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AWIPS Operational Build 8.2: BETA Release Notes

Draft

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AWIPS OB8.2 BETA (DRAFT) Release Notes

Section I – New Functionality in OB8.2

Table of Contents – Section I

NOTE: Starting in OB8.2, a table is provided in the System Manager's Manual (App Q) and User's Manual (App E) listing the various AWIPS applications and their correct version numbers.

1.0 D2D/TEXT/OTHER APPLICATIONS

1.1 Radar

- Estimated Actual Velocity: A new tool is provided to compute actual wind velocity from the radial component and a user-supplied wind direction.
- Super-resolution 88D products: New 1/4km 1/2deg width base products (Z, V, SW) are added to the radar menus, and can be requested in RPS, OTR, and RMR applications.
- **Improvements:**
  - Several changes have been made to the radar menus to accommodate the new super-res products. Among others, these include
    - 4 Bit Prods, at the top, is now 4 Bit/Legacy Prods. Added here are the 3-bit SW and 8-bit (non super-res) Z & V products, and some old mesocyclone graphics that will be eliminated in ORPG10.
    - DHR & HSR are moved from Derived>Other to Precip.
    - Refl Clut Prob (CLR) and Vel Clut Prob (CLD) are pushed down into a new Data Quality submenu. This also includes CFC, which is moved from Derived>Other.
  - On the (new) Data Quality menu, CFC is replaced by a set of five CFC segment products. The OTR/RMR request will no longer include selection of channel.

1.2 Grib Decoder

NAM 5 km grids (GRIB2) decode, store, edit, and display: DNG of Sensible Hydrometeorological Elements: NAM-DNG5 products are available to AWIPS. The NAM (downscaled grids 5km North American Mesoscale model) is distributed from NCEP via SBN. This identifies the modifications necessary for AWIPS to request, decode, store, and display these new products. The methods used are consistent with the methods used in processing NAM products. These grids will be distributed on the CONUS, Puerto Rico, Alaska, and Hawaii NDFD grids (currently 5 km resolution) at 3-hourly temporal resolution from F00 though F84.

NamDNG5 grid source shows 5km down-scaled NAM grids for NDFD. Fields include T, Td, Tmin, Tmax, wind, precip, categorical rain, cloud, snow water equiv, visibility, and geometric height, 3h increment out to 84 hours.

1.3 NCEP

- **Enhance Rapid Update Cycle (RUC) 13km grids AWIPS suite:** In AWIPS OB7.2, NCEP's RUC 13km CONUS model grids were implemented, augmenting the suite of RUC40 (Grid 236 40km) and RUC80 (Grid 211 80km) grids. For the original RUC13 implementation, the list of products for the new 13 km data set pooled together all of the existing parameters for the 40 km and 80 km grid sets. This included surface CAPE and surface CIN fields. Additional requirements have been implemented in this release to add fields for "best" CAPE, "best" CIN, and model terrain to the existing RUC13. To calculate "best" CAPE and "best" CIN, RUC finds the most unstable parcel within the lowest 300 mb of the atmosphere.

- **NOTE: This is a D2-D Menu Bar issue related to DR 19515. "You must click and hold to display the NCEP/Hydro menu in D2D, otherwise it will disappear."**

1.4 System for Convection Analysis and Nowcasting (SCAN)

No Enhancements.

1.5 System on AWIPS for Forecasting and Evaluation of Seas and Lakes (SAFESEAS)

No Enhancements.

1.6 NGM-LAMP

No Enhancements.

1.7 Volume Browser

HPC: Excessive Rainfall Product for D-2D and GFE: Enable D-2D to display HPC gridded excessive rainfall product.

NWS aviation forecasters currently have access to and utilize standard aviation product suites, numerical model analyses and forecasts, and observations from a variety of platforms located across multiple and varied forecasting offices. The goal of adding a standard display suite of aviation weather products in AWIPS is to increase the ability of all NWS forecasters, regardless of location/platform, to maintain situational awareness of aviation impact parameters and aviation observations during their meteorological watch and analysis of the atmosphere. This requirement implements the following products in AWIPS:

Collaborative Convective Forecast Product (CCFP): The CCFP is alpha-numeric information suitable for the graphical depiction of forecast areas of significant thunderstorms. The CCFP message covers the CONUS area, and includes information on the location of thunderstorm areas and associated information such as storm tops, coverage, confidence, and direction/speed of movement. The CCFP contains a 2-, 4-, and

6-hour forecast issued by the AWC between 1 March and 30 October, eleven times per day.

