

CURRENT USES OF MCIDAS FOR GOES AT SSEC

Mat Gunshor
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CIMSS/SSEC GOES Team

2025 MUG Meeting
May 21, 2025

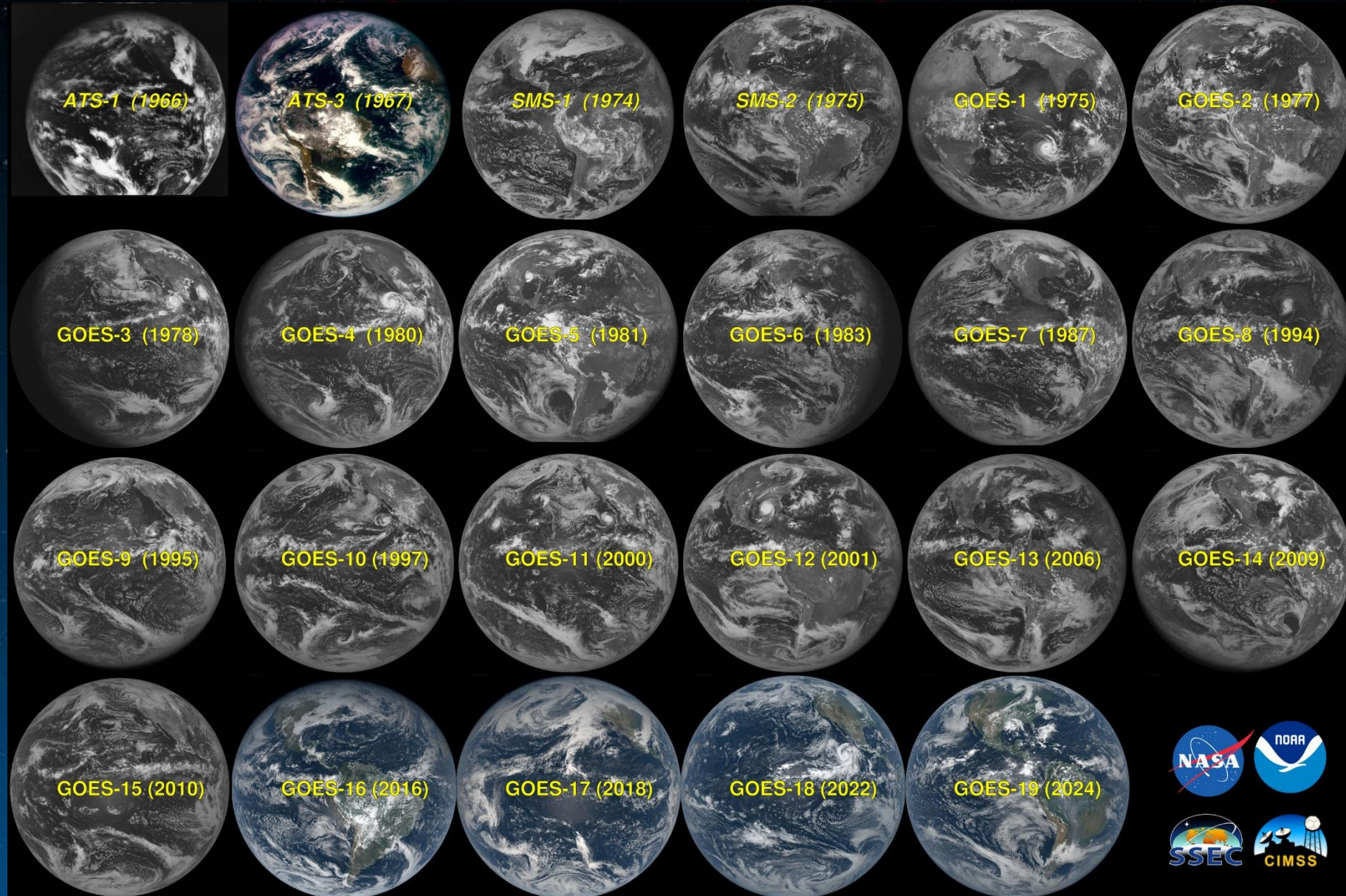
CIMSS / SSEC / UW-Madison

Special Mention

- Chris Schmidt
- Dave Stettner
- Rick Kohrs
- Scott Bachmeier
- Tim Olander

SSEC, CIMSS, & GOES History

- Explorer 7 launched:
 - 13 October 1959
 - Vern Suomi (UW)
- SSEC formed:
 - 20 August 1965
- ATS-1 launched:
 - 7 December 1966
- **McIDAS 1st Gen:**
 - **1973**
- GOES-A launched:
 - 16 October 1975
- CIMSS formed:
 - 1980



How we use McIDAS at CIMSS/SSEC for the GOES Program

- Pseudo-operational uses
 - Data quality monitoring
 - Tropical Cyclones
- Case Studies & Daily Workflow
 - Fire detection
- Training / Education / Webapps
- Outreach / CIMSS Satellite Blog

Data Quality Monitoring



GOES-R SERIES ACTIVITIES

[HOME](#)
[DATA & IMAGERY](#)

GOES ABI 16-Band Displays and Imagery:

- [16-band Displays](#)
 GOES-West and -East 16-band displays of static and time-difference imagery, for both Full Disk and CONUS sectors. During the checkout phase of GOES-18 and continuing until approximately 10Jan2023, there are also full-resolution loops of GOES-18 and GOES-17 band07 (3.9um) CONUS sector imagery available here for comparison purposes, centered off the California coast.
- [24-hour Loops \(00Z -> 00Z\) of 16-band Displays](#)
 GOES-West and -East 24-hour loops (00Z -> 00Z) of 16-band displays of static and time-difference imagery, for both Full Disk and CONUS sectors
- [Individual 16-band images of static and time-difference imagery](#)
[Most Recent Images](#)
 GOES-West and -East 16-band individual images of static and time-difference imagery, for both Full Disk and CONUS sectors

Resources

- [ABI Bands Quick Information Guides](#)
- [GOES-ABI Realtime Imagery Link of Links](#)

GOES ABI Statistics and Images:

- [GOES Statistics Displays \(all 16 ABI bands\)](#)
 GOES-West and -East displays of GOES statistics imagery (all 16 ABI bands), over a pre-defined region, for the Full Disk and CONUS sectors.
 Or try [the New Page for GOES Statistics Displays](#)
- [Imagery File Metadata Statistics Displays](#)
 GOES-West and -East displays of ABI metadata statistics timeseries plots (all 16 bands, all sectors), including comparisons between L1b and L2 CMIP files.
- [Individual images comprising the GOES Statistics Displays for a pre-defined region](#)
[Most Recent Images](#)
 GOES-West and -East individual images used to build the GOES Statistics Displays

GOES ABI-West and -East Combined:

- [SSEC Geo Browser](#)
 GOES-West and -East combined animations in a Mollweide projection, bands 10, 13 and 14, with user-selectable loop durations.
- [GOES-West/GOES-East for Band 10 \(7.3 um\) \(including limited fusion loops\)](#)
[Band 13 \(10.3 um\)](#)
[Band 14 \(11.2 um\)](#)
 GOES-West and -East combined 7-day animations, in a Mollweide projection.

GOES SUVI Images:

- [6-band Displays](#)
 GOES-West and -East SUVI (Solar UltraViolet Imager) 6-band imagery displays, showing the full solar disk in six different wavelengths daily at approximately 1200 UTC. Please also see [individual SUVI bands](#), as well as [select composite RGB imagery](#).

