



NOAA

02 Apr 2024

HRIT/EMWIN Status

GOES DCS Technical Working Group Meeting

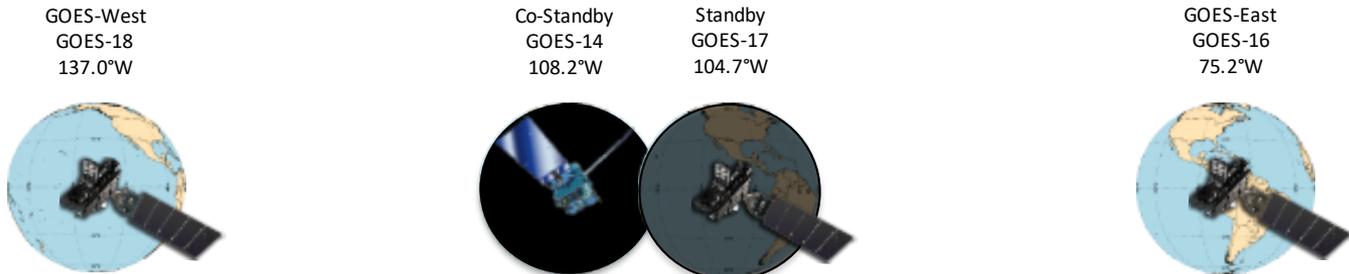
Ian Avruch
NESDIS/OSPO/DSB



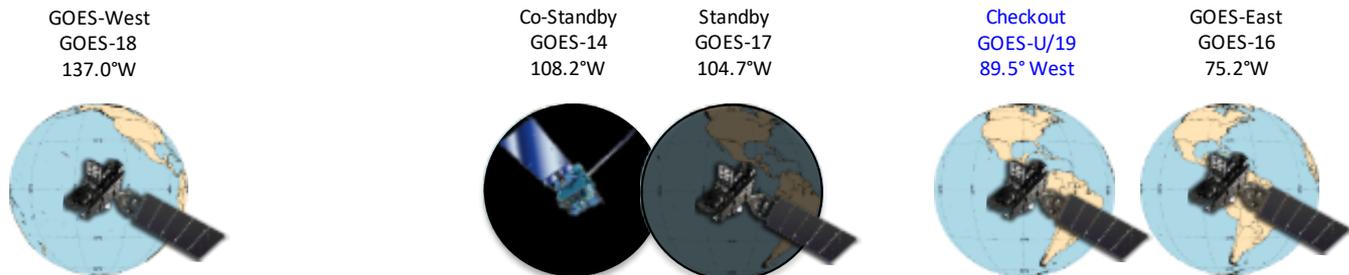
GOES Constellation



Current



GOES-U Post-Launch Testing



- Following successful completion of PLT phase, GOES-19 will replace GOES-16 as the GOES-East satellite.
- Final locations for GOES-16, GOES-17, and GOES-14 **post GOES-19 T20** are TBD
- GOES-15 has been transferred over to U.S. Space Force, renamed EWS-G2, and is located over Indian Ocean
- GOES-17 & GOES-14 remain in Storage/Standby, and are ready to provide backup service in the event of a GOES-East or GOES-West anomaly

