



GOES-R Data Access and Training Resources

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OVERVIEW OF GOES-R SERIES DATA ACCESS

Acronym	System Name	Description
GRB	GOES Rebroadcast	The primary relay of full resolution, calibrated, near-real-time broadcast of GOES-R for Level 1b data products. 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 new 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.
PDA	Product Distribution and Access	The Environmental Satellite Processing and Distribution System is responsible for receiving and storing real-time environmental satellite data and products and making them available to authorized users. The Product Distribution and Access (PDA) component of ESPDS provides real-time distribution and access services for GOES-R users through a terrestrial network.
CLASS	Comprehensive Large Array-data Stewardship System	Web-based data archive and distribution system for NOAA's environmental data. CLASS will provide retrospective data access and distribution services of GOES-R data to all users.

OVERVIEW OF GOES-R SERIES DATA ACCESS

Acronym	System Name	Description
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.
Websites	Websites on the Internet	NOAA, NASA, NOAA Cooperative Institutes, and Universities distribute GOES-16 imagery on their websites. Many universities receive data from Unidata. Unidata has GRB and NOAAPort receive stations.
BDP	Big Data Project	Demonstration Project. The BDP, through Cooperative Research and Development Agreements (CRADAs), currently works with five infrastructure-as-a-service (IaaS) providers to broaden access to NOAA's data resources.
NOAAPort	NWS Satellite Broadcast Network	GOES-R will provide selected products to the NWS Advanced Weather Interactive Processing System (AWIPS) Satellite Broadcast Network and NOAAPort. Sectorized Cloud and Moisture Imagery (SCMI) will be delivered via SBN/NOAAPort

