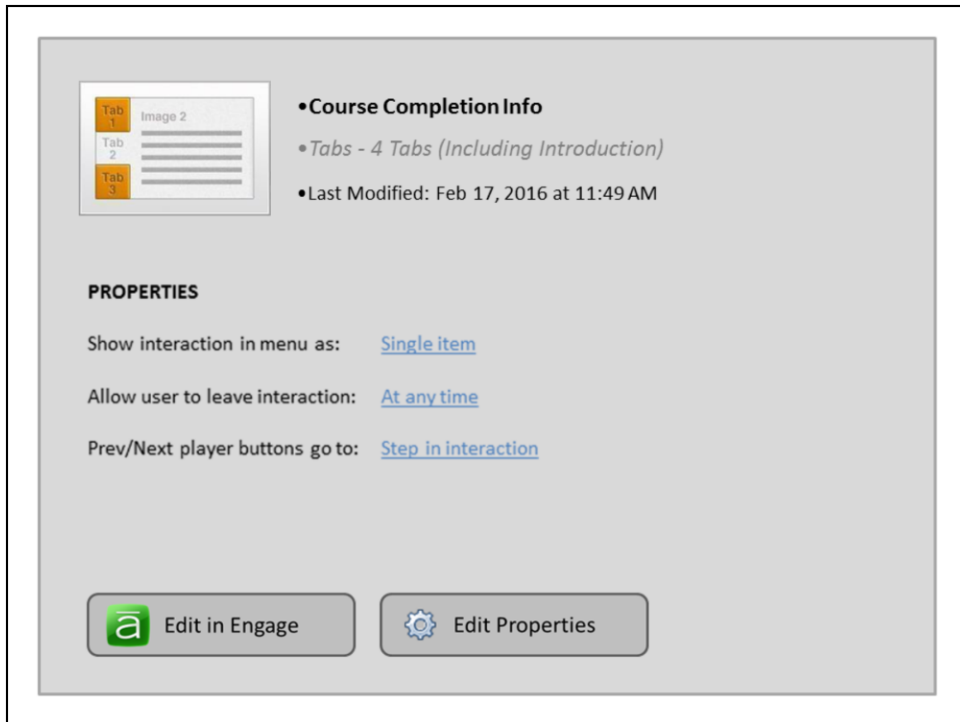


AWIPS Build 16.1.1 Informational Overview

Mike Magsig
Warning Decision Training Division



Welcome to the AWIPS Build 16.1.1 Informational Overview.



The screenshot displays a user interface for managing an interaction. On the left, a preview window shows a tabbed interface with three tabs labeled 'Tab 1', 'Tab 2', and 'Tab 3'. The content area to the right is titled '•Course Completion Info' and contains two bullet points: '•Tabs - 4 Tabs (Including Introduction)' and '•Last Modified: Feb 17, 2016 at 11:49 AM'. Below this is a 'PROPERTIES' section with three settings: 'Show interaction in menu as:' with a value of [Single item](#), 'Allow user to leave interaction:' with a value of [At any time](#), and 'Prev/Next player buttons go to:' with a value of [Step in interaction](#). At the bottom, there are two buttons: 'Edit in Engage' with a green 'a' icon and 'Edit Properties' with a gear icon.

Click through the tabs on this slide to learn more about the training.

In AWIPS, a lot is changing right now with the recent migration to AWIPS-2 and the reorganization of the NWS, including the Office of the Chief Learning Officer where we are in the process of reworking our AWIPS training teams and our development model. Meanwhile the quarterly AWIPS builds with hundreds of DR fixes and some small enhancements are coming out faster than before AWIPS-2, and finding the optimal time for training is still a big challenge.

While there are lots of new AWIPS-related opportunities emerging with the NWS Virtual Lab now accessible from LX workstations, and WES-2 Bridge that is in the process of catching up to the current AWIPS builds, and our new our AWIPS-2 based AWIPS Fundamentals training evolving from the DLOC and RAC courses, we currently need a simple solution to keep up with the frequent changes in the frequent AWIPS builds.

After brainstorming with SSD Chiefs, SOOs, and forecasters on how to manage this change with today's constraints, we have decided to try something new in AWIPS build 16.1.1. The informational overview is a new type of short training module, around 10 min in length, so forecasters can take this while on a routine shift. This will provide a high-level awareness of the

more significant new capabilities with optional job sheets for the basic procedural knowledge. We will still have more in-depth modules on the higher-impact enhancements in future builds, but for this build we are trying something new.

