



Deployment of New Satellite Products in AWIPS via TOWR-S RPM Version 20 (Nov 2020)

*Satellite Book Club presentation
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- What's in a TOWR-S RPM?
- Overview of TOWR-S RPM Version 20
- RPM Installation Overview
- Post-Installation Steps



What is a TOWR-S RPM?

- *TOWR-S = Total Operational Weather Readiness - Satellites (a team supporting the NWS Office of Observations)*
- *RPM = RPM (or: Redhat) Package Manager, a way to bundle files for deployment on Linux systems*
- TOWR-S RPMs increase AWIPS' agility
 - Streamline deployment of new capabilities ahead of AWIPS baseline releases
 - Mature configurations are targeted for the AWIPS baseline
- TOWR-S RPM content is based upon inputs from the user community -- e.g.,
 - Satellite product evaluations (e.g. OT&E; Winter campaign)
 - Satellite Book Club seminars
- TOWR-S RPMs undergo end-to-end live testing. Speaking of which...

Many thanks to RPM v20 testers at OPGA and the following sites:

- *Southern Region:* ABQ, MOB, TUL, EHU
- *Eastern Region:* CAE, CHS, LWX, PBZ
- *Western Region:* MFR, MTR, SLC
- *Central Region:* DLH, GRR, IND, LOT, MQT, BCQ

RPM updates are also made possible with the help of Regional focal points, APO, NCF, and OPPSD staff



Contents of a TOWR-S RPM

- New or modified configuration files:
 - EDEX configurations to route incoming products to specific plugins
 - CAVE configurations: modified menus, bundles, attributes, colormaps, or style rules
 - Plugin configurations to handle new data products
 - File types: *.xml, *.svg (vector graphics), *.py (derived parameters), *.cmap (color maps), *.txt (text files -- svg lookups, etc.)
- Installing a TOWR-S RPM adds or changes files only at the AWIPS site level. These override the baseline, but do not interfere with, or alter baseline AWIPS configs or code.
 - Files installed from the RPM populate only site-level sub-directories
 - Files installed from the RPM override their namesakes in the AWIPS baseline
- TOWR-S RPM updates are cumulative -- e.g., v20 includes content from v19
 - Installing an RPM also removes content that is outdated or has migrated to the AWIPS baseline



Changes bundled in TOWR-S RPM v20

- **Updated/Consolidated Satellite Menus** with By-Sector (vs By-Product) precedence for GOES
- Support for **GLM Full Disk tiles**: Flash Extent Density, Min Flash Area, Total Optical Energy
- Support for Conus/PACUS CIMSS GOES **Turbulence Probability**
- Support for Full Disk **GOES Cryosphere Products** (Ice Thickness, Ice Concentration, Ice Motion)
- Combined GOES Conus/PACUS **Derived Motion Winds** with All Pressures/Channels buttons
- GOES Fog & Low Stratus **“Fog Depth”** renamed to **“Cloud Thickness”** with units of **feet** (was meters)
- Support for **SCATSAT Sea Surface wind vectors**
- Support for S-NPP and NOAA-20 **VIIRS Active Fires** product
- Improved **Gridded NUCAPS** profile menu configurations
- Updates **Jason-3 Wave height** configurations to support new product formatting implemented Oct ‘20
- Support for **GCOM AMSR-2 (Microwave)** Ocean Surface wind speed and 36.5/89.5 GHz Imagery
- Support for NOAA-20 **ATMS MiRS** products (TPW, RR, Sice,SFR, CLW, SWE, Snow, Skin Temp)
- Adds 25-33 kt Wind legend for **ASCAT wind vectors**
- **Removes several legacy menu items** (e.g., GOES Volcanic Ash, Legacy multi-sat imagery composites)
- ... Plus everything that was in RPM v19 (Aug. 2020) -- e.g., GOES-East Fog and Low Stratus

TOWR-S RPM v20 will be Available on November 20



Satellite Menu Updates

Sat menu Updates:

Sector is now First

Imagery Combos

Local Menu Items

1) **GOES-East and GOES-West By Sector**

2) **Imagery Combos**

3) **Local Menu Items**

Satellite	
GOES-East and GOES-West By Sector	
----- Conus GOES-East/GOES-West Combos -----	
Visible (0.64 μm)	10.1336
Shortwave Window IR (3.90 μm)	10.1346
Mid-level Water Vapor (6.93 μm)	10.1341
Clean Window IR (10.33 μm)	10.1346
Legacy Window IR (11.21 μm)	10.1341
VIS/IR Sandwich (0.64 μm , 10.33 μm)	10.1311
Split Window (10.3-12.3 μm)	10.1346
Night Fog (10.3-3.9 μm)	10.1346
4 panel CONUS Only	10.1345
----- Full Disk GLM -----	
GOES-East 5min GLM Flash Extent Density	10.1326
GOES-West 5min GLM Flash Extent Density	10.1326
Local Menu Items	

GOES-15 Imagery (Legacy)	
S-NPP and NOAA-20	
Polar Derived Products Imagery	
Derived Products Plots	
OCONUS Imagery	
Global 5 Sat Composites	

GOES-East and G...	
----- By Sector -----	
East Conus	
East Full Disk	
East Mesoscale 1	
East Mesoscale 2	
West Conus	
West Full Disk	
West Mesoscale 1	
West Mesoscale 2	
Alaska	
Hawaii	
Puerto Rico	

East Conus	
Imagery Channels	
Derived Products	
Channel Differences	
RGB Composites	
GLM Products	
Derived Motion Winds	
Vertical Temp/Moisture Profiles	10.1251

Local Menu Items	
----- Conus GOES-East/GOES-West Combos -----	
Day Fog (3.9-10.3 μm)	10.1346
Split Cloud Top Phase (11.2-8.4 μm)	10.1346
GOES Total Precip Water	10.1306

