

AWIPS Build 18.2.1 Informational Overview

Stas Speransky
Warning Decision Training Division



Welcome to the AWIPS Build 18.2.1 Informational Overview. I'm Stas Speransky from WDTD, and I will be introducing you to some of the significant changes in 18.2.1.



• **Course Completion Info**

- *Tabs - 4 Tabs (Including Introduction)*
- Last Modified: Jun 27, 2017 at 08:43 AM

PROPERTIES

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

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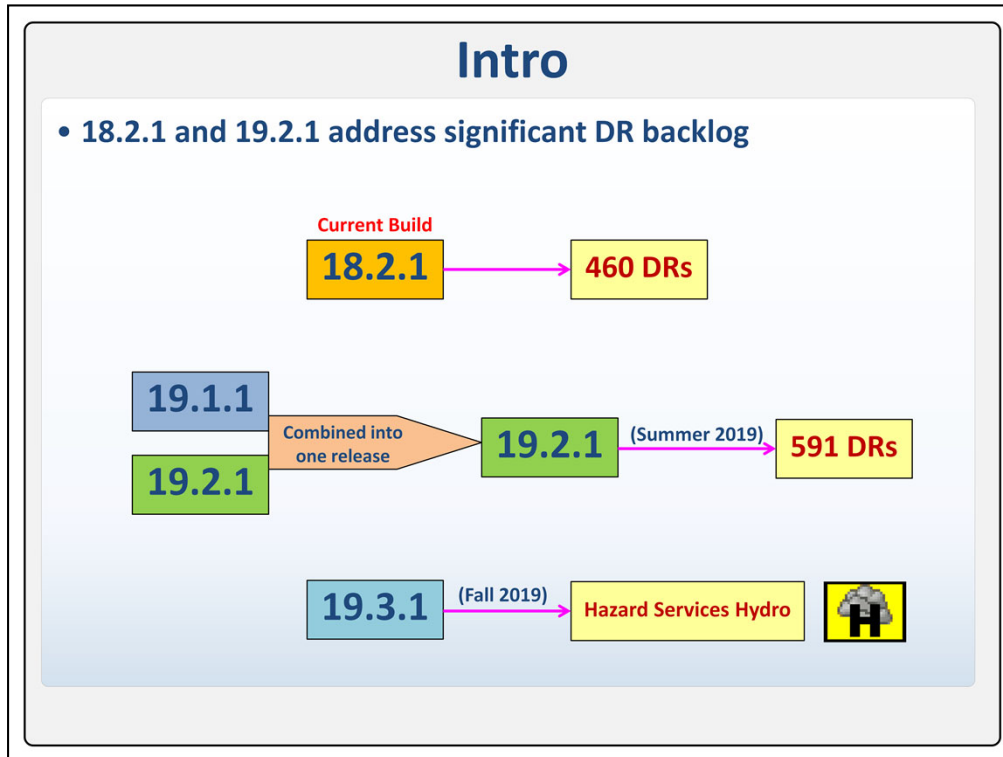
Learning Objectives

After taking this training you will be able to identify some of the more notable AWIPS changes in

18.2.1:

- Radar: VCP 112 , Dual pol precip bias "N/A" label, Z/V menus torn off together
- Radar cross section mapping error fixed
- NSHARP load and save
- Time match basis preserved in bundles
- GOES-R True-color sampling
- Local and regional flood warnings display
- Time of Arrival Tool differences
- Hail size designation altered in WarnGen template
- Hourly precipitation URMA for CONUS, NWRFC and Puerto Rico
- Significant Tornado Parameter loads in Volume Browser
- Duplicate entries in pqact.conf files may hinder performance

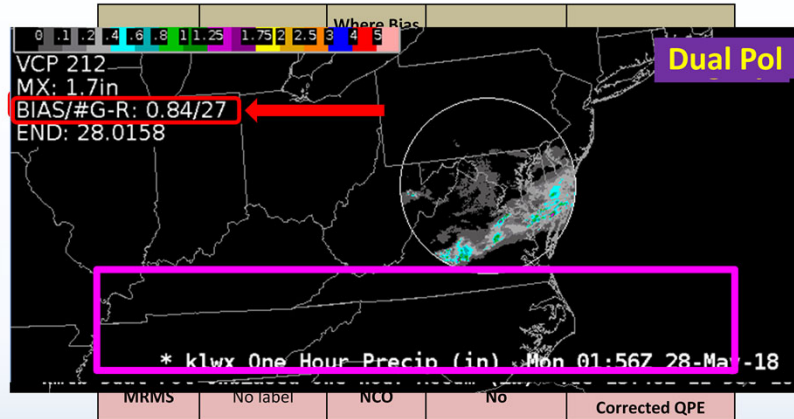
The goal of this training is to provide a general awareness of the following new capabilities and recent changes, for forecasters, in around 10 minutes, including some additional material for focal points.