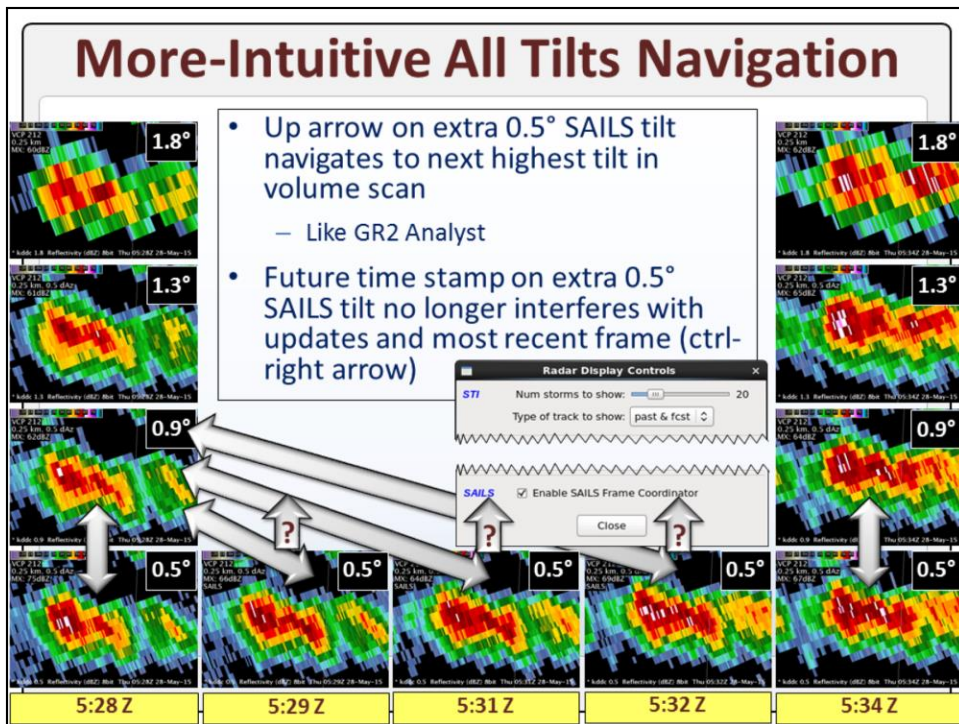
Learning Objectives

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

- All-Tilts SAILS navigation
- MRMS All Tilts
- Ensemble Tool
- mPING
- Boundary Tool
- National Blend of Global Models

Jobsheets Available

The goal of this training is to provide a general awareness of the following new capabilities in 16.1.1 and provide some job sheets for forecasters to get some practice.



One of the more significant improvements in 16.1.1 is the all tilts navigation enhancements, which make all tilts more intuitive when viewing SAILS data. When SAILS was first implemented in VCPs 12 and 212, the new SAILS tilts were implemented as new single-tilt volume scans with a newer time where using the up arrow keys on the extra 0.5 degree SAILS tilts would not go anywhere and the most recent frame would stick on the SAILS tilt.

In 16.1.1, the navigation has been changed to be just like GR2 Analyst. When you click on the up arrow while on any SAILS or mesoSAILS 0.5 degree tilt, the frame always moves to the next higher tilt from the volume scan (usually 0.9 degrees). The most recent frame controls like cntrl-right arrow will now go to the highest tilt in the volume scan and not get stuck at the SAILS tilts on the most recent volume scan.

If you prefer the way it was prior to 16.1.1 you can go to the Radar Display Controls under the Tools menu and toggle off the “Enable SAILS Frame Coordinator”.

These improvements should be easy to get used to. If you want to test this out more carefully, you can check out the job sheet in the VLAB and practice this

on your live AWIPS.

MRMS All Tilts MSL (new)

