

# **AWIPS Build 16.2.2 Informational Overview**

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Welcome to the AWIPS Build 16.2.2 Informational Overview. I'm Mike Magsig from WDTD, and I will be introducing you to some of the significant changes in 16.2.2.



• **Course Completion Info**

- *Tabs - 4 Tabs (Including Introduction)*
- Last Modified: Feb 17, 2016 at 11:49 AM

**PROPERTIES**

Show interaction in menu as: [Single item](#)

Allow user to leave interaction: [At any time](#)

Prev/Next player buttons go to: [Slide in presentation](#)

 Edit in Engage

 Edit Properties

## Learning Objectives

After taking this training you will be able to identify the changes in:

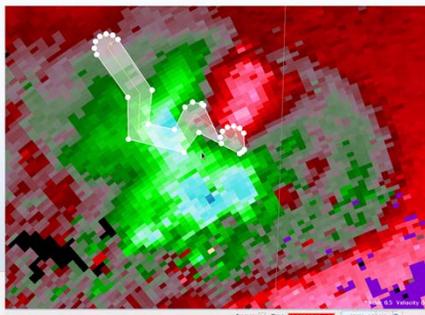
- Damage Path Tool
  - –Jobsheets Available
- Ensemble Tool Enhancements
  - –Jobsheets Available
- National/Regional Radar Display and All Dial Radars
- New VCPs in RPS List Editor
- Composite Options Satellite Channel Gamma Control
  - –Jobsheets Available
- MRMS Menus, OCONUS Satellite Menu, GHG Monitor CAVE Menu
- LAPS/MSAS at RFCs
- FFMP Multiple RFC FFG Updating



The goal of this training is to provide a general awareness of the following new 16.2.2 capabilities in around 10 minutes and provide some job sheets for forecasters to get some practice for some of the more involved applications.

## Damage Path Tool

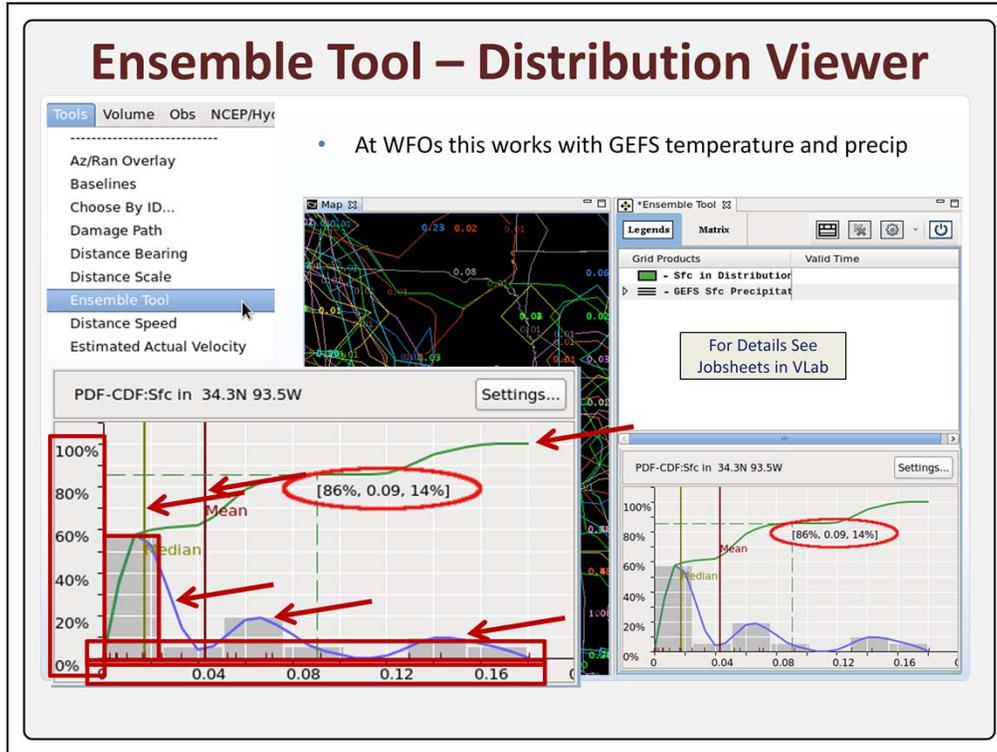
- Damage polygon creation tool with comments
  - Tornado, wind, hail, flood, extreme ice or snow, other man-made/natural hazard
- Distributes geoJSON file through Damage Assessment Toolkit (DAT) server
- See CLC for training and VLab for reference pages/job sheets

A screenshot of the 'GeoJSON Properties Editor' dialog box. It contains the following fields:

- Hazard Type: Preliminary Tornado (TO)
- Name: Rochelle Area Tornado
- Event Time: 2014-04-10 01:30:54
- Comments: Numerous spotter reports. very strong rotational velocity signature and intermittent tornado debris signature along the track
- CWA: LOT
- Workstation: awips2-dev4.wdtb.noaa.gov
- User: jgibbs

Buttons for 'OK' and 'Cancel' are at the bottom.