Conus GOES-East IFR Fog Probability	10.1306

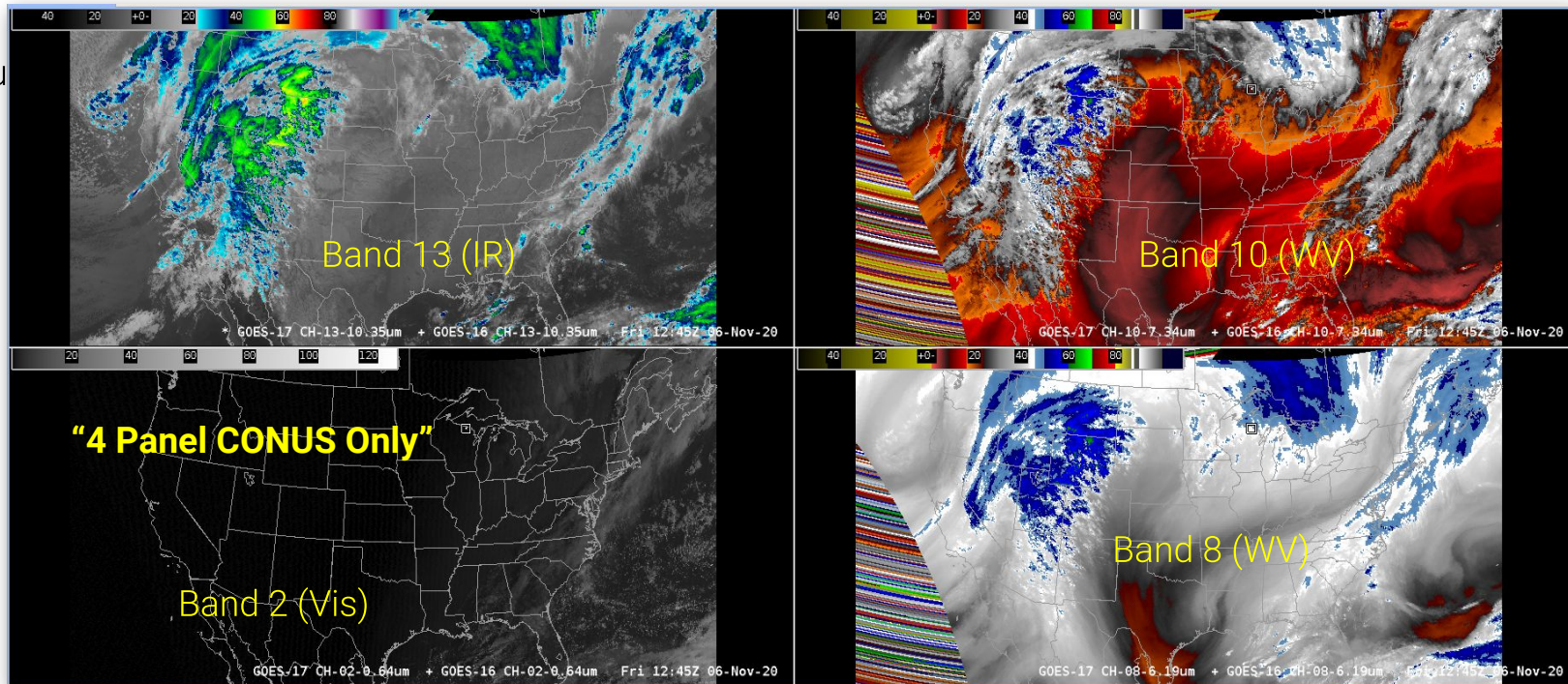
Thanks, Frank Alsheimer (CAE), Steve Sigler (MSO), many others



Conus/Pacus Imagery Combinations (4-panel)

Sat menu

4-panel
Imagery
Combo



Default for Imagery Combos is for GOES-East to Overlay GOES-West as shown above

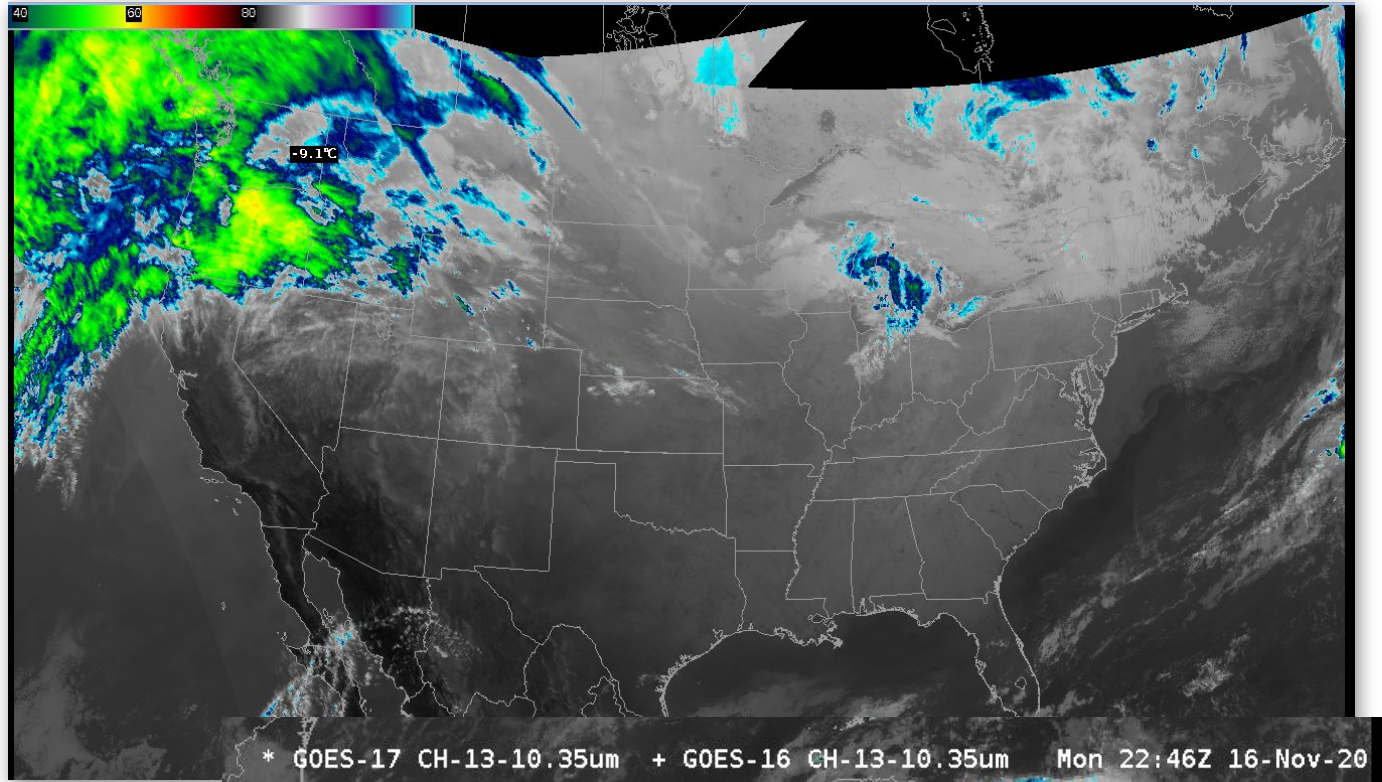
[How to change Conus Imagery combos so that GOES-West overlays GOES-East \(also on VLab\)](#)



Conus/Pacus Imagery Combos (10.3 um)

Sat menu

Clean Window
IR



Default for Imagery Combos is for GOES-East to Overlay GOES-West as shown above

[How to change Conus Imagery combos so that GOES-West overlays GOES-East \(also on VLab\)](#)



Full Disk GLM Menus

Available
on regional
LDM

Will replace
Conus /
Pacus GLM,
w/ overlap
~1 month

The screenshot displays the 'Full Disk GLM Menus' interface. It features a map of the United States in the background. Several menu panels are open:

