



The Current State of NOAA NESDIS Direct Satellite Services

National Environmental Satellite,
Data, and Information Service

Last Updated:
06/01/2022

Prepared by: Seth Clevestine
Office of Satellite Products and Operations
GNC-A Direct Broadcast Manager



Presentation Outline

- GOES Rebroadcast
 - Present GOES Constellation Flyout and Status
 - GRB User Community
 - Interleave periods
 - GOES West Transition
 - GOES-18 L1b/LII Product Validation Status Projections
 - Geo-XO and GRB
- POES and JPSS
 - Polar Satellite Flyout and Status
 - OSPO Field Terminal Support (FTS)
 - JPSS-2 Launch and Transition to Operations
 - JPSS-2 HRD L&EO Period and User Updates
 - JPSS-2 Product Cal/Val Projections
- Direct Services Branch Contact Information
 - DSB User Group information



NESDIS Satellite Broadcast Data Access Overview

Acronym	System Name	Description	Satellite & Location
GRB	GOES Rebroadcast	The primary relay of full resolution, calibrated, near-real-time broadcast of GOES-R for Level 1b data products (Advanced Baseline Imager L1b, Space Weather L1b, and Geostationary Lightning Mapper L2). This data is available to all users with GRB receivers in view of a GOES-R series satellite at the East or West operational footprints.	GOES-16 @ 75.2° W GOES-17 @ 137.2°W
HRIT/ EMWIN	High Rate Information Transmission/ Emergency Managers Weather Information Network	The HRIT/EMWIN service is a high data rate (400 Kbps) broadcast for GOES-R satellite imagery and selected products to remotely-located user terminals. Combines LRIT and the EMWIN direct broadcast service that provides users with weather forecasts, warnings, graphics and other information directly from the NWS in near real-time. Also included is a copy of GOES-DCS.	GOES-16 @ 75.2° W GOES-17 @ 137.2°W
DCS	Data Collection System	Remote data collection platforms (DCP) within the footprint of the NOAA geostationary East and West satellites that collect vast array of environmental observational data (river, tidal, seismic, meteorological, etc..) are transmitted to the GOES satellites and broadcasted down to users for processing, visualization and decision making.	GOES-16 @ 75.2° W GOES-17 @ 137.2°W
GNC-A	GEONETCast Americas	GEONETCast Americas is the Western Hemisphere component of GEONETCast, a near real time, global network of satellite-based data dissemination systems designed to distribute space-based, air-borne and in situ data, metadata and products to diverse communities. This is a NOAA funded, NESDIS managed commercial rebroadcast service.	Intelsat-21 @ 58°W
JPSS HRD	High Rate Data	The HRD direct broadcast is a continuous real-time downlink of JPSS mission environmental data to users on the ground that are equipped with the ground resources necessary to capture the broadcast when the polar orbiting satellite is within view. HRD data content is a full set of science and calibration data from the mission instruments, as well as the spacecraft attitude and ephemeris data necessary for data product generation.	S-NPP and NOAA-20 polar orbiting satellites



Present GOES Constellation and Flyout

GOES-West
GOES-17
137.2° West

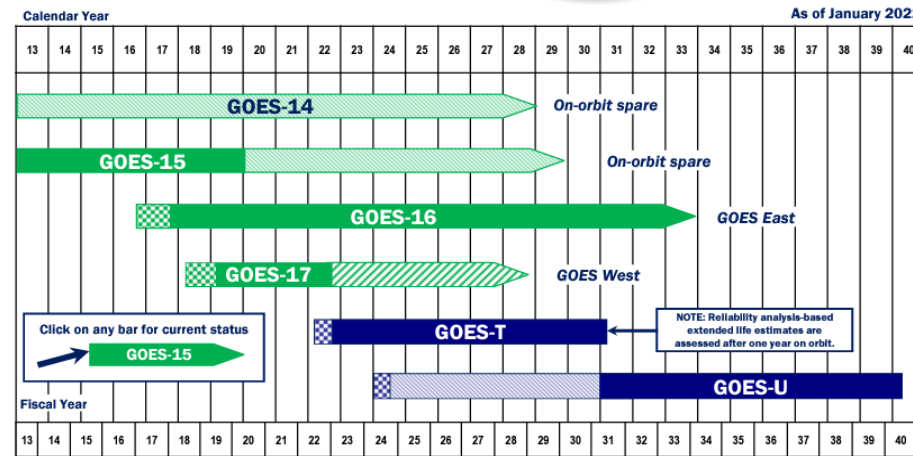
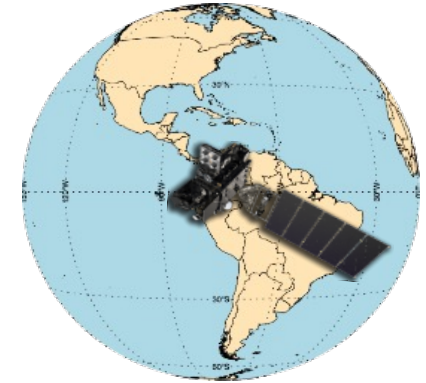
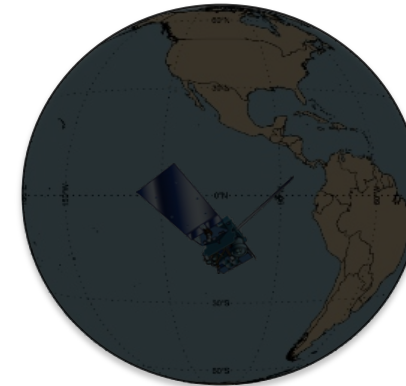
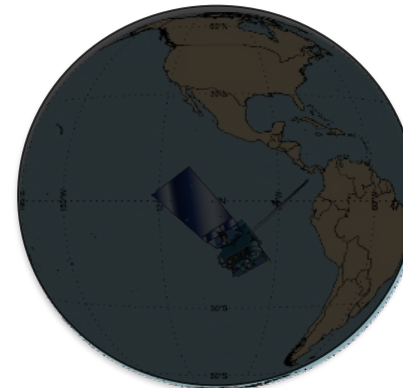
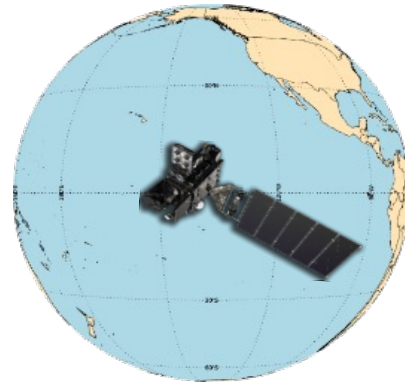
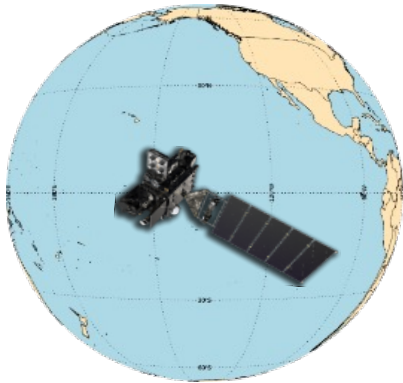
Checkout
GOES-18
136.8° West

Supplemental OPS
GOES-15
128° West

Standby
GOES-14
105° West

GOES-East
GOES-16
75.2° West

Current



Approved: *Stephen B...*
Assistant Administrator for Satellite and Information Services



GOES-16 & GOES-17 Instrument Status

GOES-16 Mag performance impacted by thermoelectric effect, temp compensation error and Arc Jet Thruster firing Actions

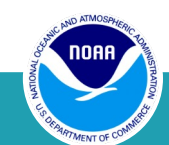
ABI Loop Heat Pipe Anomaly

<i>Payload Instrument</i>	GOES-16 (EAST) Launch: Nov '16 Activation: Dec '17	GOES-17 (WEST) Launch: Mar '18 Activation: Mar '19
Advanced Baseline Imager (ABI)	G	Y
Space Environment I-Situ Suite (SEISS)	G	G
Solar Ultraviolet Imager (SUVI)	G	G
EUV and X-ray Irradiance Sensors (EXIS)	G	G
Magnetometer	Y	G
Geostationary Lighting Mapper (GLM)	G	G
<i>Spacecraft Subsystems</i>		
Command Data & Handling (CD&H)	G	G
Guidance Navigation Control (GNC)	G	G
Electrical Power Subsystem (EPS)	G	G
Propulsion	Y (1)	G
Mechanisms	G	G
Electrical Power	G	G
Thermal Control	G	G
Communications Payloads	G	G