M. Seybold / I. Avruch



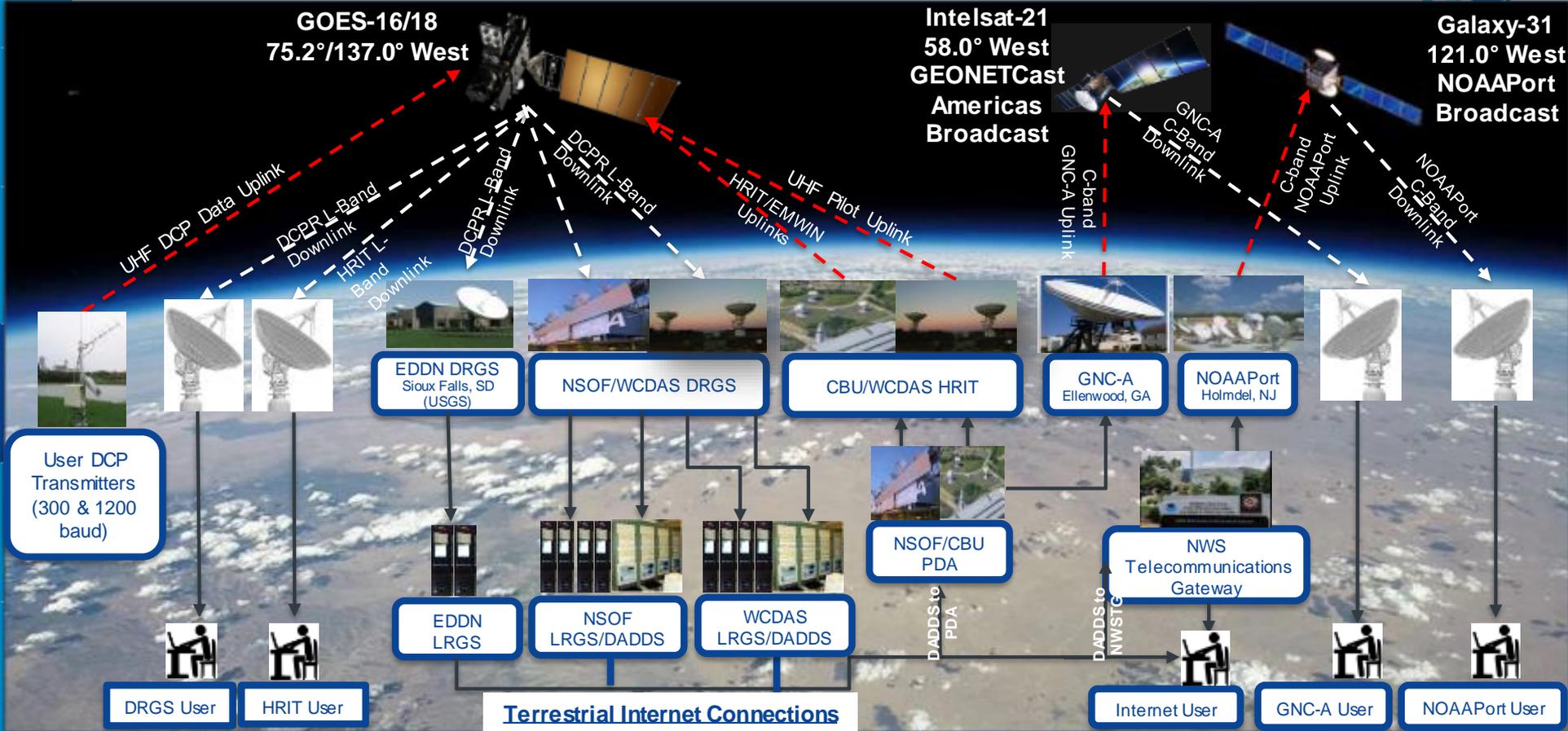
Overview of NESDIS Rebroadcasts



Acronym	System Name	Description
GRB	GOES Rebroadcast	The primary near-real-time broadcast relay of GOES-R Level-1b data products (all instruments L1b and Geostationary Lightning Mapper L2). These data are available to all users with GRB receivers in view of a GOES-R series satellite at the East or West operational longitudes.
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.
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. Data are broadcast from a commercial satellite under contract with NOAA.



GOES Data Collection System



HRIT/EMWIN Virtual Channel Listing (19-Jun-2023)



VCID #	Product Name	GOES-E(16) Availability	GOES-W(18) Availability	Frequency (Minutes)	Priority on Broadcast	Guaranteed Bandwidth	Format	Resolution	Product Status
0	Admin Text	X	X	60	1	87%	Text Messages	N/A	Active and available
1	Mesoscale Imagery	X	X	15	12	87%	HRIT/LRIT	0.5km Band 2, 2km for bands 7 and 13	Both Meso scenes active and available
2	CMI Band 2	X	X	30	7	87%	HRIT/LRIT	2 km	Active and available
5	(GOES-14 TBD)								
6	(GOES-14 TBD)								
7	CMI Band 7	X	X	30	6	87%	HRIT/LRIT	2 km	Active and available
8	CMI Band 8	X	X	30	8	87%	HRIT/LRIT	2 km	Active and available
9	CMI Band 9	X	X	30	9	87%	HRIT/LRIT	2 km	Active and available
13	CMI Band 13	X	X	30	5	87%	HRIT/LRIT	2 km	Active and available
14	CMI Band 14	X	X	30	10	87%	HRIT/LRIT	2 km	Active and available
15	CMI Band 15	X	X	30	11	87%	HRIT/LRIT	2 km	Active and available
16	G16 CMI Band 13		X	60	17	87%	HRIT/LRIT	4 km	Active and available
17	G17 CMI Band 13	X		60	17	87%	HRIT/LRIT	4 km	Active and available
20	EMWIN – High Priority	X	X	Continuous	1	8%	Text	N/A	Active and available
21	EMWIN - Graphics	X	X	15 - 60	3	8%	Graphic (e.g. GIF, JPEG)	N/A	Active and available
22	EMWIN – Low Priority	X	X	Continuous	2	8%	Text	N/A	Active and available
24	NHC Maritime Graphics	X	X	Variable	14	87%	Graphic (e.g. GIF, JPEG)	N/A	Active and available
25	GOES-E/W Level II Ancillary Products	X	X	Variable	15	87%	HRIT/LRIT	2 - 10 km	Active and available
32	DCS Data	X	X	Continuous	4	5%	DCS Formatted Text	N/A	Active and available
60	Himawari-9		X	60	16	87%	HRIT/LRIT	4 km	Active and available