National Convective Weather Forecast (NCWF): The NCWF is information suitable for the graphical depiction of hazardous convection. The NCWF contains both GRIB and BUFR output. The GRIB output delineates the current convection. The BUFR output includes hazardous convection area polygons, movement arrows, and storm top and speed text information.

Significant meteorological information (SIGMET): The SIGMET is an alpha-numeric message describing specific aviation hazard conditions between the surface and 45,000 feet (FL450). A SIGMET includes information about the location of the hazard using VOR locations. SIGMETs are produced on an as-needed basis at the AWC and are distributed on the SBN.

Airmen's Meteorological Information (AIRMET): An AIRMET is alpha-numeric message describing specific aviation hazard conditions between the surface and 45,000 feet (FL450), not requiring the issuance of a SIGMET. An AIRMET includes information about the location of the hazard using VOR locations. AIRMETs are produced every 6-hours at the AWC for the CONUS area, and are distributed on the SBN.

- New 30-min Local data QC plot on the main Obs menu. MSAS obs (+QC) are now replicated on the Obs > Other Plots submenu (in addition to their old home in NCEP/Hydro > LAPS/MSAS Analyses > MSAS (MAPS)). Modifications also include correcting a problem with display of wind direction; making a few menu changes, adding a 'statistical' line to the QC obs sampling; and several tweaks to the times that the MSAS/QCMS components run via cron.
- New grid source ECMWF-HiRes allows display of 1-deg ECMWF grids. These are available via the Volume Browser for NH, N. American, CONUS, and Regional scales. Fields include height, MSLP, RH, T, wind, precip, Td (sfc), and 3-h/6-h max/min temps. There are new entries in the VB Sfc/2D Fields menu for these latter grids.
- New TDWR products. New TDWR products include MD, DMD, ET, STI, HI, VIL, TVS, CZ, DHR, HSR, DSP, DPA, USP, STP, OHP, THP, and SPD. These will be added to the TDWR menus as appropriate and to the RPS, OTR, and RMR applications.
- New elements for gridded MOS. These elements include sky cover, wind gusts, QPF6hr, and QPF12hr. (See Section 1.13)
- TPC wind probabilities. TPC wind probabilities are now split into incremental and cumulative components. (See Section 1.10.)

- New **Configure Monitor's Station Vis. Thresholds** entry. A new **Configure Monitor's Station Vis. Thresholds** entry joins **Configure Monitor Area** and **Configure Monitor Thresholds** (now Monitor *Algorithm* Thresholds) on the appLauncher Fog Monitor Apps menu. (See Section 1.14.)

- New Aviation pull-down menu. A set of aviation products has been added to a new Aviation pull-down on the main menu bar. Products include AIRMETs (icing, turbulence, visibility), SIGMETs (convective, icing, turbulence, visibility, tropical, volcanic), the National Convective Forecast Product (NCWF), and the Collaborative Convective Forecast Product (CCFP). This includes a new NCAR Convective Forecast color table in the Satellite section.

1.8 Local Storm Report

Bug

Site UNR reported that in LSR, a spotter showed up in the report as being 1N of Ladner even though it is actually 1 SE of Ladner. This particular spotter was HR15. The problem appears to be with the calculation or rounding of the direction when a spotters' distances are a couple miles or less from a city, although it could be something else that's causing it.

Workaround: When the report is generated, manually change the direction the spotter is from their city.

1.9 FFMP

No Enhancements.

1.10 GFE

- River Forecast Centers to utilize Graphical Forecast Editor (GFE) capabilities including exchanging grids with WFOs

  Use of Tropical Cyclone Wind Speed Probabilities in Public and Marine Forecasts: During potential high-impact weather events such as tropical cyclones, users demand a 'best forecast,' but also desire a corresponding expression of uncertainty for decision-making purposes. Therefore, the tropical cyclone wind speed probabilities are used to elevate the utility of official text products, which will include situational expressions of uncertainty within the ZFP (Zone Forecast Product) and CWF (Coastal Waters Forecast).The intent is to establish a set of rules for triggering enhanced wording that responsibly conveys wind speed uncertainties within text forecasts according to the temporal period. This was accomplished by using the text GFE formatters to make appropriate use of the following grid sets: Hazard Grids, Wind Grids, Tropical Cyclone Wind 34 kt Prob. Grids, and Tropical Cyclone Wind 64 kt Prob. Grids.