Key

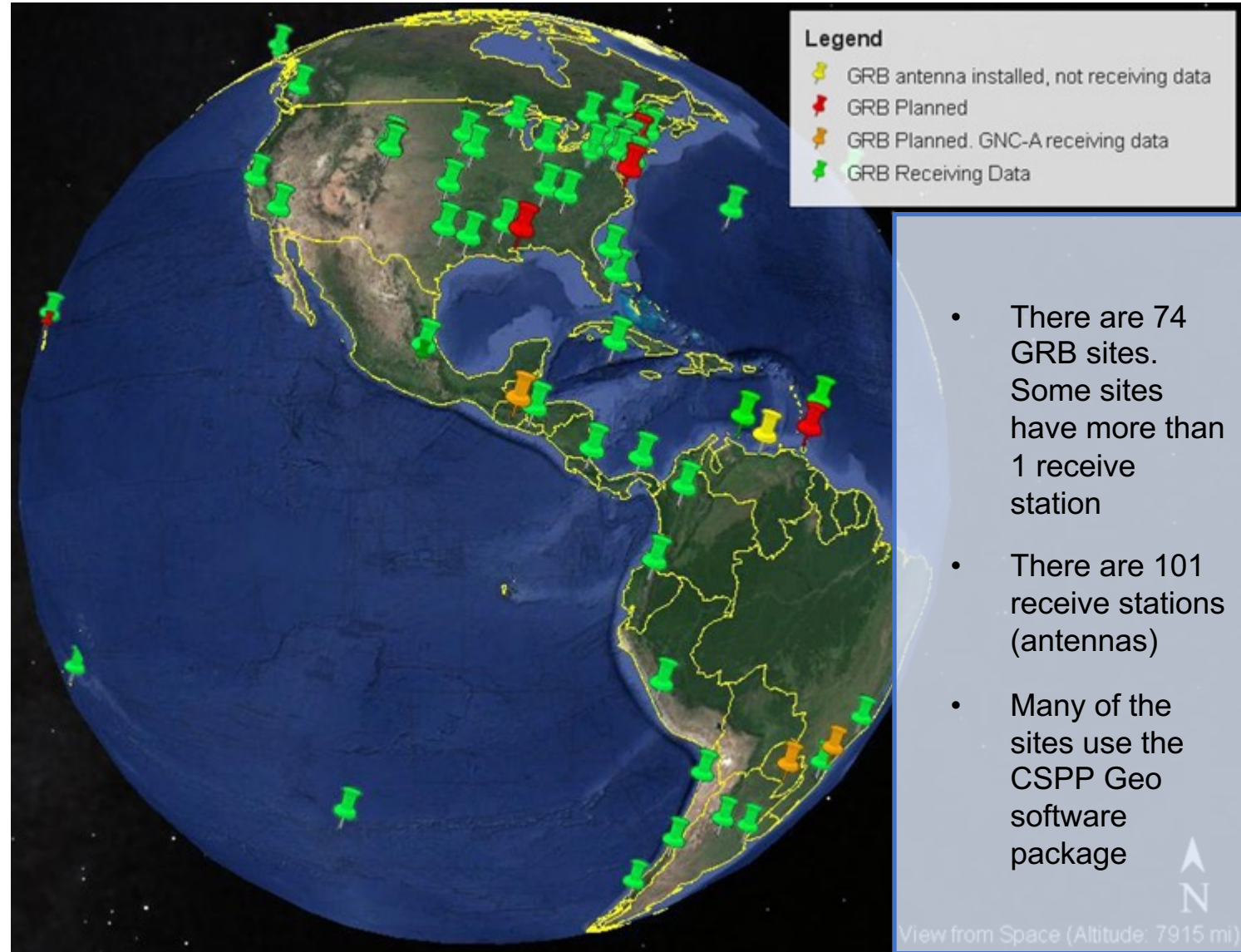
- Operational
G
- Functional (Off)
B
- Operational with limitations
Y
- Non-operational
R
- Spacecraft Issue but No User Impact
S/C

COMM payload includes GRB, HRIT/EMWIN, DCS and SARSAT



GRB User Group and Community

- There are currently 217 members in the GRB User Group
 - All GRB members in a roster are added to a email distribution list for GRB specific information that can be passed along
- The GRB User Group meets by phone every three months
 - The GRB position has been vacant, so recent meetings have been paired with HRIT/EMWIN
 - User group meetings provide GOES status, future GOES events, user updates, CSPP updates and other ancillary GRB topics



GOES Constellation with West Transition Plan

GOES-17 GRB signal will be the only GRB signal active until January 3rd, 2023 when GOES-18 is deemed the operational GOES West satellite

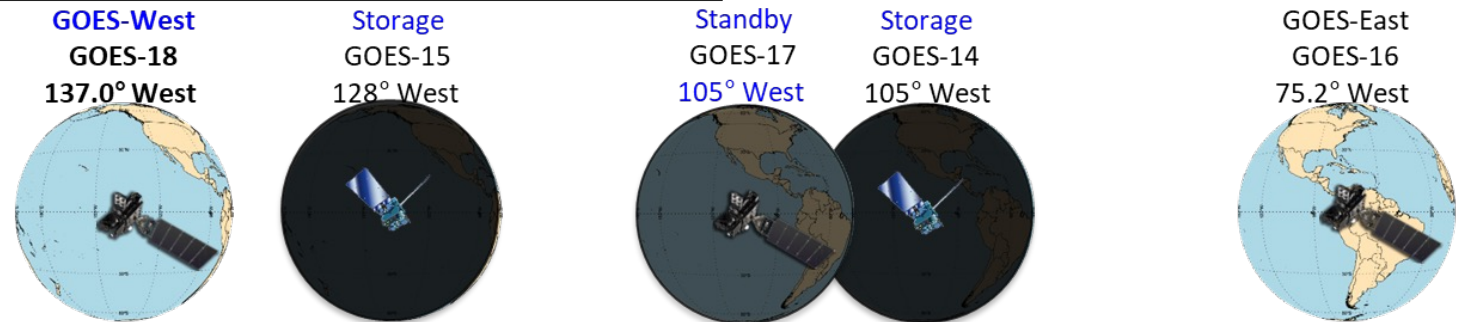
GOES-18 PLT Part 2: GOES-18 post-drift (June 7, 2022)



GOES-17 and GOES-18 orbit nudges (July, 2022)



GOES-18 as GOES-West, GOES-17 drift to Standby (January, 2023)



Please visit the following for the latest GOES West transition information: <https://www.ospo.noaa.gov/Operations/GOES/transition.html>