One of the significant new enhancements in 16.2.2 is the Damage Path Tool. This new tool allows forecasters to identify areas of significant damage for a number of different phenomena and distribute a geoJSON file to the DAT server in real-time to first responders and other key stakeholders. With the damage path tool you can create a polygon from a simple default box, or you can use the tornado track tool with AWIPS baselines to create a tornado track that incorporates the uncertainty of tornado position due to radar range. A lot of preparation needs to happen at the local level before these products are created, and for everything you need to know about the Damage Path Tool, see the training in the CLC and VLab reference page. At the end of this presentation I will review the VLab references accompanying this training.



One of the other significant upgrades in 16.2.2 include a distribution viewer for the recently-released ensemble tool, where you can click on the editor display in AWIPS to generate a Probability Density Function or Cumulative Density Function at the nearest gridpoint. At WFOs the data you are typically limited to is the GEFS temperature and precip forecasts, which feature all 21 members of the GFS ensemble.

Here is a display of precipitation from the GEFS at the 120hr forecast valid for the previous 6hr period. The x-axis is precipitation and the y-axis is the percentage of members in bins of a little over 2 hundredths of an inch. Each small red tick mark on the x-axis is one of the 21 members of the GEFS. At this gridpoint, over half the members are in the first bin of around 2 hundredths of an inch as indicated by the height of the first grey box.

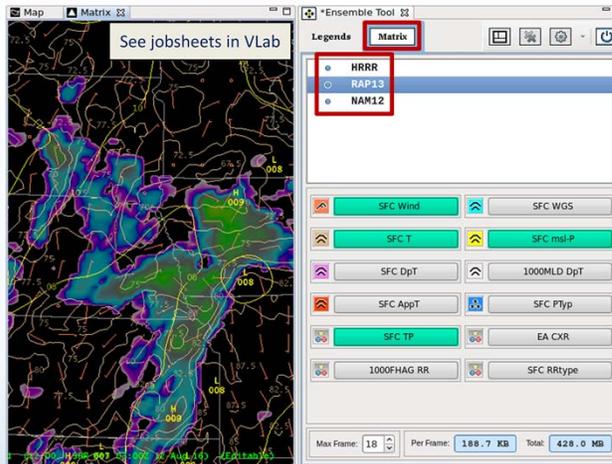
The median value of around 0.02" is indicated by the vertical yellow line, and the mean value of a little over 0.04" is indicated by the vertical red line. The blue line is the probability density function for the distribution indicating a tri-modal distribution with most members having less than 0.02" of precip, with other clusters of solutions around 0.05" and 0.15".

The green line shows you the cumulative density function which indicates how many solutions are below and above a given threshold. Clicking inside the graph will provide summary information for a particular parameter threshold. For instances in this example clicking on 0.09" in the graph shows 86% of the solutions (or 18) are below 0.09" and 14% of the solutions (or 3) are above 0.09".

If you have good diversity of model solutions in your GEFS ensemble, then this tool can help you assess certainty in model solutions faster.

## Ensemble Tool – Matrix for Model Families

- Cycle through each model for families in Volume menu
- Display types preset
  - No control of creating images from contours
  - Memory intensive can be slow
  - Can control which products are loaded and displayed



The ensemble tool in 16.2.2 also comes with a matrix button capability which allows you to load Volume menu model family products and cycle through different models. One of the limitations of the Ensemble Tool is that all the display types of contours and images are preset, so for instance you can't change temperature to load as an image. Another limitation is that it is memory intensive, so it can be slow for multiple model family products. You do have control over what products and models are loaded, so you can manage the performance of this by choosing what you want to display.