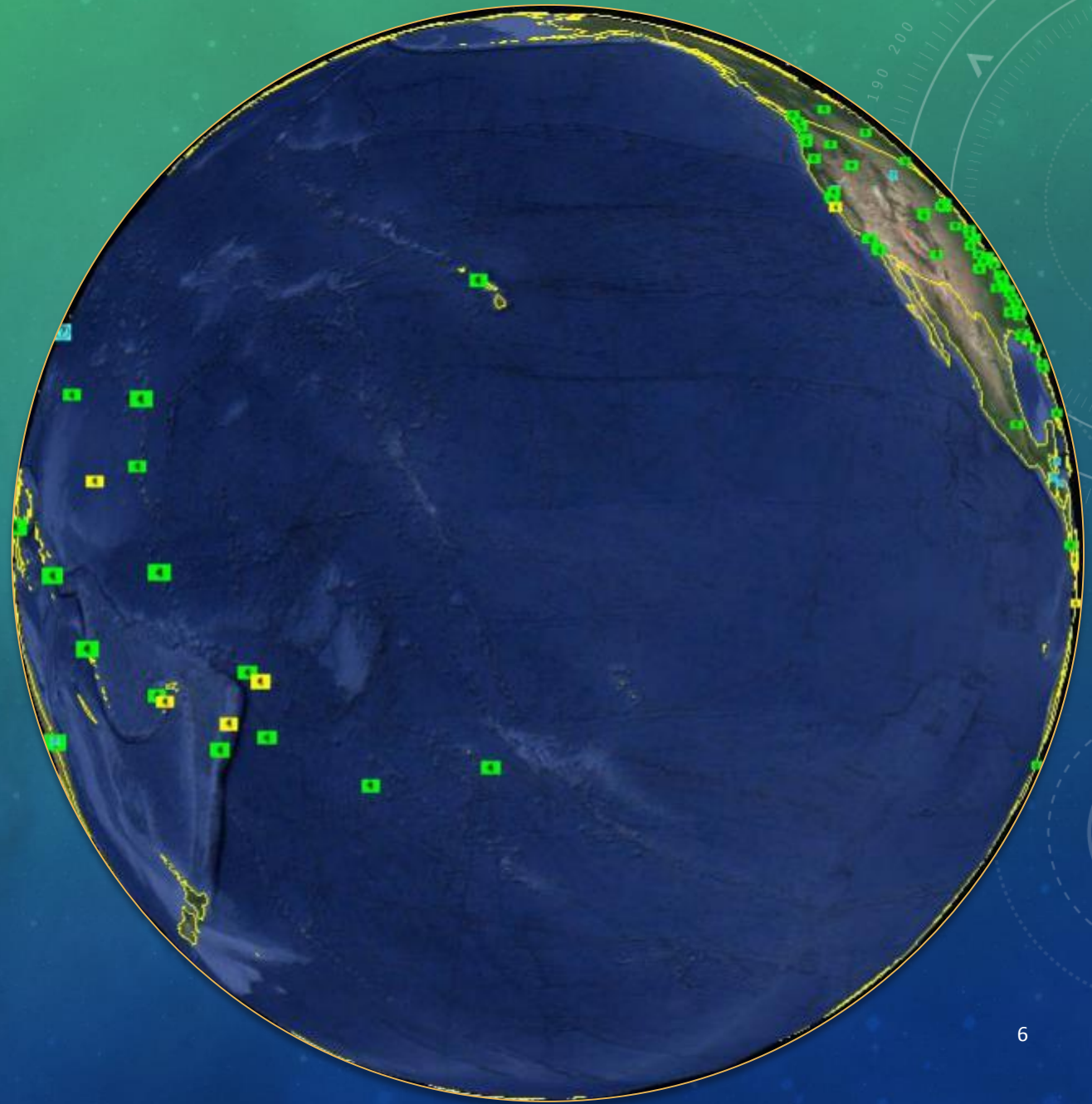
HRIT/EMWIN

- The High Rate Information Transmission (HRIT) / Emergency Managers Weather Information Service (EMWIN) broadcast is operational on GOES-16 and GOES-17.
- The HRIT/EMWIN product offering includes:
 - EMWIN products includes National Weather Service watches, warnings, forecasts and graphics
 - Additional 4 km resolution GOES-15 & Himawari-8 IR/WV/Visible Imagery (GOES-17 only)
 - GOES-16 & 17 Imagery – ABI Cloud and Moisture Imagery (CMI)
 - 2 km spatial resolution ABI Full Disk Bands 2, 7, 8, 9, 13, 14, and 15 available every 30 minutes
 - ABI mesoscale imagery in Bands 2, 7, and 13 available every 15 minutes (Band 2 is 0.5 km while Bands 7 and 13 are 2 km resolution)

RA-V HRIT/EMWIN Users

- Solomon Islands
- Tahiti
- Samoa (2)
- Tonga (2)
- Federated States of Micronesia
- Niue
- Papua New Guinea
- Kiribati
- Marshall Islands
- Fiji
- Cook Island
- Tuvalu
- Vanuatu

* 20+ receive stations are planned for the future*



PRODUCTION, DISTRIBUTION, AND ACCESS

- PDA service is dedicated for authorized near real-time users. Other near real-time distribution services are being explored as PDA is a finite resource
- The PUSH services are available only to users with a 24x7 support desk
- New user onboarding is currently suspended while the organization assesses time critical user needs and evaluates available capacity on the system
- Data access information is available at:

<http://www.ospo.noaa.gov/Organization/About/access.html>

- Must be signed by the Government official responsible for the data flow on the subscriber's end

LINKS TO WEB SITES

NOAA STAR GOES Image Viewer: <https://www.star.nesdis.noaa.gov/GOES/>

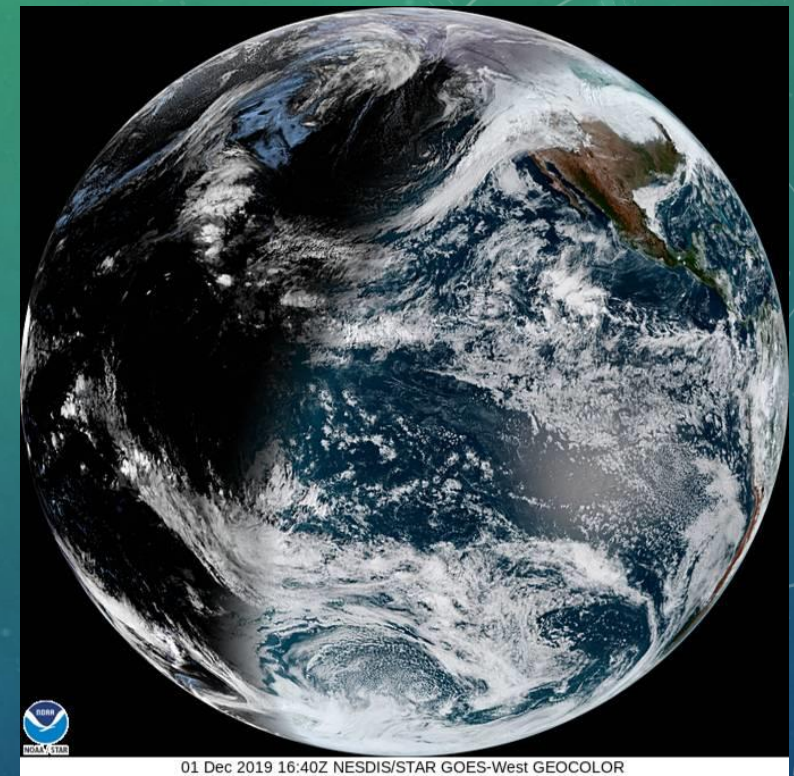
NOAA/NESDIS Geostationary Satellite Server: <https://www.goes.noaa.gov/>