After AWIPS build 18.2.1, 19.1.1 and 19.2.1 will be combined into one 19.2.1 release. One feature of the next two builds is that they address a large portion of the significant DR backlog that has accumulated since AWIPS-2 was fielded in 2015. This overview will address the more commonly used higher-impact changes and some of the small enhancements, but if you would like to see a formatted list of the DRs, see the Resources tab for the 18.2.1 DR spreadsheet. After the DR backlog builds, 19.3.1 is planned to primarily contain Hazard Services, a major enhancement that will provide new hydro product generation capability that will ultimately replace all watch, warning, and advisory generation software in AWIPS. WFOs should anticipate a large amount of focal point training and user training when Hazard Services is deployed to support the significant task of porting all existing hydro configurations over to the the new platform and immediately adopting this new software for primary operations and service backup. If there are no slips in deployment, the training will be released for WFO beta in summer of 2019 and if Hazard Services slips, then this major enhancement will be moved into the 2020 builds.

Radar: RPG 18 and 19 Support

- Dual-Pol precip bias **N/A** label (RPG 18)



See module:
"Interpreting Bias Information in AWIPS"

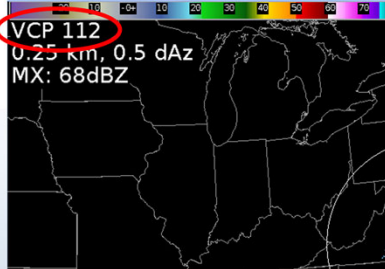
In AWIPS there are three precip sources (legacy, dual pol, and MRMS) that have biases calculated from rain gauge data. The legacy and dual-pol precip products have a text legend in the upper-left part of the product that displays bias factor information. In support of an RPG build 18 change, you will see a new "N/A" label in the BIAS field of dual-pol precip products. Previously, a Legacy DHR-based precip bias was incorrectly displayed on the Dual-Pol products. While N/A is displayed in the Dual-Pol precip product legends, it is important to point out that dual-pol biases are still calculated by the local Multisensor Prediction Estimator, and they are applied by default in the Bias-HPE Dual-Pol mosaic product. For a summary of precipitation bias information in AWIPS, please see this table or review WDTD's module in the CLC titled "Interpreting Bias Information in AWIPS."

Radar: RPG 18 and 19 Support (cont)

- Tear off both Z and V for same radar (RPG 18)

- **V**
 - Best Res Base Products -----
 - kgbm Z
 - kgbm V
 - kgbm SRM
 - kgbm SW
 - kgbm ZDR
 - kgbm CC
 - kgbm KDP
 - kgbm Precip

VCP 112
0.25 km, 0.5 dAz
MX: 68dBZ



```

NEXRAD UNIT STATUS
Op Mode/VCP = Precipitation/Severe Weather Mode/VCP112
VCP Supplemental Info = AVSET, RsrN
New Prod Status = Products Available
Base Data = Reflectivity, Velocity, Spectrum Width, Dual Pol. Data Expected
CHD = Enabled
Ded RPG Coax = Connected
RPG Avail = Online
RPG Bandwidth = Normal
RPG Software = Operate
Delta Sys Cal: -0.25H, 0.25V
RPG Alarm = No Alarms
RDA Avail = Online
RDA Software = Operate
RDA Alarm = No Alarms
RDA Version = 18.0
RDA Channel = RDA 2
RPG Version = 19.0
    
```

Elevations

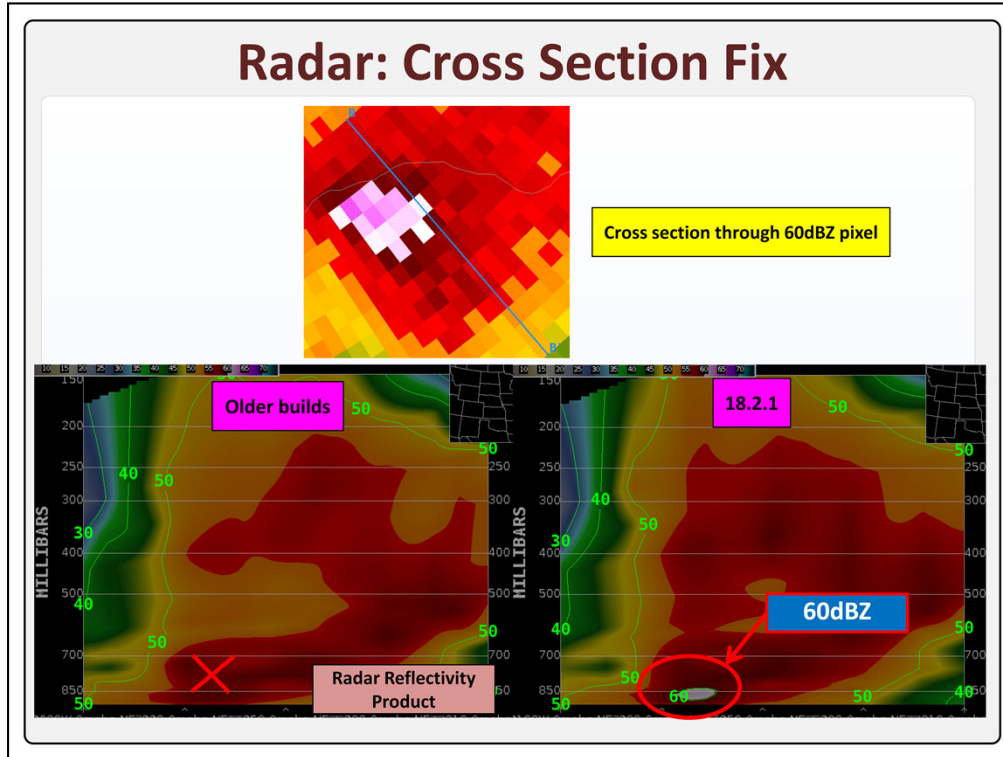
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5.1
4.0
3.1
2.4
1.8
1.3
0.9
0.5