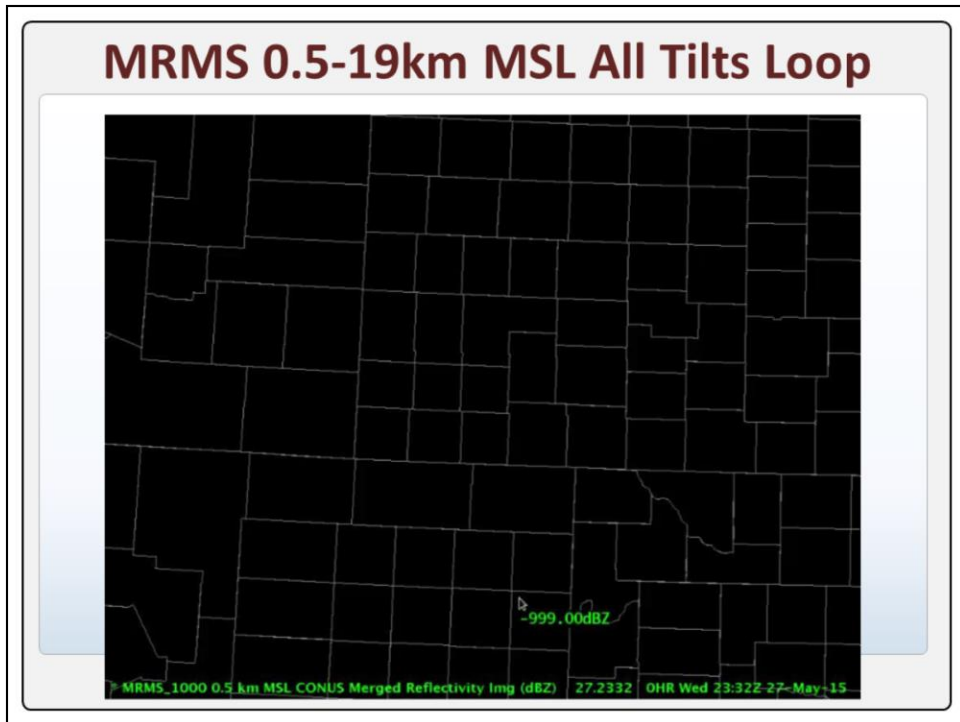
Product Name	Time
0.5km-3.0km Merged Reflectivity All-Tilts	28.0059
0.5km-6.0km Merged Reflectivity All-Tilts	28.0059
0.5km-19.0km Merged Reflectivity All-Tilts	28.0059
Merged Reflectivity at 0.5km/1.6kft	28.0059
Merged Reflectivity at 0.75km/2.5kft	28.0059
Merged Reflectivity at 1.0km/3.3kft	28.0059
Merged Reflectivity at 1.25km/4.1kft	28.0059
Merged Reflectivity at 1.5km/4.9kft	28.0059
Merged Reflectivity at 1.75km/5.7kft	28.0059
Merged Reflectivity at 2.0km/6.6kft	28.0059
Merged Reflectivity at 2.25km/7.4kft	28.0059
Merged Reflectivity at 2.5km/8.2kft	28.0059
Merged Reflectivity at 2.75km/9.0kft	28.0059
Merged Reflectivity at 3.0km/9.8kft	28.0059
Merged Reflectivity at 3.5km/11.5kft	28.0059
Merged Reflectivity at 4.0km/13.1kft	28.0059
Merged Reflectivity at 4.5km/14.8kft	28.0059
Merged Reflectivity at 5.0km/16.4kft	28.0059
Merged Reflectivity at 5.5km/18.0kft	28.0059
Merged Reflectivity at 6.0km/19.7kft	28.0059
Merged Reflectivity at 6.5km/21.3kft	28.0059
Merged Reflectivity at 7.0km/23.0kft	28.0059

- 3 new All-Tilts menus for MRMS Merged Reflectivity “grid” data
 - 128 frames default
 - Shallower All Tilts allow more times
 - In MSL
- Only for those who configure ingest through LDAD

In 16.1.1, three new All Tilts menus were added under the MRMS, Reflectivity Products, Merged Reflectivity Cube menu: one for the lowest 3km, one for the lowest 6km, and one for the lowest 19km. Because there are so many tilts in the reflectivity cube, they increased the default frame count to 128 when loading this product. The shallower All Tilts will cover longer time periods in the 128 frame sequence.

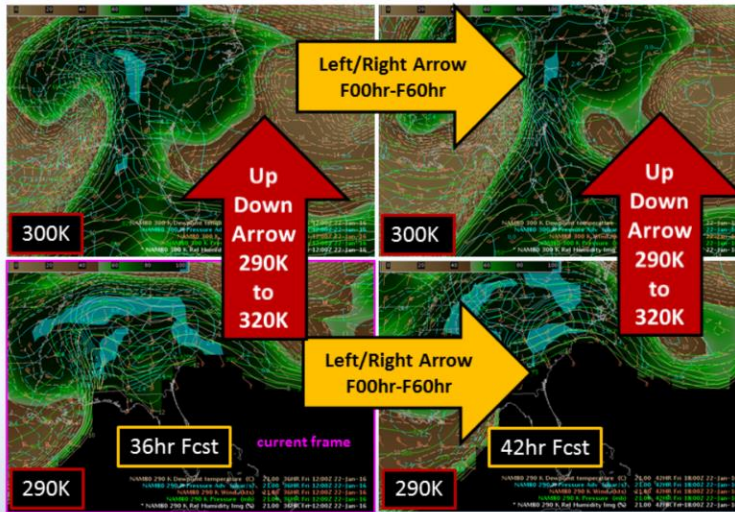
One important thing to know about MRMS All Tilts is that the height coordinate is Above Mean Sea Level, so you will have no data in the lower slices if they are below ground!

The Merged Reflectivity Cube is not available over the SBN, so to obtain this data your office will need to configure your LDAD to bring in the data.



