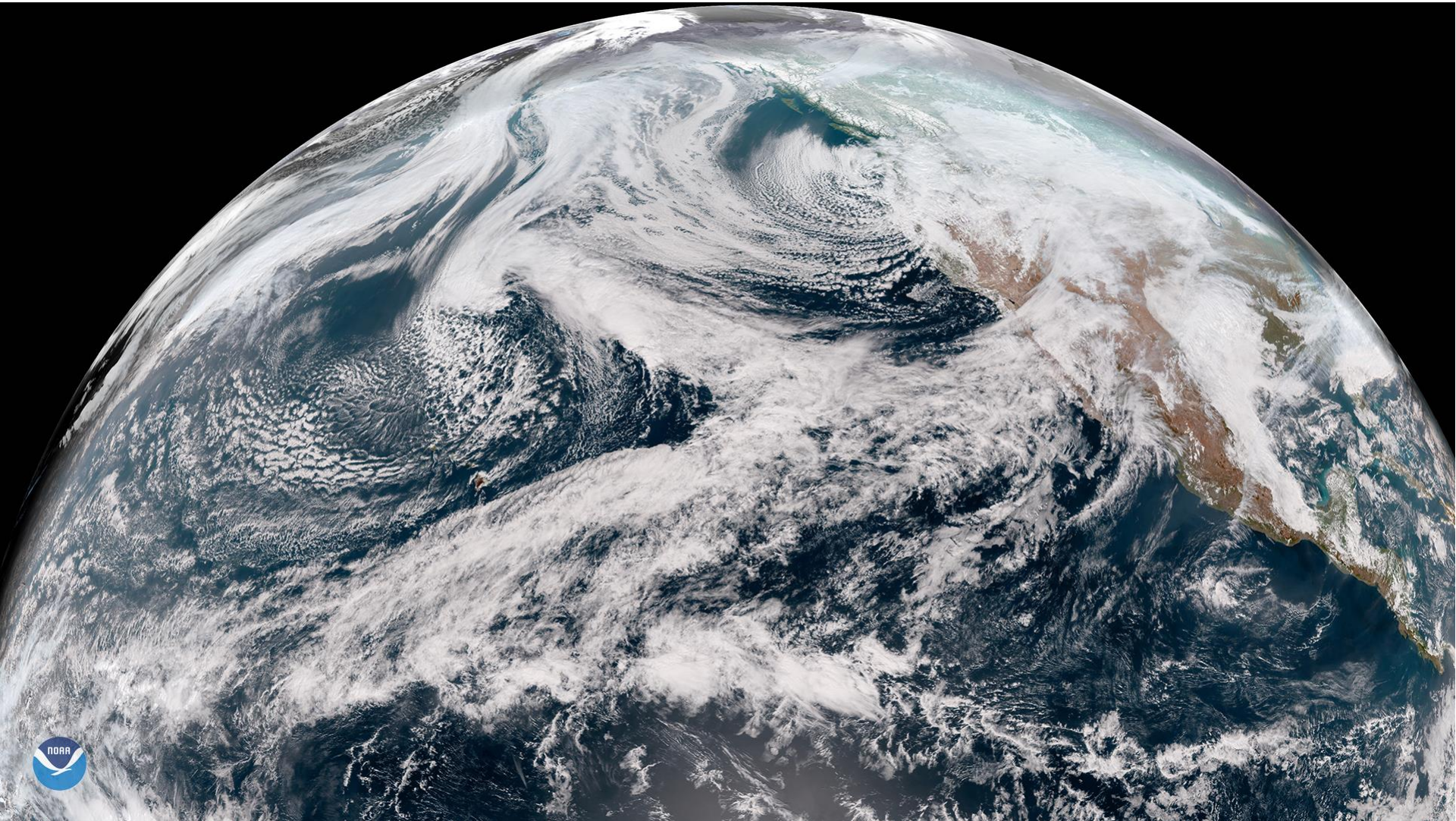
SNPP & NOAA-20 Ice Monitoring



2019-04-17 17:56:34 UTC



GOES-17 is now Operational at GOES-West



DEPARTMENT OF COMMERCE

Status of GOES-17 ABI Performance

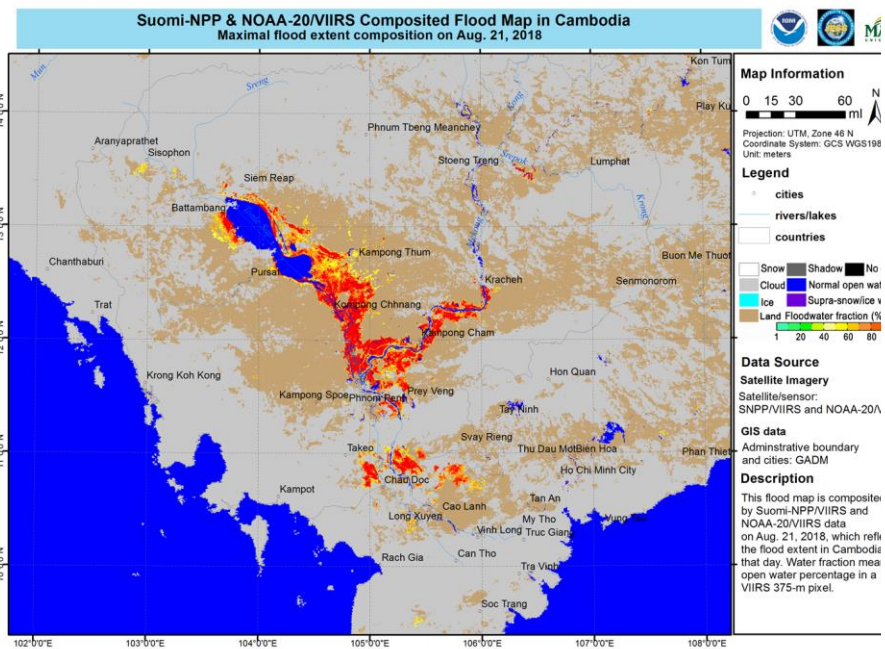
- An issue with ABI’s cooling system was discovered during GOES-17 PLT.
- In the last year, NOAA and NASA teams have made significant progress to optimize the performance of GOES-17 data. ABI is currently delivering 97% of the data it intended to provide.
- GOES-17 will operate in tandem with GOES-15 for an extended period of time to allow for assessment of performance.
- Continuing ground modifications to mitigate for affected data: Data Quality Flags, Predictive Calibration, and L2 algorithm modifications.
- NOAA has been working closely with JMA and KMA to share our experiences and NOAA appreciates their support over the last year.