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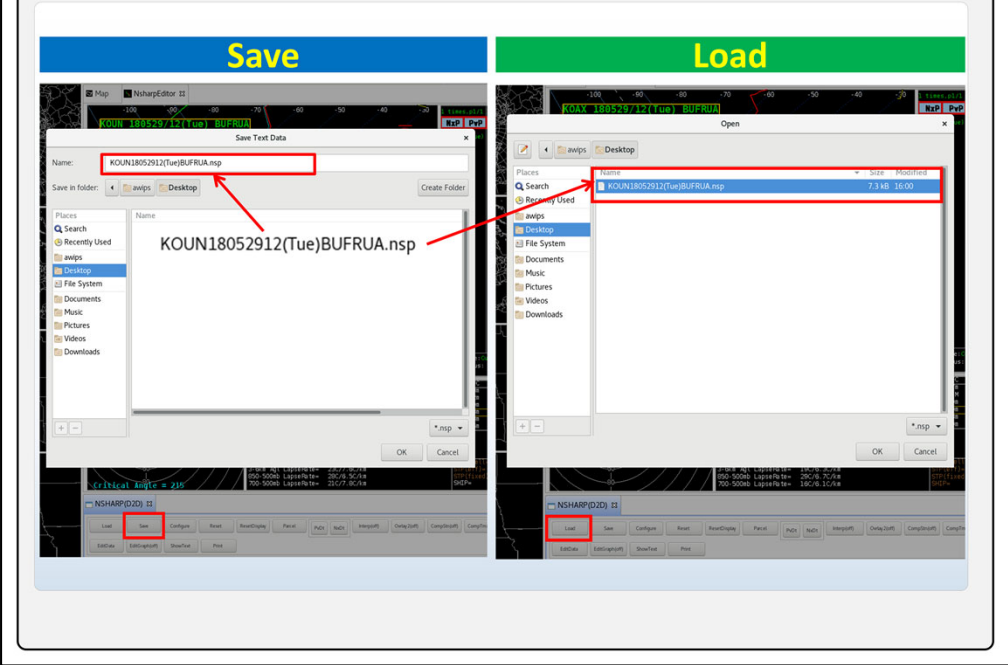
3:59
3:59

Another radar enhancement in 18.2.1 is that both Z and V product submenus can now be torn off together for the same dedicated radar for the same CAVE session. Before, you could tear off multiple submenus with any combination of products except Z and V for the same radar. With RPG build 19, due later this year, a new VCP 112 has been introduced containing a new Multi-PRF Dealiasing Algorithm (MPDA). This will replace VCP 121 and improve the range folding of velocity data by combining two back to back SZ-2 velocity scans at 0.5, 0.9 and 1.3 degrees.



In the past, when using the Volume Browser to display radar data, such as performing a cross section, the data would map incorrectly. The mapping would be off by about 5 nautical miles. This difference can cause you to miss important features when aligning the baselines to perform a cross section. This issue is fixed in 18.2.1. However there's still a limitation as currently only the reflectivity product can be loaded as a cross section from the volume browser.

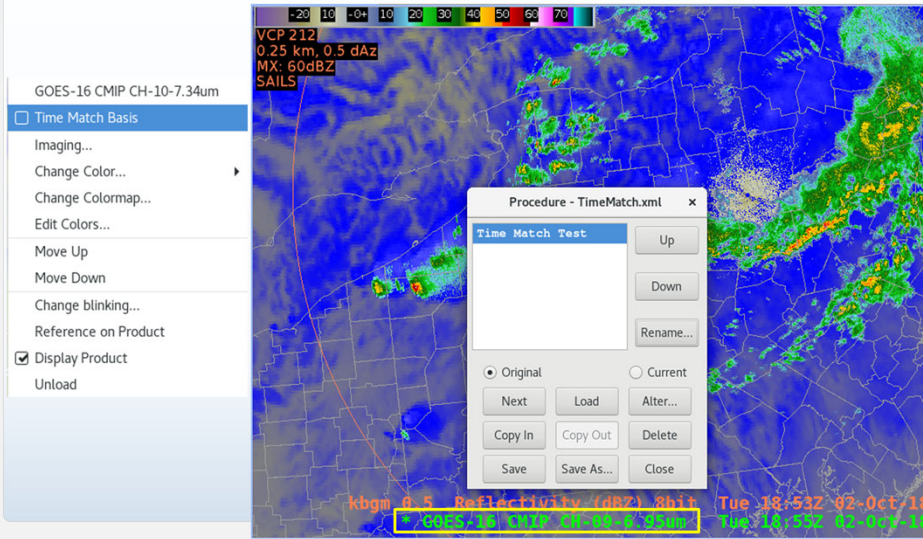
NSHARP Save and Load



In previous builds, alertviz would throw out an unparseable date error which prevented the user from loading a saved NASHARP display. This issue is fixed in build 18.2.1. In this example, we saved and loaded the KOUN upper air profile from 12z on May 29, 2018.