- Headline Flexibility for Long-Duration Products from the GHG program GFE

In order to satisfy national dissemination customers, the NWS invoked a "locking" feature for headlines contained in long-duration watch/warning/advisory products issued from the Graphical Hazard Generator (GHG) program within GFE. This was done due to the multiple failures of the NWS to implement VTEC, the dissemination code that would allow automated systems to easily decode and re-disseminate NWS warning products without parsing through actual text. National dissemination partners demanded the NWS set strict policy for headline format until such time that VTEC was proven successful. VTEC has now been implemented and has proven to be stable and useful; the "locked" headlines, which cannot be manually edited, are sometimes erroneous, misleading, or confusing even though the VTEC code is technically correct.

Changes were made to the Graphical Hazard Generator (GHG) program within GFE. In order to satisfy the concerns of all regions, eliminate known errors, and prevent future headline-generation problems, the following two-part solution was implemented:

- Allow headline editing capability because it will solve all of the flexibility issues. It does, however, open the potential for introducing editing and formatting errors, and could increase forecaster workload. For these reasons, some regions prefer to keep headline generation within GHG unmodifiable.
- Develop unique software solutions for specific issues identified in the SON that will take care of known problems in GHG headline generation.

- Changes to the Hurricane Local Statement (HLS): It is desired to make the HLS a segmented VTEC product. The segments will be determined by VTEC actions, similar to other hazard products.
- In OSIP, for OB7.2, the first part was the Real Time Mesoscale Analysis (RTMA). This included analysis fields of temp, dewpoint, u/v, precip, cloud cover, and uncertainty fields of t, dpt, wind speed, wind direction. This was expanded upon in the current release.
  - The RTMA data are made available within GFESuite.
  - Server configurations are set up and a smart initialization module is added for ingest of RTMA data.

1.11 Satellite

The Satellite>Derived Products Imagery menu now includes Low Cloud Base at the bottom of the GOES section. An accompanying Low Cloud Base color table is added to the Sat section of the color tables menu.

1.12 Guardian

No Enhancements.

1.13 Gridded MOS

To support the NDFD, forecasters must produce accurate forecasts on a high-resolution grid in an optimal manner, using guidance available on a grid at a resolution comparable to that used in the WFO forecast process. To this end, MOS guidance in gridded format was developed and implemented in OB7.1. This GFS-based MOS guidance is generated on the 5-km NDFD CONUS grid twice daily (0000 and 1200 UTC model cycles) in GRIB2 format. The initial implementation consisted of guidance for maximum and minimum temperature, 2-m spot temperatures and dew points, 6- and 12-h probability of precipitation (POP), wind direction and speed, 3-, 6- and 12-hr probability of thunderstorms, relative humidity, and 24-hr snowfall amount.

This release includes the implementation of additional forecast elements: wind gusts, sky cover, and QPF (6- and 12-hour). These also will be generated on the 5-km NDFD CONUS grid twice daily (0000 and 1200 UTC model cycles) in GRIB2 format.

1.14 FOG MONITOR

- The Fog Monitor's FMprocessor (a persistent process that runs on px1 and is governed by a DataController) has been modified to read and process station observation data, adding to its previous capability of processing satellite data. The station data are evaluated for fog and other conditions of low visibility. A signal is sent to Guardian to inform the forecasters of the worst visibility conditions in the monitoring area. The various types of station data in the monitoring area are gathered together into an hourlyNetCDF file, and written to an NFS-mounted /data/fxa/ subdirectory. The software used to fulfill this requirement is mostly the same as has been used for point observation operations in SAFESEAS and SNOW. The "-**fogmon**" localization must be run to create localization files. The "-**dirs**" localization must be run to create ${FXA_DATA}/point/fog_monitor/netcdf/ directory, and the accompanying NetCDF "**template**" file created from fog_monitor.cdl.