GOES-West Transition Plan - Swap of GOES-17/18

Date (Based on 3/1/22 Launch)	GOES-17		GOES-18	
	Location	Activity	Location	Activity
3/1 – 3/23	137.2°W	GOES-West Operations		Launch and Orbit Raising
3/24 – 5/15			89.5°W	GOES-18 PLT Part 1 <ul style="list-style-type: none"> Instrument Outgassing, Spacecraft PLT First ABI Image (Vis & IR) @ 89.5W
5/16 – 6/6			136.8W	GOES-18 Drift from 89.5W to 136.8W <ul style="list-style-type: none"> PLT activities paused; Science data for GMAG, but no other data.
6/7				GOES-18 PLT Part 2 begins and PLPT begins
7/5 – 7/15 (21)	137.3°W	Orbit Nudge 137.2W to 137.3W: July 5-15, 2022 (10 days) <ul style="list-style-type: none"> Antennas smaller than 7m should not need to re-point Antennas larger than 7m should re-point All users should re-peak antennas once nudge is over 	137.0°W	Orbit Nudge 136.8W to 137.0W: July 5-21, 2022 (16 days) <ul style="list-style-type: none"> Antennas smaller than 7m should not need to re-point Antennas larger than 7m should re-point All users should re-peak antennas once nudge is over
7/27				GOES-18 ABI reaches Provisional maturity <ul style="list-style-type: none"> GOES-18 ABI 'supplemental' data via Cloud for NWS
8/1-9/6		GOES-17 ABI Warm Period <ul style="list-style-type: none"> GOES-18 ABI interleaved in GOES-17 GRB 		GOES-18 ABI data interleaved in GOES-17 GRB
9/6-10/15		GOES-West Operations <ul style="list-style-type: none"> GOES-17 Nominal Distribution 		GOES-18 product maturation continues <ul style="list-style-type: none"> PLT Part 2 ends Oct 3, 2022
10/15-11/11		GOES-17 ABI Warm Period <ul style="list-style-type: none"> GOES-18 ABI interleaved in GOES-17 GRB 		GOES-18 ABI data interleaved in GOES-17 GRB
11/11-1/3		GOES-West Operations <ul style="list-style-type: none"> GOES-17 Nominal Distribution 		GOES-18 product maturation continues <ul style="list-style-type: none"> PLPT ends Jan 3, 2023
1/3		X-band downlink off and instruments shut down		GOES-18 Declared operational GOES-West <ul style="list-style-type: none"> Begin GOES-18 GRB broadcast / nominal distribution SAR/DCS services transitioned to GOES-18
1/12	105°W	GOES-17 drift to 105°W followed by storage mode		

Legend: GOES-West Operational Satellite



GOES-18 T2O Overview

Activity	March							April							May							June							July							August							September							October							November							December							January																																																																					
	3/1	3/8	3/15	3/22	3/29	4/5	4/12	4/19	4/26	5/3	5/10	5/17	5/24	5/31	6/7	6/14	6/21	6/28	7/5	7/12	7/19	7/26	8/2	8/9	8/16	8/23	8/30	9/6	9/13	9/20	9/27	10/4	10/11	10/18	10/25	11/1	11/8	11/15	11/22	11/29	12/6	12/13	12/20	12/27	1/3	1/10	1/17																																																																																													
	L+0	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175	182	189	196	203	210	217	224	231	238	245	252	259	266	273	280	287	294	301	308	315	322																																																																																													
G18 Events	▲ Launch	▲ Raise Orbit	PLT & PLPT Part 1 ●89.5W							Drift 136.8W●							PLT & PLPT Part 2 ●137.0W (G17)							137.3W Nudges							▲ Handover to OSPO							PLPT Continues G18 = GOES-West							▲																																																																																															
G18 Maturity	ABI 1st Public Image ♦ ▲ ABI Beta														▲ ABI L1b/CMI Provisional ▲														▲ GLM Beta ▲														▲ GLM Provisional ▲														▲ ABI Groups 1-4 L2+ Provisional																																																																																			
	GLM 1st Public Image ♦														▲ GMAG Beta														▲ GMAG Provisional														▲ SGPS														▲ MPS-Hi														▲ EHIS, MPS-Lo Provisional																																																																					
	GMAG 1st Public Data ♦														▲ SEISS Beta														▲ SUVI Beta														▲ EXIS Provisional														▲ SUVI Provisional																																																																																			
	SEISS 1st Public Data ♦														▲ EXIS Beta														▲ SUVI Beta														▲ EXIS Provisional														▲ SUVI Provisional																																																																																			
	EXIS 1st Public Data ♦														▲ SUVI Beta														▲ SUVI Beta														▲ SUVI Provisional														▲ SUVI Provisional																																																																																			
	SUVI 1st Public Image ♦														▲ SUVI Beta														▲ SUVI Beta														▲ SUVI Provisional														▲ SUVI Provisional																																																																																			
G18 ABI PD																																																																																																																																												
GRB																																																																																																																	Ops																											
PDA	Cal/Val Purposes														Cal/Val Purposes														Ops (L1b & CMI, not L2+)														Cal/Val														Ops (L1b & CMI, not L2+)														Cal/Val														Ops																																																							
LZSS	Cal/Val Purposes														Cal/Val Purposes														Ops (L1b & CMI, not L2+)														Cal/Val														Ops (L1b & CMI, not L2+)														Cal/Val														Ops																																																							
AWIPS																																																																																																																	Ops - GS																											
HRIT/EMWIN																																																																																																																	Ops																											
GNC-A																																																																																																																	Ops																											
G17 ABI PD															G17 ABI Warm Period														G17 ABI Warm Period														G17 ABI Warm Period																																																																																																	
GRB	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
PDA	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
LZSS	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
AWIPS	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
HRIT/EMWIN	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
GNC-A	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
West PD																																																																																																																																												
GLM	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											
SpWx	Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops														Ops																											

Legend: GOES-18 GOES-17 PD = Product Distribution G17 ABI Warm Period 17 w/ 18 ABI Interleave ♦ 1st Public Image ▲ Beta Maturity ▲ Provisional Maturity ● Orbit Change

NESDIS is using a 'split' Post Launch Test phase, which began at 89.5°W and recently drifted to 136.8°W in order to have early use of the GOES-18 Imager in the West location to mitigate the GOES-17 Imager thermal anomaly



GOES-West Interleave Data Content per Distribution Service

GRB: (netCDF file orbital slot will be "GOES-West")

- G18 ABI L1b
- G17 GLM L2+
- G17 Space Wx L1b

PDA: ("GOES-West" for products below)

- G18 ABI L1b, CMI (no L2+)
- G17 ABI L1b, CMI, L2+
- G17 GLM L1b, L2+
- G17 Space Wx L1b
- Note PDA cal/val subscriptions have additional G18 data access

CLASS:

- G17 ABI L1b, CMI, L2+
- G17 GLM L1b, L2+
- G17 Space Wx L1b
- Note CLASS cal/val subscriptions have additional G18 data access

NODD (formerly BDP) via AWS:

- G18 ABI Rad, CMI
- G17 ABI Rad, CMI, L2+
- G17 GLM L2+
- G17 Space Wx L1b

HRIT/EMWIN:

- G18 ABI CMI
- G17 ABI L2+

GNC-A:

- G18 ABI CMI

AWIPS:

- G18 ABI SCMI
- G17 GLM L2+

*During the Aug-Sept and Oct-Nov interleave periods, GOES-18 ABI data will be at "Provisional" level of maturity, fit for operational use and may be shared without restriction.



GRB Spacecraft IDs & Metadata Decoder for Interleave Test & Nominal Interleave

	G17 Nominal as GOES-West	G18 PLT Test "GND-008"	Nominal Interleave (two periods)	G18 Nominal as GOES-West
Description	Current	Post-drift test of Interleave	Early ops access to G18 ABI data as a mitigation for G17 ABI saturated images	Future
Dates	Through January 2023	June 14, 2022 for four hours (16-20 UTC)	1 st : August 1 – September 6, 2022 2 nd : October 15 – November 11, 2022	Starting January 2023
GRB Content	<u>G18 GRB</u> at 136.8/137.0° West: <ul style="list-style-type: none"> N/A <u>G17 GRB</u> at 137.2/137.3° West: <ul style="list-style-type: none"> G17 ABI, GLM, Space Wx L1b 	<u>G18 GRB</u> at 136.8° West: <ul style="list-style-type: none"> N/A <u>G17 GRB</u> at 137.2° West: <ul style="list-style-type: none"> G18 ABI L1b (from 136.8° West) G17 GLM L2, Space Wx L1b 	<u>G18 GRB</u> at 137.0° West: <ul style="list-style-type: none"> N/A <u>G17 GRB</u> at 137.3° West: <ul style="list-style-type: none"> G18 ABI L1b (from 137.0° West) G17 GLM L2, Space Wx L1b 	<u>G18 GRB</u> at 137.0° West: <ul style="list-style-type: none"> G18 ABI, GLM, Space Wx L1b <u>G17 GRB</u> at 137.3° West: <ul style="list-style-type: none"> N/A
Data Relay GRB Spacecraft ID (SCID) AOS frame header (8 bits)	0x82	0x82	0x82	0xE4
Data Source platform_ID metadata within ABI packets	G17	G18	G18	G18
Data Source instrument_ID metadata within ABI packets	FM2	FM3	FM3	FM3

