HRIT/EMWIN Status

GOES DCS Technical Working Group Meeting

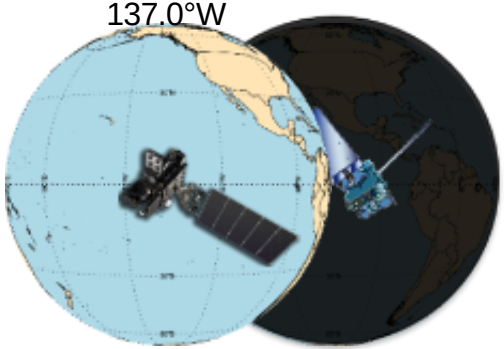
25 Apr 2023

Ian Avruch
NESDIS/OSPO/DSB

GOES Constellation

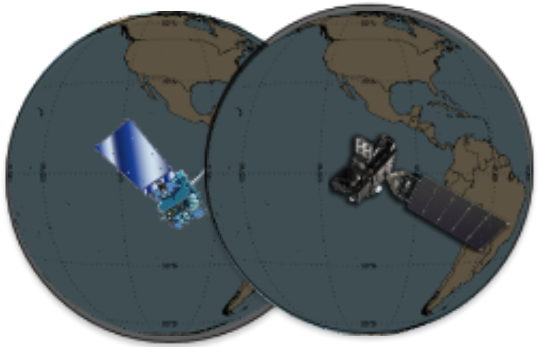
GOES-West
GOES-18
137.0°W

Storage
GOES-15
128.0°W

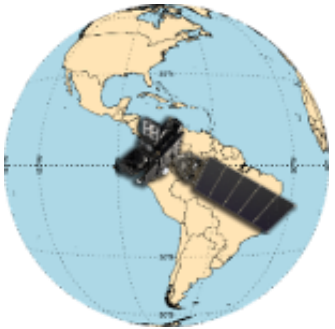


Co-Standby
GOES-14
108.2°W

Standby
GOES-17
104.7°W



GOES-East
GOES-16
75.2°W

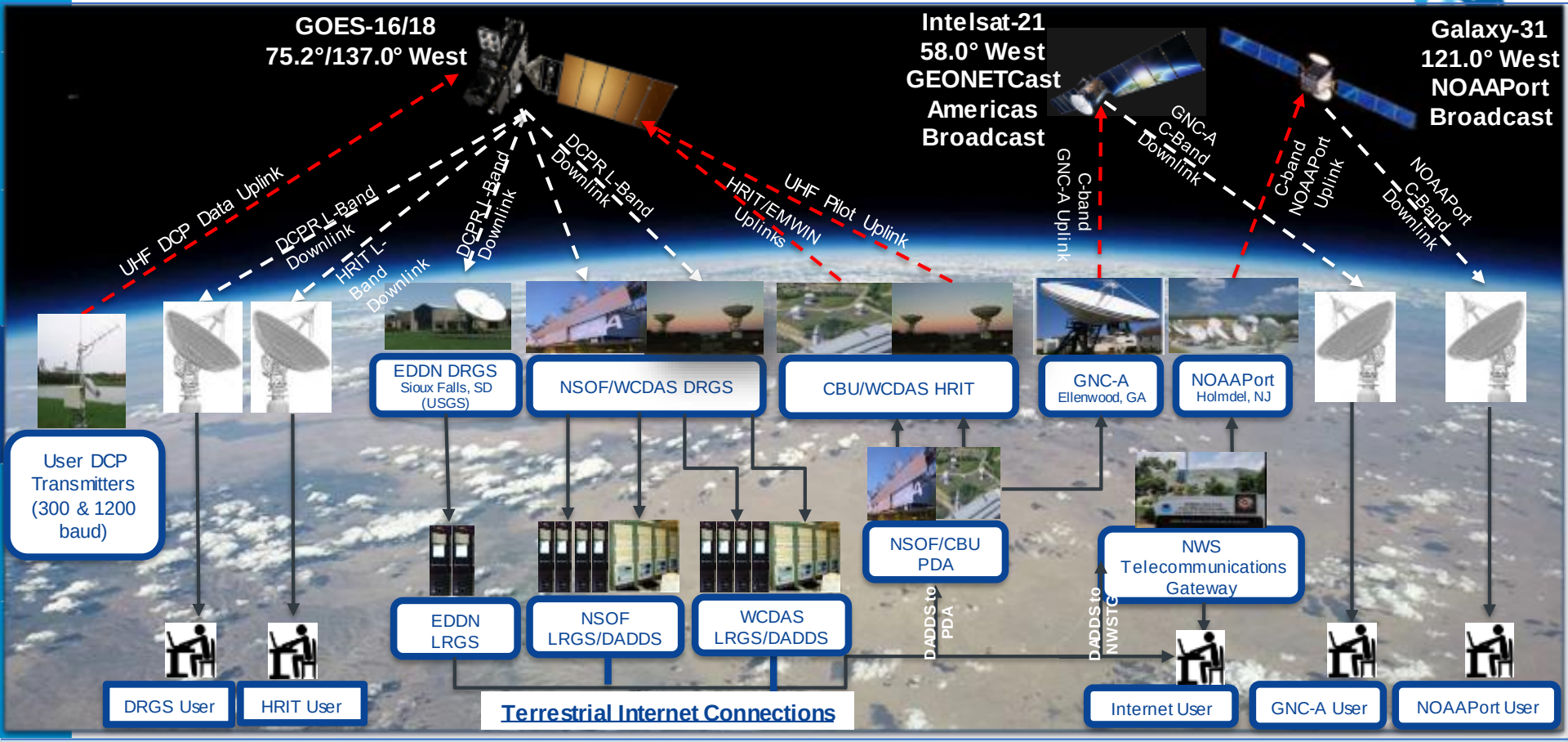


- Above diagram locations and constellation roles are effective February 10, 2023
- Note the Standby role locations are slightly different from the precedent location of 105°W
- Checkout of GOES-17 spacecraft, instrument, and product generation occurred February 10 – March 14, 2023
