A satellite view of the Earth, showing the Americas and surrounding oceans. The text is overlaid on this image.

High Rate Information Transmission Emergency Managers Weather Information Network (HRIT/EMWIN) User Group

Quarterly Meeting

31 October 2019

Agenda Items & Schedule

- 3:00 pm (EST) – Roll Call/ Introduction to User Group-----Seth Clevenstine – 5 mins
- GOES Constellation Broadcast Status-----Seth Clevenstine – 5 mins
- GOES East Past Quarterly Stats-----Seth Clevenstine – 5 mins
- GOES West Past Quarterly Stats-----Seth Clevenstine – 5 mins
- GOES 17 ABI Status-----Seth Clevenstine – 5 mins
- Recent GOES 17 ABI Testing-----Seth Clevenstine – 5 mins
- Upcoming PDA Release Content-----Seth Clevenstine – 5 mins
- HRIT/EMWIN Event Schedule-----Seth Clevenstine – 5 mins
- EMWIN Updates-----Bob Gillespie – 5 mins
- Open Discussion Items-----Open – 15 mins
- Action items and summary-----Paul Seymour – 5 mins
- Total – 60 mins

HRIT/EMWIN User Group

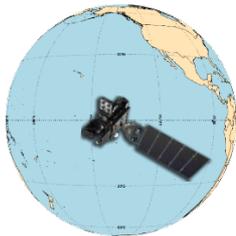
- GOES Constellation Broadcast Status**
- GOES East Status and Past Quarterly Stats**
- GOES West Status and Past Quarterly Stats**
- GOES-17 ABI Seasonal Dependence Update**

Seth Clevens

Present - Future GOES Constellation

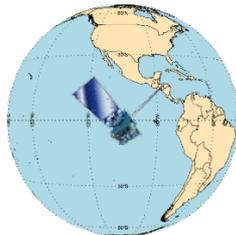
Current –
Dec 31, 2019

GOES-West
GOES-17
137.2° West



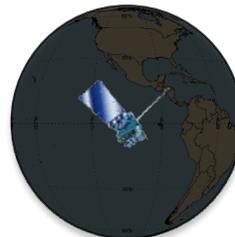
HRIT/EMWIN
Active

Tandem GOES-West
GOES-15
128° West



LRIT Disabled
EMWIN Active

Standby
GOES-14
105° West



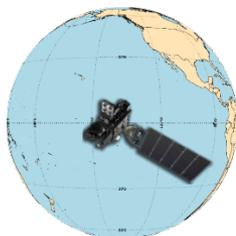
LRIT Disabled
EMWIN Active

GOES-East
GOES-16
75.2° West



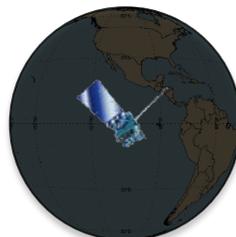
HRIT/EMWIN
Active

GOES-West
GOES-17
137.2° West



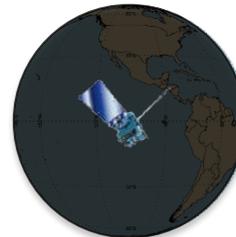
HRIT/EMWIN
Active

Storage
GOES-15
128° West



LRIT Disabled
EMWIN Disabled
Dec 2019

Standby
GOES-14
105° West



LRIT Disabled
EMWIN Disabled
Dec 2019

GOES-East
GOES-16
75.2° West



HRIT/EMWIN
Active

Plan for
Jan 2020

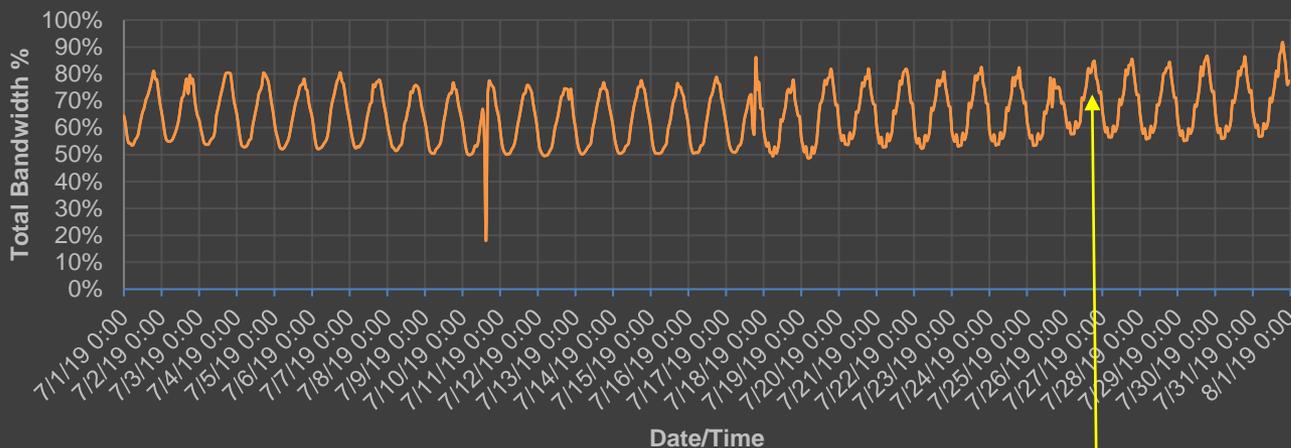
GOES-T (GOES-18) scheduled for launch on or before FY2022, on-orbit storage after post-launch checkout

GOES-16 HRIT Product Status

| VCID # | Product Name | Period -Min | Format | Resolution | Product Availability |
|--------|--------------------------------|-------------|--------------------------|--------------------------------------|---|
| 0 | Admin Text | 60 | Text Messages | N/A | Active and available |
| 1 | Mesoscale Imagery | 15 | HRIT/LRIT | 0.5km Band 2, 2km for bands 7 and 13 | Both mesoscale regions active and available |
| 2 | CMI Band 2 | 30 | HRIT/LRIT | 2 km | Active and available |
| 7 | CMI Band 7 | 30 | HRIT/LRIT | 2 km | Active and available |
| 8 | CMI Band 8 | 30 | HRIT/LRIT | 2 km | Active and available |
| 9 | CMI Band 9 | 30 | HRIT/LRIT | 2 km | Active and available |
| 13 | CMI Band 13 | 30 | HRIT/LRIT | 2 km | Active and available |
| 14 | CMI Band 14 | 30 | HRIT/LRIT | 2 km | Active and available |
| 15 | CMI Band 15 | 30 | HRIT/LRIT | 2 km | Active and available |
| 17 | G17 CMI Band 13 | 60 | HRIT/LRIT | 4 km | Active and available |
| 20 | EMWIN - Priority | Variable | Text | N/A | Active and available |
| 21 | EMWIN - Graphics | Variable | Graphic (e.g. GIF, JPEG) | N/A | Active and available |
| 22 | EMWIN - Other | Variable | Text and Graphic | N/A | Active and available |
| 23 | NWS Products | Variable | Graphic | N/A | Active and available |
| 24 | NHC Maritime Graphics Products | Variable | Graphic (e.g. GIF, JPEG) | N/A | Active and available |
| 25 | GOES-16 Level II Products | 60 - 240 | HRIT/LRIT | 2-10 km | 7 activated on 7/25/2019 and available |
| 30 | DCS Admin | Continuous | Text | N/A | Active and available |
| 32 | DCS Data New Format | Continuous | Formatted Text | N/A | Active and available |