- Satellite** (top left):
 - GOES-East and GOES-West By Sector (highlighted in green)
 - Conus GOES-East/GOES-West Combos -----
 - Visible (0.64 μm) 16.2241
 - Shortwave Window IR (3.90 μm) 16.2246
 - Mid-level Water Vapor (6.93 μm) 16.2246
 - Clean Window IR (10.33 μm) 16.2246
 - Legacy Window IR (11.21 μm) 16.2246
 - VIS/IR Sandwich (0.64 μm , 10.33 μm) 16.2201
 - Split Window (10.3-12.3 μm) 16.2246
 - Night Fog (10.3-3.9 μm) 16.2246
 - 4 panel CONUS Only 16.2245
 - Full Disk GLM -----
 - GOES-East 5min GLM Flash Extent Density 16.2245
 - GOES-West 5min GLM Flash Extent Density 16.2244
 - Local Menu Items
 -
 - GOES-15 Imagery (Legacy)
 - S-NPP and NOAA-20
 - Polar Derived Products Imagery
 - Derived Products Plots
 - OCONUS Imagery
 - Global 5 Sat Composites
- GOES-East and G...** (top center):
 - By Sector -----
 - East Conus
 - East Full Disk (highlighted in green)
 - East Mesoscale 1
 - East Mesoscale 2
 - West Conus
 - West Full Disk (highlighted in blue)
 - West Mesoscale 1
 - West Mesoscale 2
 - Alaska
 - Hawaii
 - Puerto Rico
- East Full Disk** (top right):
 - Imagery Channels
 - Derived Products
 - Channel Differences
 - RGB Composites
 - GLM Products (highlighted in green)
 - Derived Motion Winds
 - Ice Products (Eval)
 - Vertical Temp/Moisture Profiles
- GLM Products** (bottom right):

GLM Products	
1min GLM Flash Extent Density	16.2245
1min GLM Minimum Flash Area	16.2245
1min GLM Total Optical Energy	16.2245

5min GLM Flash Extent Density	16.2245
5min GLM Minimum Flash Area	16.2245
5min GLM Total Optical Energy	16.2245

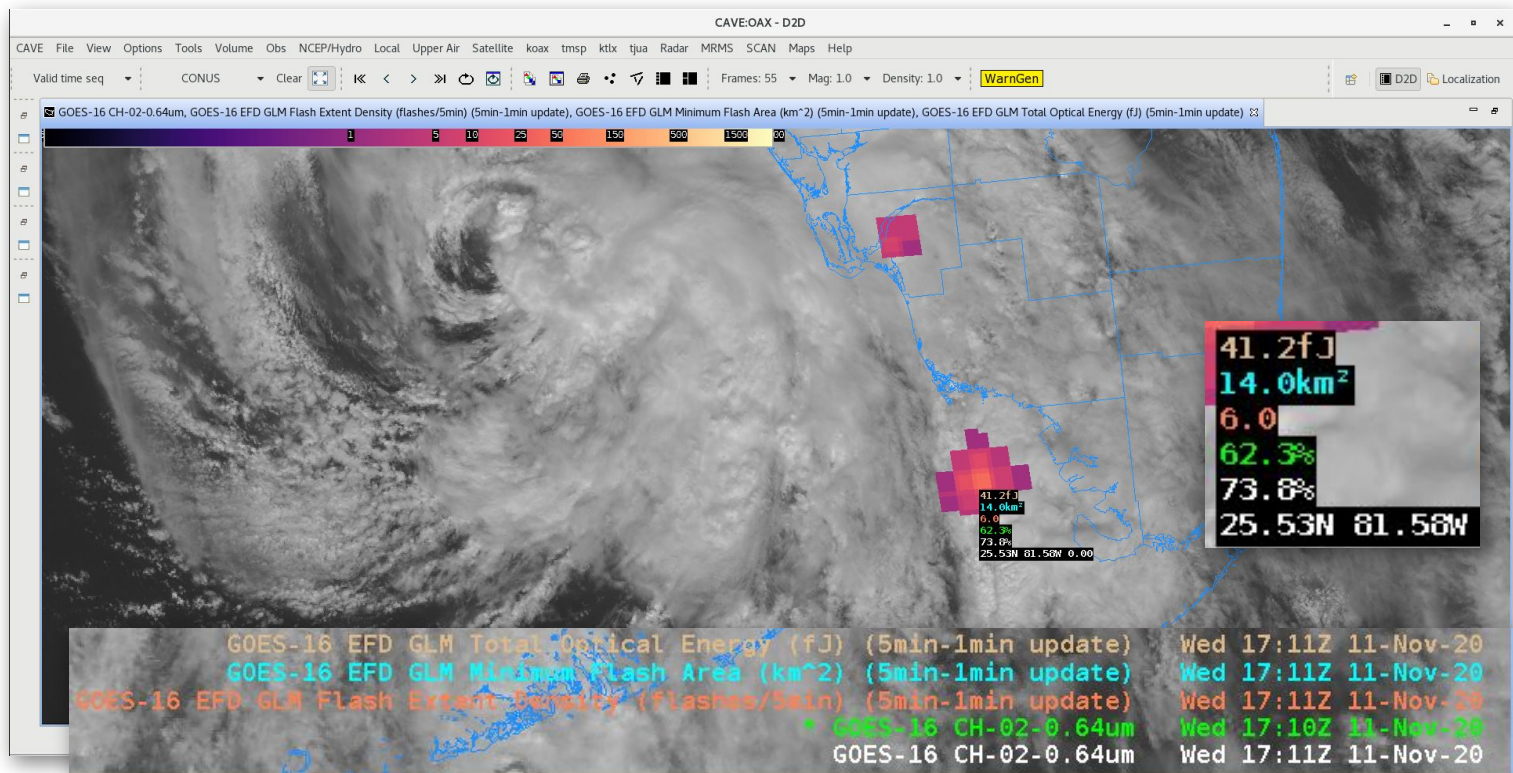
Yellow annotations: '1)' is placed near the 'East Full Disk' menu, and '2)' is placed near the 'GOES-15 Imagery (Legacy)' menu item.



Links: [GLM Quick Guide](#). Recent SBCs Presentations by [S. Cobb/J. Patton](#), and [Jason Jordan](#)

Available
on regional
LDM

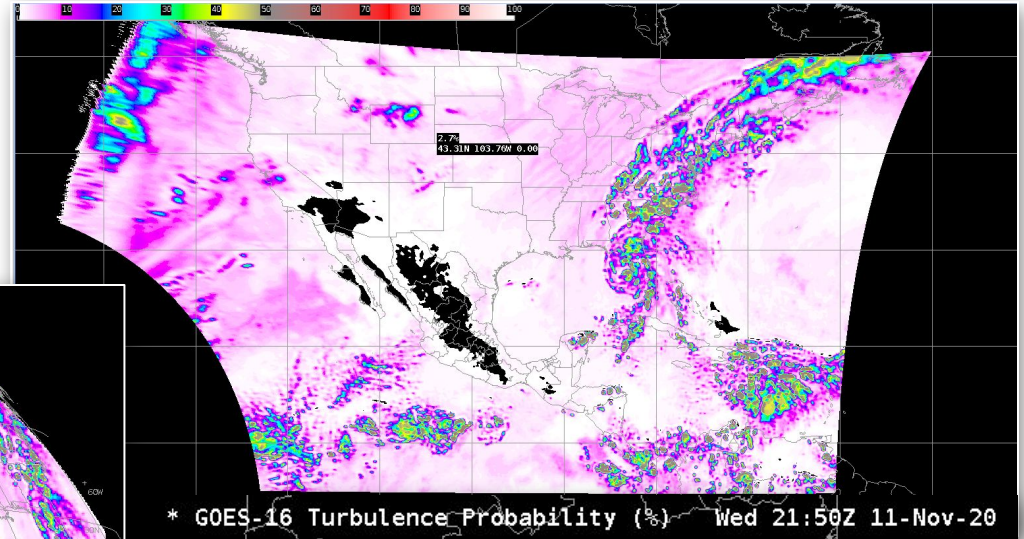
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CIMSS GOES Turbulence Probability