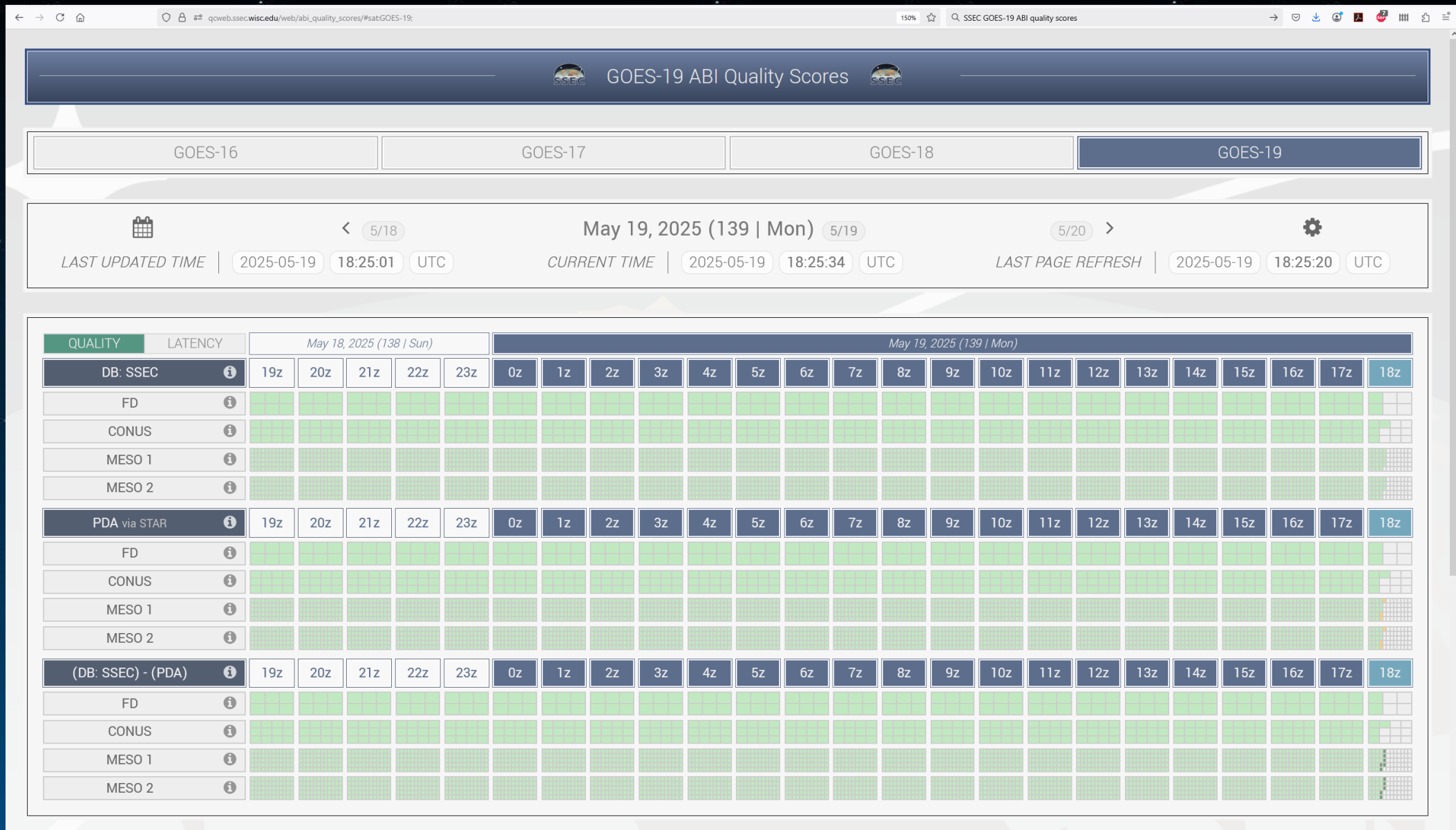


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[Last updated: 22-Aug-2018 by the CIMSS Webmaster](#)



Modeling • Instruments • Meteorology • Education

SSEC SDS ABI Ingest Monitor




Pseudo-operational Hazard Monitoring & Daily Workflow

- Tropical Cyclones
- Fire Detection

Tropical Cyclones

← → ↻ 🏠 tropic.ssec.wisc.edu cimss tropical cyclones → 📄 ⬇️ 🌐 📧 📧 📧 📧 📧 📧

CIMSS » CIMSS Tropical Cyclones Group



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Tropical Cyclones ...A Satellite Perspective


CIMSS TC Webpage Product Archive

DATA STATUS (as of 19 May 2025 / 18:50UTC) : All products are currently available.

[TC Image Gallery](#) [Who We Are](#) [Our Research](#) [Archive](#) [FAQ](#) [Links](#) [Contact Us](#) [SXML](#)

Current Time : 19 May 2025 / 18:51:08UTC

Storm Coverage (information)



Mouse over and click on individual storm symbol(s) for specific "TC-Track" storm coverage product window

Active Storm Product Summary Pages: [No Current Active Storms](#) [Archive](#)

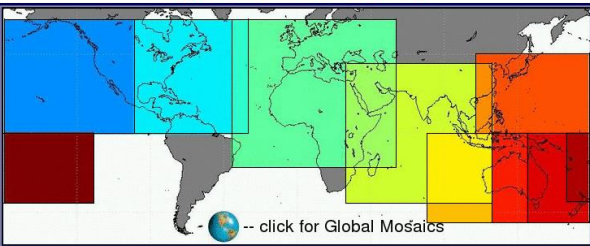
CIMSS TC Intensity, Structure, and Positioning Products "Quick Links"

Intensity: [ADT](#) [AIDT](#) [AIRI](#) [AMSU](#) [D-MINT](#) [D-PRINT](#) [SATCON](#)

Positioning/Structure: [ARCHER](#) [Meso-AMV](#) [M-PERC](#) [MIMIC-TC](#) [MIMIC-TPW](#) [SAL](#) [TC Diurnal Cycle](#)

Tropical Outlooks/Regional Websites: [Atlantic](#) [East Pacific](#) [West Pacific](#) [Indian Ocean](#) [Australia/Fiji](#)

Regional Real-Time Products




Mouse over specific ocean basin (colored regions) for menu of available products; click on desired products

-- click for Global Mosaics


Tropical Cyclone Image Gallery


VIIRS DNB overshooting top product of Hurricane Idalia from VIIRS-NPP on 30 August, 2023 at 8:09 UTC (courtesy NRL-Monterey and Jeff Hawkins, CIMSS)