## New Regional/National Radar Mosaics

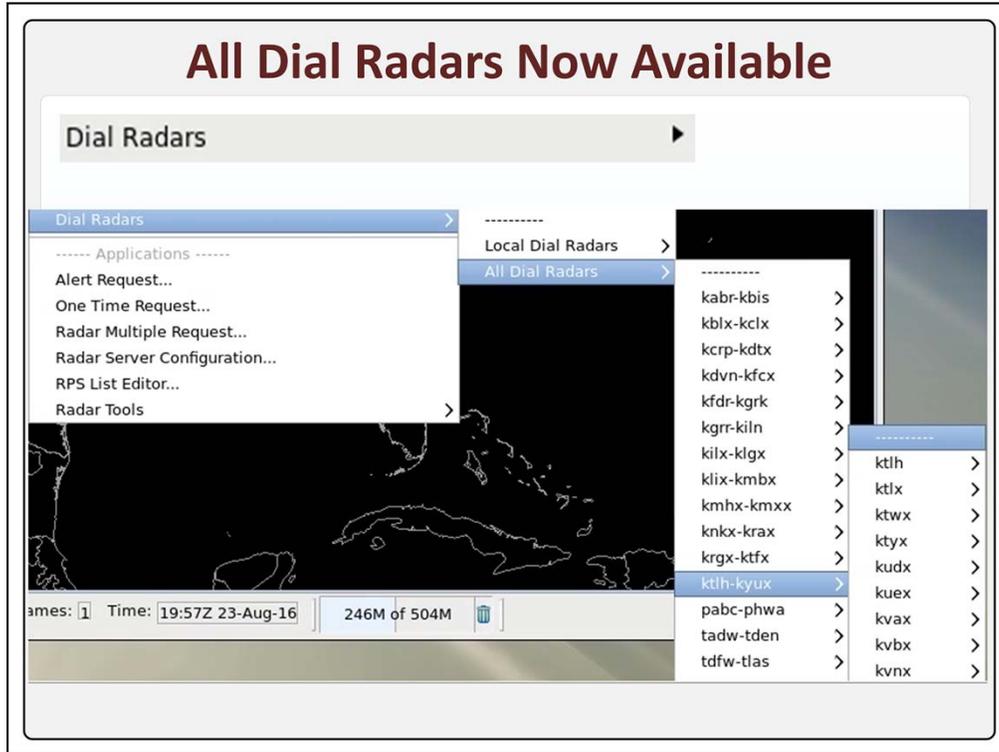
**Local/Regional Ingest - All SBN radar (with Dual Pol)**

- National Ingest - WSR-88D CZ, STI, Z & V (0.5°, 1.3°/1.5°)**
  - TDWR 0.6° long range Z & 1.0° Z and V

**More Dual-Pol products for local & regional mosaics**

Product	Version	Product	Version
0.5 Reflectivity	22.1954	0.5 Reflectivity	24.2154
0.5 Differential Refl (ZDR)	22.1954	0.5 Differential Refl (ZDR)	24.2154
0.5 Specific Diff Phase (KDP)	22.1954	0.5 Specific Diff Phase (KDP)	24.2154
0.5 Correlation Coeff (CC)	22.1954	0.5 Correlation Coeff (CC)	24.2154
Hybrid Scan Refl	22.1954	Hybrid Scan Refl	24.2154
Composite Refl	22.1954	Composite Refl	24.2154
VIL/Comp Ref	22.1954	VIL/Comp Ref	24.2154
Vert integrated Liquid	22.1954	Vert integrated Liquid	24.2154
Digital Vert integrated Liquid	22.1954	Digital Vert integrated Liquid	24.2154
Storm Total Precip	22.1954	Storm Total Precip	24.2154
Digital Storm Total Precip (DSP)	22.1954	Digital Storm Total Precip (DSP)	24.2154
One Hour Precip	22.1954	One Hour Precip	24.2154
Echo Tops	22.1954	Echo Tops	24.2154
Hybrid Hydro Class	22.1954	Hybrid Hydro Class	24.2154
Dual Pol Inst Precip Rate (DPR)	22.1954	Dual Pol Inst Precip Rate (DPR)	24.2154
Dual Pol Storm Total Accum (STA)	22.1954	Dual Pol Storm Total Accum (STA)	24.2154
Dual Pol Storm Total Accum Diff (DSD)	22.1954	Dual Pol Storm Total Accum Diff (DSD)	24.2154
Dual Pol 1hr Accum (OHA)	22.1954	Dual Pol 1hr Accum (OHA)	24.2154
Dual Pol User 3hr Accum /hrly (DUA)	22.1954	Dual Pol User 3hr Accum /hrly (DUA)	24.2154
Dual Pol User 24hr Accum @12Z (DUA)	22.1954	Dual Pol User 24hr Accum @12Z (DUA)	24.2154

The CAVE Radar menu contains new regional and national radar mosaic menus in 16.2.2. Along with this, EDEX now ingests *all* SBN radar products for your *regional* 88Ds and TDWRs and *six* new products for *all* radars nation-wide, including composite reflectivity, storm track information, and the two low tilts of reflectivity and velocity. You will notice more Dual-Pol menu items on *both* national and regional pullout menus though the *Dual-Pol* mosaics will only load radars from your *local and regional* ingest.