Unique test/interleave configurations are indicated in blue



GOES-18 L1b Science Product Validation Status

ABI L1b Product	Beta	Provisional	Full
Radiances	5/11/2022	7/27/2022	FY23
GLM L2 Product			
Lightning: Events, Groups, Flashes	9/19/2022	10/31/2022	FY23
SEISS L1b Products			
Energetic Heavy Ions	7/29/2022	11/15/2022	FY23
Magnetospheric e ⁻ /p ⁺ : Low Energy	7/29/2022	11/18/2022	FY23
Magnetospheric e ⁻ /p ⁺ : High Energy	7/29/2022	10/11/2022	FY23
Solar & Galactic Protons	7/29/2022	9/13/2022	FY23
EXIS L1b Products			
Solar Flux: EUV	7/22/2022	11/14/2022	FY23
Solar Flux: X-ray Irradiance	7/22/2022	11/14/2022	FY23
SUVI L1b Product			
Solar EUV Imagery	8/2/2022	11/22/2022	FY23
GMAG L1b Product			
Geomagnetic Field	7/11/2022	9/6/2022	FY23

6/9/22

Synced with SOE v1.21

Validation Maturity Levels:



Product Validation Status can be found at the following website: https://www.noaasis.noaa.gov/GOES/PS_PVR_GOES18.html



GOES-18 L2+ Science Product Validation Status

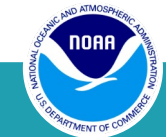
L2+ Products	Beta	Prov	Full
Cloud and Moisture Imagery (CMI) and Sectorized CMI (KPP)	5/11/2022	7/27/2022	FY23
Aerosol Detection (Smoke & Dust)	5/11/2022	11/9/2022	
Aerosol Optical Depth	5/11/2022	11/9/2022	
Clear Sky Mask	5/11/2022	9/24/2022	
Cloud Cover Layers	5/11/2022	9/24/2022	
Cloud Optical Depth	5/11/2022	10/12/2022	
Cloud Particle Size Distribution	5/11/2022	10/12/2022	
Cloud Top Height	5/11/2022	9/24/2022	
Cloud Top Phase	5/11/2022	9/24/2022	
Cloud Top Pressure	5/11/2022	9/24/2022	
Cloud Top Temperature	5/11/2022	9/24/2022	
Derived Motion Winds	5/11/2022	9/24/2022	
Derived Stability Indices	5/11/2022	10/12/2022	
Downward S/W Radiation: Surface	5/11/2022	11/9/2022	

L2+ Products	Beta	Prov	Full
Fire/Hot Spot Characterization	5/11/2022	10/12/2022	FY23
Ice Age & Thickness	5/11/2022	11/21/2022	
Ice Concentration & Extent	5/11/2022	11/21/2022	
Ice Motion	5/11/2022	11/21/2022	
Land Surface Albedo	5/11/2022	11/9/2022	
Land Surface Reflectance	5/11/2022	11/9/2022	
Land Surface Temperature	5/11/2022	11/9/2022	
Legacy Vertical Moisture Profile	5/11/2022	10/12/2022	
Legacy Vertical Temperature Profile	5/11/2022	10/12/2022	
Rainfall Rate/QPE	5/11/2022	10/12/2022	
Reflected S/W Radiation: TOA	5/11/2022	11/9/2022	
Sea Surface Temperature	5/11/2022	11/21/2022	
Snow Cover	N/A	11/21/2022	
Total Precipitable Water	5/11/2022	10/12/2022	

Validation Maturity Levels:

Not Validated	Beta Maturity	Provisional Maturity	Full Maturity
---------------	---------------	----------------------	---------------

Product Validation Status can be found at the following website: https://www.noaasis.noaa.gov/GOES/PS_PVR_GOES18.html



GOES-18 Data Sharing Policy

	Images/Social Media	Data Files	Publications
Between Launch and “First Light” Public Release	Not allowed	Not allowed	Allowed; You may include pre-Provisional instrument data/images/plots as long as it will not be published until after Provisional validation is declared for that instrument. Exercise caution in publishing data regarding apparent anomalies or artifacts especially during ongoing instrument and product tests (PLTs and PLPTs).
Between First Public Release and Beta Certification	Allowed; must contain the caveat: “GOES-18 Preliminary, Non-Operational Data”	Not allowed	
Between Beta and Provisional	Allowed; must contain the caveat: “GOES-18 Preliminary, Non-Operational Data”	Not allowed	
ABI Interleaved Data	Allowed (ABI Only)	Allowed (ABI Only)	
Between Provisional (or Interleave Period(s) for ABI) and Operational Declaration	Allowed; must contain the caveat: “GOES-18 Preliminary, Non-Operational Data”	Allowed; must contain the caveat: “GOES-18 Preliminary, Non-Operational Data”	
GOES-West Operations onwards	Allowed	Allowed	



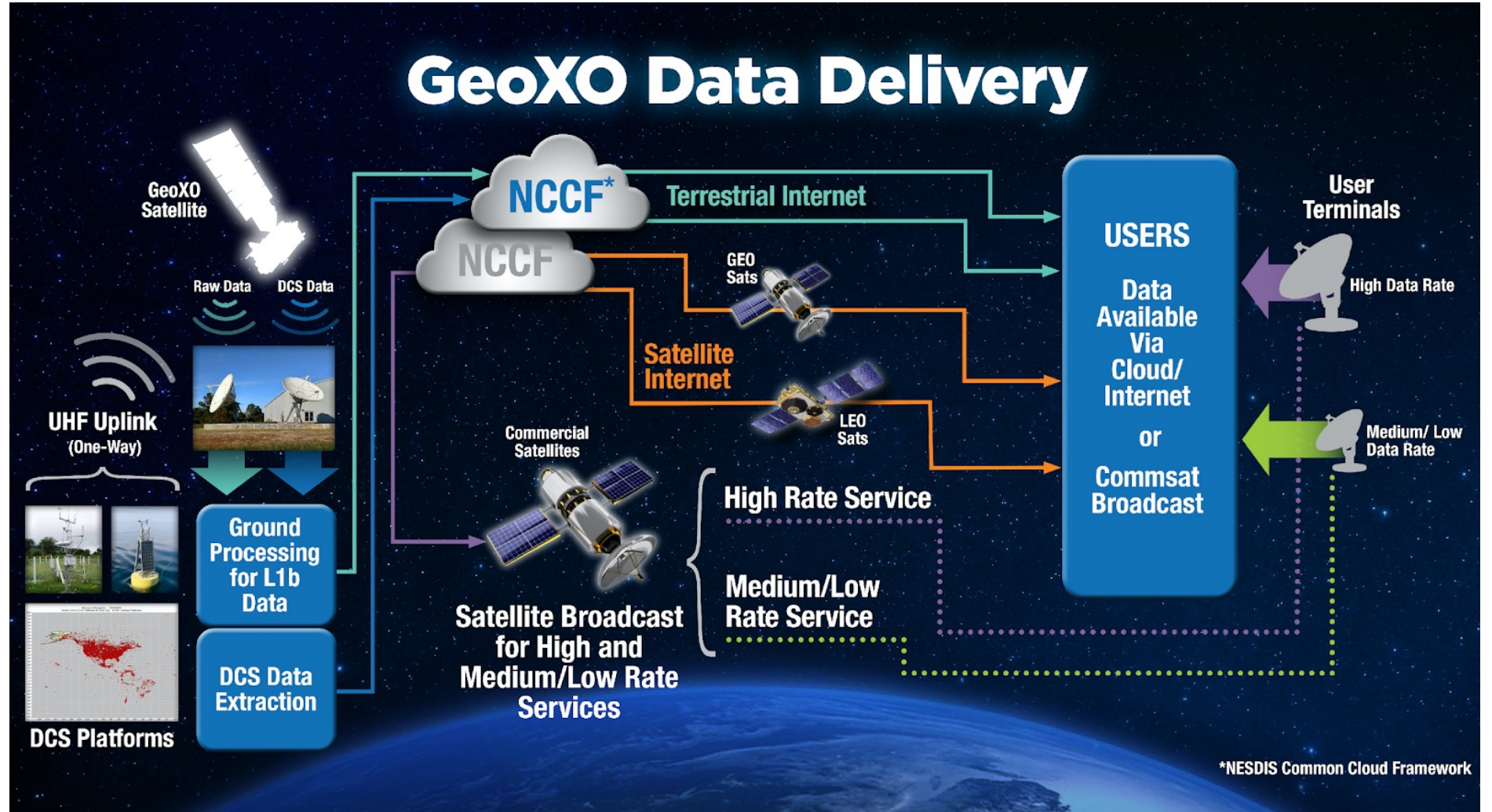
Table description: Policy for sharing images on social media, data files, and publications as it evolves during post-launch phases of satellite testing and data maturity.