July 2019 GOES East HRIT Statistics

July 2019 Total Broadcast Statistics

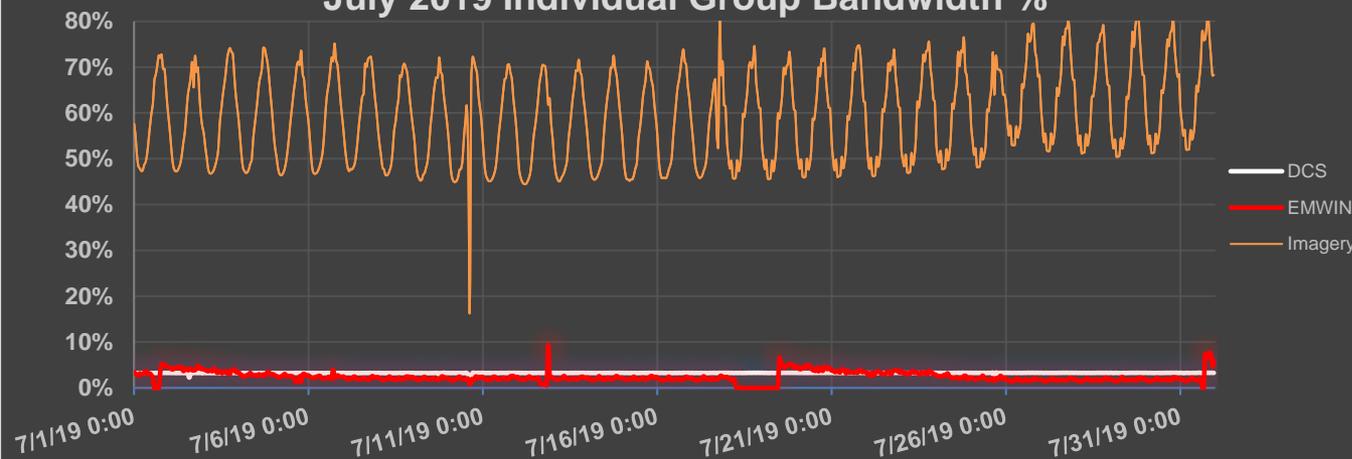


Additional L2 Products Included

Monthly Averages

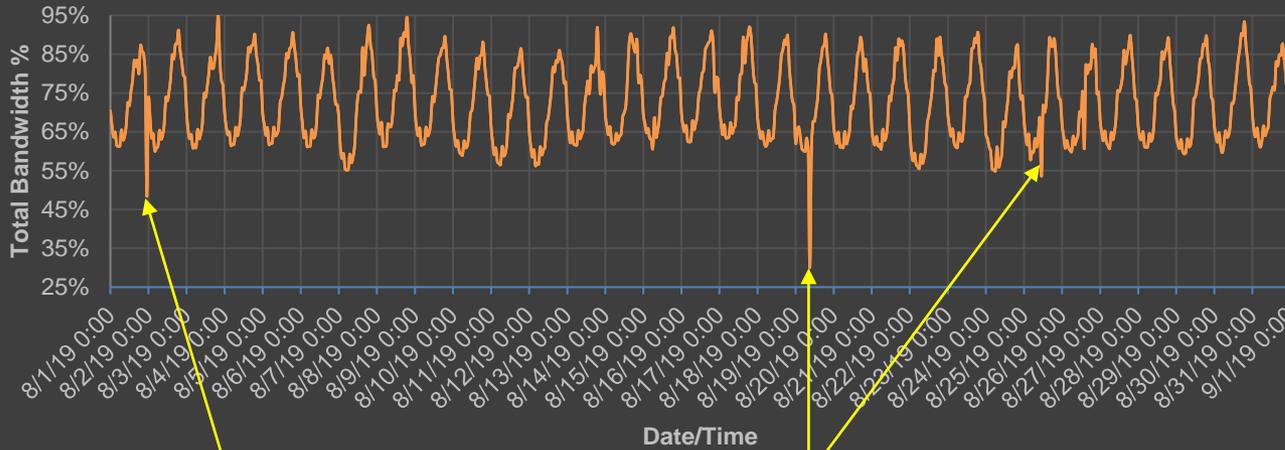
| | |
|------------------------------|----------------|
| 19Z Daytime Peak % | 79.8% |
| Imagery Group | 73.7% |
| DCS | 3.26% |
| EMWIN | 2.85% |
| 05Z Night time Lull % | 52.8% |
| Imagery Group | 47.3% |
| DCS | 3.23% |
| EMWIN | 2.29% |
| Daily Total Data Size | 44.7 Gb |

July 2019 Individual Group Bandwidth %



August 2019 GOES East HRIT Statistics

GOES-16 August 2019 Total Broadcast Statistics



Broadcast Stream Failover due DCS-to-PDA anomaly

Broadcast Stream Failover

EMWIN data operational

August 2019 Individual Group Bandwidth %



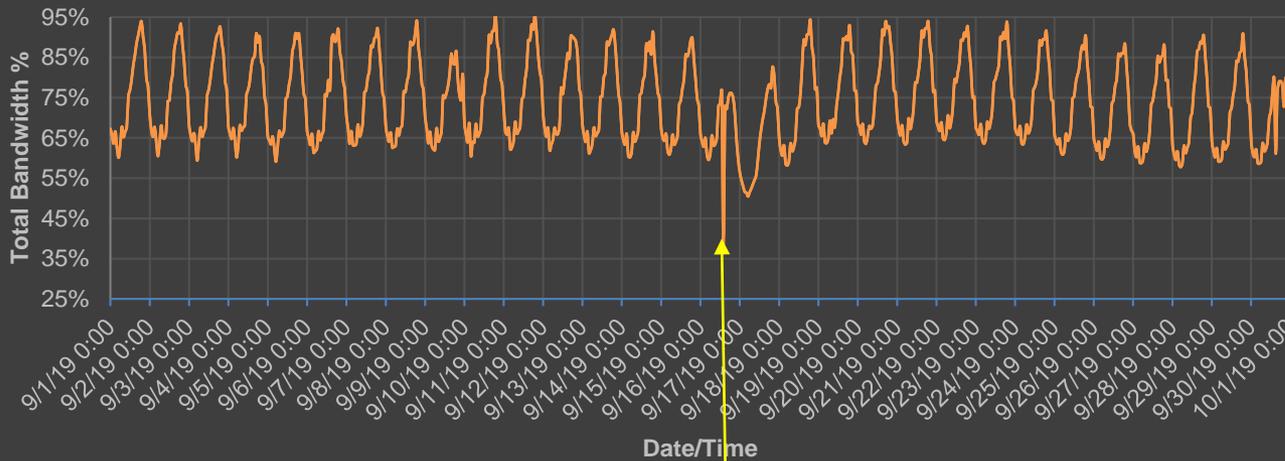
Monthly Averages

| | |
|-----------------------|---------|
| 19Z Daytime Peak % | 89.1% |
| Imagery Group | 80.2% |
| DCS | 3.29% |
| EMWIN | 5.55% |
| 05Z Night time Lull % | 60.4% |
| Imagery Group | 51.8% |
| DCS | 3.30% |
| EMWIN | 5.25% |
| Daily Total Data Size | 50.1 Gb |



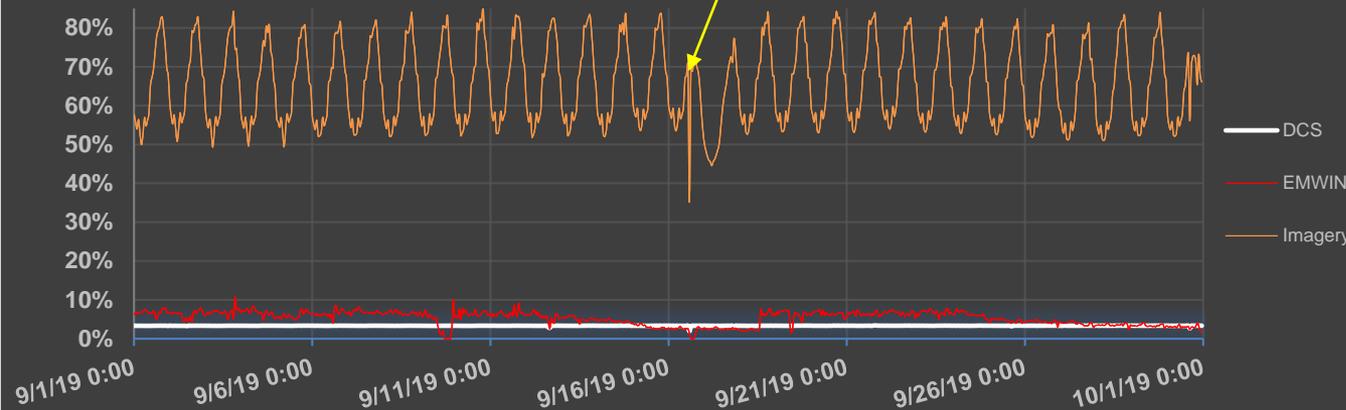
September 2019 GOES East HRIT Statistics

GOES-16 September 2019 Total Broadcast Statistics



Broadcast Stream Failovers (FEP updates @ CBU)
w/ PDA anomaly + Oracle Database Maintenance