The dial radars menus have also been expanded to include all potential radars. With the new national ingest of a limited set of products for every radar, now you have the menus to load products for any radar.

## New RPS Lists VCP35 and VCP215

- Build 18 RPG (coming 2017)

- Beta test summer 2017
- Deploy fall 2017
- VCP35

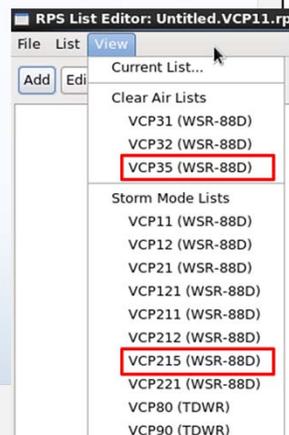
- Clear-air mode (\*faster)
- 0.5, 0.9, 1.3, 1.8, 2.4, 3.1, 4.0, 5.1, and 6.4°
- 410-540 seconds (7-9 min)

- VCP215

- Precip mode replaces VCP11, 211, 21, and 221
- 0.5, 0.9, 1.3, 1.8, 2.4, 3.1, 4.0, 5.1, 6.4, 8.0, 10.0, 12.0, 14.0, 16.7, and 19.5°
- 265-435 seconds (4-7 min)

----- Applications -----

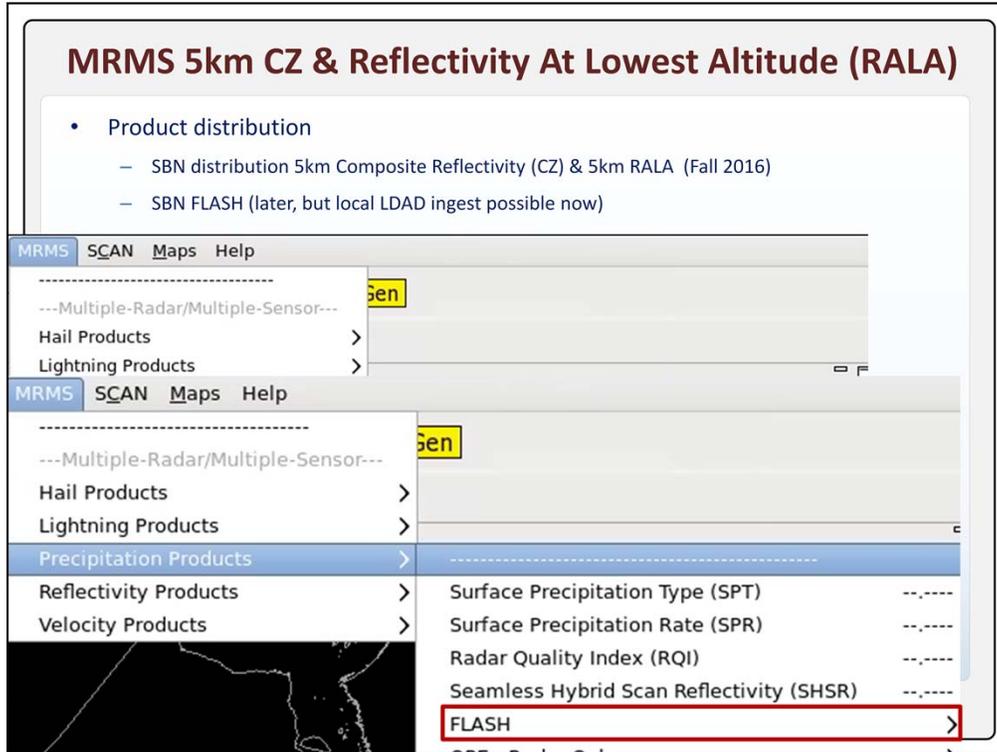
Alert Request...  
One Time Request...  
Radar Multiple Request...  
Radar Server Configuration...  
RPS List Editor...  
Radar Tools



In 16.2.2 the RPS list editor will contain two new VCPs, VCP35 and VCP215 in preparation for Build 18 of the RPG which is planning to deploy in late 2017.