We would like to acknowledge our research sponsors




NOAA
NESDIS





Naval Research Laboratory-Monterey, CA
Office of Naval Research



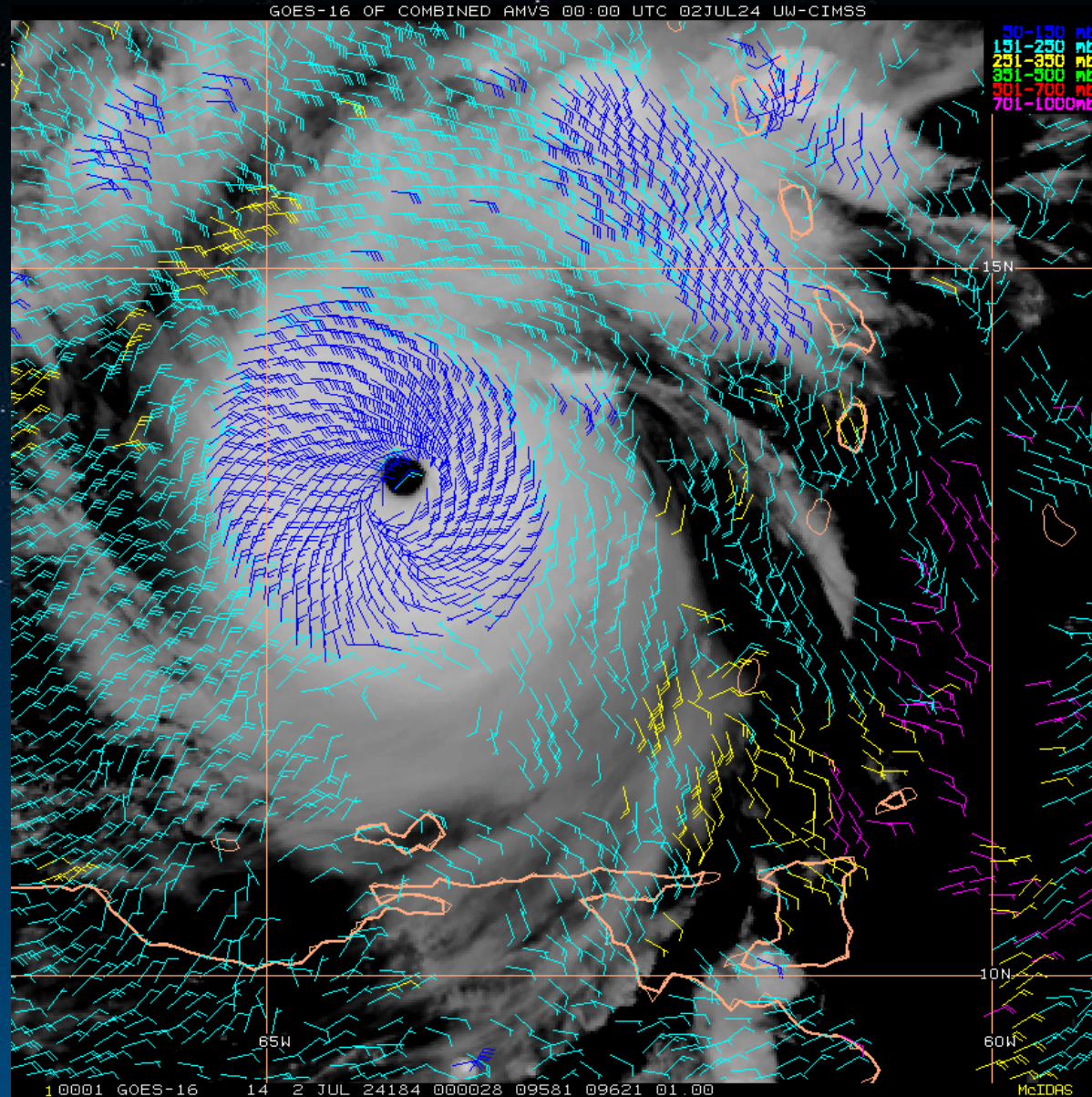
Disclaimer : The tropical cyclone information displayed here is based on the latest NOAA and JTWC reports received here at CIMSS, and may or may not be the most current forecast available from these official forecasting agencies. CIMSS provides this product for the general public's viewing, but is not responsible for its ultimate use in the forecasting of tropical cyclones and/or the use of public watches/warnings. Concerned customers should confirm these prognostications with official sources (see our links section).

Note : If any of the images provided here are to be displayed elsewhere (internet, publications, etc.), please reference CIMSS. Thank you.

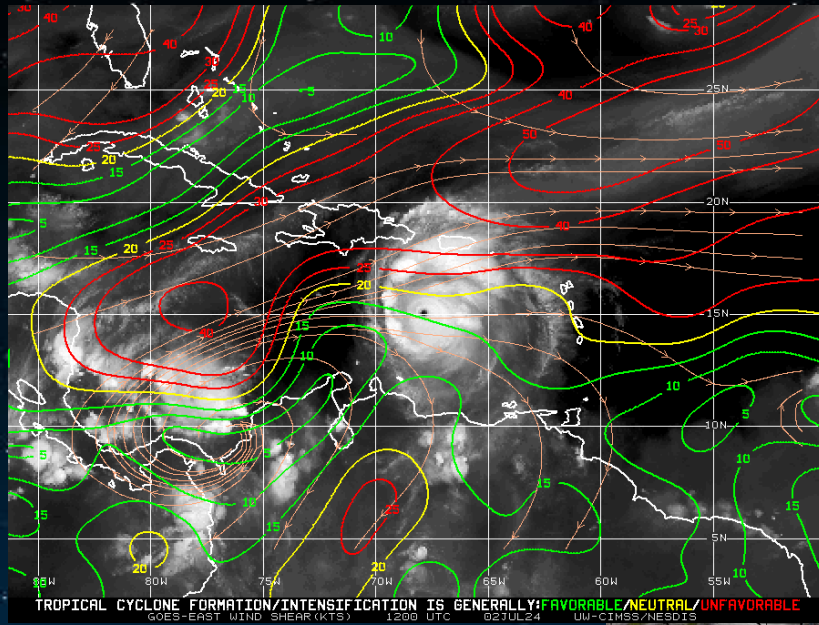
[Site Statistics](#) (password protected)

Hurricane Beryl July 2024

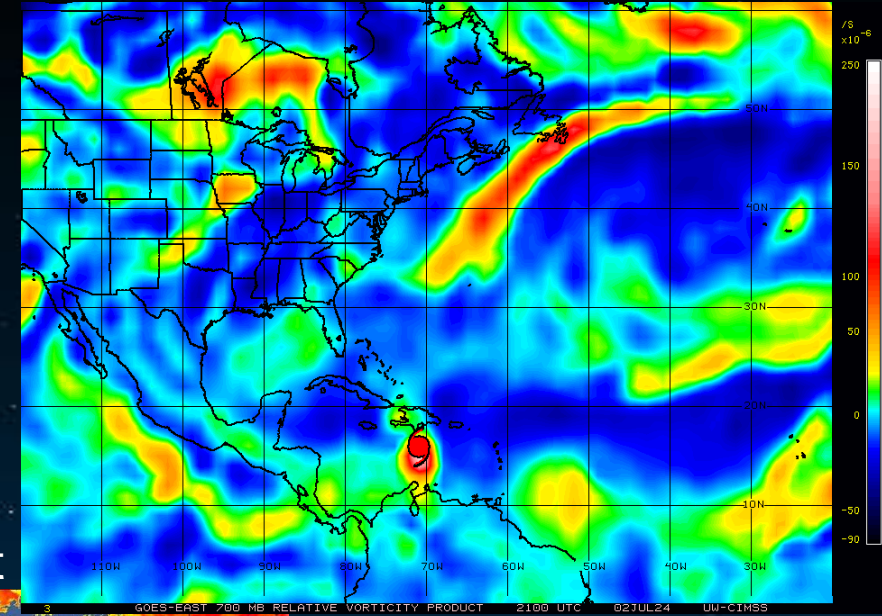
GOES-16 ABI mesoscale sector Atmospheric Wind Vectors (AMVs) produced every 15-minutes