Here is a loop of 0.5-19km All Tilts starting at 0.5km MSL (see height in text legend on lower left). You will notice the lowest altitudes do not show any data because this MSL is below ground.

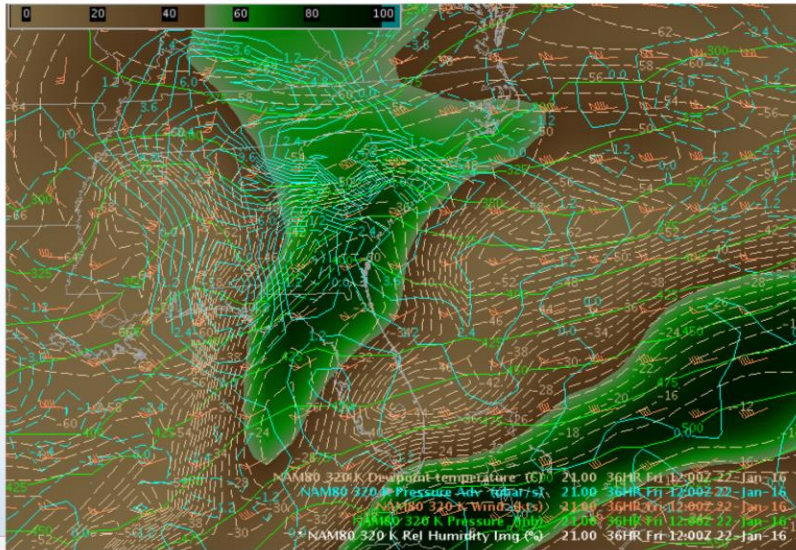
MRMS Bonus: All-Layer Bundles!



All-layer approach by Darrell Kingfield (NSSL/HWT) and original bundle from Doug Speheger (OUN)

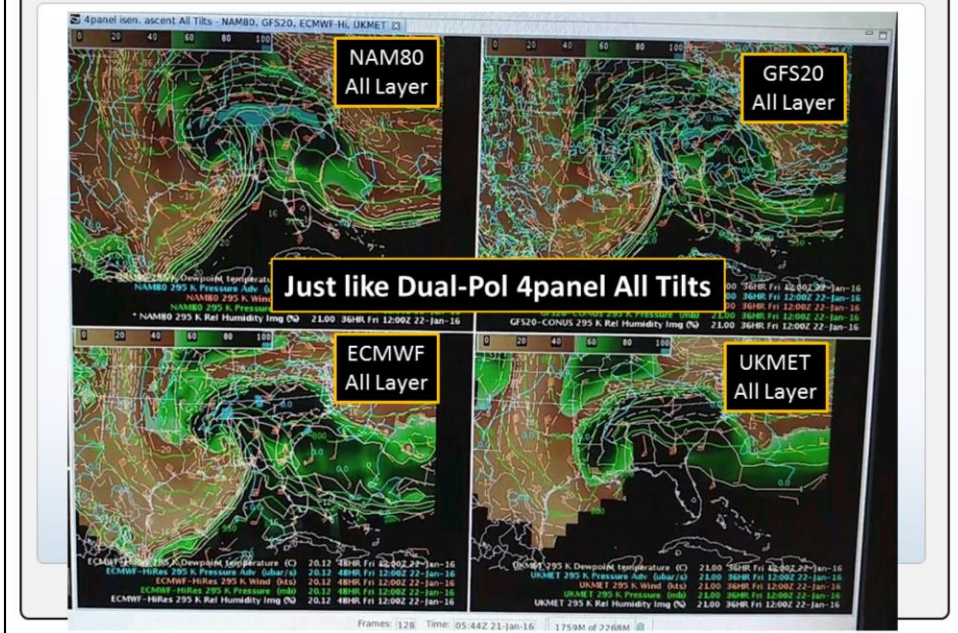
The MRMS All Tilts grid layer navigation opens up new opportunities for other grid products. This allows left and right arrow navigation of time and up and down arrow navigation of layer, just like all tilts only with any grid data. As a bonus in this training in the accompanying job sheets I documented how to convert an existing grid bundle to all-layer. You can also download the procedure from the VLAB to try it on your AWIPS.