Not Allowed
Caveats
Allowed



GRB in the Geo-XO Era

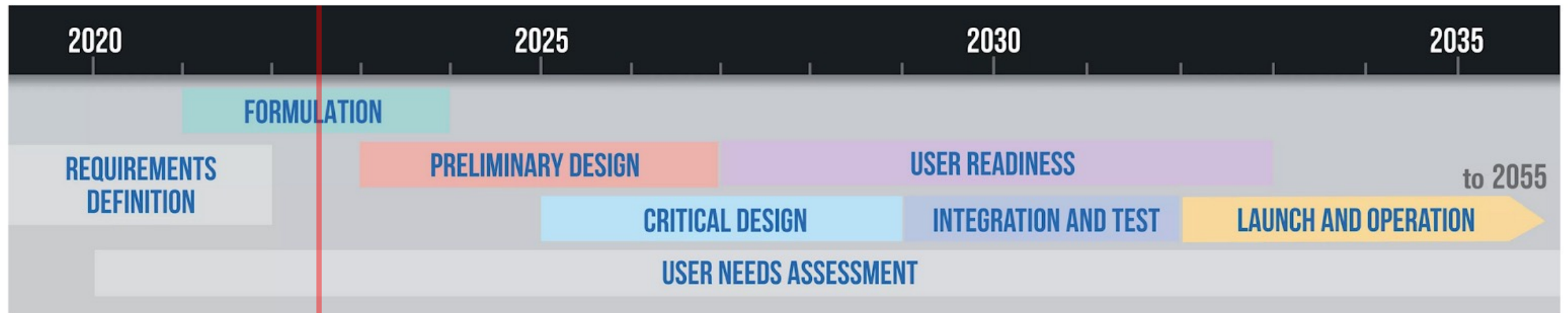
- Current Geo-XO architecture does not have a GRB or HRIT/EMWIN transponder on NOAA's future Geostationary satellites series Geo-XO
- Level 1b data will still be processed at the acquisition site and transferred to the NCCF (Cloud) for further processing
- Data will be provided to users via multiple terrestrial pathways
- A commercial satellite rebroadcast is currently planned to receive L1b/L2 data from the cloud and disseminate to the user communities through various downlinks (High & Medium/Low services)



GRB Users are encouraged to reach out to DSB to provide feedback on current operational requirements from obtaining the GRB data stream and possible foreseen impacts from moving to a commercial rebroadcast.

GRB in the Geo-XO Era

- NOAA is assessing user needs and potential observational capabilities.
- Key decisions made in 2021 led to GeoXO Program initiation.
- GeoXO requirements definition and pilot studies underway will lead to the preliminary design of the spacecraft and instruments.
- In critical design stage, NOAA will provide data to users on new capabilities.
- The first GeoXO launch is planned for the early 2030s to maintain and advance NOAA's critical geostationary observations through 2055.



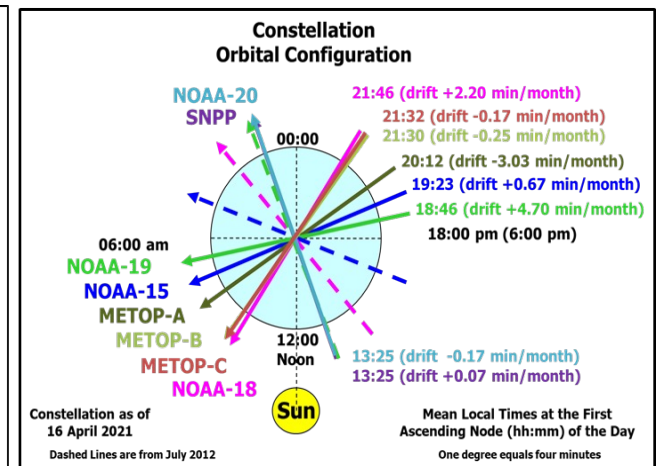
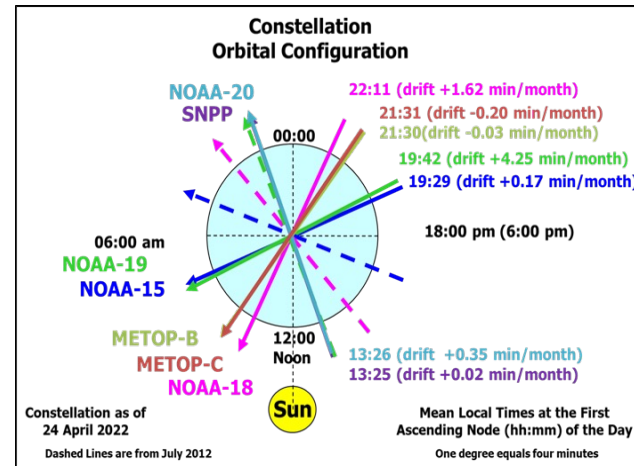
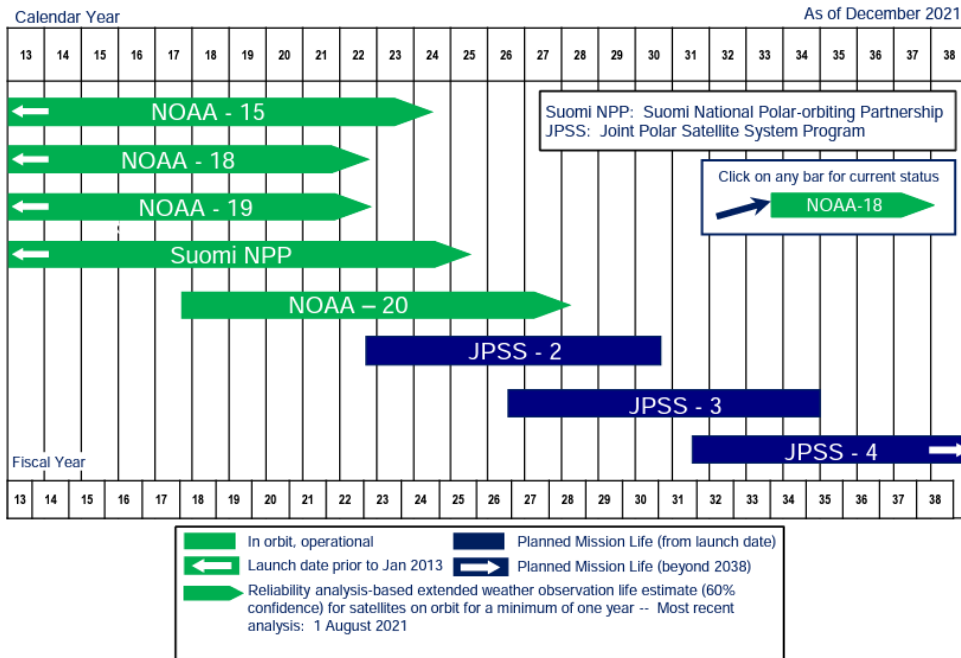
NESDIS Satellite Broadcast Data Access Overview