- For a GOES-16/18 (East/West) anomaly, GOES-17 will be activated. If it is a warm season for the GOES-17 ABI loop heat pipe anomaly then GOES-14 will also be activated in series after GOES-17
    - Field users with smaller antennas (~5m) will not be able to simultaneously downlink GOES-17 GRB and GOES-14 GVAR due to interference because GRB will dominate the signal
- GOES-15 property transfer to U.S. Air Force (USSF) is in progress and drift to USSF location will commence NST April, 2023

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



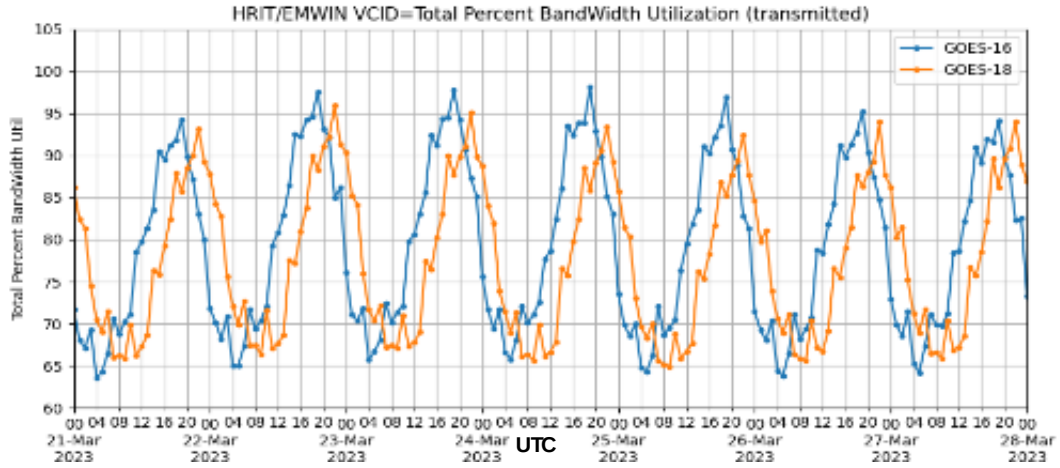
HRIT/EMWIN Virtual Channel Listing (20-Apr-2023)