Up/Down Arrow Navigates Layer



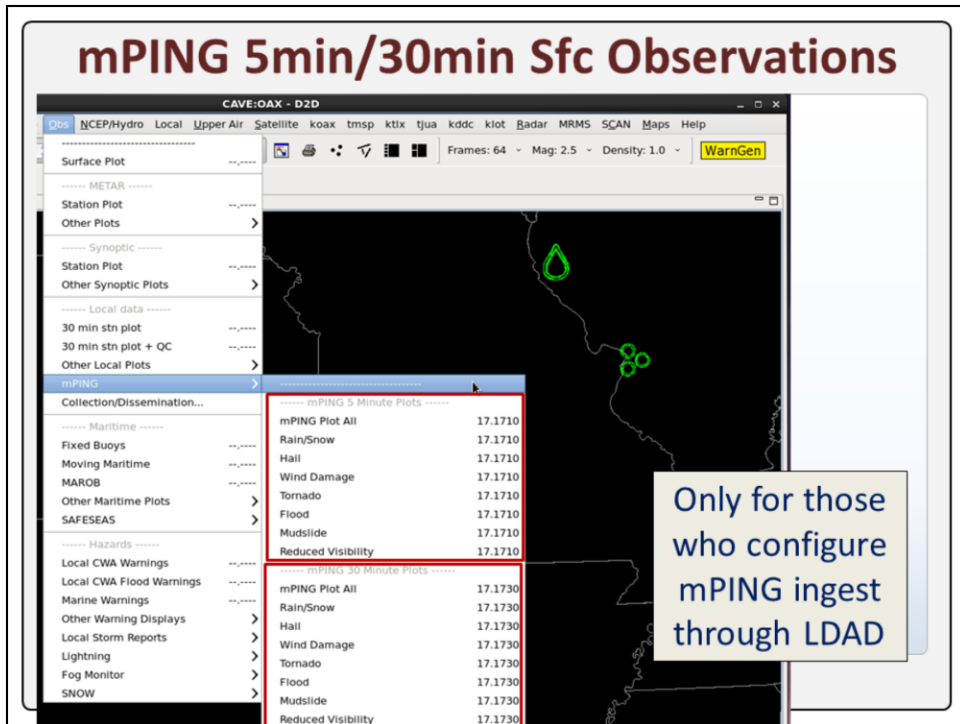
So here is an example of the up arrow navigating through 290K to 320K layers at the 36hr forecast showing the moist isentropic lift as saturated air blows across the green isobars from higher to lower pressure.

Left/Right Arrow Navigates Forecast Time



Navigating the 290K layer in time with the right arrow shows the strong persistent isentropic lift with this historic winter storm.

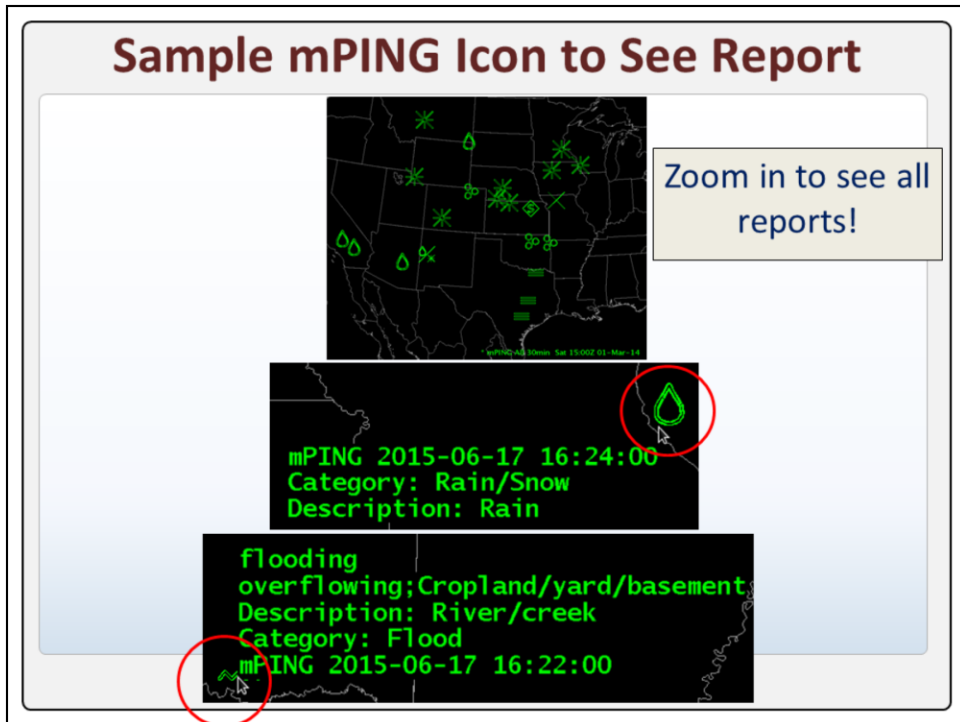
If you want to get real crazy you can make a four panel four model all-layer combination to navigate multiple models in all-layer mode, like I documented in the associated jobsheet. This is a nice example of leveraging the most out of one of the discoveries in the 16.1.1 small enhancements.