September 2019 Individual Group Bandwidth %



Monthly Averages

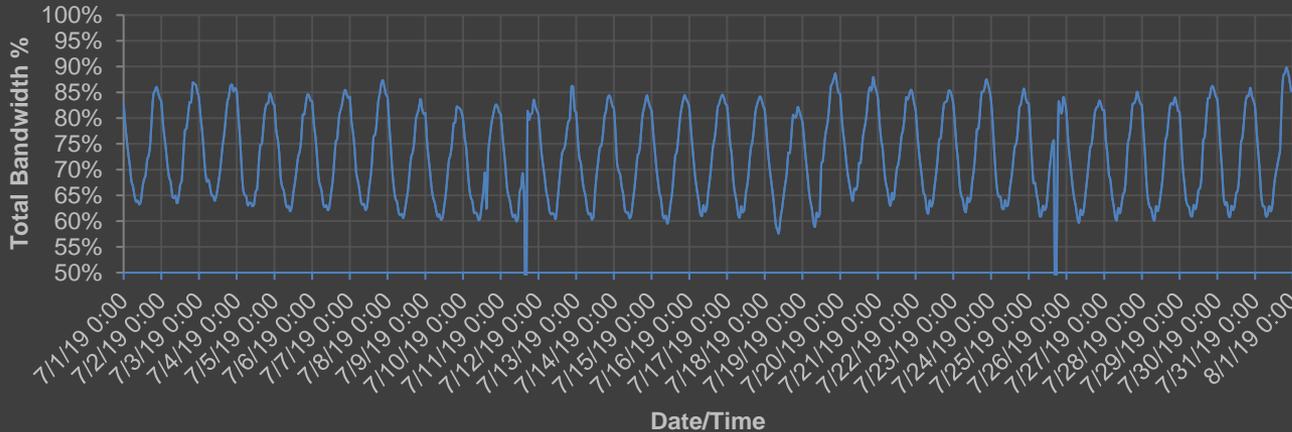
| | |
|------------------------------|----------------|
| 19Z Daytime Peak % | 90.4% |
| Imagery Group | 81.6% |
| DCS | 3.34% |
| EMWIN | 5.44% |
| 05Z Night time Lull % | 60.9% |
| Imagery Group | 51.9% |
| DCS | 3.32% |
| EMWIN | 5.73% |
| Daily Total Data Size | 51.6 Gb |

GOES-17 HRIT Product Status

| VCID # | Product Name | Period -Min | Format | Resolution | Product Availability |
|--------|--------------------------------|-------------|--------------------------|--------------------------------------|---|
| 0 | Admin Text | 60 | Text Messages | N/A | Active and available |
| 1 | Mesoscale Imagery | 15 | HRIT/LRIT | 0.5km Band 2, 2km for bands 7 and 13 | Both mesoscale regions active and available |
| 2 | CMI Band 2 | 30 | HRIT/LRIT | 2 km | Active and available |
| 5 | GOES-15 WV Imagery | 30 - 180 | LRIT | 4 km | Available until December 2019 |
| 6 | GOES-15 IR Imagery | 30 - 180 | LRIT | 4 km | Available until December 2019 |
| 7 | CMI Band 7 | 30 | HRIT/LRIT | 2 km | Active and available |
| 8 | CMI Band 8 | 30 | HRIT/LRIT | 2 km | Active and available |
| 9 | CMI Band 9 | 30 | HRIT/LRIT | 2 km | Active and available |
| 13 | CMI Band 13 | 30 | HRIT/LRIT | 2 km | Active and available |
| 14 | CMI Band 14 | 30 | HRIT/LRIT | 2 km | Active and available |
| 15 | CMI Band 15 | 30 | HRIT/LRIT | 2 km | Active and available |
| 16 | G16 CMI Band 13 | 60 | HRIT/LRIT | 4 km | Active and available |
| 20 | EMWIN - Priority | Variable | Text | N/A | Active and available |
| 21 | EMWIN - Graphics | Variable | Graphic (e.g. GIF, JPEG) | N/A | Active and available |
| 22 | EMWIN - Other | Variable | Text and Graphic | N/A | Active and available |
| 23 | NWS Products | Variable | Graphic | N/A | Active and available |
| 24 | NHC Maritime Graphics Products | Variable | Graphic (e.g. GIF, JPEG) | N/A | Active and available |
| 25 | GOES-R/S Level II Products | Variable | HRIT/LRIT | 2-10 km | 7 activated on 8/2/2019 and available |
| 30 | DCS Admin | Continuous | Text | N/A | Active and available |
| 32 | DCS Data New Format | Continuous | Formatted Text | N/A | Active and available |
| 60 | Himawari-8 | 60 | LRIT | 4 km | Active and available |