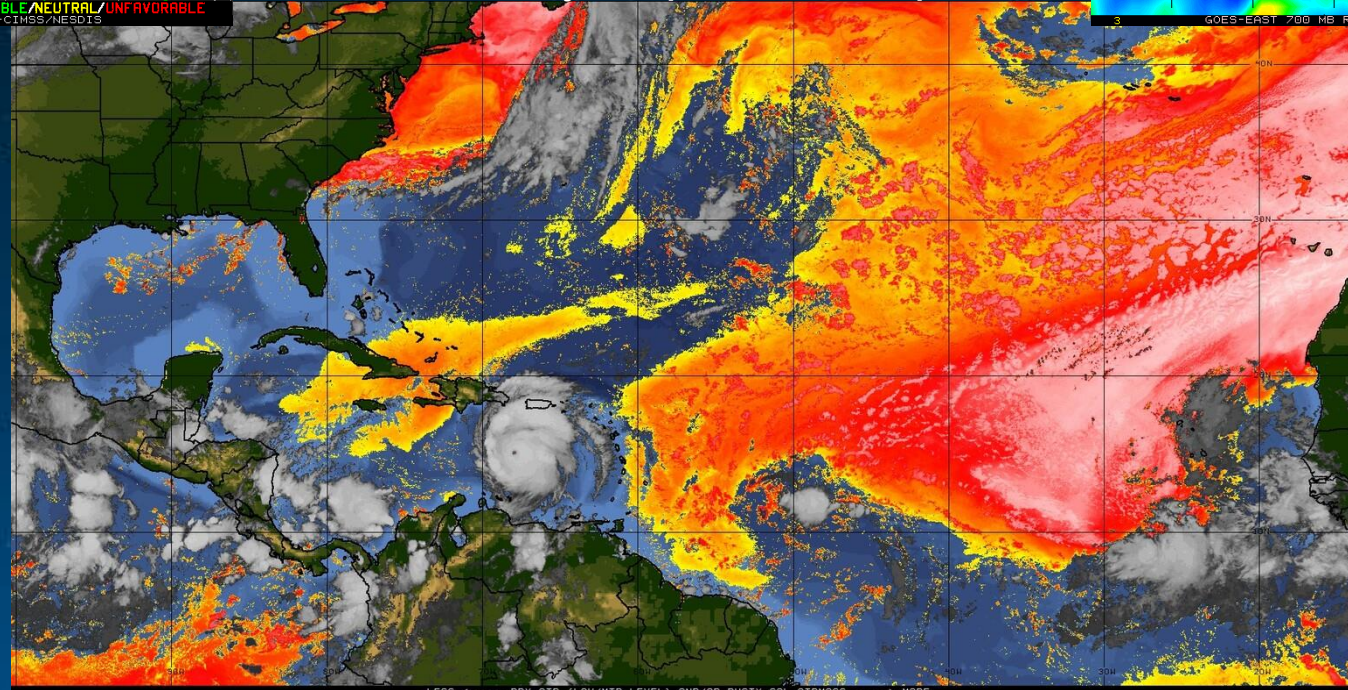
Hurricane Beryl July 2024



Relative Vorticity

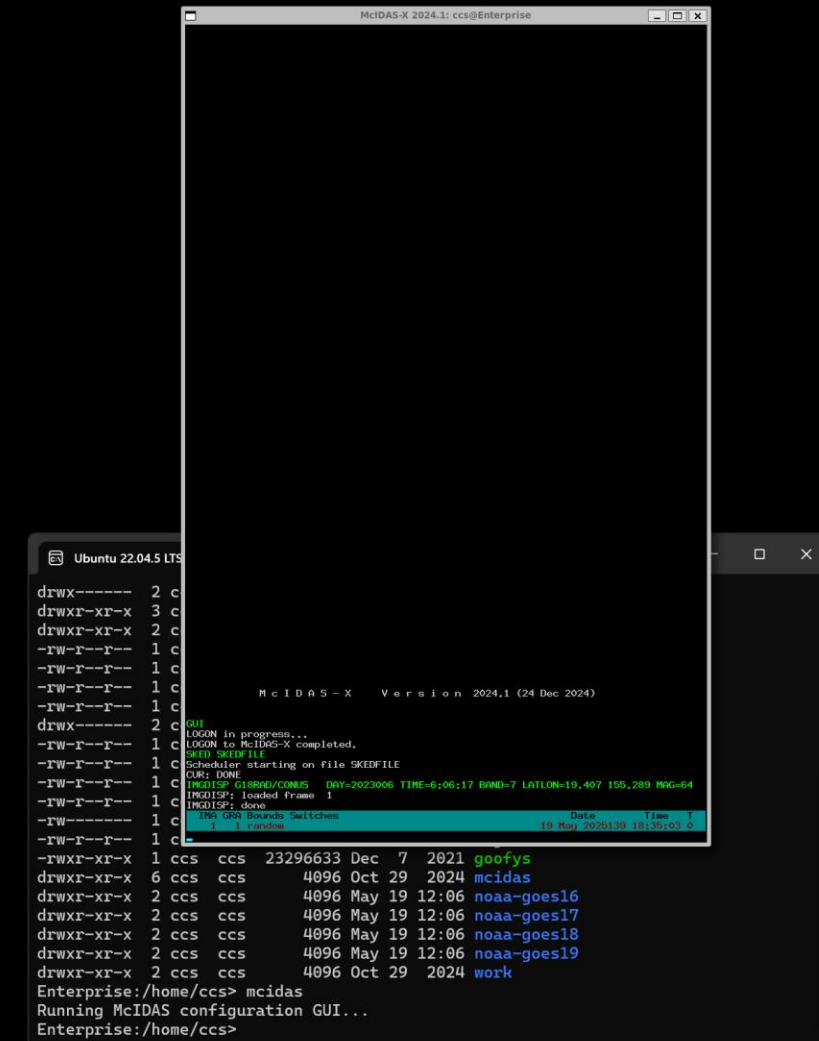
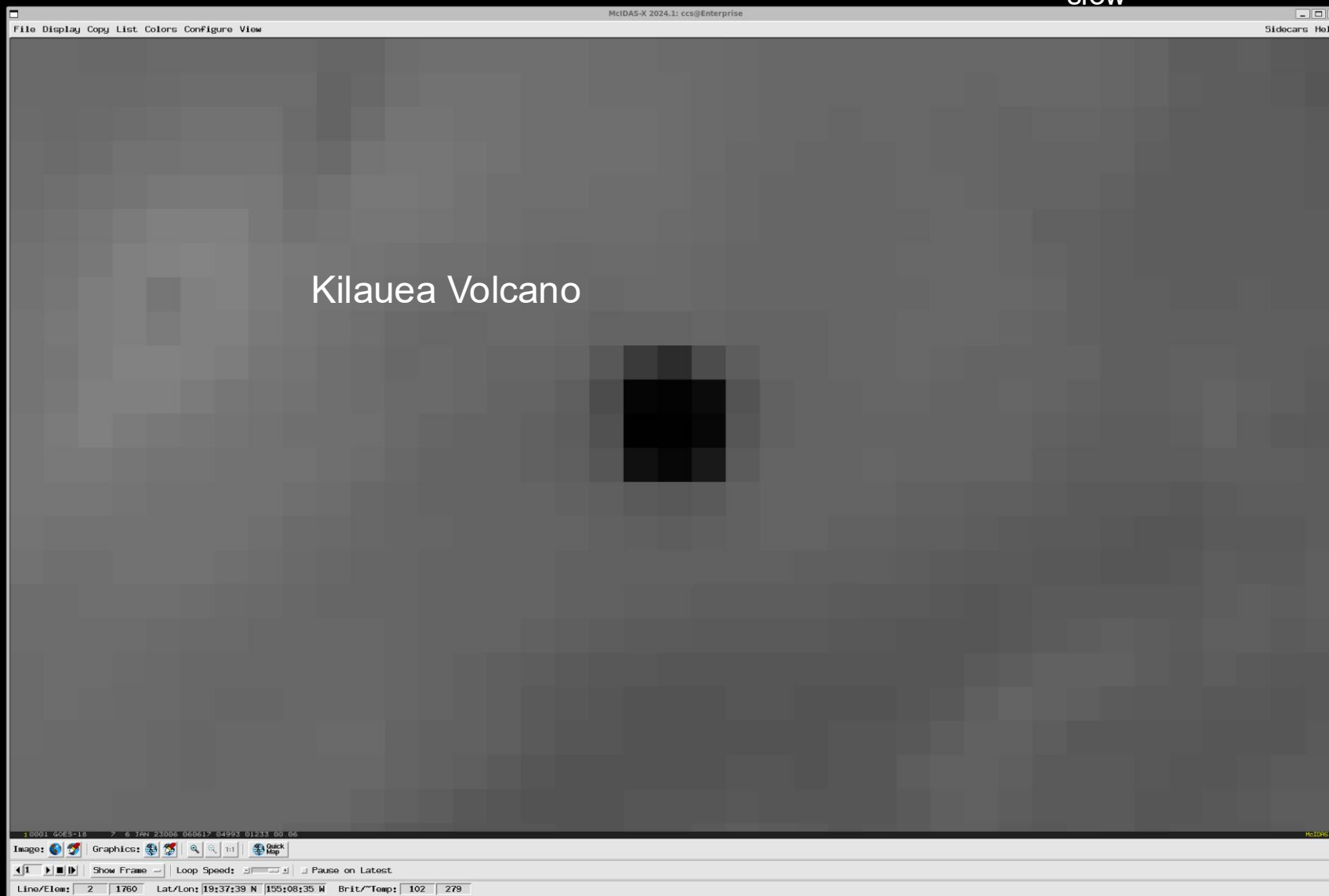


Saharan Air Layer split window product



McIDAS on Windows 11 with the AWS archive

- McIDAS is easy to use on Windows 10 and very easy on Windows 11 thanks to its X-Windows replacement
- AWS archive can be linked to local directories using a utility like “goofys”
- Once the local directory link is established, the datasets can be treated as an archive server
- At this point it can be treated like any archive dataset while pulling from AWS; performance is generally good though initial operations can be slow