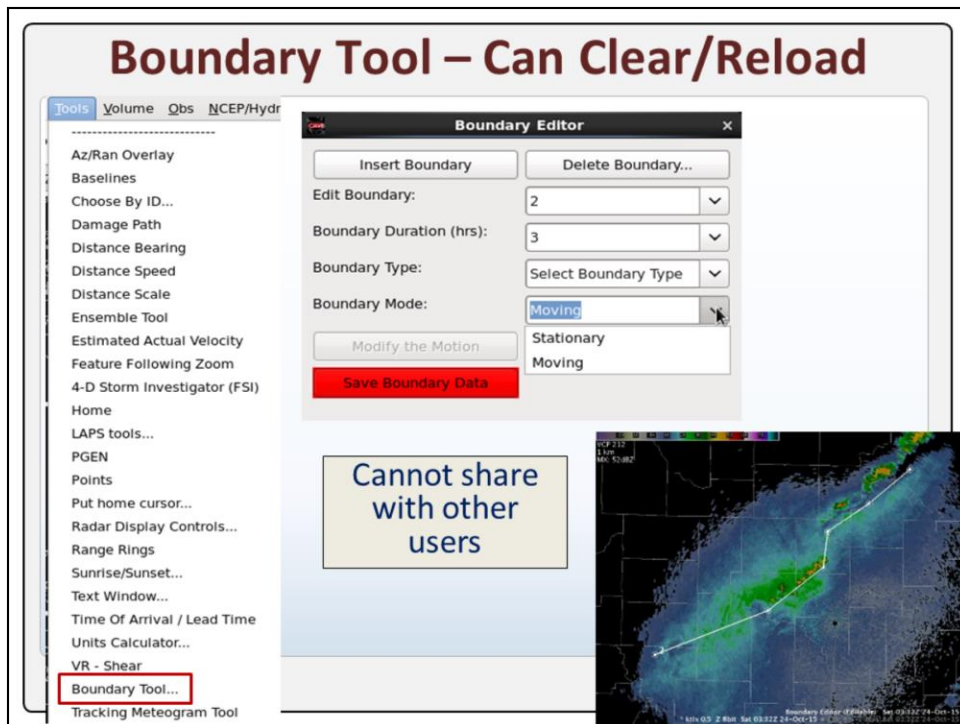
Menus have also been added for the the mPING crowd-sourced surface observations dataset. The menus contain options for 5 min and 30 min bundling of the data. You can select all mPING data types or you can select certain types of mPING observations such as Flood or Rain/Snow.

Like the MRMS Reflectivity Cube, the mPING data isn't on the SBN, so this is only available for those who have configured the ingest through LDAD.

Sample mPING Icon to See Report



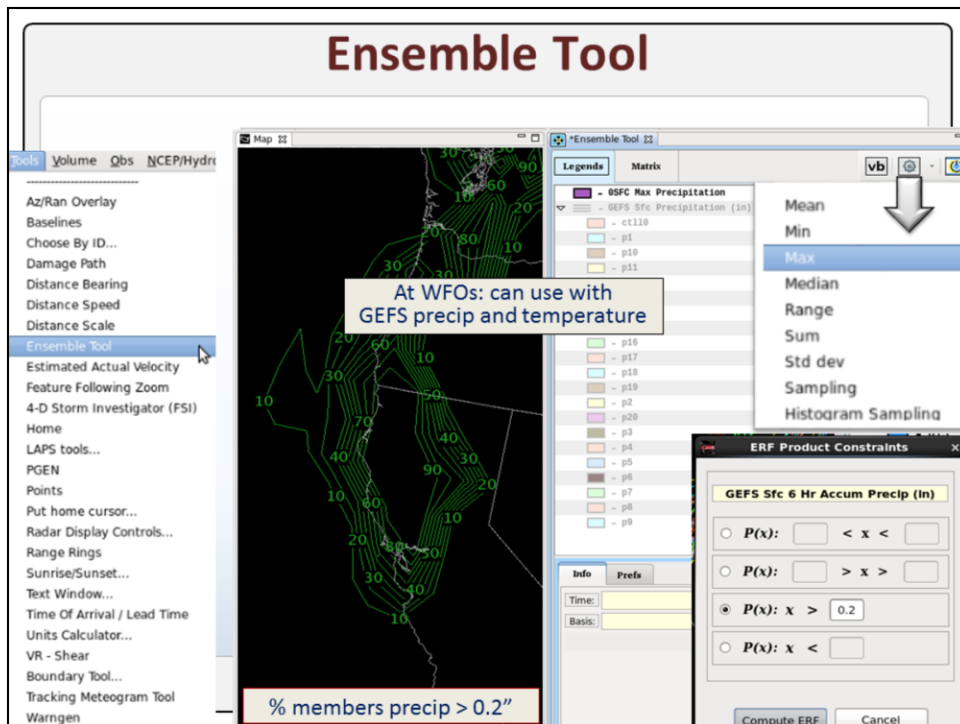
MPING will display many reports, and to see the associated information for each report, just sample the icon. Like surface obs, the mPING reports are sensitive to the zoom level of the progressive disclosure, so always zoom in to see all available reports.