Available on regional LDM



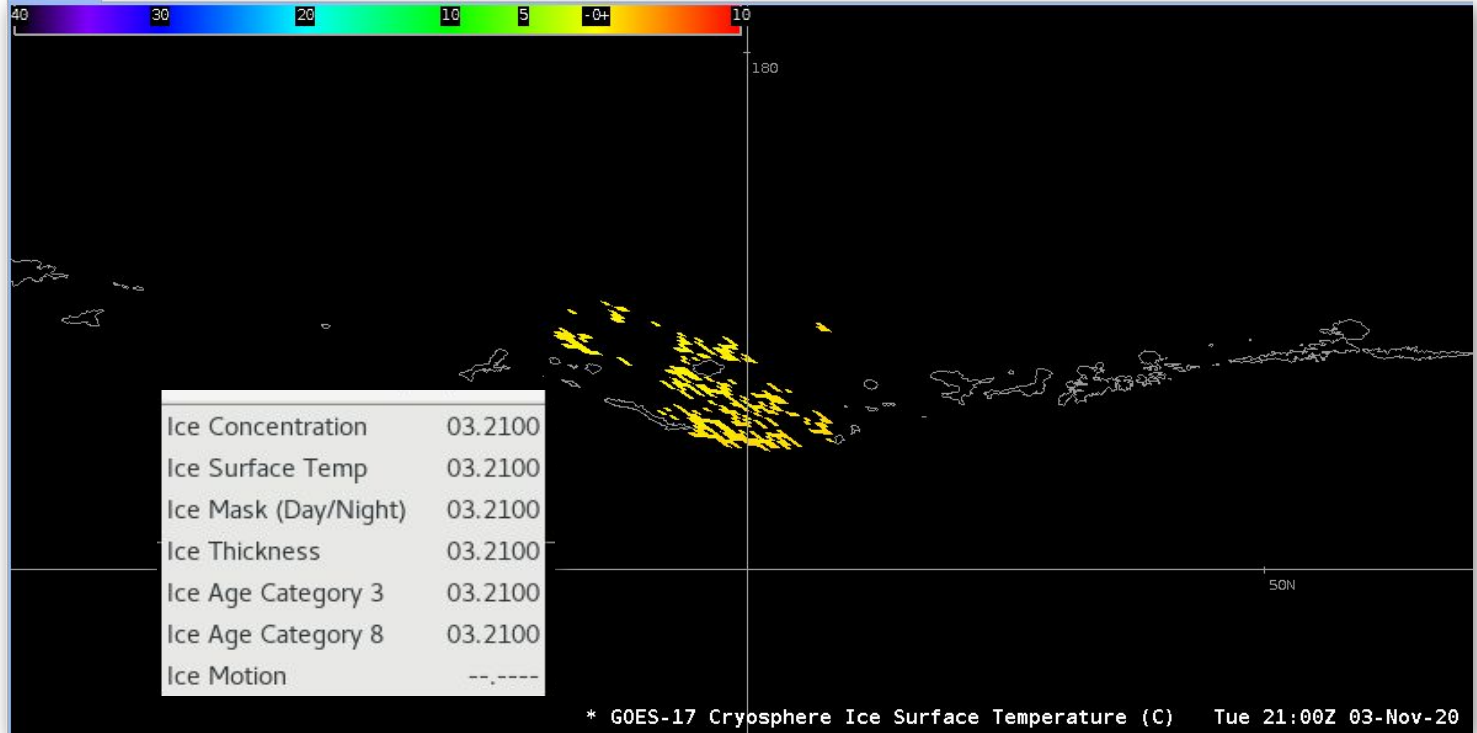
Subset of CIMSS Full Disk Product
for Conus and PACUS



GOES-17 Turbulence Probability (%) Wed 21:50Z 11-Nov-20

GOES Ice Products for Winter Evaluation (1)

Available
on regional
LDM

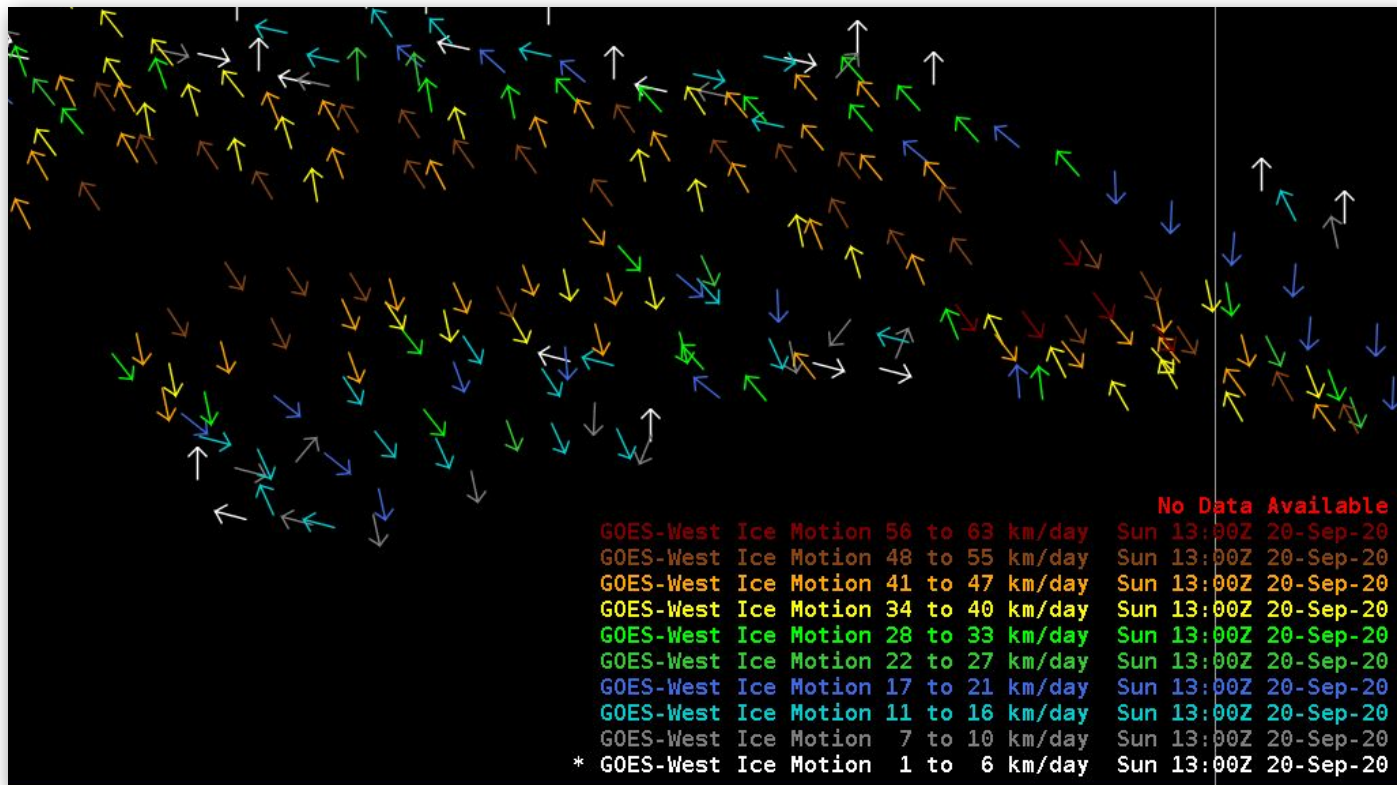


Full Disk, 3-hourly GOES-17 Ice Products will flow over LDM initially for interested sites. Products are currently at the Beta maturity level.