VCP35 will provide a faster clear-air mode VCP with more angles.

VCP215 will combine the best of multiple VCPs and will replace VCP11, 211, 21, and 221.



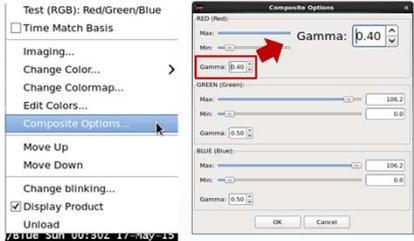
In 16.2.2 MRMS added Reflectivity Products menus for the 5km resolution composite reflectivity and 5km resolution reflectivity at the lowest altitude, or RALA. Under the MRMS Precipitation Products menu a FLASH menu has also been added for the Flooded Locations and Simulated Hydrographs Project, which is a 1km hydrologic model run every 2 min for flash flood forecasting.

The 5km CZ and RALA products should start flowing over the SBN in fall 2016, but FLASH will be later than that. Some regions and WFOs are ingesting FLASH through LDAD, but you will need to check with your regional AWIPS Focal Point if you are interested in accessing FLASH before it gets on the SBN.

For more information on FLASH or the similar National Water Model which runs every hour see the links in the Resources tab on the top right of the presentation.

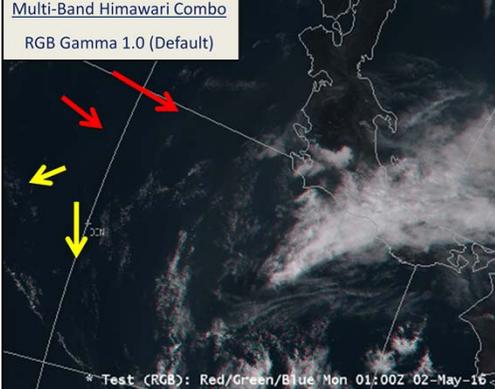
## “Composite Options” Gamma Adjustment

- For multi-channel satellite data
- Right click on legend text -> Composite Options
  - See VLab jobsheet for creating own composite bundle



Multi-Band Himawari Combo

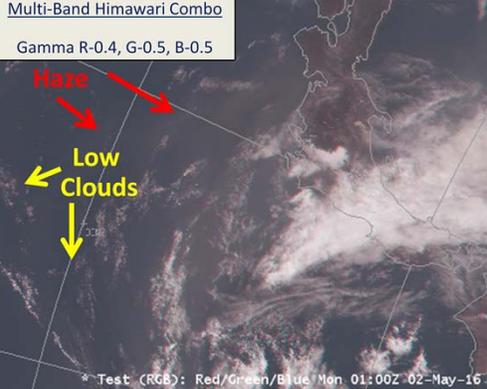
RGB Gamma 1.0 (Default)