NOAA satellite direct broadcast systems (GRB, HRIT, EMWIN, HRD, GNC-A)
<http://www.noaasis.noaa.gov/NOAASIS/ml/satservices.html>

NOAA Centers for Environmental Information (NCEI) portal NOAA/NESDIS CLASS
<http://www.class.ngdc.noaa.gov/saa/products/welcome>

Cloud services (experimental)

- AWS: <https://aws.amazon.com/public-datasets/goes/>
- Google: <https://console.cloud.google.com/launcher/details/noaa-public/goes-16>
- OCC: <http://edc.occ-data.org/goes16/getdata/>



LINKS TO WEB SITES

GOES-17 GLM: <https://www.weathernerds.org/>

Several online resources from the University of Wisconsin–Madison Space Science and Engineering Center (SSEC) Cooperative Institute for Meteorological Satellite Studies (CIMSS)

- RealEarth: <https://realearth.ssec.wisc.edu/>
- Geostationary Satellite Image Browser: [SSEC Geo Browser Color hybrid with GOES-16/17 and Suomi NPP](https://www.ssec.wisc.edu/data/geo) <https://www.ssec.wisc.edu/data/geo>
- UW-Madison SSEC/CIMSS List of GOES-16/17 Websites <http://cimss.ssec.wisc.edu/goes/goesdata.html>

ABI/AHI QUICK REFERENCE GUIDES



goes-r.gov

GOES-R ABI Fact Sheet Band 8 ("Upper-level water vapor")

The "need to know" Advanced Baseline Imager reference guide for the NWS forecaster

There are three mid-level water vapor bands on the ABI. It reveals information about lower mid-level atmospheric flow (depending on the amount of moisture in the upper troposphere) and can help identify jet streaks. It has been proven to be useful, under certain conditions, in identifying and tracking volcanic plumes due to upper-level sulfur dioxide absorption. Vertical moisture information can be gained from comparison of measurements in all three ABI water vapor bands as is done with current GOES sounder bands. This water vapor band is similar to a band on the current GOES sounders, although those bands are spectrally narrower. The heritage GOES Imager water vapor band falls "between" this band and the 6.2 μm . Source: Schmit et al., 2005 in BAMS, and the ABI Weather Event Simulator (WES) Guide by CIMSS.

In a nutshell
GOES-R ABI Band 8 (approximately 7.3 μm central, 7.2 μm to 7.4 μm)

Availability: Both day and night

Primary purpose:
Monitor atmospheric water vapor features

Uses similar to: ABI/AHI Bands 8/9

Did You Know?
Significant effort is placed on ensuring the spacecraft delivers the imagery we expect without an early-life failure. There are many redundant components on the ABI and both the instrument and spacecraft are put through many tests before launch. These tests include component-level testing, instrument testing (vibration, acoustics, putting the instrument in a vacuum chamber, heating the instrument to extreme temperatures, etc.). Many of these tests are repeated after the instrument is integrated on the spacecraft, before launch. All of these tests, along with corresponding reviews, provide confidence that the ABI will work on-orbit over the long haul.