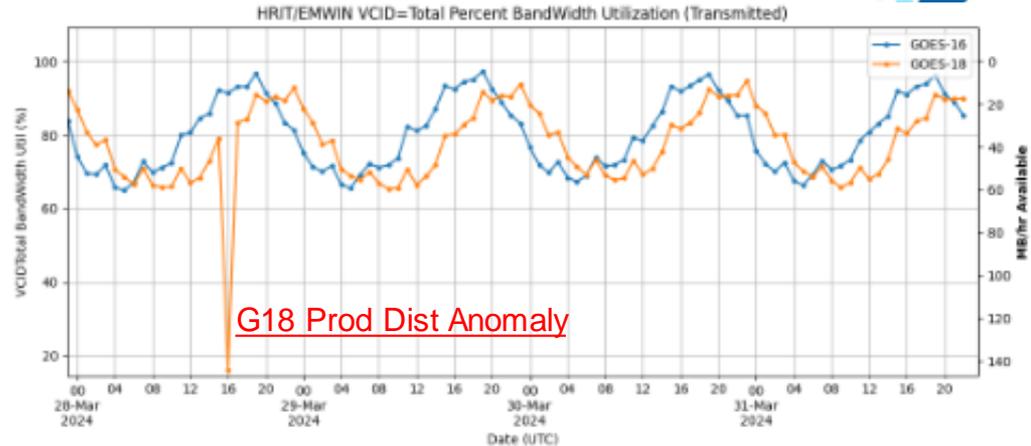


HRIT-DCS statistics



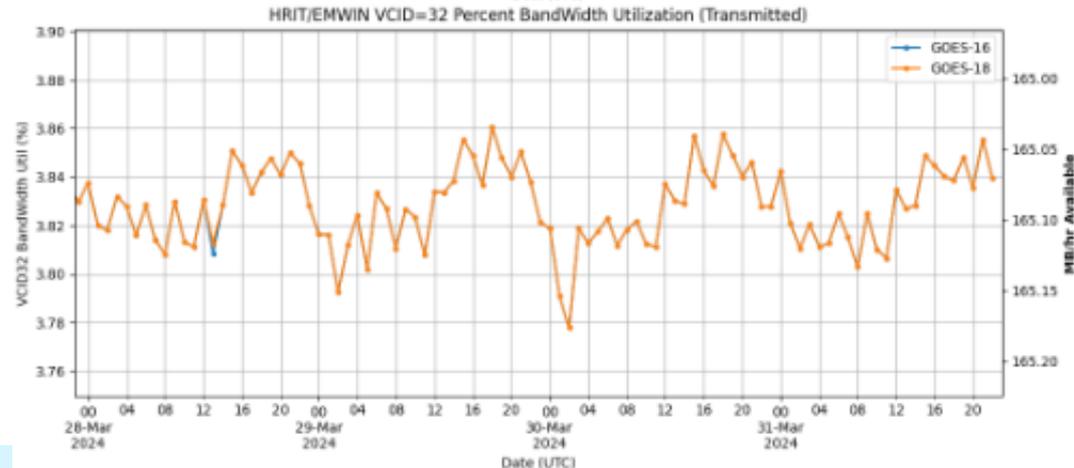
Total 400kbps HRIT/EMWIN BandWidth

- Hard limits:
 - priority 1 EMWIN 8%
 - priority 2 DCS 5%
 - priority 3 GOES Imagery 87%
- Diurnal variation is due to compressibility of images



DCS (VCID32)

- DCS messages gathered into ~8kB files of 40-50 messages
- ~20K files per day
- DCS data volume peaks after noon (EST/EDT)