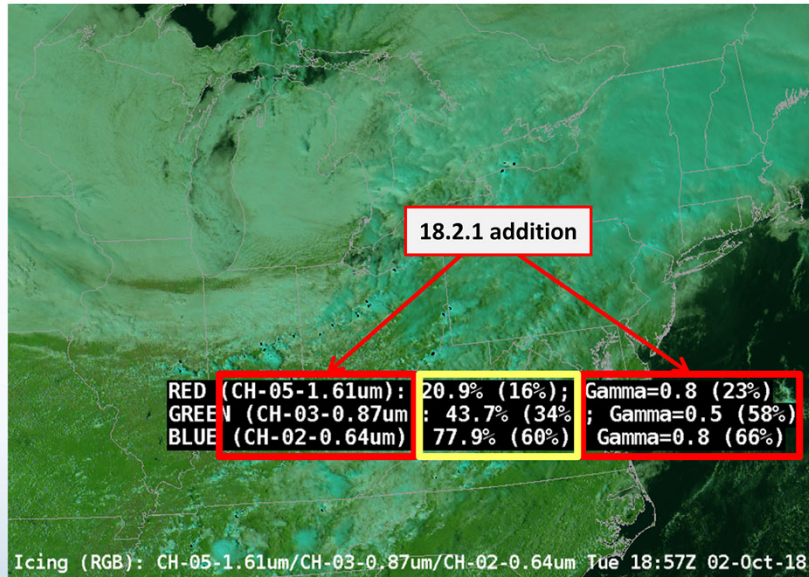
Time-Match Basis Preserved in Bundles

- Time match basis is for the data loaded and future data



In Build 18.2.1, time match basis will now be preserved when you save a procedure or a perspective display. Right click and hold on the product legend and select time match basis for a particular product. This forces other data that's currently loaded in the map editor to load the nearest time to the product that is the time match basis for every frame of data.

GOES-R True-color Viz Sampling



In Build 18.2.1, when you sample a GOES-R RGB composite product, you will now see the channel name and gamma setting displayed. In prior builds, you could only see the red/green/blue channel percentages. This addition can provide more clarity to the user when sampling certain image composites.

GOES-R: New Products and Menus

The screenshot displays a software interface with several panels. The top panel is titled 'GOES-R: New Products and Menus'. Below it, there are four main columns of menu items:

- Satellite**: Includes 'GOES-East and GOES-17', 'IR Window', 'Water Vapor', 'Visible', '3.9u', '13u', '11u-3.9u', '11u-13u', 'WW/IR', '4 panel (GOES M-Q)', 'POES Imagery', 'IR Window', 'Visible', '3.7u', '11-3.7u', 'Sounder Imagery', 'Derived Products Imagery', 'Derived Products Plots', 'NPP Products', 'OCONUS Imagery', 'NH/NA/US every image', 'IR Window', 'Water Vapor', 'Visible', '3.9u', '13u', '11u-3.9u', '11u-13u', 'WW/IR', '4 Sat Composite', 'IR Window', 'Water Vapor', 'Visible', 'WW/IR'.
- GOES-East and GOES-17**: Includes 'Best Res East Conus', 'Channel 1(0.47u)', 'Channel 2(0.64u)', 'Channel 3(0.87u)', 'Channel 4(1.38u)', 'Channel 5(1.61u)', 'Channel 6(2.25u)', 'Channel 7(3.9u)', 'Channel 8(6.19u)', 'Channel 9(6.95u)', 'Channel 10(7.34u)', 'Channel 11(8.5u)', 'Channel 12(9.61u)', 'Channel 13(10.35u)', 'Channel 14(11.2u)', 'Channel 15(13.3u)', 'Regional Best Res', 'By Sector', 'Imagery Channels', 'Derived Products', 'Channel Differences', 'RGB Composites', 'Conus With Legacy', 'GOES-R + GOES-15', 'GOES-R + GOES-13', 'Automatic', 'Derived Motion Winds', 'GOES-East', 'GOES-West', 'GOES-Test', 'Legacy Temp/Moisture Profile', 'GOES-East', 'GOES-West'.
- Channel Differen...**: Includes 'Alaska', 'East Conus', 'East Full Disk', 'East Mesoscale 1', 'East Mesoscale 2', 'Hawaii', 'Puerto Rico', 'West Conus', 'West Full Disk', 'West Mesoscale 1', 'West Mesoscale 2', 'Center Conus', 'Center Full Disk', 'Center Mesoscale 1', 'Center Mesoscale 2'.
- East Conus**: Includes 'Split Window(10.3-12.3 μm)', 'Split Cloud Top Phase (11.2-8.4 μm)', 'Night Fog (10.3-3.9 μm)', 'Day Fog (3.9-10.3 μm)', 'Split Fire (2.2-1.6 μm)', 'Split Ozone (9.6-10.3 μm)', 'Split Water Vapor (6.19-7.3 μm)', 'Split Snow (1.6-0.64 μm)', 'Vegetation (0.64-0.87 μm)', 'Upper Level Info(11.2-6.19 μm)', 'Aerosol Detection', 'Aerosol Optical Depth', 'Clear Sky Mask', 'Cloud Optical Depth', 'Cloud Particle Size', 'Cloud Top Height', 'Cloud Top Phase', 'Cloud Top Pressure', 'Cloud Top Temperature', 'Derived Stability Indices', 'Fire/Hot Spot', 'Land Skin Temp', 'RR/QPE', 'Sea Surface Temperature', 'Snow Cover', 'Total Precip Water', 'Volcanic Ash', 'Volcanic Ash', 'Volcanic Ash'.