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-15 WV Imagery		X	30 - 180	13	87%	LRIT	4 km	**Only during Suppl Ops and not after 03/2023**
6	GOES-15 IR Imagery		X	30 - 180	13	87%	LRIT	4 km	**Only during Suppl Ops and not after 03/2023**
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	G18 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

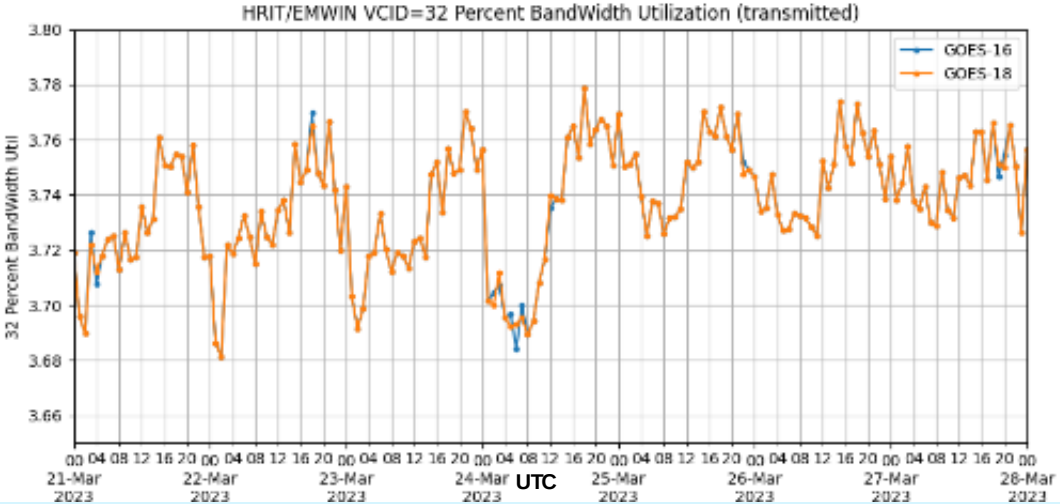
Total 400kbps HRIT/EMWIN BandWidth

- 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)

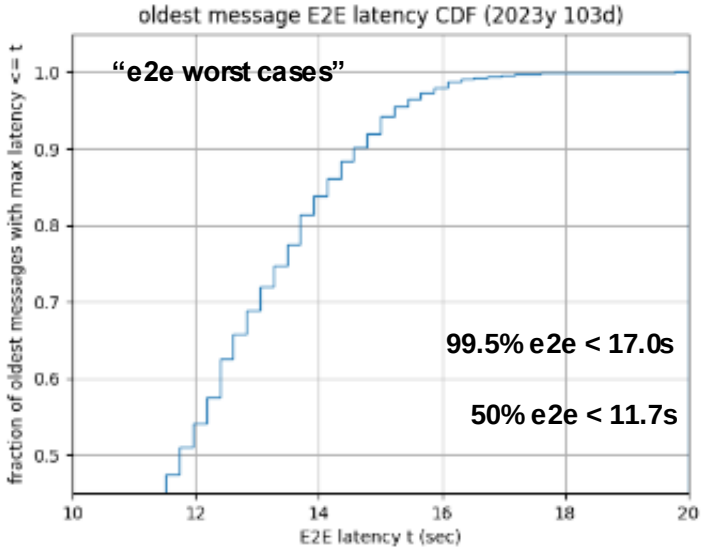
- DCS messages gathered into ~8kB files of 40-50 messages
- ~20K files per day
- DCS data volume peaks in the afternoon (EST/EDT)