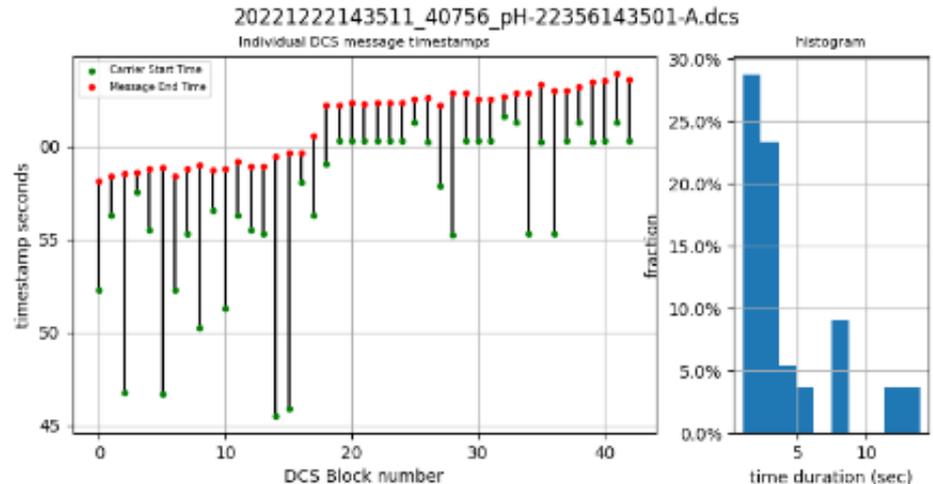
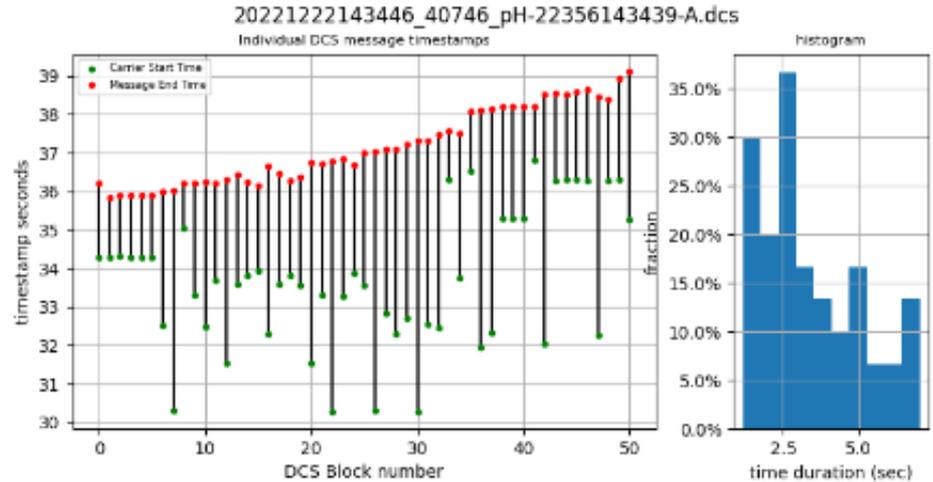


HRIT-DCS statistics



DCS (VCID32)

- DCS messages gathered into ~8kB files of 40-50 messages
- 2s **5s** hold-time (configurable) to select 'best' copy of a DCS message
 - DADDS hold time recently increased mitigate scintillation
- 10s maximum build time, then file is sent to HRIT even if not a full 8kB buffer.
- 2023 measurements:
 - 50.0% E2E DCS latency: 11.7s + **3s**
 - 99.5% E2E DCS latency: 17.0s + **3s**



Upcoming HRIT/EMWIN Broadcast Changes



- GOES-15 will no longer be available for supplemental operations – role is now GOES-17 and GOES-14
- GLM has been requested, we're evaluating the feasibility of including a gridded GLM FED product
- Any changes to virtual channels will be announced well in advanced

- DCS Cross-Ingest will benefit HRIT by leveling quality between the two DCS ground systems (WCDAS and NSOF)
- Microcom's HRIT receiver Data Quality Features will allow more detailed message-level end-to-end statistics for DCS on the HRIT broadcast



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Data Access	NESDIS.Data.Access@noaa.gov for data access contact the Data Access Team
GOES Operational Status	http://www.ospo.noaa.gov/Operations/GOES/status.html
GOES User Information and Documents	http://www.ospo.noaa.gov/Operations/GOES/documents.html
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GRB/HRIT Contacts



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