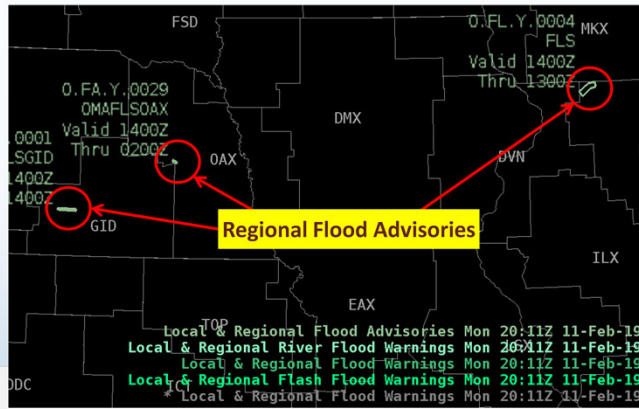
At the bottom center, there is a purple box labeled 'Baseline Menu'.

There are some new GOES-R products and menus in this build. However, many of you may have already seen these if you have the new TOWR-S AWIPS RPM installed. This RPM also has more user friendly menu item names to describe each channel. See the Resources tab for a link to the RPM release page.

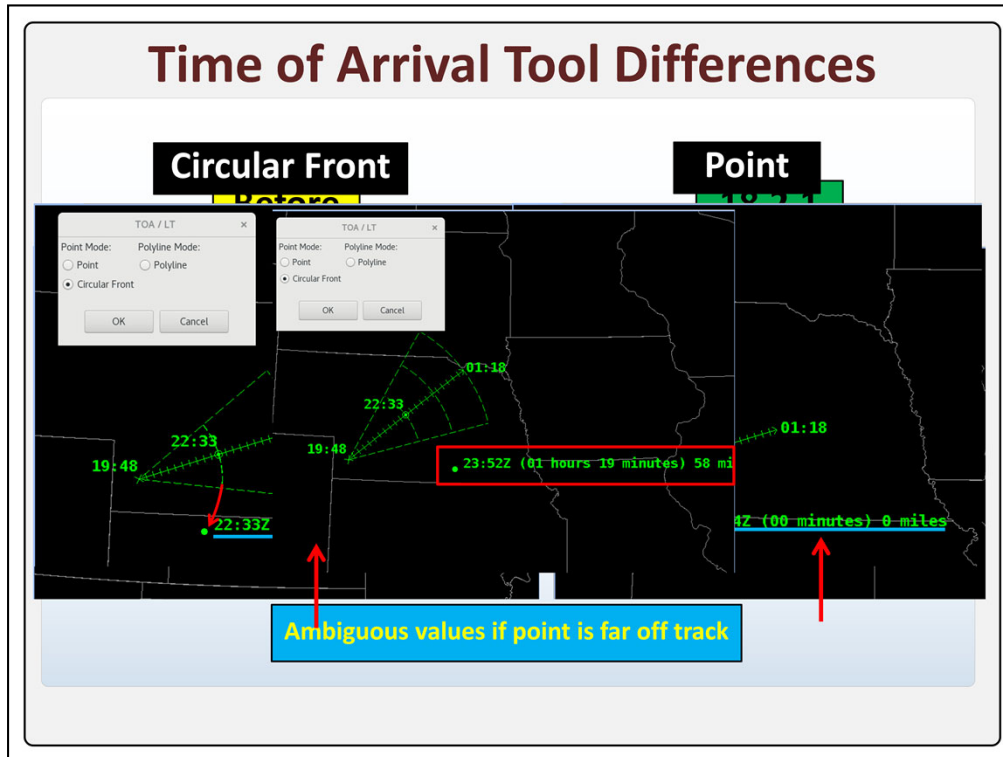
Display Regional Flood Advisories

- Flood advisories from neighboring CWAs now display without issues

All Local CWA Warnings	11.1400	
Other Regional Warning Displays		
National Warning Displays		Regional Convective Warnings
NWS Regional Warning Displays		Regional Flood Warnings
Local Storm Reports		Regional Sig Wx Advisories (SPS)
Lightning		Regional Marine Warnings
Fog Monitor		Regional Localized Extreme Weather Warnings
SNOW		All Regional Warnings



There have been issues in the past displaying regional flood advisories in CAVE. This is now fixed and all the flood advisories from neighboring CWAs should now display.