Acronym	System Name	Description	Satellite & Location
GRB	GOES Rebroadcast	The primary relay of full resolution, calibrated, near-real-time broadcast of GOES-R for Level 1b data products (Advanced Baseline Imager L1b, Space Weather L1b, and Geostationary Lightning Mapper L2). This data is available to all users with GRB receivers in view of a GOES-R series satellite at the East or West operational footprints.	GOES-16 @ 75.2° W GOES-17 @ 137.2°W
HRIT/ EMWIN	High Rate Information Transmission/ Emergency Managers Weather Information Network	The HRIT/EMWIN service is a high data rate (400 Kbps) broadcast for GOES-R satellite imagery and selected products to remotely-located user terminals. Combines LRIT and the EMWIN direct broadcast service that provides users with weather forecasts, warnings, graphics and other information directly from the NWS in near real-time. Also included is a copy of GOES-DCS.	GOES-16 @ 75.2° W GOES-17 @ 137.2°W
DCS	Data Collection System	Remote data collection platforms (DCP) within the footprint of the NOAA geostationary East and West satellites that collect vast array of environmental observational data (river, tidal, seismic, meteorological, etc..) are transmitted to the GOES satellites and broadcasted down to users for processing, visualization and decision making.	GOES-16 @ 75.2° W GOES-17 @ 137.2°W
GNC-A	GEONETCast Americas	GEONETCast Americas is the Western Hemisphere component of GEONETCast, a near real time, global network of satellite-based data dissemination systems designed to distribute space-based, air-borne and in situ data, metadata and products to diverse communities. This is a NOAA funded, NESDIS managed commercial rebroadcast service.	Intelsat-21 @ 58°W
JPSS HRD	High Rate Data	The HRD direct broadcast is a continuous real-time downlink of JPSS mission environmental data to users on the ground that are equipped with the ground resources necessary to capture the broadcast when the polar orbiting satellite is within view. HRD data content is a full set of science and calibration data from the mission instruments, as well as the spacecraft attitude and ephemeris data necessary for data product generation.	S-NPP and NOAA-20 polar orbiting satellites



Present Polar Constellation and Flyout

Current



April 2022 versus April 2021



S-NPP & NOAA-20 Instrument Status

Spacecraft	Suomi-NPP
Launch Date	Oct 28, 2011
Mission Category	LTAN 1325 (PM) <i>Operational (secondary)</i>

S-NPP	
Payload - Instruments	Status
ATMS	G
CERES	G
CrIS	Y
OMPS – Nadir	G
OMPS – Limb	G
VIIRS	G

S-NPP Notes:

- All instruments operating normally with the exception of CrIS
- CrIS LWIR and SWIR bands are functional, while the MWIR band is non-operational.
 - Extensive monitoring of the S-NPP ATMS scan drive motor current loads and temperatures is ongoing.
 - Spacecraft and sub-systems are power positive and operating nominally.

Spacecraft	NOAA-20
Launch Date	Nov 18, 2017
Mission Category	LTAN 1325 (PM) <i>Primary Satellite in PM orbit</i>

NOAA-20	
Payload - Instruments	Status
ATMS	G
CERES	G
CrIS	G
OMPS – Nadir	G
VIIRS	G

NOAA-20 Notes:

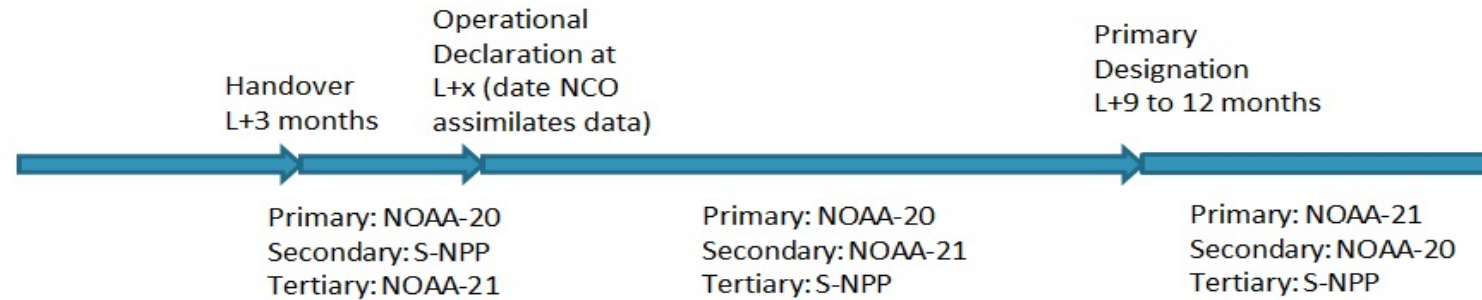
All instruments operating normally and are meeting/exceeding their established performance specifications.

- Operational (or capable of)
- Operational with degraded performance
- Operational with limitations (or in standby)
- Not functional
- Functional but turned off

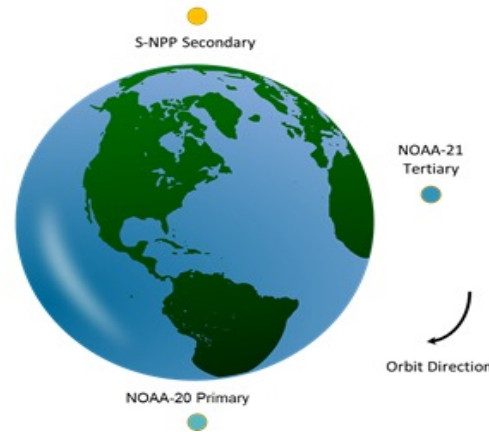
For JPSS instrument and subsystem status please visit:
<https://www.ospo.noaa.gov/Operations/POES/status.html>



JPSS-2 Launch and Transition to Operations



Operational Orbit Location (Launch to L+9-12 Months)

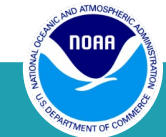


Operational Orbit Location (L+9-12 Months – Post Primary Transition)



Primary Satellite Designation Requirements:

- Key performance parameters (KPP) are met
- Prime instruments reached at least provisional maturity and were declared operational (data accepted by key stakeholders)
- NWS and mission partners agreed they were ready to transition



JPSS-2 HRD Broadcast Characteristics

	SNPP & NOAA-20	JPSS-2
Center Frequency	7812 MHz	7812 MHz
Rate	15 Mbps	25 Mbps
Assigned Bandwidth (-20 dB)	30 MHz	50 MHz
Bit Error Rate (BER)	10-8	10-8
PCM Format	NRZ-M	NRZ-M
Convolutional Coding Rate 1/2 length 7. G1 and G2-Invert	15 Mbps I + 15 Mbps Q	25 Mbps I + 25 Mbps Q
Modulation	QPSK	OQPSK
Polarization	RHCP	RHCP
Antennas	1	1 Prime, 1 Redundant
Block Coding: (255,223) Reed Solomon RS	Interleave = 4	Interleave = 5
Informational Field	4 x 223 = 892 Bytes	5 x 223 = 1115 Bytes
Power Level	7.8 Watt	10 Watt (end-of-life)
Antenna Pattern 62 degrees nadir coverage	See JPSS-1 HRD DBS RF ICD, App B	See JPSS-2 HRD DBS RF ICD, Addendum HRD Link Budget

More technical information about HRD can be found at the following URL: <https://www.nesdis.noaa.gov/about/documents-reports/jpss-technical-documents>



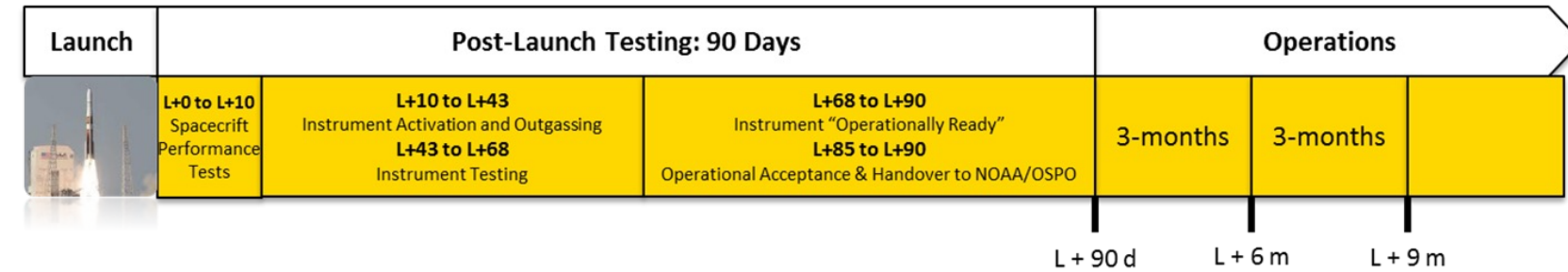
JPSS-2/3/4 HRD Receive Modifications

Future JPSS-2,3,4 HRD users should know the following:

- That either an upgrade or modification is necessary to their receive stations in order to capture HRD from future JPSS satellites.
- Existing demodulators may require reprogramming.
- Existing feeds will need modification from the manufacturer.
 - Higher downlink data rates require more IF bandwidth. User can send the feed to the manufacturer to have the IF filter in the feed opened up.
- Upgrade network communications and increase computing capacity due to higher data rate than previous HRD broadcasts (S-NPP, NOAA-20)

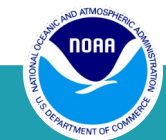


Notional JPSS-2/3/4 LEO & A Timeline



- JPSS-2 Ephemeris data will not be available until GPS is turned on the satellite (~L+5)
 - J-2 Ephemeris data will be provided to OSPO FTS webserver at a later time, TBD
- HRD broadcast start time will occur after full instrumentation checkout occurs, TBD at this time.
- NOAA-21 CSPP products are not to be used for operations until the equivalent product on NDE is approved for operations
- Follow-up user notifications will come out to the HRD community in the future closer to 11/1/2022 launch date with more details.