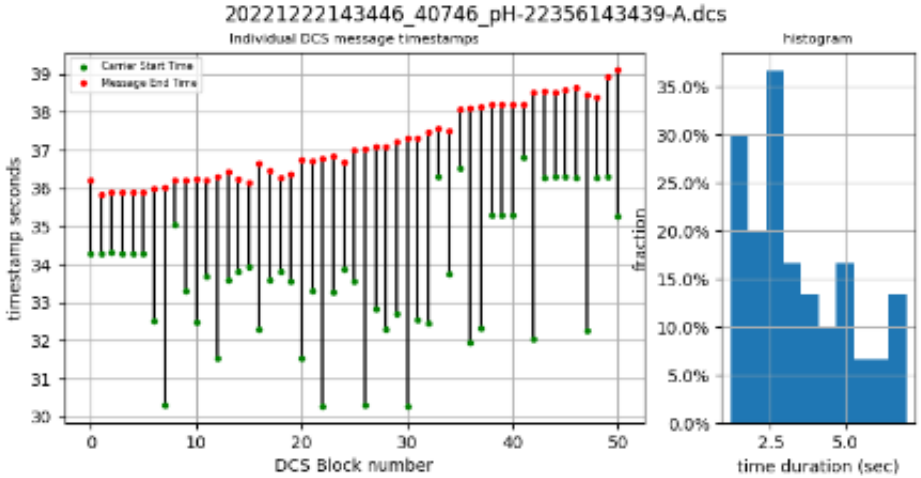


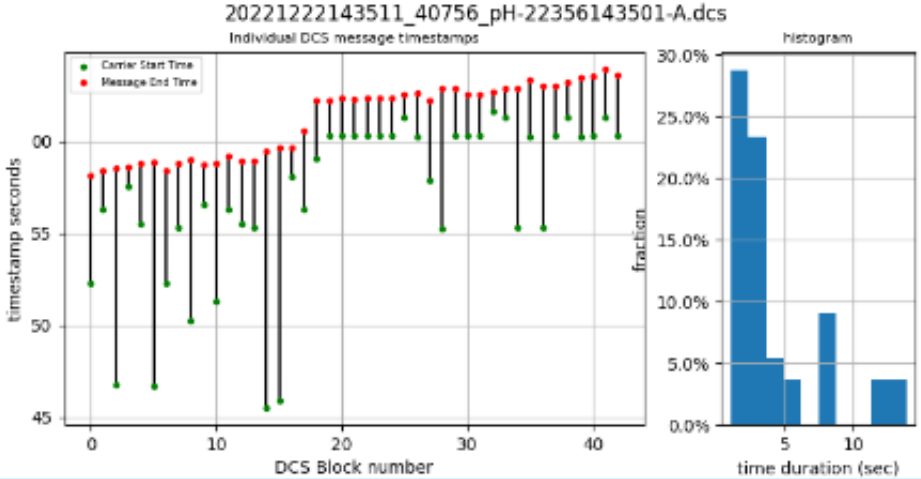
HRIT-DCS statistics

DCS (VCID32)

- DCS messages gathered into ~8kB files of 40-50 messages
- 2s hold-time (configurable) to select ‘best’ copy of a DCS message
- 10s maximum build time, then file is sent to HRIT even if not a full 8kB buffer.
- average E2E message latency is 9.8s







No Upcoming HRIT/EMWIN Broadcast Changes

- GOES-15 will no longer be available for supplemental operations – role is now GOES-14,17
- GLM has been requested, we're evaluating possibility within available HRIT bandwidth
- Any changes to virtual channels will be announced well in advanced

ESPC Notifications, Status, and Contacts

Subscribe to ESPC for notifications -- this is the primary way for you to receive notifications!

24/7 Help Desk	ESPCOperations@noaa.gov (301) 817-3880 operational concerns incl. outages, ESPC notifications (un)subscribe, administrative information
ESPC Messages	https://www.ospo.noaa.gov/Operations/messages.html archive of ESPC notifications
User Services	SPSD.UserServices@noaa.gov general public comments and inquiries
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
POES Operational Status	http://www.ospo.noaa.gov/Operations/POES/status.html
News & Events	https://www.nesdis.noaa.gov/about/news-events
Social Media	facebook, Twitter, YouTube, Instagram, Linkedin

GRB/HRIT Contacts

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