Training / Education

- CIMSS Summer Workshop



- Weighting Function Page

- Web Apps

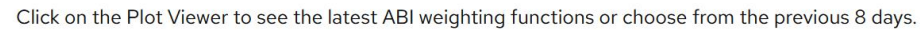
- RGB

← → ↺ 🏠 cimss.ssec.wisc.edu/goes-wf/ 133% ☆ 🔍 goes weighting functions → 📄 ⬇️ 🗑️ 📌 📁 📖 📑

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13

GOES-R WebApps



Outreach

- Web imagery interfaces
- CIMSS Satellite Blog
 - 241 posts in 2024 mentioning GOES
- Social Media (Facebook, X)
- Building Tours
 - Science on a Sphere imagery (realtime and static)

SSEC GeoBrowser

← → ↺ ⌂ www.ssec.wisc.edu/data/geo/#/animation ssec geobrowser

stop < > rock slow fast Pick Enhancement (1/1)

2025-May-19 16:06 UTC

SSEC
Geostationary
Satellite Imagery

Satellite / Product:
GOES-EAST

End date / time:
Latest

View (image / animation):
Single Image

Geographic Coverage:
Full Disk
Contiguous US
Mesoscale-1
Mesoscale-2

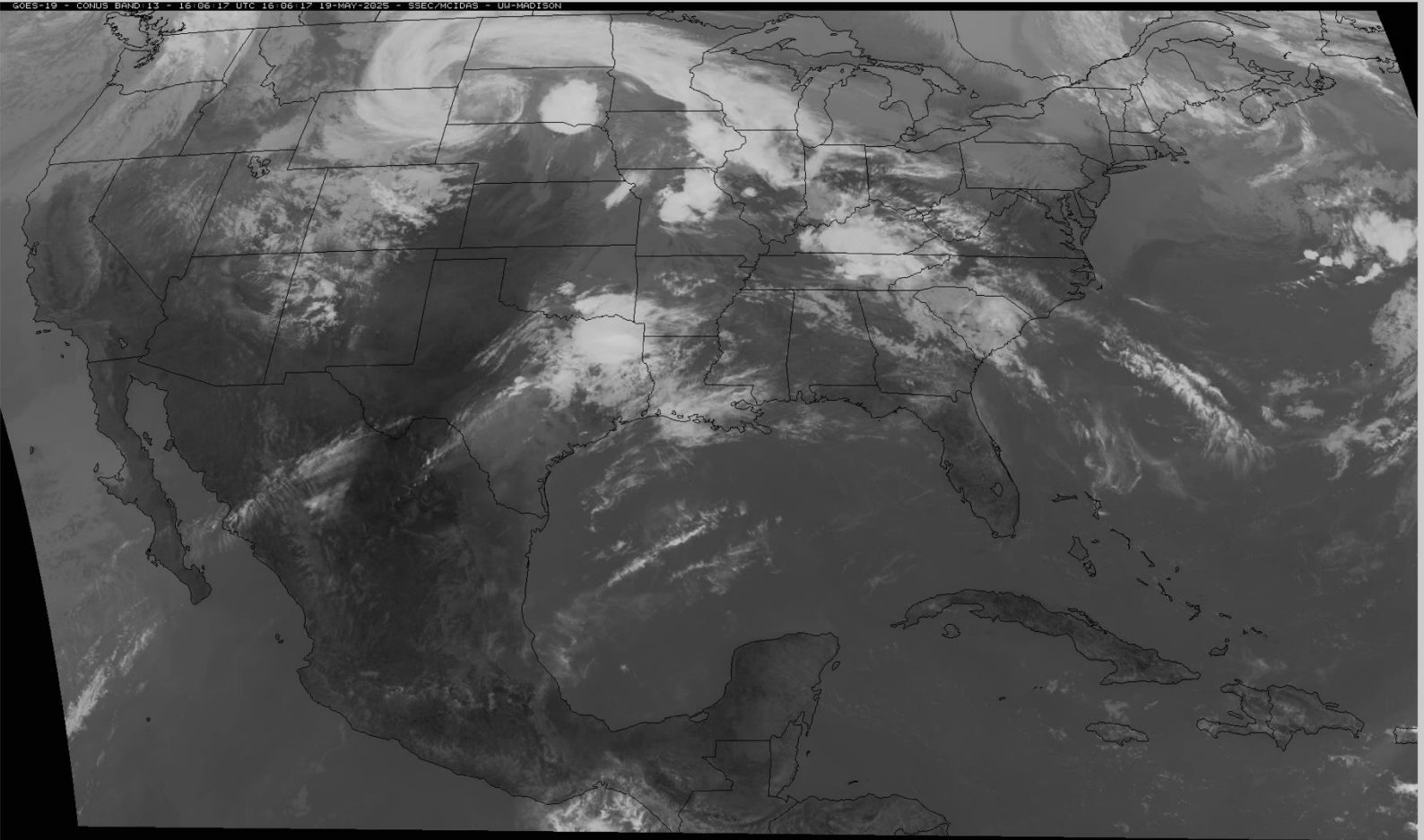
Channel:
13: IR - "Clean Longwave Window" (10.3 μ m)

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Animation

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GOES-19 - CONUS BAND 13 - 16:06:17 UTC 16:06:17 19-MAY-2025 - SSEC/MCIDRS - UM-MADISON



GOES-19 - CONUS BAND 13 - 16:06:17 UTC 16:06:17 19-MAY-2025 - SSEC/MCIDRS - UM-MADISON METORS

SSEC SDS Composites

← → ↻ 🏠 🔒 www.ssec.wisc.edu/data/composites 🔍 ssec sds composites

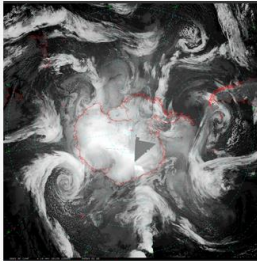
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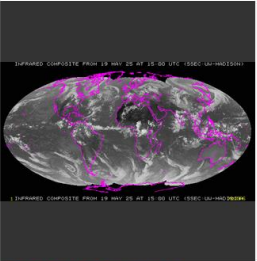
RESEARCH IMPACTS DATA/IMAGERY SOFTWARE NEWS EDUCATION ABOUT

Satellite Composite Images

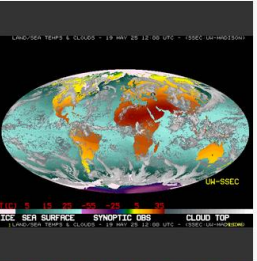
The following are some of the satellite composite imagery SSEC produces through the efforts of SSEC's [Satellite Data Services](#) and [McIDAS](#).




[Antarctic Composite](#)




[Global Satellite Composites](#)




[Global Satellite & Surface Temperature Montage](#)




[High Noon From Geostationary Orbit](#)



[Real-Time U.S. Composite Satellite Image](#)



[Rotating Globe Movie](#)