Instrument	Pre-Beta	Beta	Provisional	Validated
ATMS	L+11: Initial Power-On	L+20: Beta RDR/SDR Check	L+36: Provisional TDR to SDR Conversion; TDR/SDR Bias Char; Geo Accuracy Eval; PCT update as needed	L+6M Validated
CrIS	L+12: Initial Power-On L+12 to L+43: Outgassing L+43: Door Deploy	L+68: Beta RDR/SDR Check; Upload EngPkg	L+90: Provisional Data Pattern Verify; Geo Check; Noise Char; Uncertainty Upload EngPkg	L+9M Validated
VIIRS	L+10: Initial Power-On L+10 to L+43: Outgassing L+24: Nadir Door Open; L+45: Cryoradiator Door Open	L+60: Beta RDR/SDR Check; DNB aggregation mode Verify; Geo Accuracy; Noise and SNR analy	L+90: Provisional Lunar Cal; LUTs update	L+6M Validated
OMPS	L+10: Initial Power-On L+10 to L+44: Outgassing L+44: Diffuser Wheel Open	L+68: Beta RDR/SDR Check; Dark Cals; Solar Cals; EV Co-location Tests; Noise Char	L+90: Provisional Weekly Dark Cals; Bi-Weekly Solar Cals; LUTs update	L+9M Validated
Imagery	L+10: Initial Power-On L+10 to L+43: Outgassing L+24: Nadir Door Open; L+45: Cryoradiator Door Open	L+70: Beta Verify requirement; Verify spatial resolution;	L+90: Provisional Analyze Imagery quality; Determine striping, banding, noise	L+9M Validated



JPSS-2 Algorithm Cal/Val Timeline

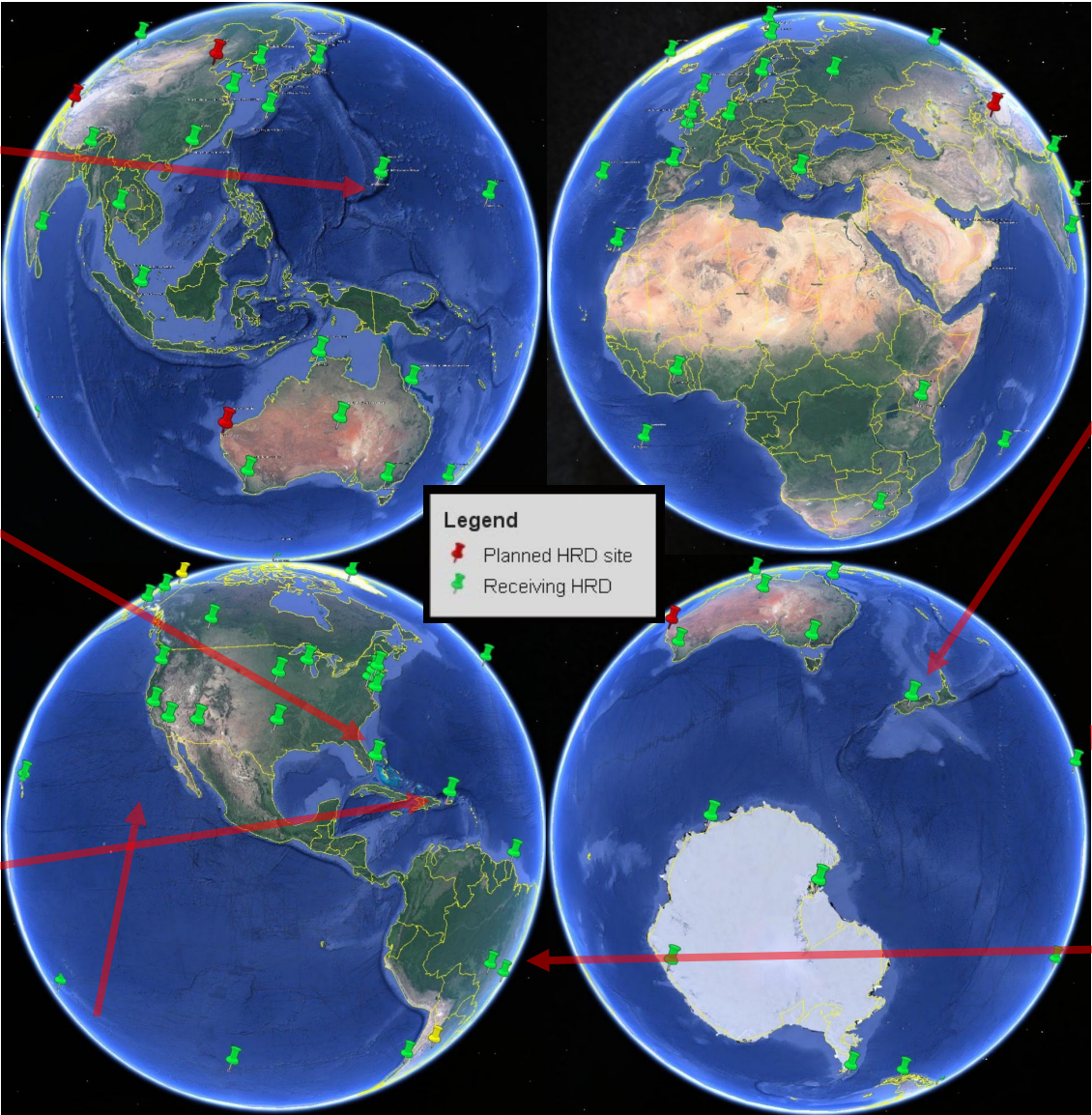
		JPSS-2 Algorithm Cal/Val Timeline (Launch + Months)																																		
Team	Product	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
SDR	ATMS TDR/SDR		B	P				V																												
	CrIS SDR				B/P						V																									
	VIIRS SDR			B	P			V																												
	OMPS SDR (NP & TC)				B/P						V																									
Imagery	KPP Imagery EDRs			B	P			V																												
	non-KPP Imagery EDRs				B	P			V																											
Clouds	Cloud Mask					B					P																									
	Cloud Phase/Type									B	P																									
	Cloud Top Property and Cloud Cover Layer									B	P																									
	Cloud Base Height									B	P																									
Aerosol	DCOMP and NCOMP									B	P																									
	Aerosol Optical Depth and Aerosol Particle Size				B						P																									
Volcanic Ash	Aerosol Detection						B				P																									
	Volcanic Ash							B				P																								
Cryosphere	Ice Surface Temperature and Ice Concentration						B				P			V																						
	Sea Ice Thickness/Age						B				P			V																						
	Binary Snow Cover						B				P																									
	Fractional Snow Cover						B					P																								
Land	Active Fires						B				P																									
	Land Surface Temperature						B					P																								
	Surface Albedo						B					P																								
	Global Surface Type																		B			P														
	Surface Reflectance						B						P																							
	Green							B					P																							
	Vegetation							B						P																						
	Fraction											B																								
OCC	Ocean Color												B																							
SST	Sea Surface Temperature						B				P																									
VPW	Polar Winds												B																							
NUCAPS	AVTP, AVMP, Ozone, OLR							B					P																							
	CO, CO2, CH4							B						P																						
MIRS	MIRS Products							B					P																							
SFR	Snow Fall Rate (SFR)								B					P																						
OMPS EDR	OMPS Ozone EDRs (V8Pro & V8TOz)													B/P																						
	OMPS LP (SDR & EDR)														B																					