GOES-R ABI Fact Sheet Band 10 ("lower-level water vapor" infrared band)

The "need to know" Advanced Baseline Imager reference guide for the NWS forecaster

The 7.3 μm band is one of three mid-tropospheric water vapor bands on the ABI. It reveals information about lower mid-level atmospheric flow (depending on the amount of moisture in the upper troposphere) and can help identify jet streaks. It has been proven to be useful, under certain conditions, in identifying and tracking volcanic plumes due to upper-level sulfur dioxide absorption. Vertical moisture information can be gained from comparison of measurements in all three ABI water vapor bands as is done with current GOES sounder bands. This water vapor band is similar to a band on the current GOES sounders, although those bands are spectrally narrower. The heritage GOES Imager water vapor band falls "between" this band and the 6.2 μm . Source: Schmit et al., 2005 in BAMS, and the ABI Weather Event Simulator (WES) Guide by CIMSS.

In a nutshell
GOES-R ABI Band 10 (approximately 7.3 μm central, 7.2 μm to 7.4 μm)

Availability: Both day and night

Primary purpose:
Monitor atmospheric water vapor features

Uses similar to: ABI/AHI Bands 8/9

Did You Know?
Significant effort is placed on ensuring the spacecraft delivers the imagery we expect without an early-life failure. There are many redundant components on the ABI and both the instrument and spacecraft are put through many tests before launch. These tests include component-level testing, instrument testing (vibration, acoustics, putting the instrument in a vacuum chamber, heating the instrument to extreme temperatures, etc.). Many of these tests are repeated after the instrument is integrated on the spacecraft, before launch. All of these tests, along with corresponding reviews, provide confidence that the ABI will work on-orbit over the long haul.

Himawari AHI Fact Sheet Band 2 ("Green" visible)

The "need to know" Advanced Himawari Imager reference guide for the NWS forecaster

The 0.51 μm , or "green" band, is one of the three visible bands on the Himawari-8/9 Imager. The longitude for Himawari-8 is 140 East. The Japan Meteorological Agency (JMA) recently launched this satellite with the Advanced Himawari Imager (AHI) as part of its payload. A very similar band, 0.55 μm , is included on NASA's MODIS and Suomi NPP VIIRS instruments. This band will provide daytime observations related to the land, clouds and aerosols. This green band, combined with the "blue" (0.47 μm) and "red" (0.64 μm) bands will provide "natural color" imagery of the Earth-atmosphere system. This band is essential for a natural "true color" Red-Green-Blue (RGB) composite. Measurements can be used for air pollution studies and other products such as

In a nutshell
Himawari AHI Band 2 (0.51 μm central, 0.50 μm to 0.53 μm)

Also similar to the Suomi NPP VIIRS Band M4

Not available on current GOES or with the GOES-R series ABI

Nickname:
"Green" visible band

Availability: Both day and night

Primary purpose:
Monitor atmospheric water vapor features

Uses similar to: ABI/AHI Bands 8/9

Did You Know?
Significant effort is placed on ensuring the spacecraft delivers the imagery we expect without an early-life failure. There are many redundant components on the ABI and both the instrument and spacecraft are put through many tests before launch. These tests include component-level testing, instrument testing (vibration, acoustics, putting the instrument in a vacuum chamber, heating the instrument to extreme temperatures, etc.). Many of these tests are repeated after the instrument is integrated on the spacecraft, before launch. All of these tests, along with corresponding reviews, provide confidence that the ABI will work on-orbit over the long haul.

NOAA SATELLITE TRAINING SITE

Satellites:

- Geostationary (GOES-R)
- Polar (JPSS)

Formats:

- Quick Guides
- Quick Briefs
- Job Aids

<https://vlab.ncep.noaa.gov/web/stor>

SATELLITE INFORMATION FAMILIARIZATION TOOL (SIFT)

OPEN SOURCE SOFTWARE FROM THE COOPERATIVE INSTITUTE FOR METEOROLOGICAL SATELLITE STUDIES

Basic Information

- Latest version is 1.0.6
- Free downloads available for Windows, Mac, and Linux operating systems
- Can display imagery from ABI (downloadable from CLASS) and AHI
- Supports training for predominantly the National Weather Service (NWS)

Recent Developments

- Improved performance to handle multiple bands for multiple times over full disk
- Support for Lambert Conformal, Mercator, and geostationary map projections over CONUS and Pacific Basin
- Ability to customize imagery and produce RGB composites and band differences “on the fly”
- Can output image files