July 2019 GOES West HRIT Statistics

July Total Broadcast Bandwidth %



Monthly Averages

21Z Daytime Peak % 85.1%

Imagery Group 78.7%

DCS 3.26%

EMWIN 3.17%

08Z Night time Lull % 61.6%

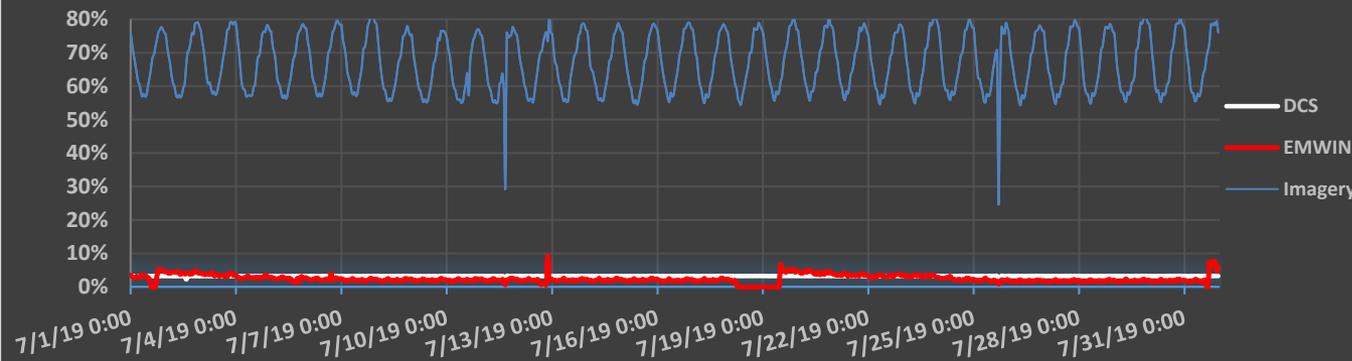
Imagery Group 55.7%

DCS 3.23%

EMWIN 2.71%

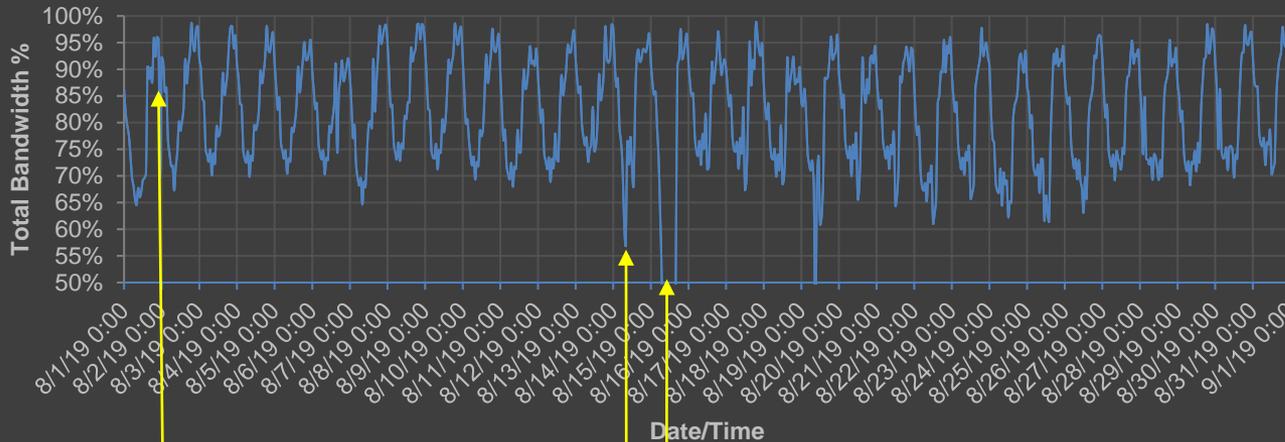
Daily Total Data Size 50.2 Gb

July 2019 Individual Product Bandwidth %



August 2019 GOES West HRIT Statistics

August Total Broadcast Bandwidth %

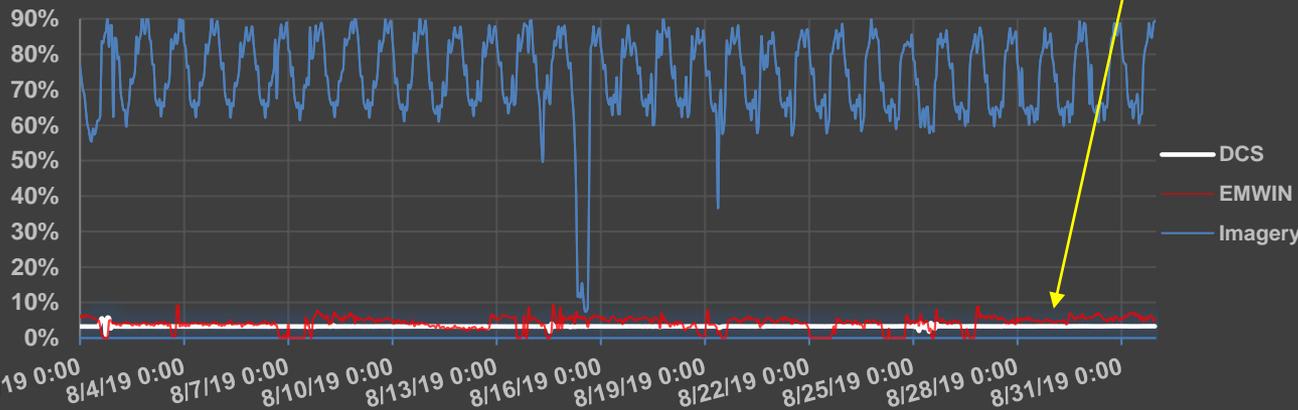


Additional L2 Products Included

GOES ABI Outages due to SIMD scan error

EMWIN data operational

August 2019 Individual Product Bandwidth %

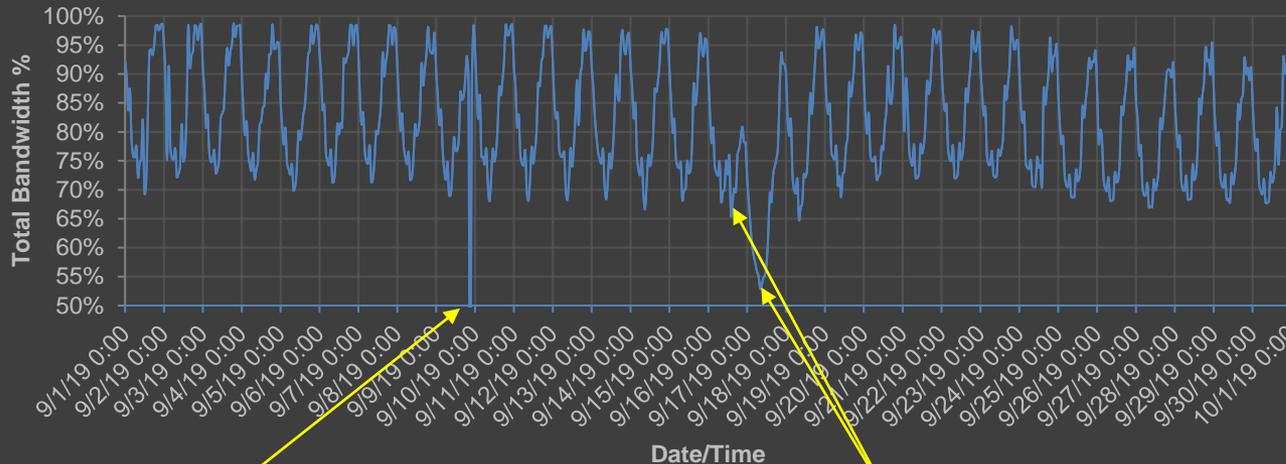


Monthly Averages

| | |
|-----------------------|---------|
| 23Z Daytime Peak % | 94.7% |
| Imagery Group | 86.9% |
| DCS | 3.29% |
| EMWIN | 4.50% |
| 08Z Night time Lull % | 67.3% |
| Imagery Group | 59.3% |
| DCS | 3.25% |
| EMWIN | 4.66% |
| Daily Total Data Size | 56.3 Gb |