GOES Ice Products for Winter Evaluation (2): Ice Motion

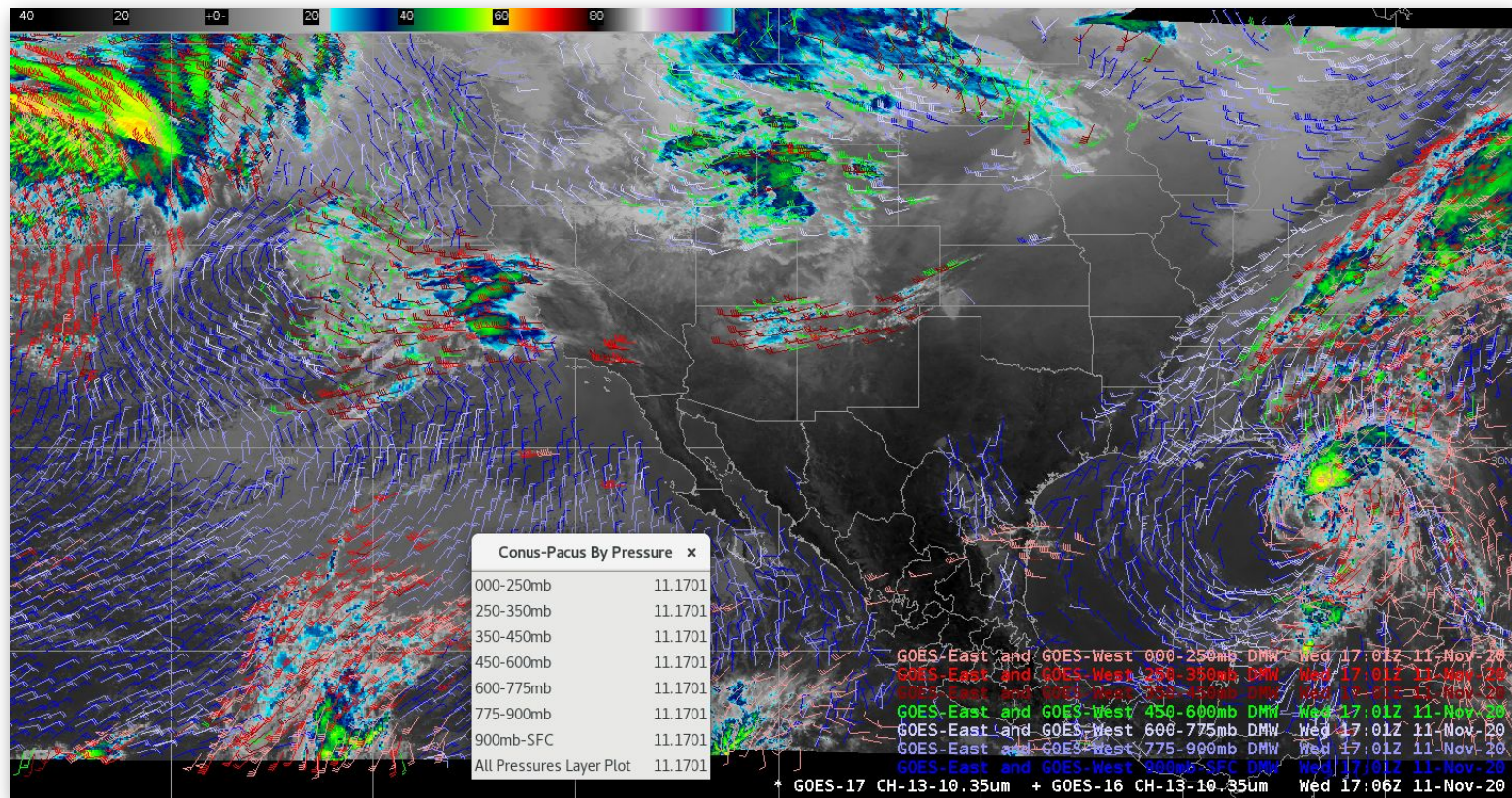
Available
on regional
LDM



Above: sample SE Pacific Ice Motion. 3-hourly vectors colored by speed (km/day)



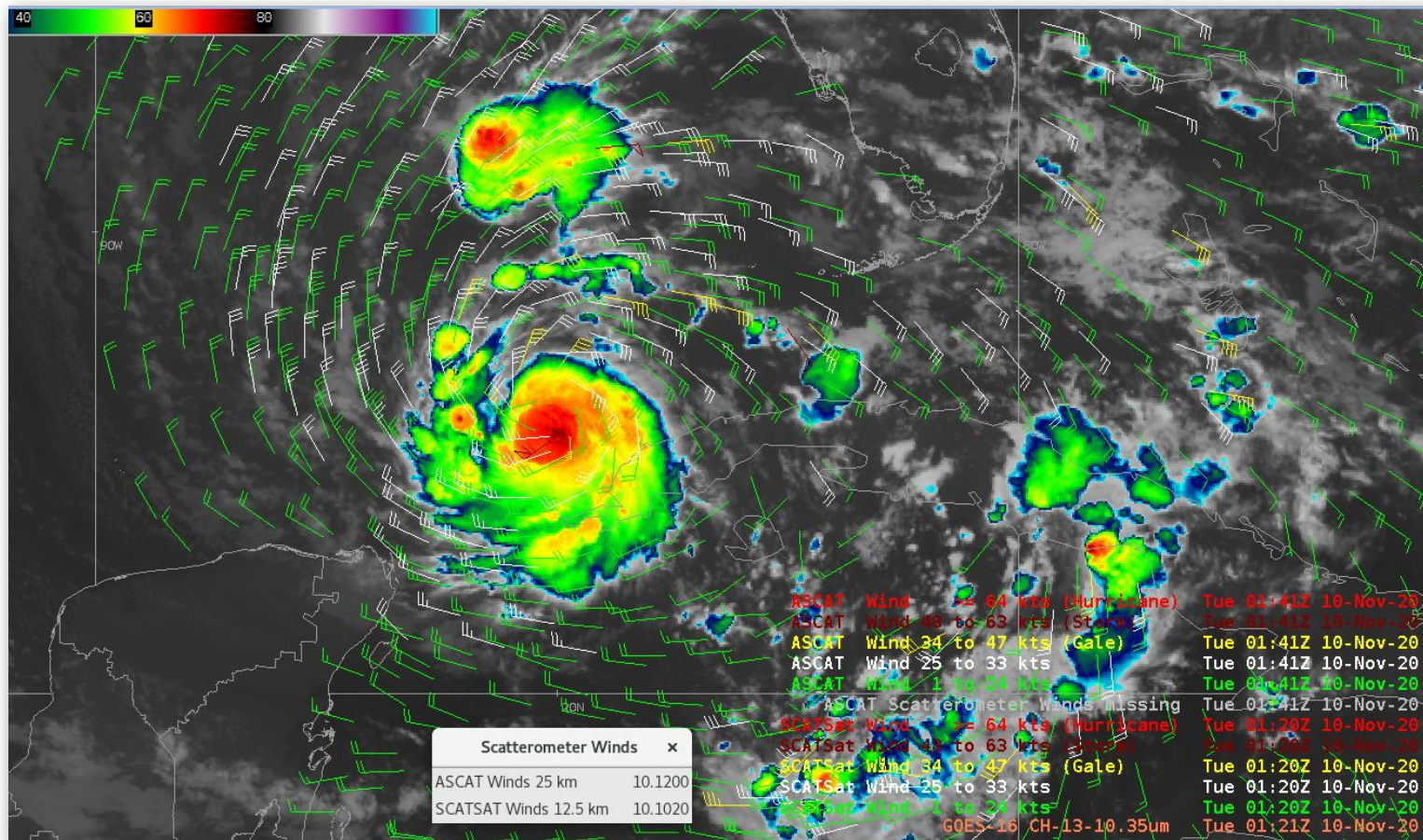
GOES Conus/Pacus Derived Motion Winds Menu Updates