\* Test (RGB): Red/Green/Blue Mon 01:00Z 02-May-16

Multi-Band Himawari Combo

Gamma R-0.4, G-0.5, B-0.5



\* Test (RGB): Red/Green/Blue Mon 01:00Z 02-May-16

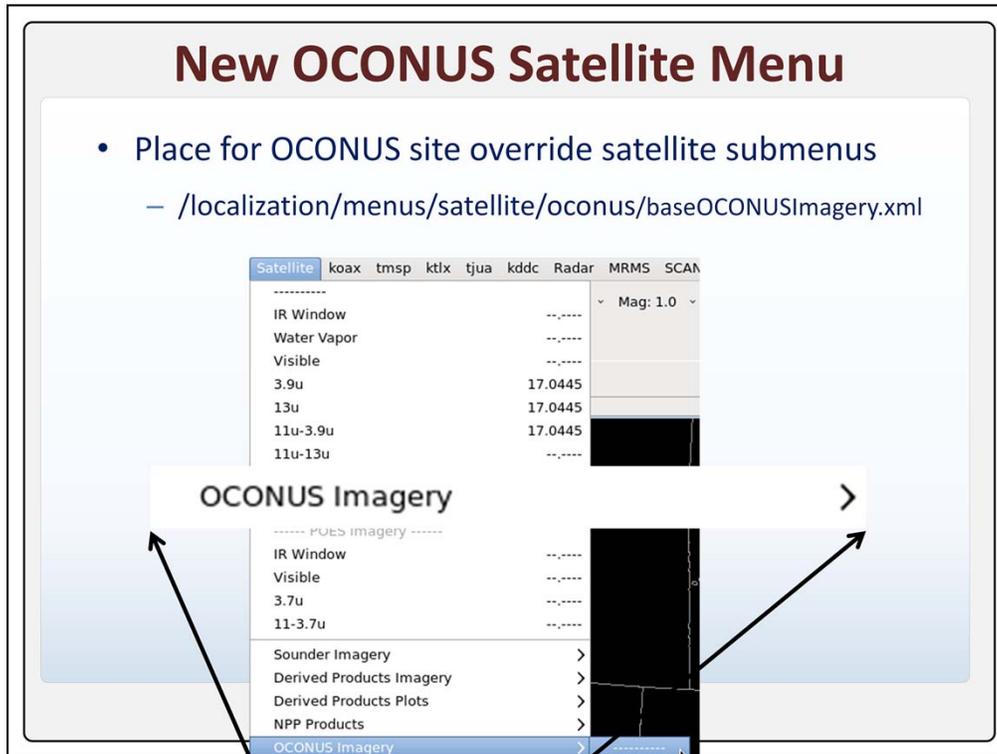
In 16.2.2 there is a new capability to adjust gamma settings of composited imagery, which is particularly applicable in manipulating the display of different channels of satellite data. The gamma settings are accessed by right clicking on the legend text and selecting Composite Options for a bundle that was created with this unique capability.

When you adjust an image’s gamma settings you control the contrast of the red, green, and blue channels independently to create a composite combination which can draw out details and shadows optimally for the human eye. Here is an example of a composite combination Himawari satellite product with the default gamma of 1 and a gamma adjustment to highlight the haze and low-cloud structure off the coast of Japan.

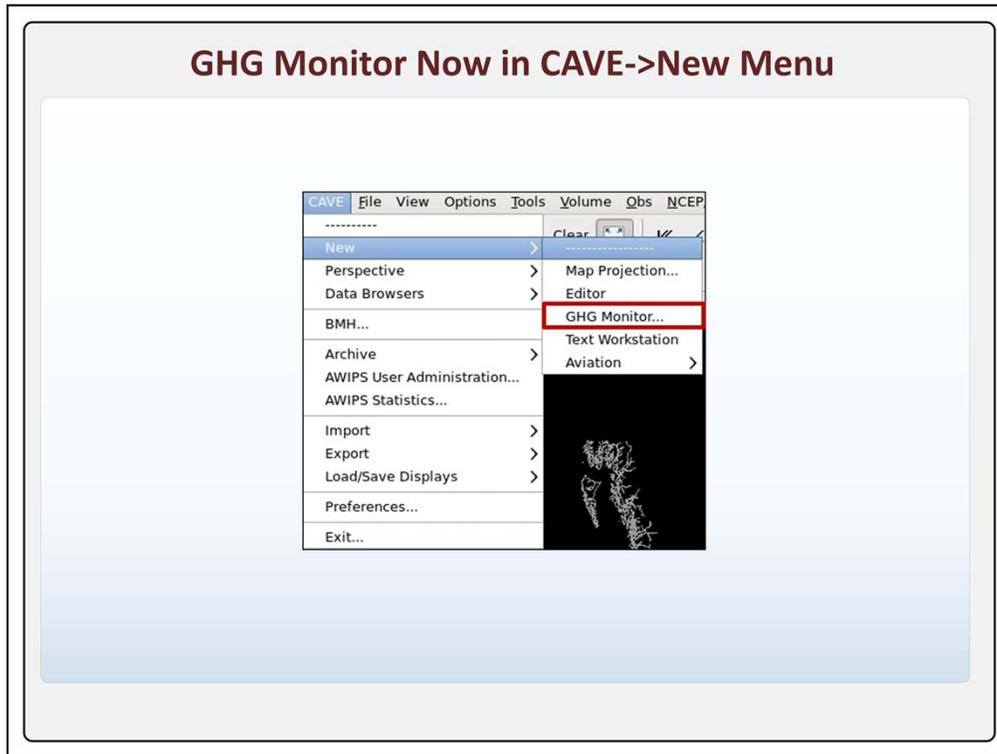
The jobsheet in the VLab has step-by-step instructions for forecasters to create a composite image bundle with gamma adjustment controls using the localization perspective.