Another Tool called the Boundary Tool... has been added to the Tools menu in 16.1.1. The Boundary Tool was designed for Aviation Weather Center forecasters to be able to draw and track boundaries. WFO forecasters are not expected to use this new tool, but may try it out if interested.

The Boundary Tool is very similar to other D2D Tools such as Distance Speed, Time of Arrival, and Baselines, but the main difference is that you can clear and reload the saved moving boundaries.

One of the limitations with this first version is you cannot share the boundary with other users.



The ensemble tool is another new Tool added to the Tools menu in 16.1.1. The ensemble tool interacts with raw ensemble members loaded through the Volume Browser, and it allows you to display the individual members, sample all members at once (including a histogram), and it allows you to calculate common statistics like Mean, Maximum, and Range, or peak differences between members. It also allows you to create expected relative frequency plots of the members like the probability of precipitation greater than 0.2''.

The only model that WFOs ingest that has the individual members is the GEFS, so for now that is the only model WFOs can use operationally, and the only parameters with all members are precip and temperature.

Other Items Worth Mentioning

- National Blend of Global Models
 - Data ingested in 16.1.1
 - Baseline GFE component coming in 16.2.1
 - Available via NWS Inits Config (NIC) on SCP
 - See COMET/METED for training
- Damage Path Tool
 - 16.2.1 release planned
 - Still in 16.1.1 Tools menu

Project Development Scope

National Digital Forecast Database (NDFD) elements will be part of the National Blend package

Initial weather elements:

- 2-m Temperature
- 2-m Dewpoint
- Daytime Max T and Nighttime Min T
- Sky Cover (%)
- 10-m Wind speed/direction
- 12-h Probability of Precipitation (%)

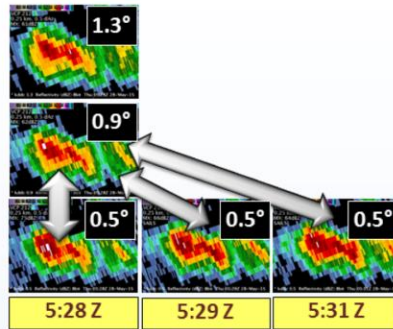
The screenshot also shows a map of the United States with a color-coded overlay, and a context menu with options: Delete Polygon, Hide Properties, Hide Legends, Show Map Legends, Four Panel Layout, and Skip This Frame.

Some other items worth briefly mentioning include the National Blend of Global Models that 16.1.1 will ingest. The GFE component will be baselined in 16.2.1, but for now the GFE Focal Points or ITOs can download the necessary software from the SCP. See the COMET/METED site for training on the model blend.

The other item you will see in the Tools menu in 16.1.1 is the Damage Path Tool which will be used for creating and sending real-time damage path information. This tool is planned to be released in 16.2.1, but the Tools menu is visible in 16.1.1 and won't be removed until 16.1.2.

Summary

- All Tilts SAILS navigation more intuitive
 - 0.5° SAILS tilt up navigation always goes to next highest tilt
 - Most recent All-Tilts frame is actual most recent tilt
- MRMS All Tilts
 - If you ingest MRMS Reflectivity Cube through LDAD
 - Approach can be extended to any volumetric grid data



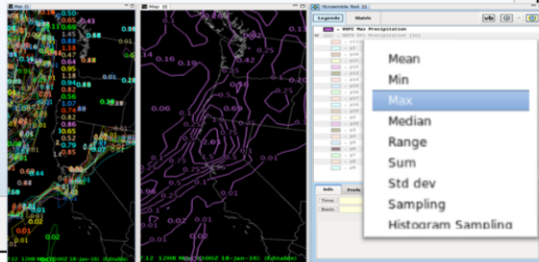
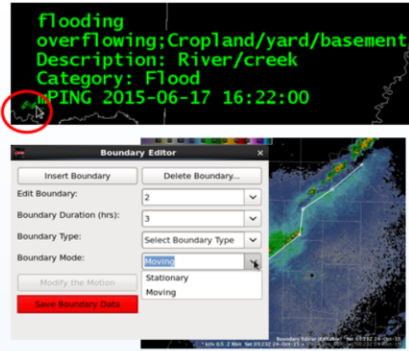
Product Name	Time
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0.5km-6.0km Merged Reflectivity All-Tilts	28.0059
0.5km-19.0km Merged Reflectivity All-Tilts	28.0059
Merged Reflectivity at 0.5km/1.6kft	28.0059
Merged Reflectivity at 0.75km/2.5kft	28.0059

To summarize, the All Tilts navigation has become more intuitive in 16.1.1 now that the up navigation on the extra 0.5 degree SAILS tilts steps to the next higher tilt, just like GR2 Analyst. Also the most recent All Tilts frame now is defined to be the actual most recent tilt collected instead of using the different time stamp in the extra SAILS tilt display.