September 2019 GOES West HRIT Statistics

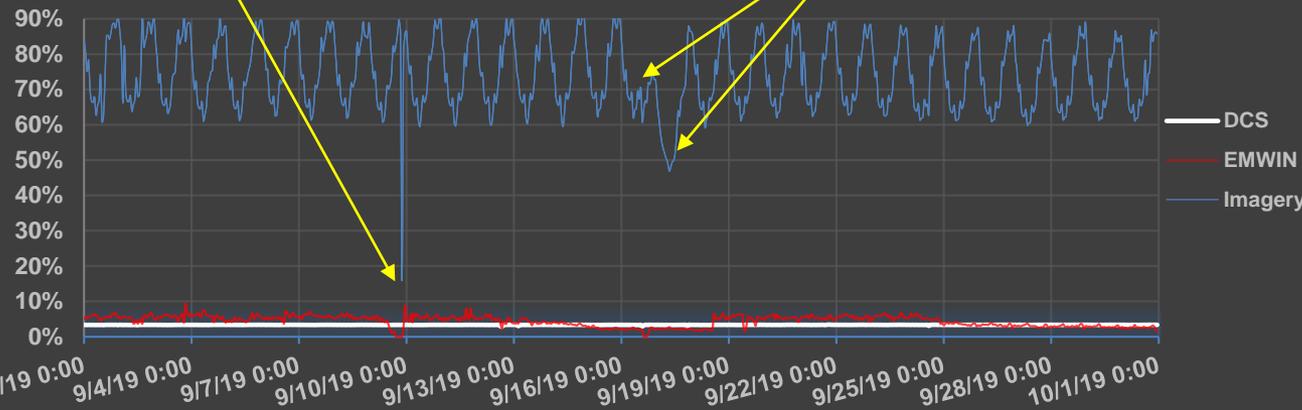
September Total Broadcast Bandwidth %



Broadcast Outage due to FEP anomaly

Broadcast Stream Failovers (FEP updates @ CBU) w/ PDA anomaly

September 2019 Individual Product Bandwidth %



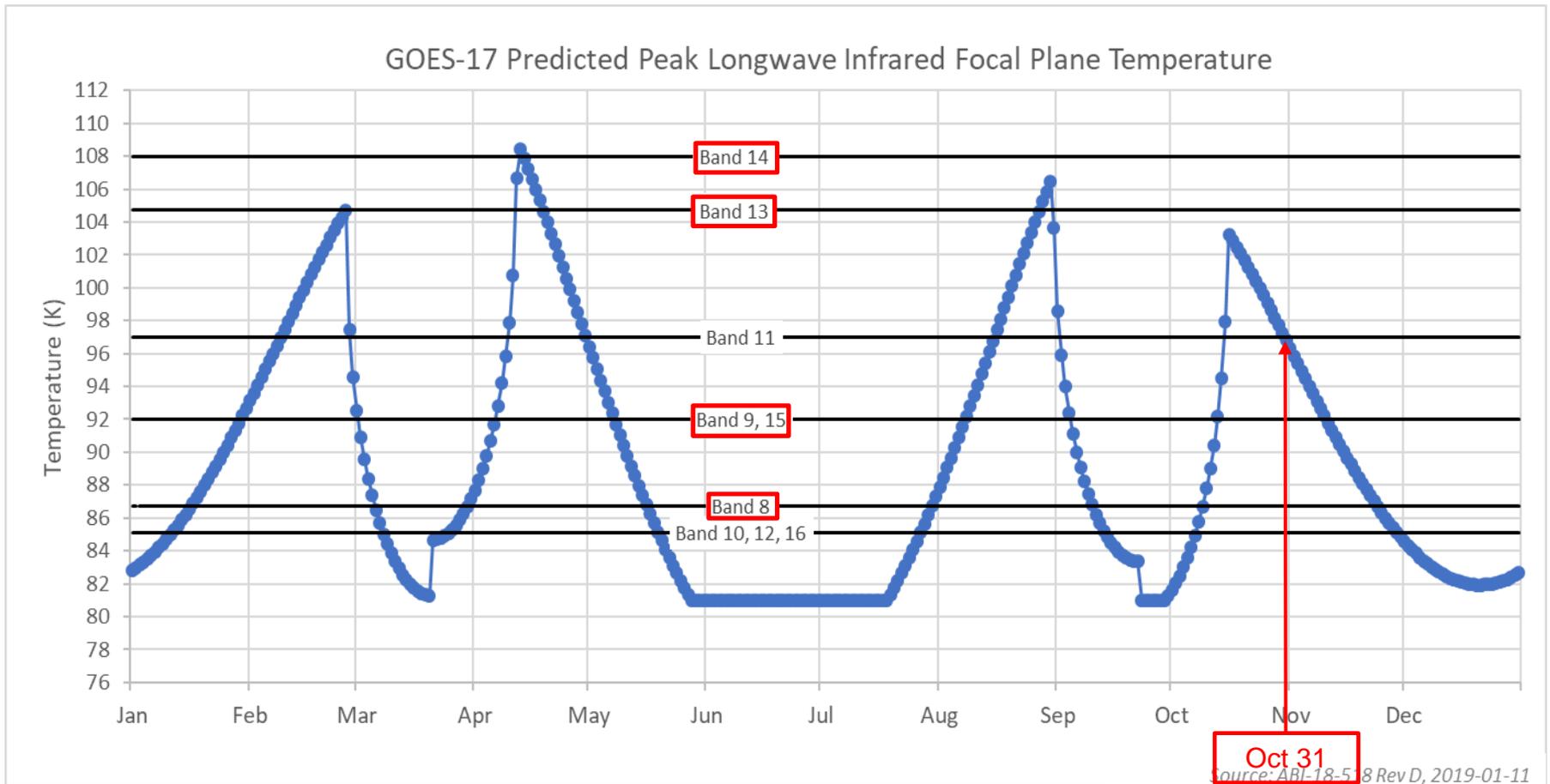
Monthly Averages

| | |
|-----------------------|---------|
| 23Z Daytime Peak % | 95.6% |
| Imagery Group | 87.9% |
| DCS | 3.33% |
| EMWIN | 4.29% |
| 08Z Night time Lull % | 69.5% |
| Imagery Group | 61.1% |
| DCS | 3.31% |
| EMWIN | 5.03% |
| Daily Total Data Size | 56.6 Gb |

GOES-17 ABI Seasonal Dependence

| | | |
|----------------------------------|---|--|
| 2020 Predictions | | |
| 1 January - 25 February | Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11 from marginal to unusable by the end of the time period | Saturation can occur between approximately 0830-1730 UTC. Peak saturation occurs at the end of the time period at approximately 1300 UTC |
| 25 February - 20 March | Channel saturation improves starting with bands in this order: 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period | Saturation can occur between approximately 0900-1700 UTC. Peak saturation occurs at the beginning of the time period at approximately 1300 UTC |
| 20-Mar | Spring Equinox | |
| 20 March - 16 April | Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11, 13 from marginal to unusable by the end of the time period | Saturation can occur between approximately 0900-1700 UTC. Peak saturation occurs at the end of the time period at approximately 1300 UTC |
| 16 April - 26 May | Channel saturation improves starting with bands in this order: 13, 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period | Saturation can occur between approximately 0900-1700 UTC. Peak saturation occurs at the beginning of the time period at approximately 1300 UTC |
| 26 May - 20 July | No channel saturation | |
| 20 July - 29 August | Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11, 13 from marginal to unusable by the end of the time period | Saturation can occur between approximately 0900-1700 UTC. Peak saturation occurs at the end of the time period at approximately 1300 UTC |
| 29 August - 23 September | Channel saturation improves starting with bands in this order: 13, 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period | Saturation can occur between approximately 0930-1630 UTC. Peak saturation occurs at the beginning of the time period at approximately 1300 UTC |
| 23-Sep | Fall Equinox | |
| 23 September - 18 October | Channel saturation begins starting with bands in this order: 10, 12, 16, 8, 9, 15, 11 from marginal to unusable by the end of the time period | Saturation can occur between approximately 0900-1700 UTC. Peak saturation occurs at the end of the time period at approximately 1300 UTC |
| 18 October - 12 December | Channel saturation improves starting with bands in this order: 11, 15, 9, 10, 12, 8, 16 from unusable to marginal by the end of the time period | Saturation can occur between approximately 0900-1700 UTC. Peak saturation occurs at the beginning of the time period at approximately 1300 UTC |

GOES-17 ABI Seasonal Dependence



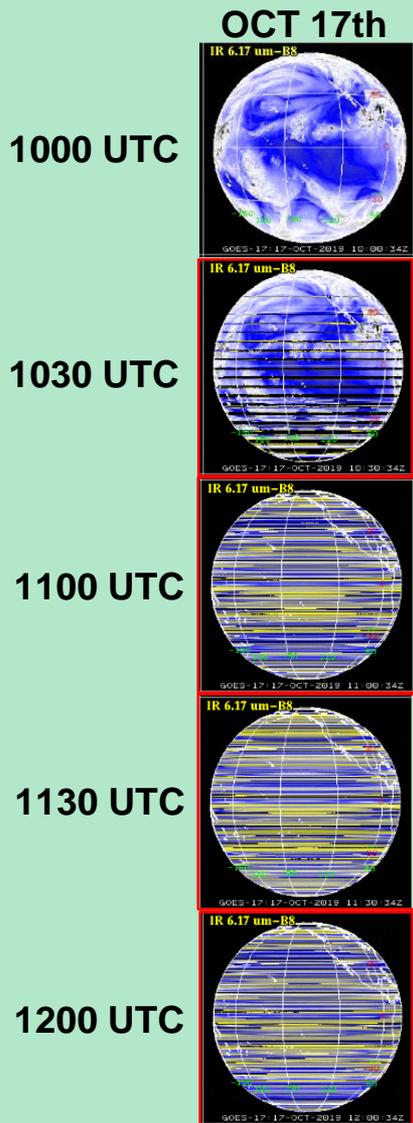
This plot shows daily maximum temperature of the ABI focal plane module. These maximums occur at night. The higher the temperature, the more saturated imagery becomes. Where the temperature rises to approach a black line for each band, marginal saturation may be observed in imagery. Where the temperature curve exceeds a black line for each band, the imagery may begin to saturate so much that it becomes unusable.

Recent GOES-17 ABI Testing

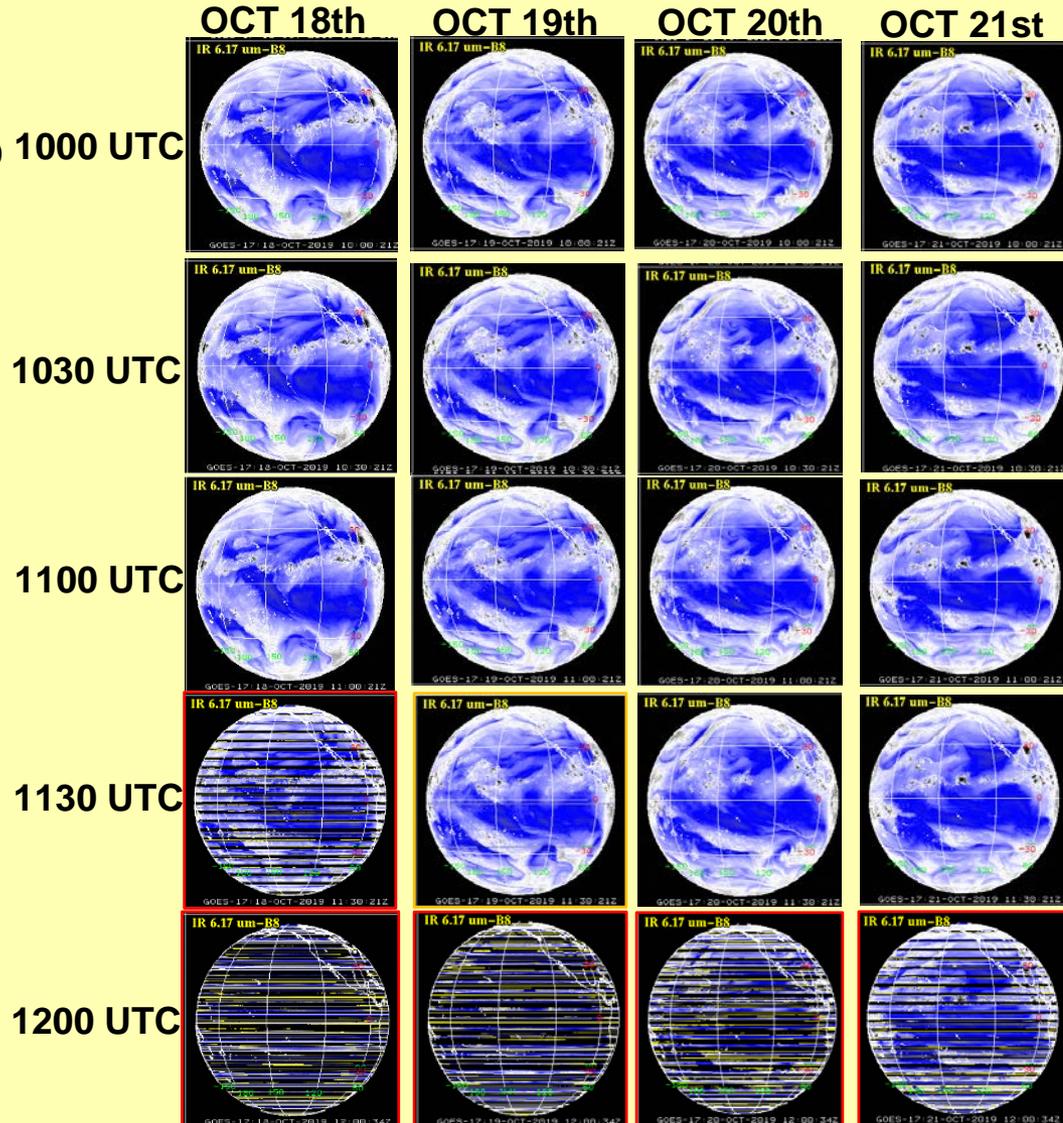
- Testing was conducted to investigate whether modifying the GOES-17 (GOES-West) ABI scan pattern during periods of high thermal loading would decrease the number of saturated images currently resulting due to the loop heat pipe anomaly.
- From October 18th – 21st, NESDIS switched GOES-17's ABI mode 6 to mode 4 during a six-hour period for three days where the ABI products are most degraded (only during 06-12Z timeframe on October 18-21st)
- Mode 4 (Full-disk products only) is nominally every 5 minutes, but for this test only one FD every 30 minutes with a period of 25 minutes where no scanning performed and the instrument was in space-look vs earth look.