Consolidated Conus/Pacus option. All Channels or All Pressures (shown above) Menu Button.

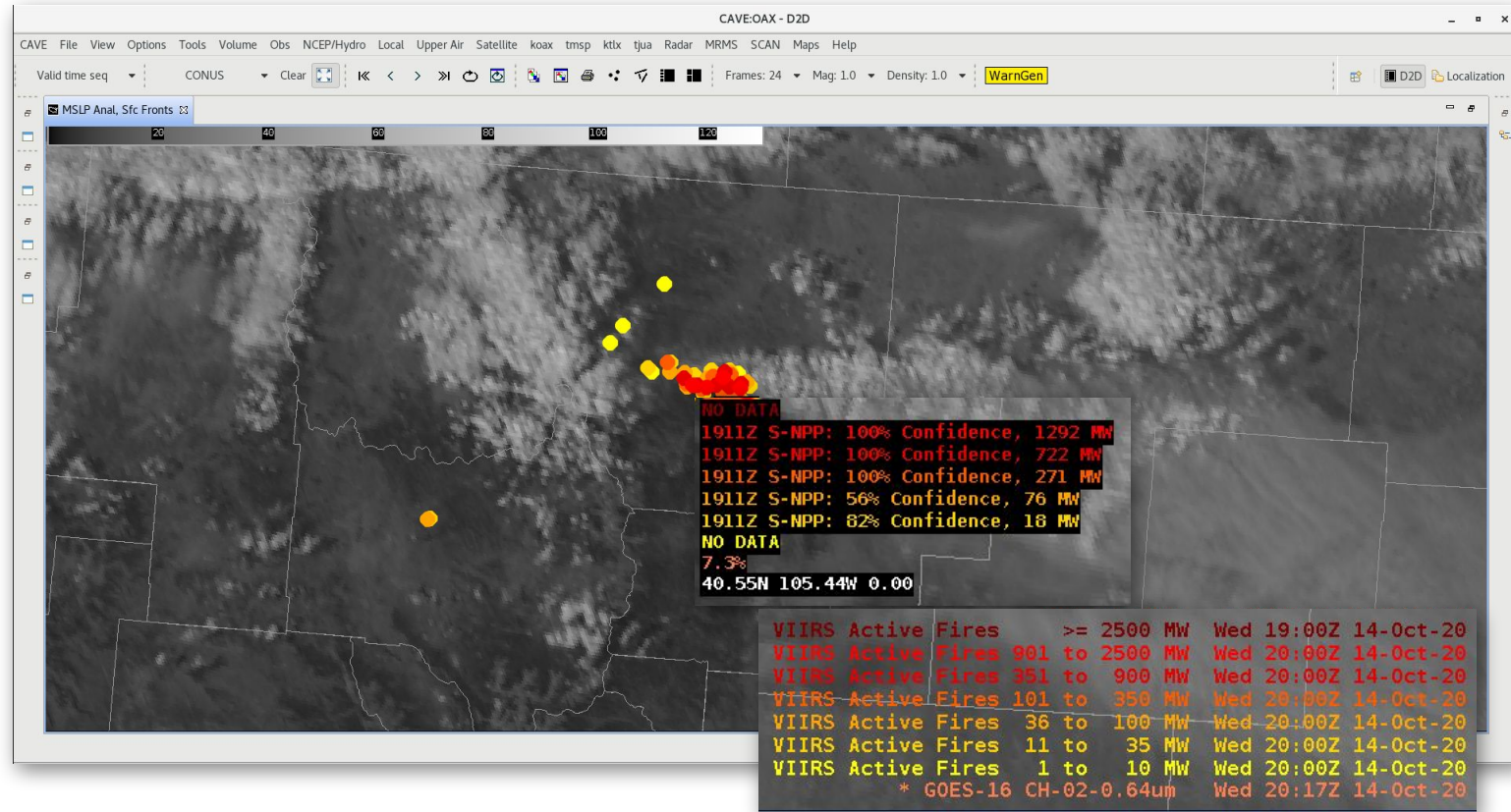
SCATSAT Wind Vectors

Available
on regional
LDM



S-NPP and NOAA-20 VIIRS Active Fires

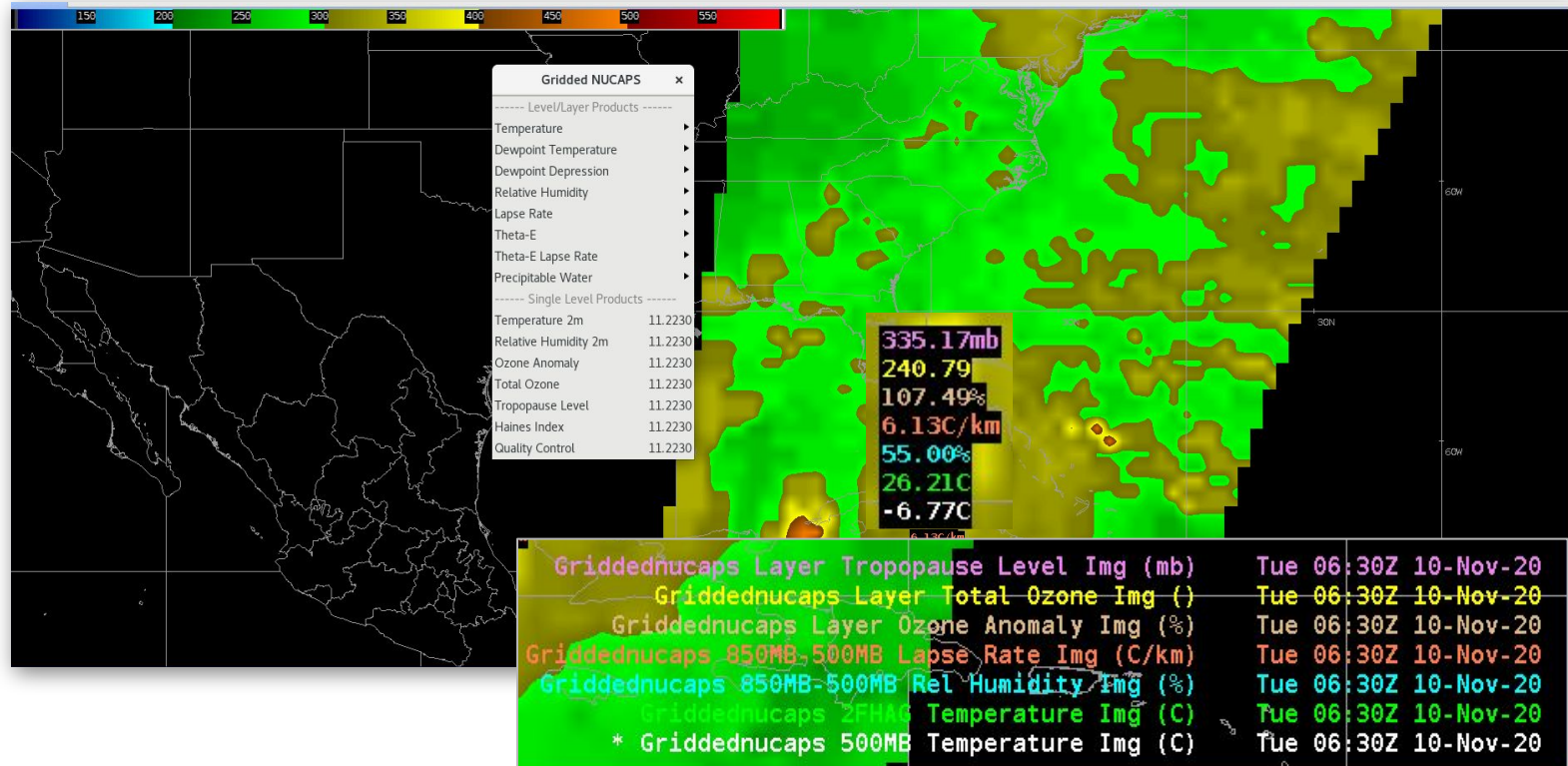
Available