MRMS All Tilts is now available for the MRMS Merged Reflectivity Cube grid data, but it is only available if your office configured the ingest of the Merged Reflectivity Cube through LDAD. One really cool thing we learned from this is that the same approach can be applied to any volumetric grid data in AWIPS-2.

Summary

- mPING
 - If you ingest mPING through LDAD
 - Zoom and sample icons
- Boundary Tool
 - Clear and reload
- Ensemble Tool
 - WFOs slice/dice GEFS precip and temp data
- National Blend of Global Model Ingest
- Damage Path Tool still in development



Displays for the crowd-source mPING surface observations were also added in 16.1.1, but your office has to ingest the mPING data separately through LDAD first. One thing to remember with the mPING data is that the display of the data is a function of zoom level, so make sure and zoom and sample the data to get the most out of mPING in AWIPS.

The Boundary Tool allows you to create a stationary or moving boundary that will persist over a user-specified time that you can clear and reload.

The Ensemble Tool is a new tool to slice and dice raw ensemble members in AWIPS, which is currently limited to the GEFS precip and temperature data at WFOs. With this tool you can sample out all members of the ensemble or create new plots of things like the Max of all members or the Min of all members.

The National Model Blend of Global Models ingest has started in 16.1.1, and while you will see the menu item for the damage path tool in 16.1.1, anticipate the operational release of the tool in 16.2.1.

Check Out VLAB & Job Sheets

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

The screenshot shows a web browser window displaying the NOAA VLAB website. The page title is "All Tilts VLAB Reference Page". The browser address bar shows the URL <https://vlab.ncep.noaa.gov/web/oclo/home>. The website header includes the NOAA logo and the text "VIRTUAL LAB WHERE GREAT IDEAS BECOME OPERATIONAL REALITY". A navigation menu at the top has "Home", "Forecaster References" (highlighted with a red box), and "OCLO VLAB S...". The main content area is divided into two columns. The left column contains a "Welcome" message and a list of services including Decision Support and Communications Services Division, Electronics and Information Technology Division, Forecast Decision Training Division (with a link to "FDTD web page"), Leadership Academy, and Warning Decision Training Division (with a link to "WDTD VLAB Community"). The right column is titled "Overview:" and contains a list of navigation tips and refresher commands. A "Usage Tips" section is partially visible at the bottom. A contact email address, "Contact: Michael.A.Magsig@noaa.gov", is highlighted in a box at the bottom of the page.

Overview:

All Tilts VLAB Reference Page

- With 16.1.1, the default all-tilts navigation changes on the extra 0.5 degree SAILS tilts that volume scan, and the most recent frame shortcuts step to the most recent tilt, regardless of the volume scan.
 - The vertical navigation is like GR2 Analyst, and is more intuitive than before 16.1.1.

Refresher Commands:

- *Loading* - loading all tilts (load from menu) hasn't changed with the new navigation, but...
- *Navigation Controls* - With "Enable SAILS Frame Coordinator" selected (default as of 16.1.1):
 - **Ctrl + right arrow** - most recent tilt, not using AWIPS time stamp
 - **Ctrl + left arrow** - oldest lowest tilt
 - **Ctrl + up arrow** - highest tilt for volume scan displayed
 - **Ctrl + down arrow** - lowest tilt for the volume scan displayed
- With "Enable SAILS Frame Coordinator" deselected (pre 16.1.1 behavior with extra 0.5 degree SAILS tilts):
 - **Ctrl + right arrow** - most recent tilt, but treats extra 0.5 degree SAILS tilts as most recent
 - **Ctrl + left arrow** - oldest tilt
 - **Ctrl + up arrow** - highest tilt for volume scan displayed, treats 0.5 degree SAILS tilts as most recent
 - **Ctrl + down arrow** - lowest tilt for volume scan displayed, treats 0.5 degree SAILS tilts as most recent

Usage Tips

Contact: Michael.A.Magsig@noaa.gov

You are now done with the AWIPS 16.1.1 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 join the OCLO VLAB community, just enter this address in a browser on AWIPS or on the Web.

The reference pages contain job sheets, refresher commands, and more for quick access to key information as you integrate the new capabilities into operations.

Let me know if you have any further questions or want to give some feedback on this new training approach. Good luck with the new 16.1.1 capabilities.