GOES-17 ABI Testing Visual Results

Band 8 Mode 6 Nominal Scanning



Band 8 Mode 4 Test Scanning

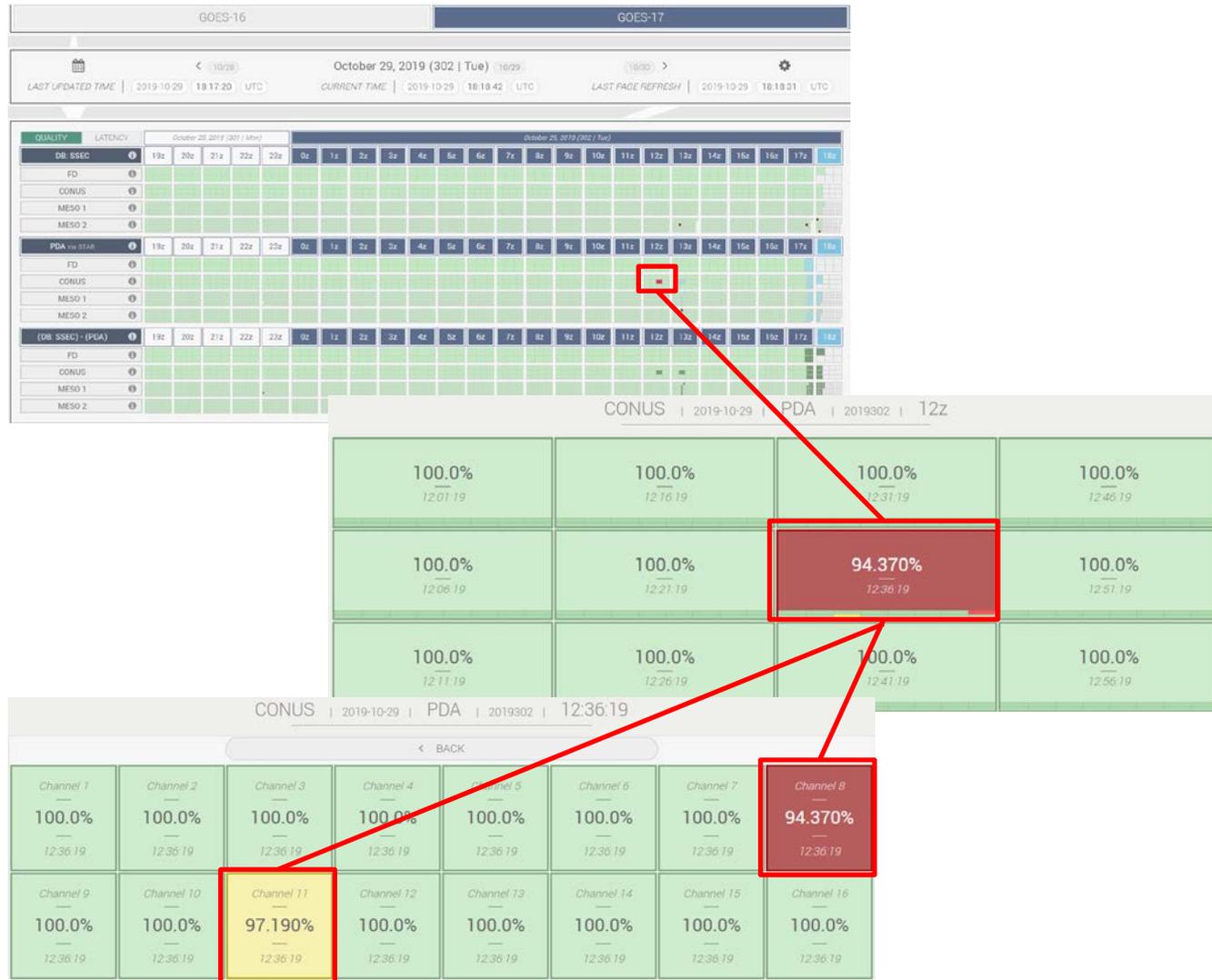


GOES-17 ABI Testing Summary

- Testing had no impact to HRIT full disk product distribution schedule
 - No mesoscale imagery were generated
 - Various level II ABI products are degraded or missing due to PDA/HRIT subscription schedule or band degradation from the ABI instrument itself.
-
- No plans to make this a permanent schedule for modes 3, 4 and 6 in the future as further analysis by vendor is required.
 - If utilized, it would only be used during the pre/post equinox time frame on G17.

GOES ABI Quality/Latency Scoring

- Excellent tool from the Space Science and Engineering Center located at the University of Wisconsin that “grades” the GRB, PDA via STAR and PDA via Big Data Quality and Latency for each data distribution in real-time.
- Could be helpful in end user troubleshooting of HRIT/EMWIN broadcast product outages (notably GOES-17 ABI product degradation)



https://qcweb.ssec.wisc.edu/web/abi_quality_scores/

HRIT/EMWIN User Group

-Release 3.4

-Release 3.5

-HRIT/EMWIN Event Schedule

Seth Clevenstine

Broadcast Issues – PDA Rel 3.4

HRIT/EMWIN Intermittent File Latency

–Problem

- Observed intermittent latency spikes in DCS and EMWIN data, mean latency for EMWIN/DCS is ~19-20 seconds. Latency “spikes” account for ~2% of the overall data.