## New OCONUS Satellite Menu

- Place for OCONUS site override satellite submenus
  - /localization/menus/satellite/oconus/baseOCONUSImagery.xml

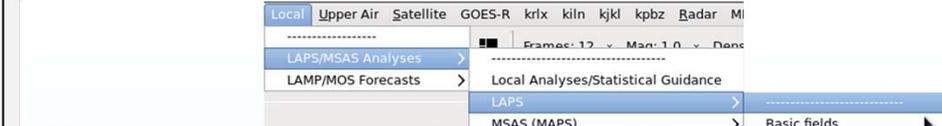


The menus in 16.2.2 have come with an OCONUS Imagery menu that is blank by default. This is intended to be a place where OCONUS sites can add all their local OCONUS satellite menus. See the AWIPS living release notes for more on that in our AWIPS Build Changes VLab reference page.



Another minor enhancement in 16.2.2 is the GHG Monitor can now be launched from the CAVE->New menu.

## LAPS/MSAS at RFCs



Field	Time
<b>Basic fields</b>	
MSL Pressure	24.0300
1500m Pressure	24.0300
Wind	24.0300
Temperature	24.0300
Dewpoint	24.0300
Rel Humidity	24.0300
Pot Temp	24.0300
Equiv Pot Temp	24.0300
<b>Derived fields</b>	
Lifted Index	24.0300
Computed LI	24.0300
Moisture Flux Div	24.0300
Moisture Advection	24.0300
Temp Advection	24.0300
Theta-E Convergence	24.0300
Relative Vorticity	24.0300
CSSI	--:--
CAPE	24.0300
CIN	24.0300
Helicity	24.0300
<b>Cloud/precip fields</b>	
1hr Precip	24.0300
Storm Total Precip	--:--

Mesoscale Surface Analysis System

- 2D surface objective analysis every hour over large domain
- NAM/GFS forecast 1<sup>st</sup> guess
- Input surface obs
- Strength – complex terrain

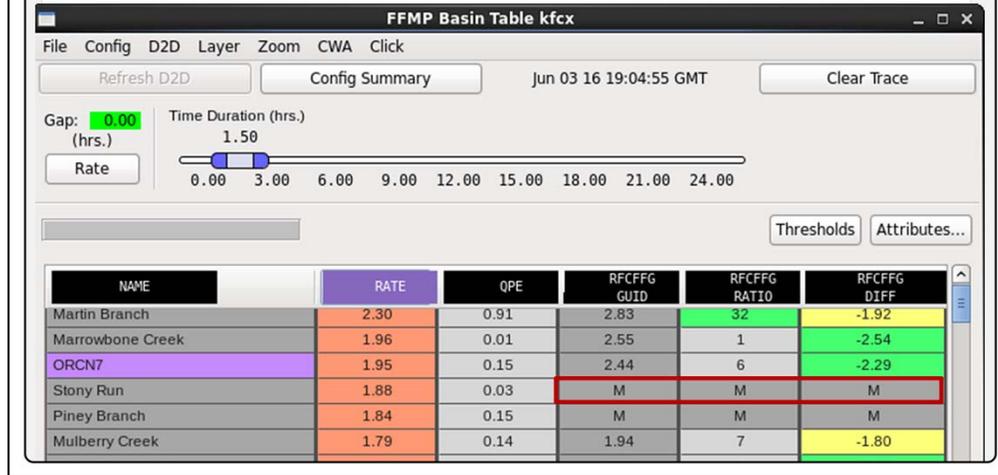
Local Analysis and Prediction System

- 3D objective analysis every hour over small domain
- 40km RUC 1hr forecast 1<sup>st</sup> guess
- Input surface obs, soundings, ACARS, satellite, 0.5° Z only
- Strength – extensive inputs/output

The Local Analysis and Prediction System, or LAPS, and the Mesoscale Surface Analysis System, or MSAS, are now available at RFCs. These objective analysis packages have significant differences, but both can be useful for assessing the environment.