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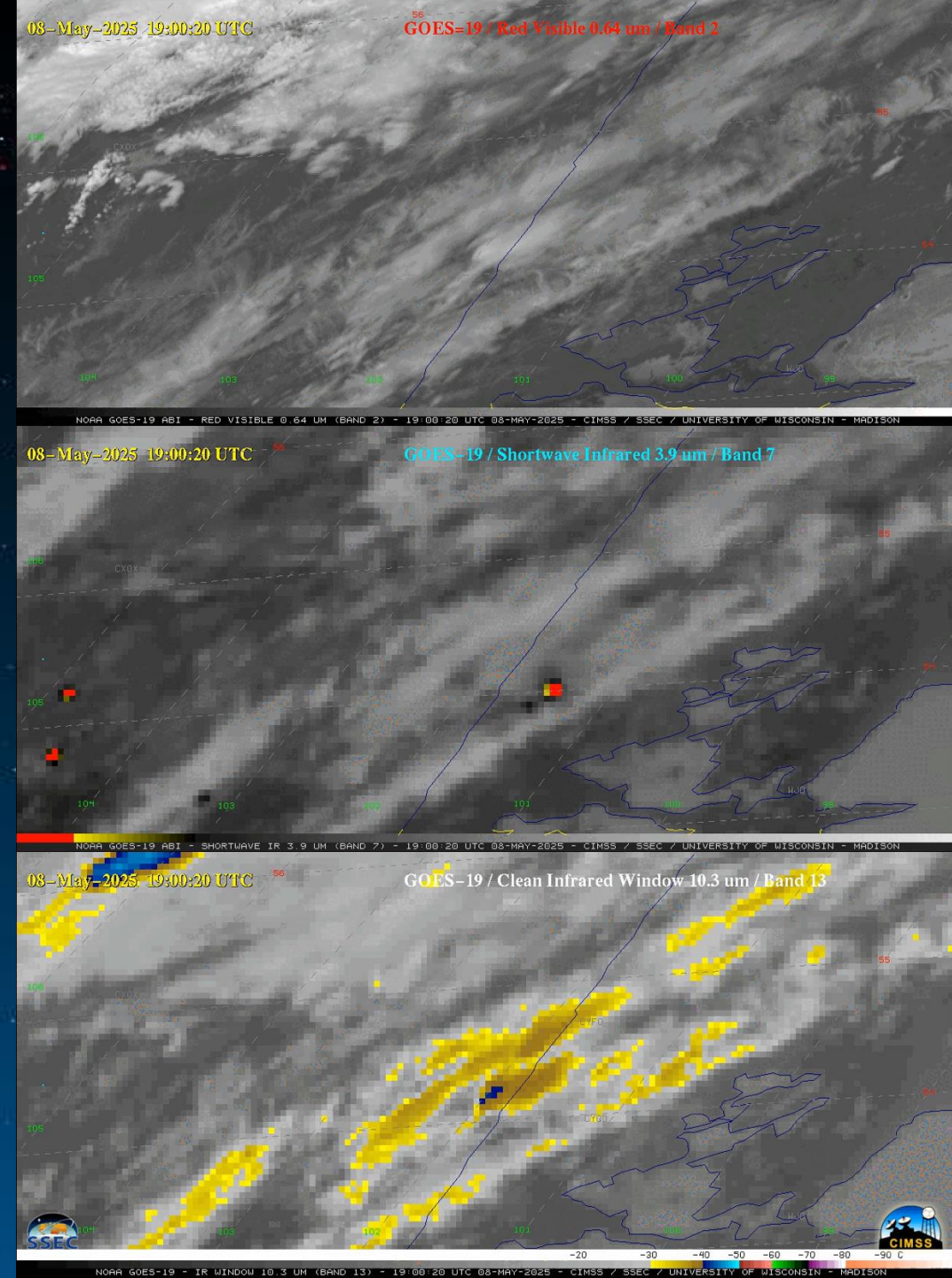
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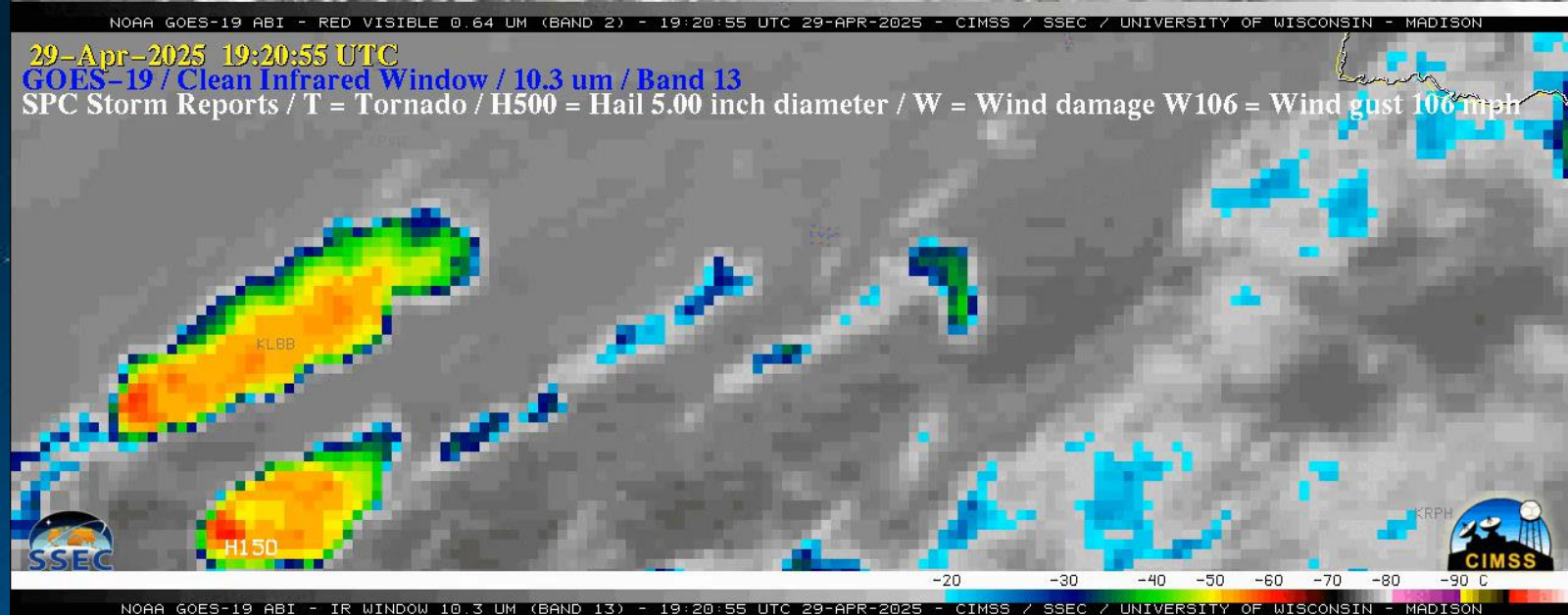
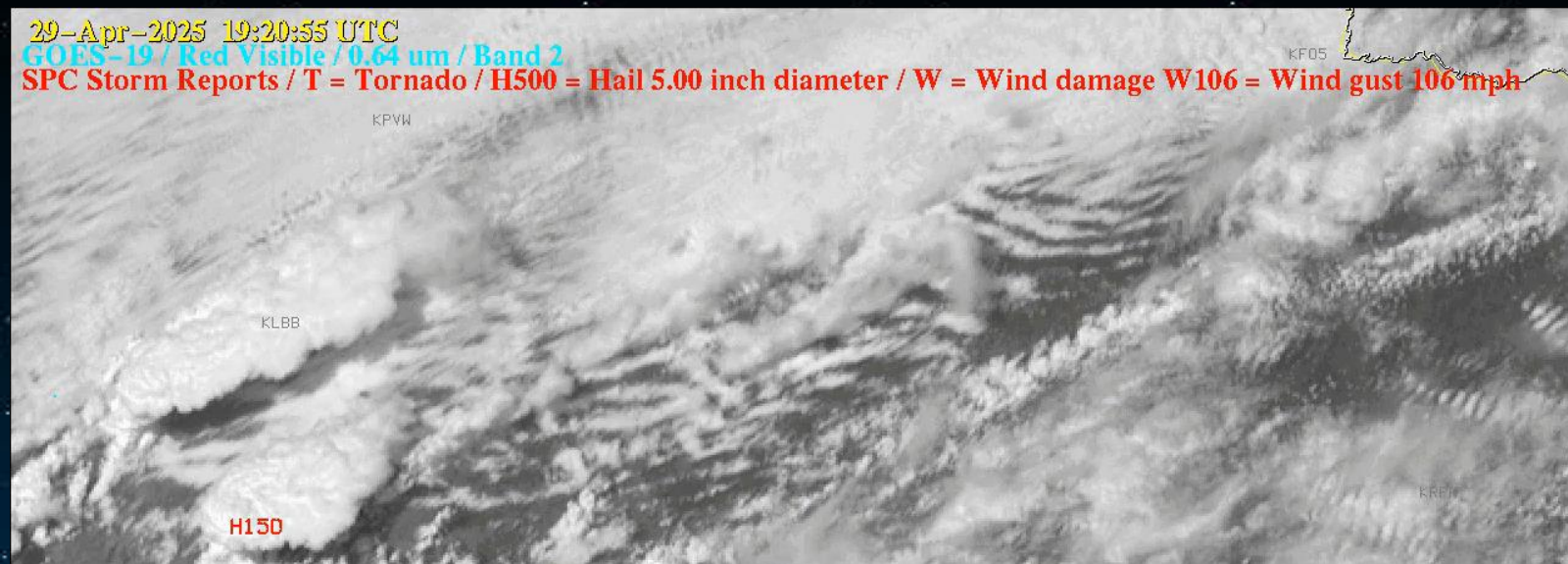
Wildfire in Saskatchewan produces a pyrocumulonimbus cloud