Band	Channel	Function	Estimated Unsaturated Signal Cold Season (Solstice)	Estimated Unsaturated Signal Warm Season (Pre-Eclipse)
1	0.47 μm	Blue	24 hr	24 hr
2	0.64 μm	Red	24 hr	24 hr
3	0.86 μm	Veggie	24 hr	24 hr
4	1.38 μm	Cirrus	24 hr	24 hr
5	1.61 μm	Snow/Ice	24 hr	24 hr
6	2.25 μm	Cloud Particle Size	24 hr	24 hr
7	3.90 μm	Shortwave Window	24 hr	24 hr
8	6.18 μm	Upper-Level Water Vapor	24 hr	18 - 20 hr
9	6.95 μm	Mid-Level Water Vapor	24 hr	18 - 20 hr
10	7.34 μm	Lower-Level Water Vapor	24 hr	18 - 20 hr
11	8.50 μm	Cloud-Top Phase	24 hr	21 hr
12	9.61 μm	Ozone	24 hr	18 - 20 hr
13	10.35 μm	Clean IR Longwave Window	24 hr	24 hr
14	11.20 μm	IR Longwave Window	24 hr	24 hr
15	12.30 μm	Dirty Longwave Window	24 hr	21 hr
16	13.30 μm	CO2 Longwave Infrared	24 hr	18 - 20 hr