## FFMP Multiple RFCs FFG Fix

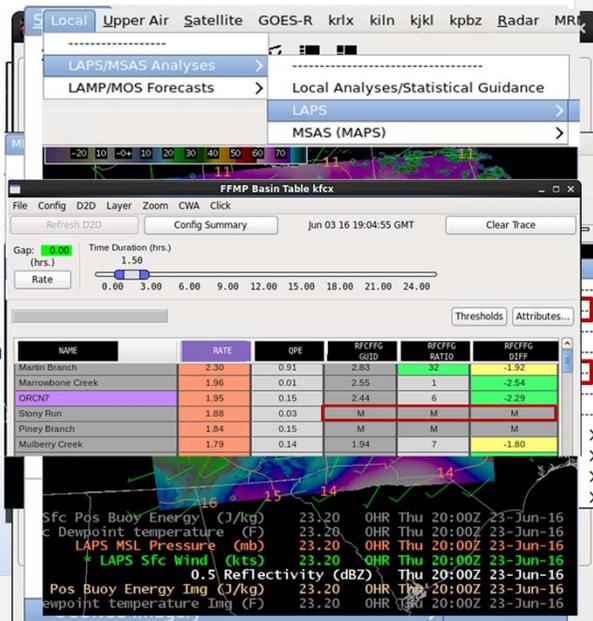
- Multiple RFCs update incorrectly (0z, 6z, 12z, 18z)
  - 16.2.1 FFG incorrectly missing
  - 16.2.2 FFG incorrectly reset to older values
  - Fixed in 16.2.2 patch 2



There is an FFMP fix on the way for multiple RFCs updating incorrectly. In 16.2.1 when a new RFC FFG came in, the other RFC data would incorrectly go missing. In 16.2.2 that was fixed, but then the other RFC FFG data would be incorrectly reset to older values. This issue is supposed to be fixed in the 16.2.2 patch 2 which will roll out sometime during 16.2.2 deployment.

## Summary

- Damage Path Tool
  - Training in CLC (20min)
- Ensemble Tool
  - Distribution Viewer and Matrix
- National/Regional Radar Mosaics and Dial Radars
- New VCPs in RPS List Editor
- Composite Options Gamma Control - Satellite
- Menus
  - MRMS, OCONUS sat, GHG
- LAPS/MSAS at RFCs
- FFMP Multiple RFC Fix



To summarize, the Damage Path Tool is a significant new enhancement designed to provide real-time damage polygons with comments through the DAT server for emergency responders to use in incident response. A lot of preparation needs to happen at the local level before you should consider using it, so see the Damage Path Tool training in the CLC for more on that.

The recently fielded Ensemble Tool has been updated in 16.2.2 to include a distribution viewer, so now you can better slice and dice the GEFS ensemble members in AWIPS. The Ensemble Tool Matrix capability also allows you to cycle through different models for products defined in the Volume Menu families.

New national and regional radar mosaics and dial radar menus have been created to allow you to better utilize the 16.2.2 national ingest of a select number of radar products nation-wide. The RPS list editor was also updated to prepare for the future VCPs 35 and 215.

In the satellite world, there is a new Composite Options gamma control for combining multi-channel satellite data like Himawari and GOES-R, and we have jobsheets in the VLab for that.

There are also new CAVE menus for future MRMS products, an OCONUS satellite pullout for misc. OCONUS satellite additions, and GHG can now be launched directly from the CAVE->New menu.

LAPS and MSAS data have been implemented at RFCs.

And lastly an FFMP fix for multiple RFC FFG updating will arriving during 16.2.2

deployment.

## Check Out VLab & Job Sheets

<https://vlab.ncep.noaa.gov/web/oclo/home>

The screenshot displays a web browser window with the following content:

- Navigation:** OCLo / Forecaster References / Damage Path Tool
- Page Title:** Damage Path Tool Reference Page
- Figure:** Fig. 1 Damage Path Tool with tornado tracks created from baselines A and B.
- Training Job Sheets:** A list of job sheets for creating damage paths from baselines, including links to HTML and PDF files.
- Overview:** A section detailing the workflow for creating damage paths, including steps like creating polygons and setting properties.
- AWIPS Build Changes:** A section providing information about upcoming improvements in AWIPS builds, including a note about OB16.3.1 being integrated into 16.3.1.
- Contact:** Michael.A.Magsig@noaa.gov
- AWIPS Build Changes Page:** A prominent box highlighting the build changes page.

You are now done with the AWIPS 16.2.2 Informational Overview. Next you should try accessing the training reference materials from the Forecaster References menu at the top of our OCLo public VLAB home page. You don't need to log in to the VLab, just enter this address in a browser on AWIPS or on the Web.

The Forecaster References menu is your one-stop shop place to go for OCLo references in AWIPS. You can access the AWIPS Build Changes menu to refresh yourself on the build changes, or you can click on the standalone pages, like the Damage Path Tool page, or the Ensemble Tool, or the Gamma Adjustment page.

The reference pages contain job sheets, refresher commands, and more.

Let me know if you have any further questions, and good luck with the new 16.2.2 capabilities.