<https://cimss.ssec.wisc.edu/satellite-blog/archives/64719>

10-minute Full Disk scan GOES-19 (GOES-East) “Red” Visible ($0.64\ \mu\text{m}$), Shortwave Infrared ($3.9\ \mu\text{m}$) and “Clean” Infrared Window ($10.3\ \mu\text{m}$) images (above) showed that a wildfire in central Saskatchewan produced a pyrocumulonimbus (pyroCb) cloud on 08 May 2025 (this was the first documented pyroCb of the 2025 North America wildfire season). The pyroCb exhibited cloud-top $10.3\ \mu\text{m}$ infrared brightness temperatures (IRBTs) in the -40s C (denoted by shades of blue to cyan), a necessary condition to be classified as a pyroCb.



Giant hail and damaging winds in Texas

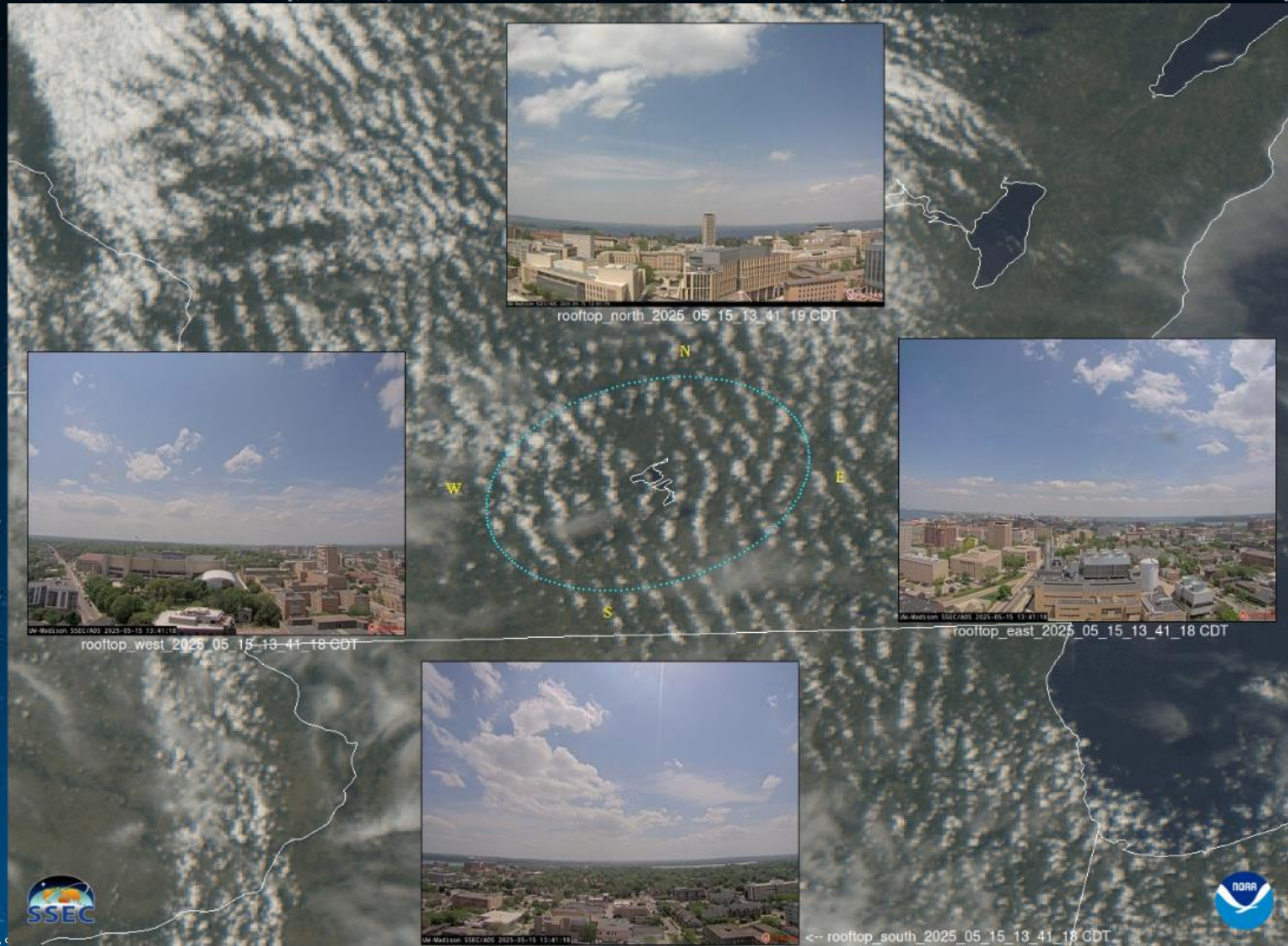


<https://cimss.ssec.wisc.edu/satellite-blog/archives/64465>

1-minute Mesoscale Domain Sector GOES-19 (GOES-East) “Red” Vis (0.64 μm) and “Clean” IR Window (10.3 μm) images (above) showed thunderstorms that produced giant hail (as large as 5.00 inches in diameter) and damaging wind gusts (as high as 106 mph) across the Texas Panhandle and N. Texas (SPC Storm Reports) on 29 April 2025. The IR images revealed pulses of thunderstorm overshooting tops that exhibited 10.3 μm brightness temperatures as cold as -78°C (brighter white pixels embedded within dark black regions) — and the signature of an Above-Anvil Cirrus Plume was evident in Visible imagery (although the warmer AACCP signature was less distinct in the lower-resolution Infrared images).