There is one change in behavior of the Time of Arrival Tool in this build. Before, you could get an “Unrealistic Point of Arrival” label when attempting to drag the Point of Arrival icon too far off the track for the point, circular front, and polyline modes. With build 18.2.1, you will only see an Unrealistic Point of Arrival label using the polyline mode, while point and circular front modes are always labeled with arrival values. Be aware that the time of arrival for a point displaced to the side of the centerline is actually calculated using a circular front passing through the current time step for the point and circular front modes. A good way to visualize the implications of this is to move the time of arrival point along the circular front arc at the current time step. You will get 0 miles and 0 minutes for the arrival time anywhere along the arc even though the arrival point may be very far away from the feature you are attempting to track and the feature will never arrive there, which can be misleading. Those who use the point and circular front modes properly and place their points close the track or along the displayed arc won’t notice any difference in 18.2.1 and it will continue to work correctly. For those who move points significantly to the side from the track or displayed arc, you will now see values even though they can be ambiguous.

WarnGen

- **0.75" hail in Special Weather Statement and Significant Weather Advisory changed from **dime** to **penny** size in templates to be consistent with SVR and TOR**



18.2.1

***** THREAT (CHOOSE UP TO 1 EACH

Winds 30 mph or greater

Strong winds 40 mph or greater

Strong winds to 50 mph

Strong winds 50 to 55 mph

Pea size hail

Half inch hail

Penny size hail

Nickel size hail

Old

***** THREATS (CHOOSE UP TO 1 EACH

Winds 30 mph or greater

Strong winds 40 mph or greater

Strong winds to 50 mph

Strong winds 50 to 55 mph

Pea sized hail

Half inch hail

Dime sized hail

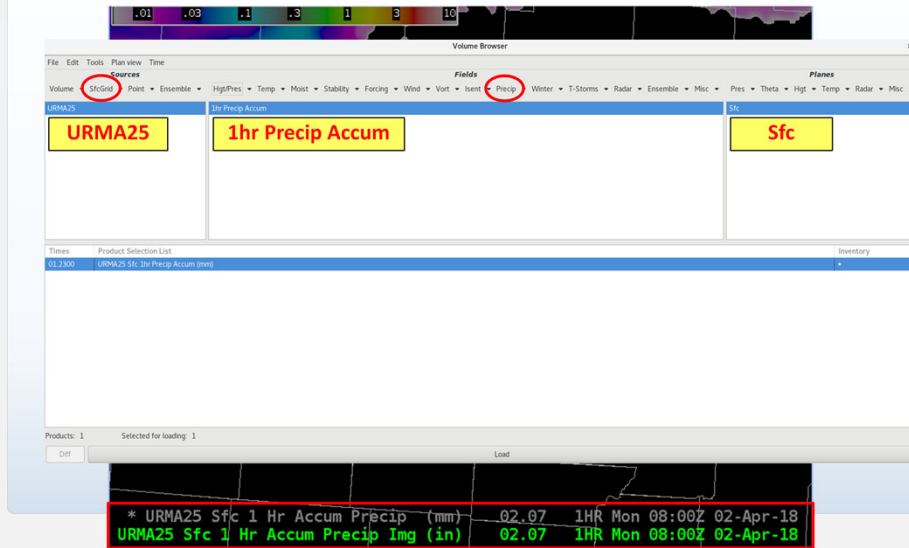
Nickel sized hail

0.75"

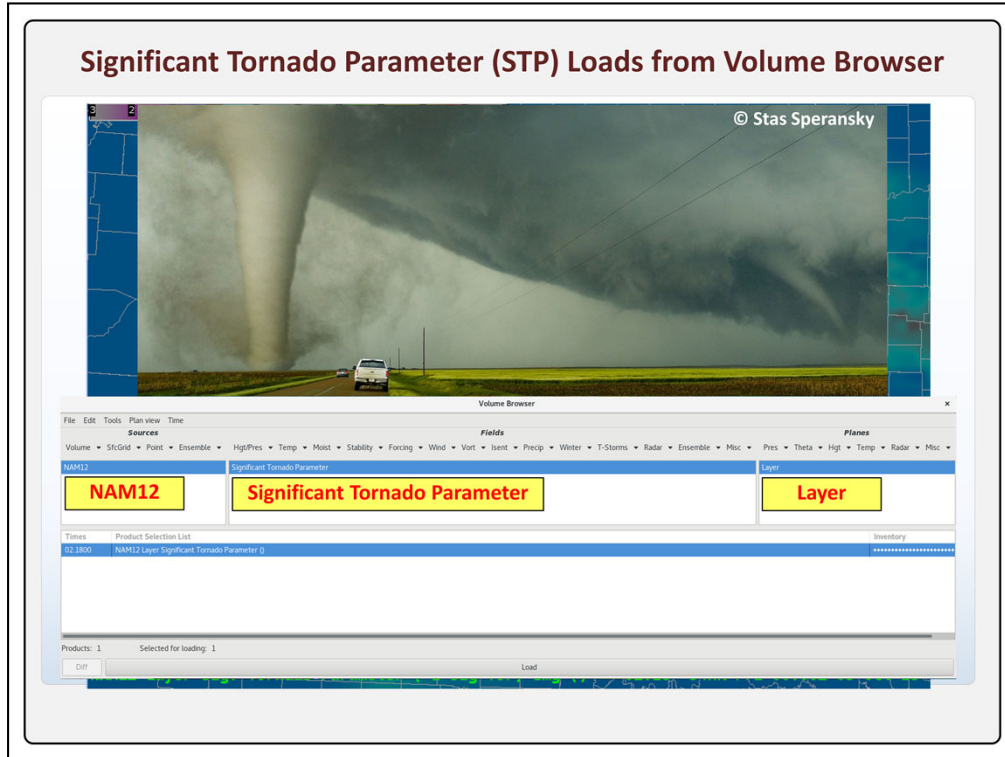
There was an inconsistency in hail size that has been addressed in this build. The Special Weather Statement and Significant Weather Advisory used to code 0.75 inch hail as dime sized, while Severe and Tornado warnings coded 0.75 inch hail as penny sized. To be consistent, 0.75 inch hail in the Special Weather Statement and Significant Weather Advisory has now been changed to penny sized in the template.