		JPSS Data Product Maturity Stages																																				
Beta	Product is minimally validated, and may still contain significant identified and unidentified errors.																																					
	Information/data from validation efforts can be used to make initial qualitative or very limited quantitative assessments regarding product fitness-for-purpose.																																					
Provisional	Documentation of product performance and identified product performance anomalies, including recommended remediation strategies, exists.																																					
	Product performance has been demonstrated through analysis of a large, but still limited (i.e., not necessarily globally or seasonally representative) number of independent measurements obtained from selected locations, time periods, or field campaign efforts.																																					
Validated	Product analyses are sufficient for qualitative, and limited quantitative, determination of product fitness-for-purpose.																																					
	Documentation of product performance, testing involving product fixes, identified product performance anomalies, including recommended remediation strategies, exists.																																					
Validated	Product is recommended for potential operational use (user decision) and in scientific publications after consulting product status documents.																																					
	Product performance has been demonstrated over a large and wide range of representative conditions (i.e., global, seasonal).																																					
	Comprehensive documentation of product performance exists that includes all known product anomalies and their recommended remediation strategies for a full range of retrieval conditions and severity level.																																					
	Product analyses are sufficient for full qualitative and quantitative determination of product fitness-for-purpose.																																					
Validated	Product is ready for operational use based on documented validation findings and user feedback.																																					
	Product is operational use based on documented validation findings and user feedback.																																					
Validated	Product validation, quality assurance, and algorithm stewardship continue through the lifetime of the instrument.																																					
	Product validation, quality assurance, and algorithm stewardship continue through the lifetime of the instrument.																																					

Once a product reaches Provisional and it is approved for operations on NDE/PDA then the equivalent CSPP product can be used for operations.



HRD User Community



➤ Working with the WMO DBNet Program and the HRD User Group, SPSD has identified 53 Direct Broadcast sites that are scheduling contacts with S-NPP and/or NOAA-20.



HRD User Engagement

- SPSD DSB chairs the HRD User Group.
- The HRD User Group has 80+ members and meets every 3 months via WebEx
 - Includes HRPT and HRD users; vendors, manufacturers, and system integrators; OSPO and JPSS Program representatives; NASA Direct Readout Lab; NOAA Cooperative Institutes; and other partners
- Aligned to the NESDIS Strategic Objective: *Provide consistent ongoing enterprise-wide user engagement to ensure timely response to user needs*



OSPO Field Terminal Support (FTS)

Field Terminal Support System

Welcome to the Field Terminal Support (FTS) System Web Portal

Login/Register to Field Terminal Support System

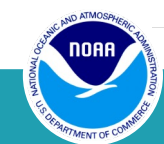
Repository

Available files (Ancillary):

DataSource	Count	DataSource	Count
FNMOOC	128	frnmoc_naaps	64
MANUAL	2	frnmoc_navgem	64
Navy USNO	729	ncep_gfs	2928
NCEP	2928	planetary_ephemeris	2
		polar_wander	729

Basename	DataSource	DataType	SatelliteMission	Instrument	Size	CreatedDate/Time	LoadedDate/Time
20220607095408-finals2000A.all	Navy USNO	polar_wander			3472736	2022-06-07T09:54:08	2022-06-07T09:54:08
20220607095403-finals2000A.all	Navy USNO	polar_wander			3472736	2022-06-07T09:54:03	2022-06-07T09:54:03
20220607060000-fh_003_tl_press_gr_0p5deg_pt.n...	NCEP	ncep_gfs			23240352	2022-06-07T06:00:00	2022-06-07T09:33:00
20220607060000-fh_006_tl_press_gr_0p5deg_pt.n...	NCEP	ncep_gfs			23265284	2022-06-07T06:00:00	2022-06-07T09:34:00

- The OSPO managed Field Terminal Support webpage went operational in the Summer of 2021.
 - Any observed issues with the FTS content, please contact the ESPC Help Desk to have a trouble ticket opened.
- Provides Ancillary and Auxiliary data content for users to download
 - Will support JPSS-2 data after launch (TBD)
- Provides the following documentation:
 - Operational Algorithm Descriptions (OAR)
 - Interface Control Documents (ICD)
 - Software Requirement Specifications
 - Algorithm Theoretical Basis Document (ATBD)
 - Common Data Format Control Book (CDFCB)
 - Mission Data Format Control Book (MDFCB)
 - High Level Monitoring (HLM) Reports
 - ADL Software
- Email the ESPC Help Desk with any FTS issues: ESPCOperations@noaa.gov



Points of Contact

<https://noaasis.noaa.gov/ORGANIZATION/contacts.html>

Office of Satellite and Product Operations

- 24/7 Help Desk: ESPCOperations@noaa.gov
Data Access: NESDIS.Data.Access@noaa.gov
Website: <https://www.ospo.noaa.gov/Organization/About/access.html>

Satellite Products and Services Division (SPSD) User Services

- SPSP Services: SPSP.UserServices@noaa.gov

SPSD Direct Services Branch (DSB)

Branch Chief: Mark Turner

- Email: mark.w.turner@noaa.gov

Direct Readout (GVAR, GRB, APT, HRPT, and HRD):
Currently Vacant

- Email: Seth.Clevenstine@noaa.gov
- FTS Problems?: ESPCOperations@noaa.gov

GEONETCast Americas (GNC): Seth Clevenstine

- Email: Seth.Clevenstine@noaa.gov or gnc.americas@noaa.gov

HRIT/EMWIN Broadcast: Seth Clevenstine

- Email: Ian.Avruch@noaa.gov (HRIT) or Bob.Gillespie@noaa.gov (EMWIN)

Argos Data Collection System: Scott Rogerson

- Email: Scott.Rogerson@noaa.gov

GOES Data Collection System: William Dronen

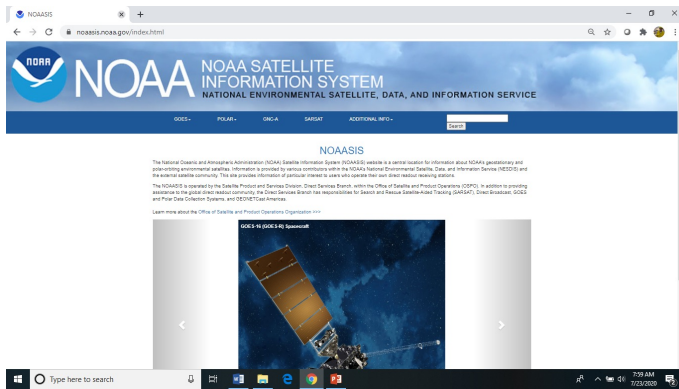
- Email: William.Dronen@noaa.gov or dcs@noaa.gov



Notifications, Status, and Contacts

- Want to subscribe to ESPC Notifications?
- Send an email to
- Want to view ESPC Notifications?
- Want to join a DSB User Group?

24/7 Help Desk	ESPCOperations@noaa.gov
Archived ESPC Messages	https://www.ospo.noaa.gov/Operations/messages.html
User Services	SPSD.UserServices@noaa.gov
Data Access	NESDIS.Data.Access@noaa.gov
Facebook	https://www.facebook.com/NOAASatellites/
Twitter	https://twitter.com/NOAASatellites
GOES Status	https://www.ospo.noaa.gov/Operations/GOES/status.html
Contacts	https://noaasis.noaa.gov/ORGANIZATION/contacts.html
Direct Services Website	https://noaasis.noaa.gov/
GRB User Group	Seth.Clevenstine@noaa.gov or Mark.w.Turner@noaa.gov
HRD User Group	Seth.Clevenstine@noaa.gov or Mark.w.Turner@noaa.gov
HRIT/EMWIN User Group	Ian.Avruch@noaa.gov
GNC-A User Group	Seth.Clevenstine@noaa.gov



<https://noaasis.noaa.gov/>