–Previous Solution

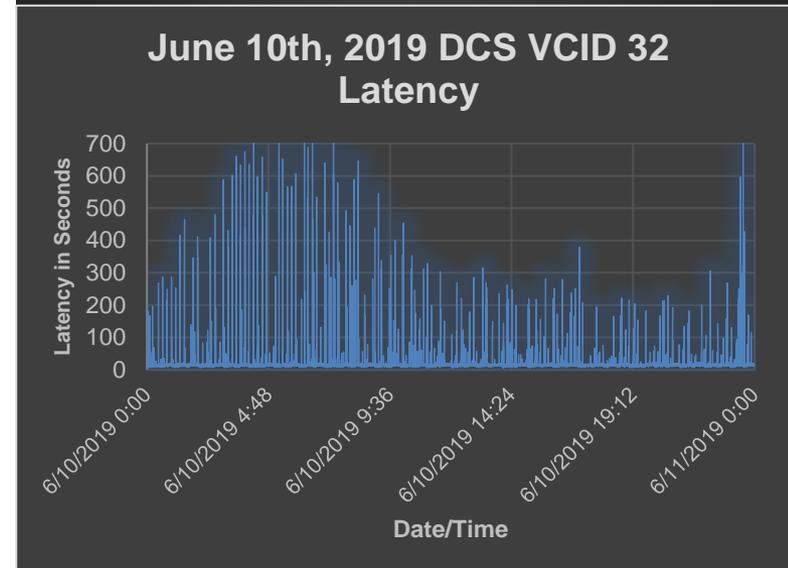
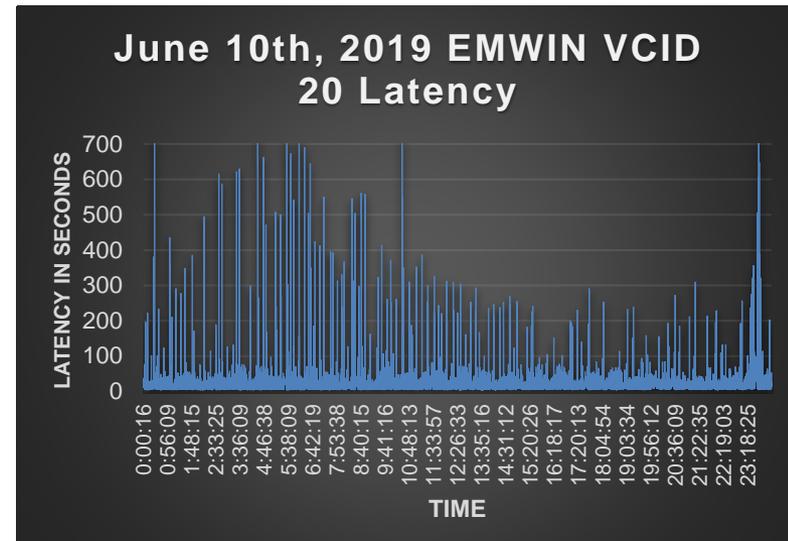
- Dictates HRIT products within PDA as the highest priority

–New Solution

- While prioritization gives HRIT data “ahead of the line” privileges in the processing chain, the root cause of the spikes has been determined to be an outdated Java version that affects an internal service within PDA that creates the “VM slowness.”

–Implementation Date

- November 7th, 2019



PDA Rel 3.4

- The Product Distribution and Access (PDA) system was updated at CBU on 10/15 – 10/17/2019.
- Due to Critical Weather being declared (fire weather support in CA), the NSOF operational portion of work has been on postponed.
- Cannot verify the latency “spikes” have been alleviated as CBU’s PDA doesn’t have the same data load as NSOF’s PDA.

PDA Rel 3.5

- Projected to fix the Segment ID incremental issue and missing segments on the Legacy GOES-NOP imagery
- Broadcast subscriptions not fulfilled for the same product with multiple layers
 - Ex: Fire/Hot Spot Characterization
- Reducing the number of shared pathways of PDA and HRIT products (including segregating HRIT tailoring).
 - Reduces latency from PDA backlogs (JPSS passes)
- Small High Priority files are prioritized in anomalous conditions.

Level 2+ Product Availability

Listing of Products Currently Available to HRIT (in green text)

Aerosol Detection (Including Smoke and Dust)

Aerosol Optical Depth (AOD)

Cloud Top Height

Cloud Top Pressure

Fire/Hot Spot Characterization

Cloud Top Temperature

Rainfall Rate / QPE

Land Surface Temperature (Skin)

Sea Surface Temperature (Skin)

Total Precipitable Water

Derived Stability Indices (CAPE and LI)

~~Clear Sky Masks~~

~~Downward Shortwave Radiation: Surface~~

~~Reflected Shortwave Radiation~~

~~Volcanic Ash: Detection and Height~~

~~Cloud Optical Depth~~

~~Cloud Particle Size Distribution~~

~~Cloud Top Phase~~

~~Legacy Vertical Moisture Profile~~

~~Legacy Vertical Temperature Profile~~

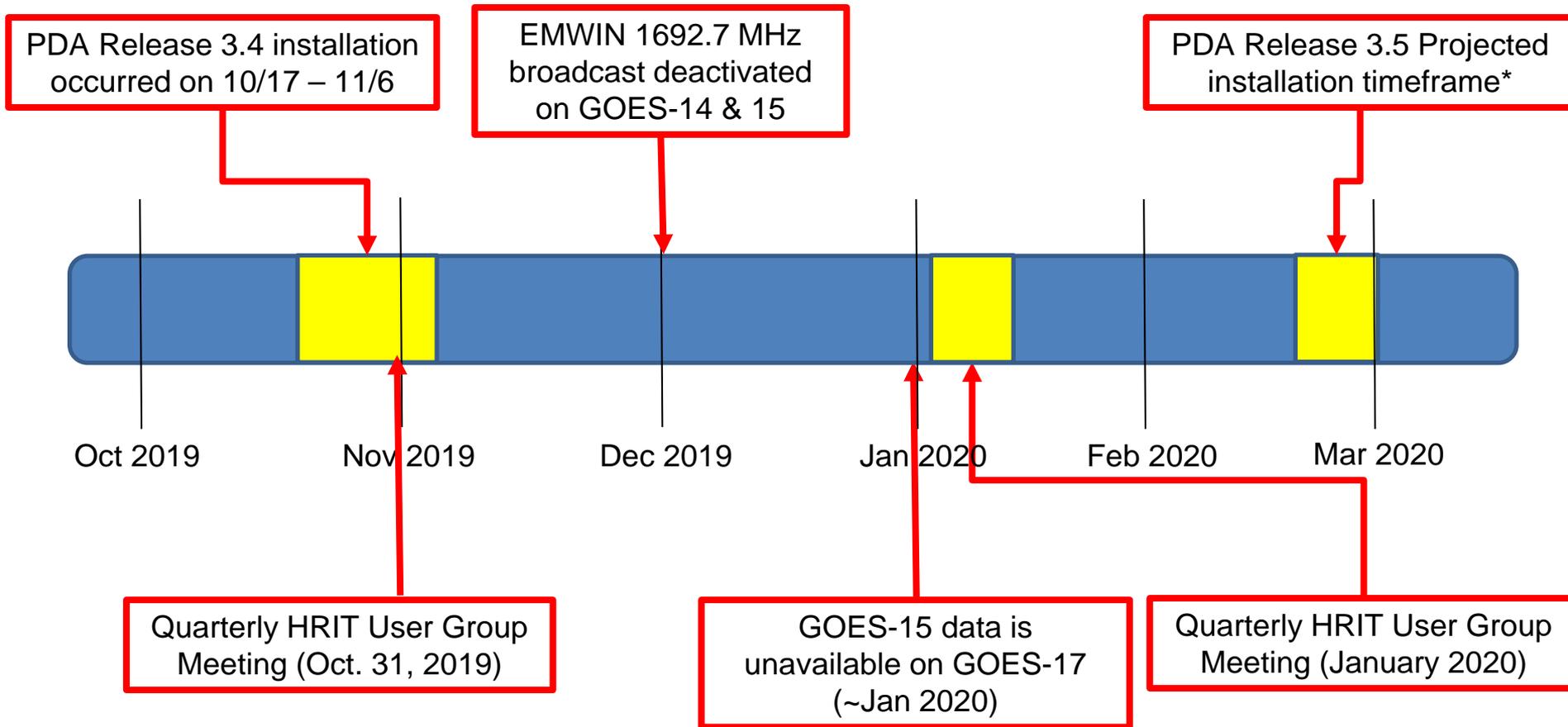
~~Hurricane Intensity Estimation~~

~~Snow Cover~~

-Any issues with the six products available on GOES-16's broadcast?

Will look to add Cloud Top Height (available once an hour) once GOES-15 is non-active

HRIT/EMWIN User Group Event Timeline



****Dates are subject to change, these are just projections from the current ongoing development work taking place in October 2019****

New NOAAASIS Website

NOAA SATELLITE INFORMATION SYSTEM
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

GOES POLAR GNC-A SARSAT ORGANIZATION

Search

NOAAASIS

The National Environmental Satellite, Data, and Information Service (NESDIS) and the National Oceanic and Atmospheric Administration (NOAA) Satellite Information System (NOAAASIS) web site is a central location for information about NOAA's geostationary and polar-orbiting satellites. Information is provided by various contributors within NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) and the National Oceanic and Atmospheric Administration (NOAA). The site provides information of particular interest to users who operate their own direct readout receiving stations.