on regional
LDM



S-NPP and NOAA-20 Gridded NUCAPS profiles

Thanks, Kris White (HUN) and SpORT team

Available
via SBN

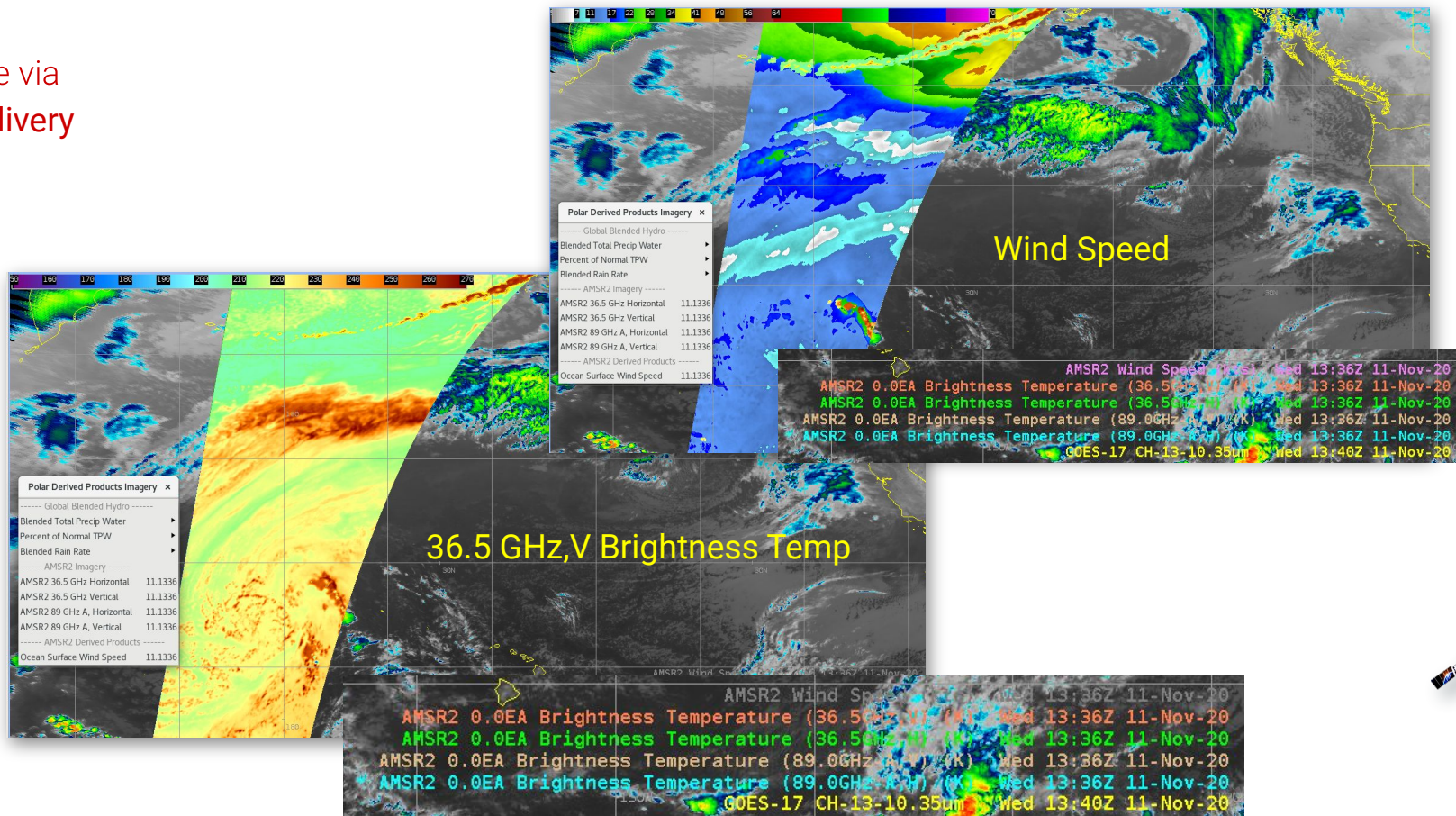


- Fixed some menu/bundle glitches in the base Gridded NUCAPS package
- Each frame now reflects 30 mins of data