<https://sift.ssec.wisc.edu/>

SIFT Features and Functions

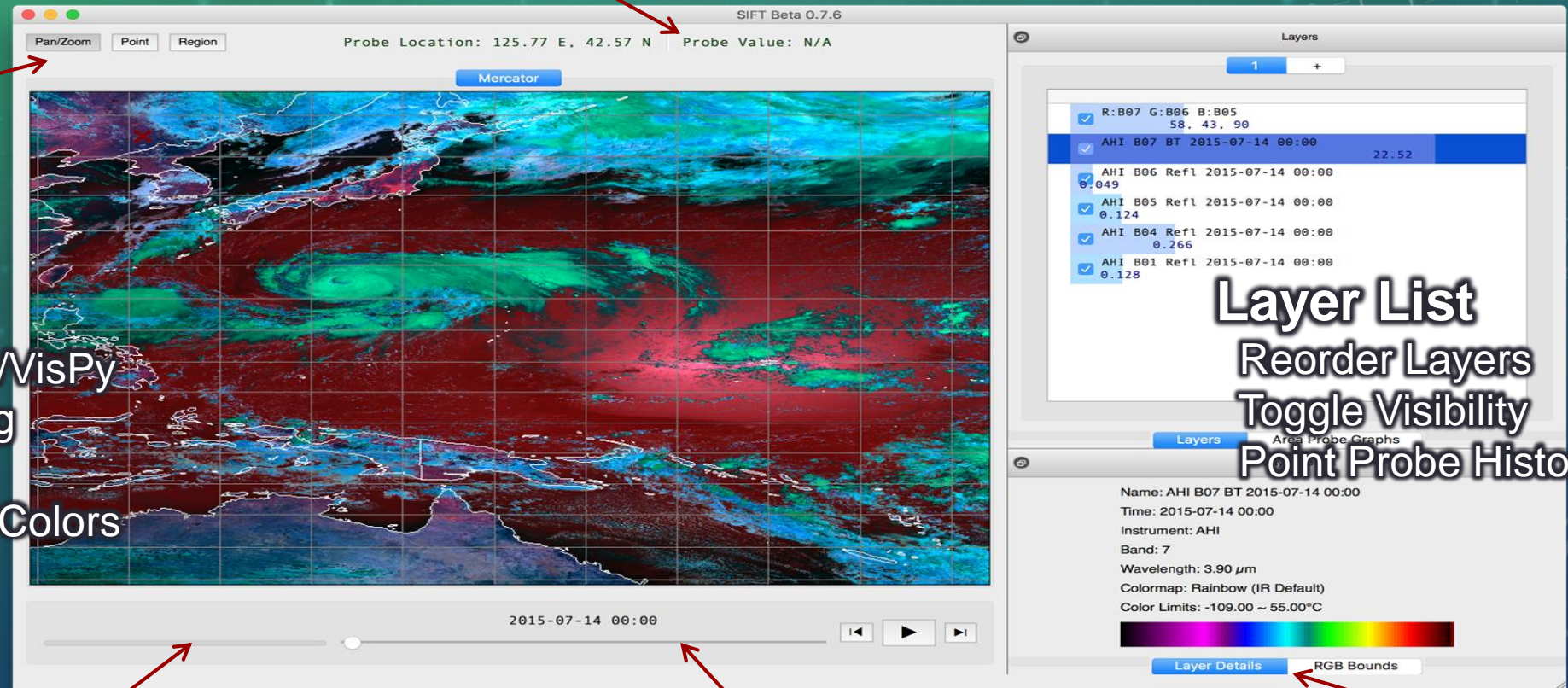
Point Probe Results

Tools

Pan/Zoom
Point Probe
Area Selector

Map Display

Powered by OpenGL/VisPy
Panning and Zooming
Dynamic Resolution
Configurable Outline Colors



Layer List

Reorder Layers
Toggle Visibility
Point Probe Histogram

Background Task Status

Animation Control

Step-through or Autoplay
Adjustable Speed Control

Layer Metadata

Band Information
Color Bar and Limits

NOTIFICATIONS, STATUS, AND CONTACTS

24/7 Help Desk	ESPCOperations@noaa.gov
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
GOES User Information and Documents	https://www.ospo.noaa.gov/Operations/GOES/documents.html
Direct Services	https://noaasis.noaa.gov/NOAASIS/
GRB User Group	james.mcnitt@noaa.gov