Satellite Product and Services Division, Direct Services Branch, within the Office of Satellite and Product Operations (OSPO). In addition to providing direct readout community, the Data Services Branch has responsibilities for Search and Rescue Satellite-Aided Tracking (SARSAT), GOES, Polar Data Collection (Argos DCS), and GEONETCast Americas.

GOES-East Image Viewer

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

- HRIT
- HRIT
- About HRIT
- Aerospace HRIT/EMWIN Prototype
- LRIT
- Broadcast
- Products
- Reception
- Sample Imagery HRIT/EMWIN
- FAQ
- Links
- Manufacturer's List

- Went live on July 25th.
- The HRIT section includes information on the broadcast, products, reception, sample imagery, frequently asked questions and links to other affiliated organizations with NOAA (both internal and external)
- Any issues or comments for inclusion, feedback is welcome!

ESPC Notifications, Status, and Contacts

Subscribe to ESPC for notifications. This is the primary way for you to receive notifications and information on GOES status and schedules!

| | |
|-------------------------------------|---|
| 24/7 Help Desk | ESPCOperations@noaa.gov |
| ESPC Messages | http://www.ssd.noaa.gov/PS/SATS/messages.html |
| User Services | SPSD.UserServices@noaa.gov |
| Data Access | NESDIS.Data.Access@noaa.gov |
| Facebook | www.facebook.com/NOAANESDIS |
| Twitter | www.twitter.com/noaasatellites |
| Press releases | http://www.nesdis.noaa.gov/news_archives/ |
| NOAASIS Website | https://www.noaasis.noaa.gov |
| GOES 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 Schedules | http://www.ospo.noaa.gov/Operations/GOES/schedules.html |

HRIT/EMWIN Broadcast Contact Information

Seth Clevenstine

HRIT/EMWIN Program Manager

Direct Services Branch

Satellite Products and Services Division

Office of Satellite and Product Operations

NOAA NESDIS

NOAA Satellite Operations Facility (NSOF) Suitland, MD

Cubicle #1653

Email: seth.clevenstine@noaa.gov

Tel: 301-817-4558

NWS enterprise architecture
Emergency Managers
Weather Information Network
(eEMWIN)

HRIT / EMWIN User Group
October 31, 2019
Robert Gillespie, NWS EMWIN Manager



NWS EMWIN Services Schedule

(as of 7/30/2019)



| | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|
| May-19 | Jun-19 | Jul-19 | Aug-19 | Sep-19 | Oct-19 | Nov-19 | Dec-19 |
|--------|--------|--------|--------|--------|--------|--------|--------|

EMWIN – GOES-14/15

Terminating: 1700UTC, 2-DEC-2019

Ref: NWS SCN 19-88

EMWIN Satellite
Broadcast 1692.7 MHz



FTP Service



ByteBlaster Service



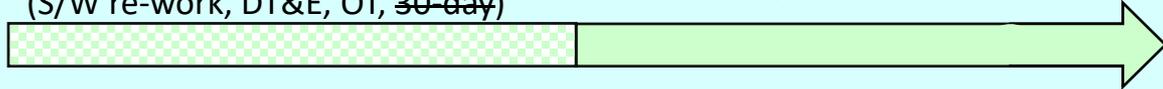
HRIT/EMWIN – GOES-16/17

Operational: 29-Aug-2019

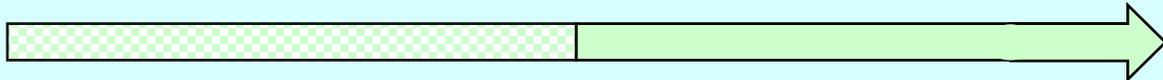
Ref: NWS SCN 19-53

HRIT/EMWIN Satellite
Broadcast 1694.1 MHz

(S/W re-work, DT&E, OT, ~~30-day~~)



FTP Service "





eEMWIN Service Information



- The eEMWIN dissemination services:
 - GOES-16/17 Satellite HRIT/EMWIN broadcast
 - Anonymous FTP Server – satellite broadcast message archive
<https://tgftp.nws.noaa.gov/SL.us008001/CU.EMWIN/DF.xt/DC.gsatsR/OPS/>
- HRIT/EMWIN Virtual Channel IDs (VCID) assigned to eEMWIN:
 - VCID 20 Text Products, priority 1 & 2
 - VCID 21 Image Files
 - VCID 22 Text products, priority 3 & 4
 - Authorized composite data rate: 32 – 60 kbps



Text Product Examples



- Watches, Warning & Alerts, including:
 - Tsunami
 - Tornado
 - Flood
 - Severe Storms
- Forecasts
- Observations
- Climate Data
- Community Programs:
 - RA-IV Hurricane Operations Plan
 - Tsunami Warning Program
- All Non-Weather Emergency Alerts, including:
 - Avalanche Warning
 - Child Abduction Emergency
 - Civil Emergency Message
 - Earthquake Warning
 - Radiological Hazard Warning
 - Volcano Warning



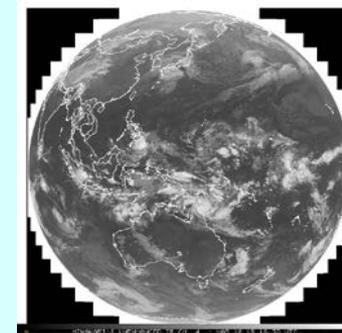
Image Product Examples



Hurricane Forecast Tracts



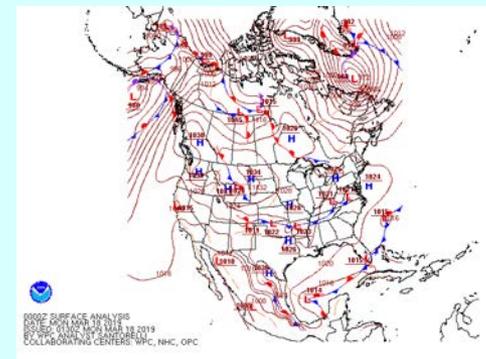
Satellite Imagery



Radar Mosaic Products



Surface Analysis





HRIT/EMWIN Receivers



- Satellite Systems - available for purchase:
 - Dartcom Systems Ltd. HRIT/EMWIN Receiver(s)
 - Ref/contact: Michael Guberek, michael.guberek@global-ig.com
- Satellite Systems - in development, future release:
 - Zephyrus : WX-16 HRIT/EMWIN Data Receive System (target release delayed: Nov/Dec 2019)
 - Ref/contact: <http://www.big-z.com/wx16.asp>
 - Microcom Design Inc. (target release: Nov 2019)
 - Ref/contact: Perry West, PWest@MicrocomDesign.com
 - Pacific Region “Minimalist” Receiver
 - Information will be posted to the NWS EMWIN Web Page upon release.
 - <https://www.nws.noaa.gov/emwin/index.html#hrit-emwin>
 - Internet / Hobbyist configurations.
 - Perform web search
- Software to automate eEMWIN Archive file downloads:
 - WeatherMessage software 4.5 beta ... available to users (target final release: Dec 2019)
 - <http://www.weathermessage.com/Support/ContactSupport.aspx>

Note: This listing does not imply any particular endorsement of the products or services by the NWS. Please contact the manufacturers regarding the function or suitability for your purpose or environment.



eEMWIN Information References



- NWS EMWIN Documents Web Site:
 - <https://www.nws.noaa.gov/emwin/index.html#documents>
- Documents Identifying Products on the EMWIN Service:
 - EMWIN_Text_Product_Catalog_DRAFT_190403 (New 04/03/2019)
 - EMWIN Image and Text Data Capture Catalog Document v1.3b
- Service and Operational Reference Documents:
 - EMWIN FTP Service Description v1.1 (Updated 04/04/2019)
 - EMWIN GOES-R Filename Convention Document (Draft)
- Send any questions or comments to:
nws.emwin.support@noaa.gov



NWS EMWIN Contact Information



Service Operational Issues:

EMWIN: email to: nws.emwin.support@noaa.gov

HRIT/EMWIN: email to: toc.nwstg@noaa.gov cc: nws.emwin.support@noaa.gov
phone: 301-713-0902

General Support:

Email to: nws.emwin.support@noaa.gov

NWS EMWIN Web Page: <https://www.nws.noaa.gov/emwin/>

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Craig Hodan Craig.Hodan@noaa.gov (301) 427-9678

Chief, Dissemination Systems Branch, Office of Dissemination, NWS



eEMWIN Users Group



Questions ?

HRIT/EMWIN User Group

Next meeting will be January 2020

Thanks for your participation!

HRIT/EMWIN User Group

Open Discussion

Seth Clevens