AOSS Rooftop Cameras + GOES

- https://cimss.ssec.wisc.edu/goes/rtc_goes_east

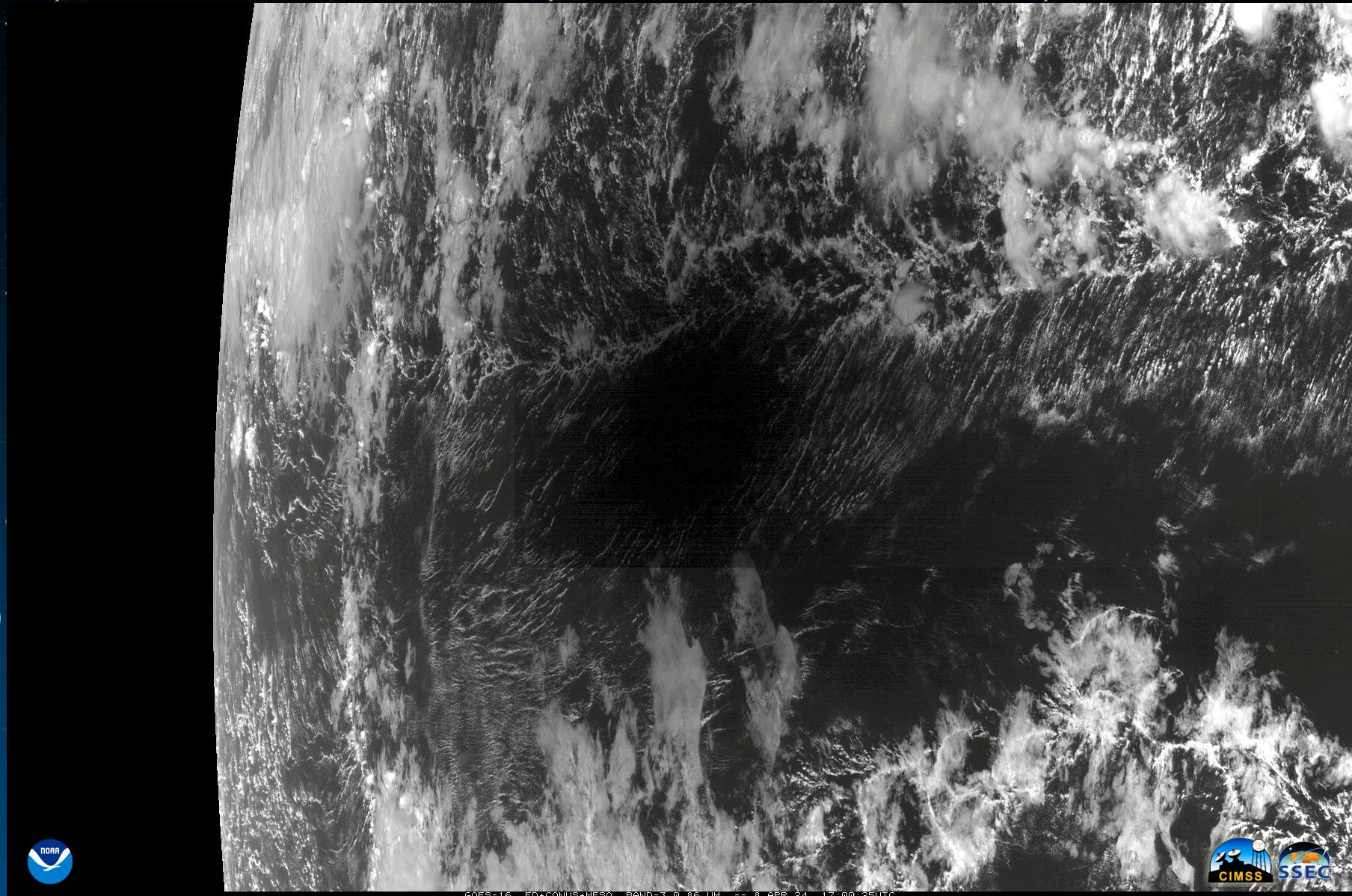


April 8, 2024 Total Solar Eclipse Animation

ABI mesoscales called to track predicted shadow path.
(Research Request)

McIDAS-X used to generate MESO (1-minute), CONUS (5-minute), and Full Disk (10-minute) images.

GOES-16 (GOES-East)



GOES-19
2025



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@UWCIMSS

Happy #EarthDay 2025! This @NOAASatellites GOES-19 image from noon today is your annual reminder that you live on a beautiful planet! These satellites provide more than stunning images and are essential for predicting dangerous weather.

EARTH DAY 2025




4:34 PM · Apr 22, 2025 · 866 Views

View post engagements

 5  4  15  

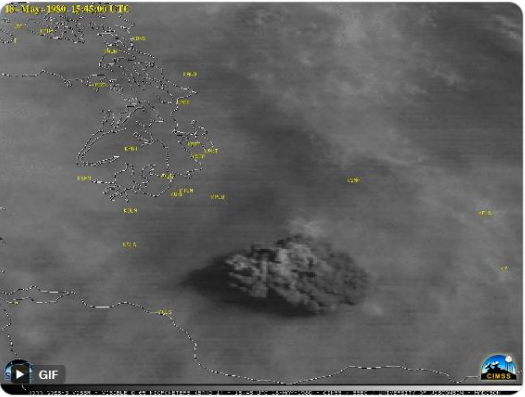
 Post your reply

Reply








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OTD 45 years ago, #MountStHelens erupted - additional imagery is available on the CIMSS Satellite Blog: cimss.ssec.wisc.edu/satellite-blog



2:03 PM · May 18, 2025 · 1,079 Views

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 1  12  23  

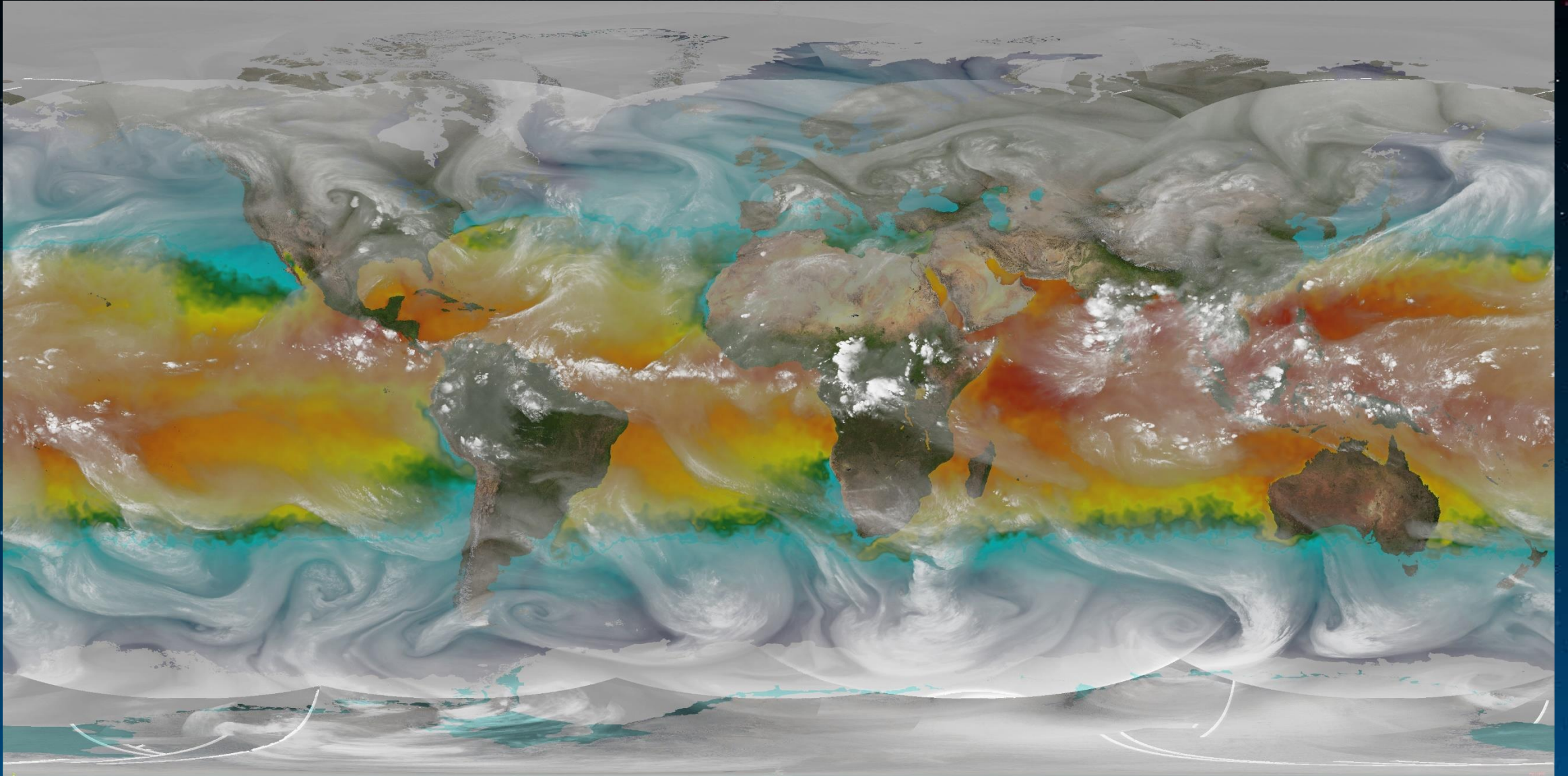
 Post your reply

Reply

GOES-3
1980



Science on a Sphere (SoS)



Water Vapor + SST composite hourly, shared with SoS Community

<https://bin.ssec.wisc.edu/pub/earthnow/noaa-sos-water-vapor-sst>