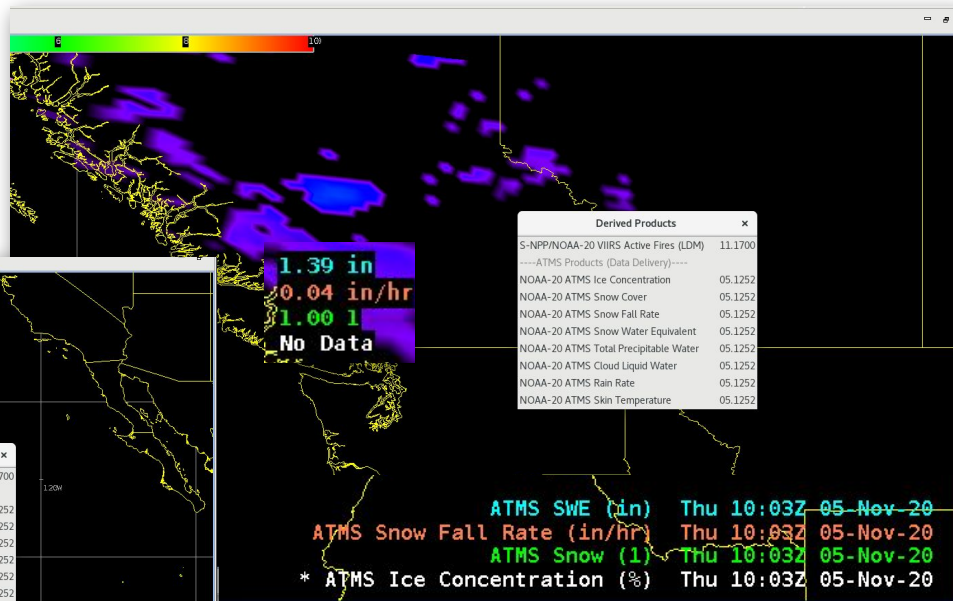
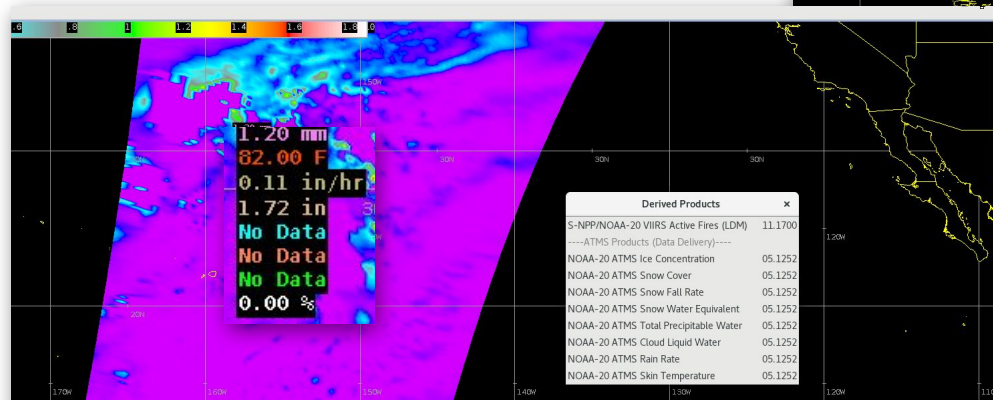
GCOM AMSR2- Ocean and Imagery Products

Available via
Data Delivery



NOAA-20 MiRS ATMS Products

Available via
Data Delivery



ATMS 0.0EA CLW (mm)	Thu 11:44Z 05-Nov-20
ATMS Skin Temperature (F)	Thu 11:44Z 05-Nov-20
ATMS Rain Rate (in/hr)	Thu 11:44Z 05-Nov-20
ATMS TPW (in)	Thu 11:44Z 05-Nov-20
ATMS SWE (in)	Thu 11:44Z 05-Nov-20
ATMS Snow Fall Rate (in/hr)	Thu 11:44Z 05-Nov-20
ATMS Snow (1)	Thu 11:44Z 05-Nov-20
* ATMS Ice Concentration (%)	Thu 11:44Z 05-Nov-20



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The Preceding Slides Showed Examples of v20 Updates

TOWR-S RPM Installation overview

Three Steps to making Updates:

1. Uninstall any previous TOWR-S RPM

<https://vlab.ncep.noaa.gov/web/towr-s/rpm/installation-instructions>

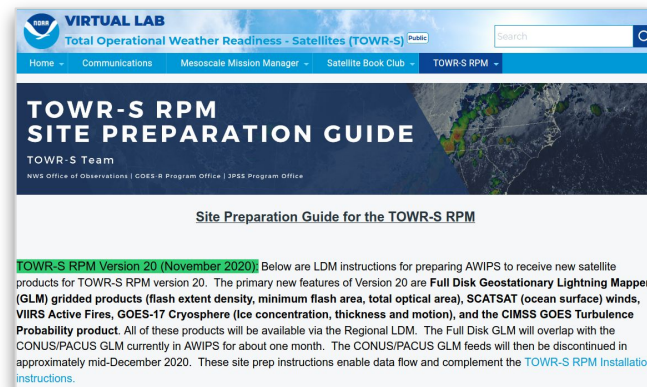
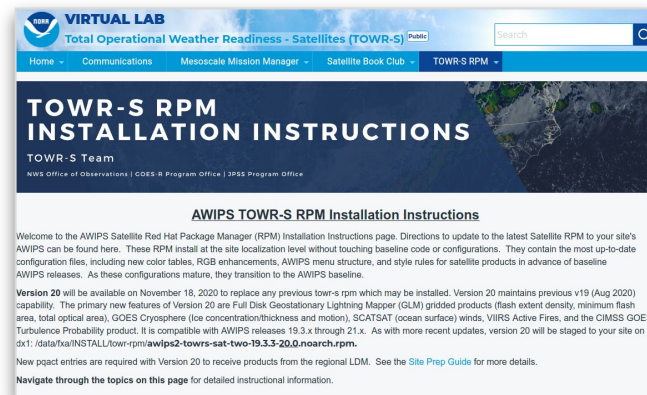
2. Install the new TOWR-S RPM

<https://vlab.ncep.noaa.gov/web/towr-s/rpm/installation-instructions>

3. Update LDM configuration (e.g. pqact.conf.xyz) needed to receive new products

<https://vlab.ncep.noaa.gov/web/towr-s/rpm/site-preparation-guide>

TOWR-S RPM v20 will be Available on November 20



- After restarting EDEX and CAVE, check for new menu items in CAVE
<https://vlab.ncep.noaa.gov/web/towr-s/rpm/installation-instructions>
(See “II. Instructions: Ensuring Satellite Products Ingest and Display in CAVE”
-- Can also review slides [6](#) - [19](#) above)
- In CAVE, check that new LDM data products are arriving and displaying from the menus
 - GOES Full Disk GLM (*available soon*)
 - CIMSS GOES Turbulence Probability (*available soon*)
 - GOES Cryosphere products (*available soon*)
 - SCATSAT Wind Vectors (*available soon*)
 - VIIRS Active Fires (*available now*)
- Please reach out to the TOWR-S Team for assistance



Additional / Optional Configurations

I. Installation Instructions
II. Instructions: Ensuring Satellite Products Ingest and Display
III. FAQs and Known Issues
IV. GLM Troubleshooting
V. Instructions to Activate the Geostationary Scales provided in the RPM
VI. Site Procedures/Perspectives
VII. Purge Rule Information

From <https://vlab.ncep.noaa.gov/web/towr-s/rpm/installation-instructions>



For further information or assistance:

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@ GOES-R Program Office
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Also in the tow-r-s room on NWS Chat:
<https://nwschat.weather.gov/live>