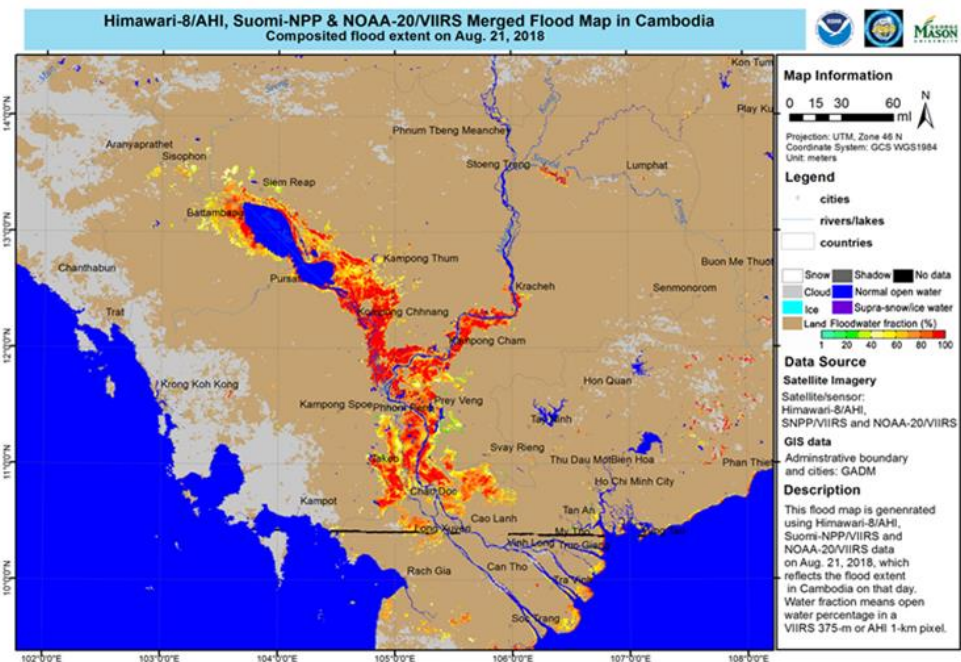
Assessment of channel availability as of September 2018

GEO-LEO Applications – Flood Mapping

Adding the GEO allows better areal extent while preserving LEO better spatial resolution



JPSS (SNPP&NOAA-20) Composite



JPSS + AHI Composite

New Capabilities Possible and Under Consideration

LEO

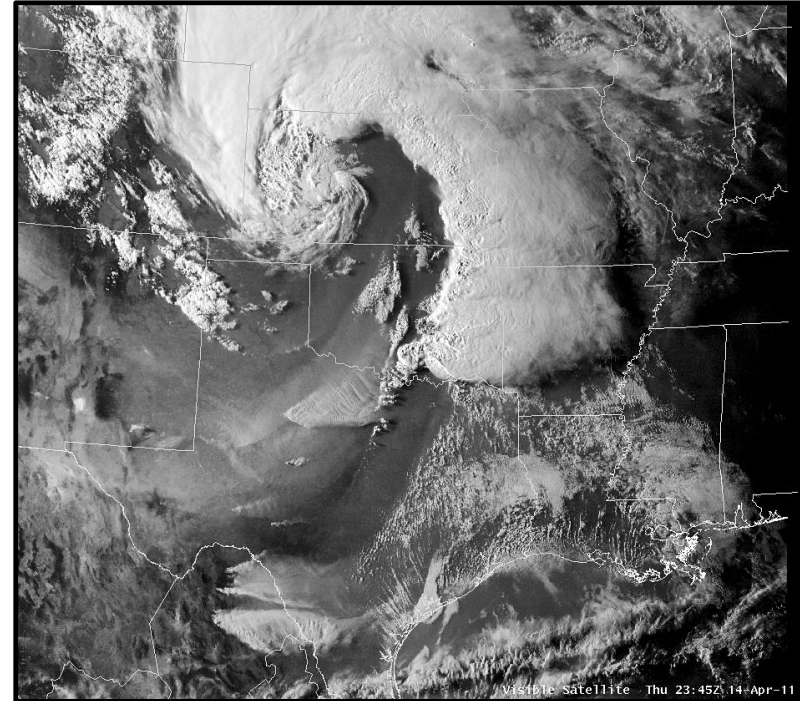
- Next generation & additional sounders
- Much higher density GNSS-RO
- Precipitation & wind measurements
- Mixed update/rate/data quality vertical sounding data set

GEO

- Diverse quality imaging from three locations (east, west, center)
- Advanced imaging and/or sounding capabilities
- Tundra missions sharing instruments with GEO to provide Arctic real time imagery