Unrestricted Mesoscale Analysis (URMA) Hourly Precip

- 1-hour precip added to CONUS and Puerto Rico



In 18.2.1 the hourly RFC Stage IV precipitation accumulation products have been added to the Unrestricted Mesoscale Analysis, or URMA, for the CONUS and Puerto Rico domains. URMA is a version of the Real Time Mesoscale Analysis (RTMA) 2D objective analysis system of sensible weather elements like 2 meter temperature, 10 meter wind, visibility, wave height, etc. These fields are available in the WeatherElement Browser in GFE and in the D2D Volume Browser. The main RTMA is run hourly and is used for real-time nowcasting and situation awareness, while URMA is run up to 6hrs after RTMA to capture all late arriving observations to be used for verification, calibration, and the analysis of record.



18.2.1 comes with the capability of loading the significant tornado parameter or STP from the volume browser. The field was selectable from the T-Storms pulldown menu in previous builds, but it would never display.

Under the Hood Changes For ITOs and Focal Points

The following slide is for ITOs and Focal points. If you are a forecaster, you may skip the next slide and advance to the summary slide.

For ITOs and Focal Points

- **uEngine will be decommissioned in 19.2.1**
- **Performance**
 - **pqact.conf.xxx files may contain duplicate entries for NBM**
- **AWIPS Performance and Tips in [Resources Tab](#)**



The microengine will finally be decommissioned in the next build which is 19.2.1. So make sure that you have migrated all local application microengine usage to the Data Access Framework or DAF. See the Resources tab for a link to the documentation. System performance is becoming more of an issue these days, and there is one known performance issue you can prevent. Some sites may have duplicate entries for the NBM in the pqact.conf.xxx file which can unnecessarily increase processing and negatively affect system performance. See the living release notes for more information on removing duplicate entries. In addition, please see the google doc titled AWIPS Performance/Tips. This was put together by Andrew Just and is a good resource for machine performance related concerns such as watching the DX load averages, monitoring qpid, and archiving.

Summary

- DR backlog addressed in this build and 19.2.1

- Radar

- N/A BIAS label in Dual Pol precip products

- VCP 112

- VCP 212 Z and V for same radar

- WX:3.0 in cross section from VB

- Saved NSHARP display can now be loaded

- Time

- GOES-R

- Sa800 gamma settings

- New products and menu

- Display regional flood advisories

- Time of Arrival Tool “Unrealistic Point of Arrival” label change

- Warning 0.75” hail change

- Weather Advisory and Significant Weather Advisory has been changed from dime to penny sized in the template to match that of severe and tornado warnings.

- Hourly precip added to

- STP loads from VB

- Focal Points

- uEngine decommissioned in 19.2.1

- *URMA25 Strc 1 Hr Accum Precip (mm)