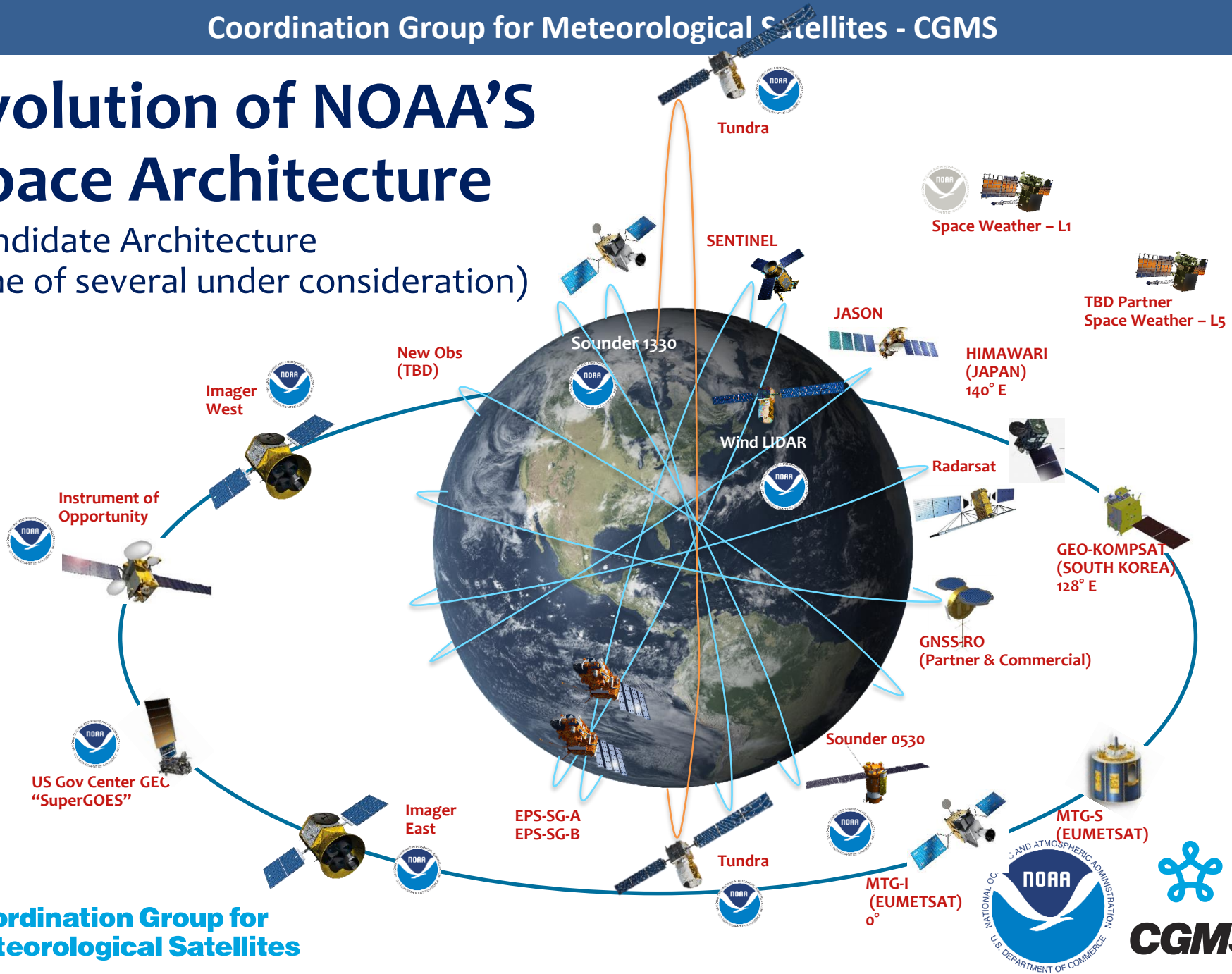
Space Weather

- Operational and improved on-Earth-Sun-Axis solar observation
- Off-axis solar observation and situ space weather



Evolution of NOAA'S Space Architecture

Candidate Architecture
(one of several under consideration)



Coordination Group for Meteorological Satellites



2019 JOINT SATELLITE CONFERENCE

Shaping the Future Together – Providing Observations for the Coupled Earth System

Boston USA

28 September – 4 October 2019