- Duplicate entries for NWS in nrgmt.com xxx can slow performance

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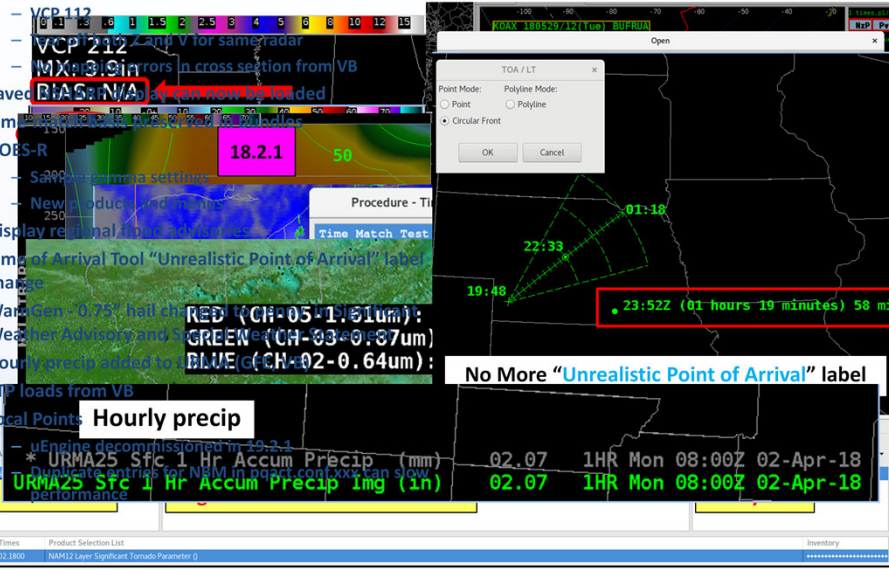
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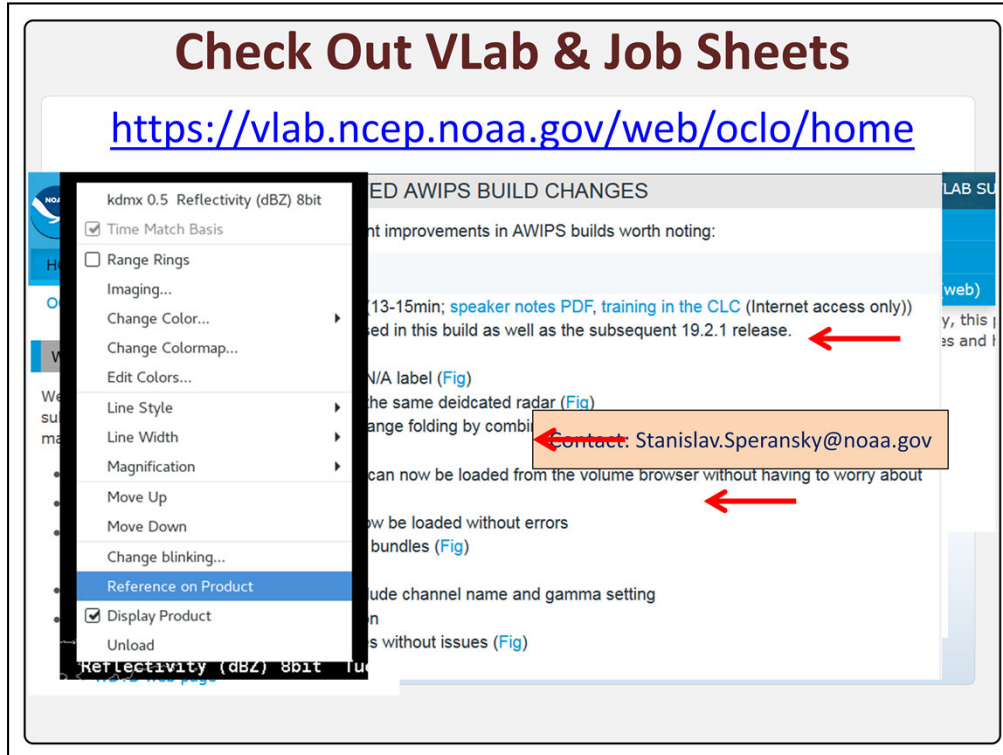
- Duplicate entries for NWS in nrgmt.com xxx can slow performance

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To summarize, 18.2.1, and the subsequent 19.2.1 release will address a significant DR backlog, followed by a 19.3.1 release that is scheduled to contain Hazard Services. Some of the radar upgrades in this build include: an N/A label in the BIAS field of dual pol precip products, a new VCP 112, and the capability to tear off both Z and V products for the same dedicated radar. For the new VCP, you will have to wait until RPG19 is fielded later this year. Additionally, you can now confidently use the radar cross section on a reflectivity product in the volume browser without having to worry about mapping errors. You should now be able to load a saved NSHARP display without issues. Time match basis will now be preserved when you save a procedure or perspective display. In Build 18.2.1, when you sample a GOES-R RGB composite product, you will now see the channel name and gamma setting displayed. The GOES-R submenu has been re-organized in this build. You should now be able to display regional flood advisories from neighboring CWAs without issues. The behavior of the Time of Arrival Tool has changed in this build. Specifically, you can no longer get an unrealistic point of arrival for the point and circular front features. For best practice, don't place points of arrival significantly to the side from the track or displayed arc, or you will end up with ambiguous values for the time of arrival. 0.75" hail in the Special Weather Statement and Significant Weather Advisory has been changed from dime to penny sized in the template to match that of severe and tornado warnings. In 18.2.1 the hourly RFC Stage IV

precipitation accumulation products have been added to the Unrestricted Mesoscale Analysis, or URMA, for the CONUS and Puerto Rico domains. You can now load the Significant Tornado Parameter from the volume browser in this build. For focal points, make sure that you have migrated all local application microengine usage to the Data Access Framework as microengine will finally be decommissioned in 19.2.1. Finally, some sites may have duplicate entries for the NBM in the pqact.conf.xxx file which can negatively affect system performance.



You are now done with the AWIPS 18.2.1 Informational Overview.

Just enter this address in a browser on your LX workstation or on the Web and select the AWIPS Build Changes VLab page from the Forecaster References.

Alternatively, you can right click on a product in the Product Legend in CAVE and select Reference on Product. This will bring up the AWIPS Interactive Reference search page. Type AWIPS Build Changes in the Keywords search then click Update and you should see the Build Changes Page as the top hit.

Let me know if you have any further questions, and good luck with the new 18.2.1 capabilities.