- The Fog Monitor's FMprocessor will send IPC signals and text messages to Guardian, to provide color and monitoring information for a specialized icon in Guardian. The icon will turn various colors based on user-specified thresholds, and text output will describe conditions of low visibility. This functionality fulfills the application's "monitoring" requirement, in that the persistent FMprocessor can alert forecasters even when they have not loaded the Fog Monitor's D-2D display and table.

- With the inclusion of station data into Fog Monitor, user interfaces must be created to allow the forecaster to set thresholds for monitoring and display purposes. A GUI was created for visibility threshold monitoring under the app launcher. A similar, but more extensive, threshold interface is available through the expanded table (the table was modified for DCS 3272). Finally, the Monitoring Area GUI (available through the app launcher) was modified to include stations. These three interfaces share much of their code with SAFESEAS and SNOW GUI's, and their functionality is quite similar. **Note:** Config files have been created to be delivered under /awips/fxa/data/fog_monitor/. They will provide default threshold values for the

GUI's. Localization will create files using these defaults under a mounted subdirectories under ${FXA_DATA}/workFiles/fog_monitor/. Merge software will be updated on a build by build basis when changes are necessary, but the localization, by default, will not modify old files of the same format. An executable script called FogMonitorConfThresh.tcl contains Tcl/Tk code for the new GUI's.

- The Fog Monitor's localization procedures were modified by adding calls to SAFESEAS localization routines. The purpose was to build configuration files for the new display and monitoring threshold interfaces as identified above. Fog Monitor had always included stations in its localization files, but now they are being used fully. Under ${FXA_HOME}/data/fog_monitor/, default files have been created to allow the assignment of parameter threshold values for each county/zone determined by localization. **Note:** The output files are stored under ${FXA_DATA}/workFiles/fog_monitor/ subdirectories. In addition, a script, mergeFogCustomizedFiles.csh, has been added to the ${FXA_HOME}/data/localization/scripts/ directory. This merge script calls executable routines as needed to either merge new files into old, or, as is more likely the case, ensure that old settings are not lost unintentionally with upon localization. (3268)

- Prior to OB8.2, the Fog Monitor display in D-2D consisted of a color field on the D-2D map, and a modest extension table that reflected the "worst" conditions (from the app's perspective) conditions in each monitored zone or county. For OB8.2, several station observation columns have been added to the table. The table is now similar in functionality to its SAFESEAS and SNOW counterparts – the difference being that the chosen parameters focus information about visibility and obscuration. In addition, various types of station observations are now multi-loaded in D-2D along with the original color field. Note: New config files have been created to be delivered under /awips/fxa/data/fog_monitor/. They will provide default threshold values for the GUI's listed in III.1. Localization will create files using these defaults under a mounted subdirectories under ${FXA_DATA}/workFiles/fog_monitor/. Merge software will be updated on a build by build basis when changes are necessary, but the localization, by default, will not modify old files of the same format. Several "design" files have been added to ${FXA_DATA}/nationalData, one for each point data type (e.g., METARs, moving maritimes, static maritimes, mesonets, and MAROBs). They are based on similar files already in AWIPS, and determine the appearance of the station observations in the D-2D map.

- Fog Monitor - Configure Monitor Area Station entry should uppercase entries.

In the Fog Monitor Configure Monitor Area GUI, the user can add stations using the "Add a New Stn to Monitor Area" function. When the user types in a station in lower case, they get a fairly cryptic error message saying "The entered station kden@METAR is an invalid metar station. Please type in a new one or click on Close button.

Workaround: Please type in the station as uppercase.

1.15 WarnGen

- Update WarnGen Templates for Dam Failure Warnings

  The current standard FFWs and FFSs template for WarnGen does not meet the requirements for creating dam failure warning in a timely manner. Preparing a specific template for each dam, with all of the specifically known information, and storing it the AWIPS database to be ready in the event of dambreak would greatly improve the warning lead time. Dam Break and Flash Flood Statement templates have been updated to provide more cause options, and to use a site-specific LLL-dam_info.txt file from $FXA_CUSTOM_FILES. The latter can cause WarnGen to draw a pre-defined area for the warning and include dam-specific text. This is accompanied by a new button in the Redraw Box on Screen from: section titled "Dam Break Threat Area." (3388)

- Partial service backup button has been removed

- WarnGen will allow counties to be described in either North-South or East-West only terms in addition to the usual 9-part breakdown

- Ability to set up specific dams for automated insertion of dam break info info Flash Flood products

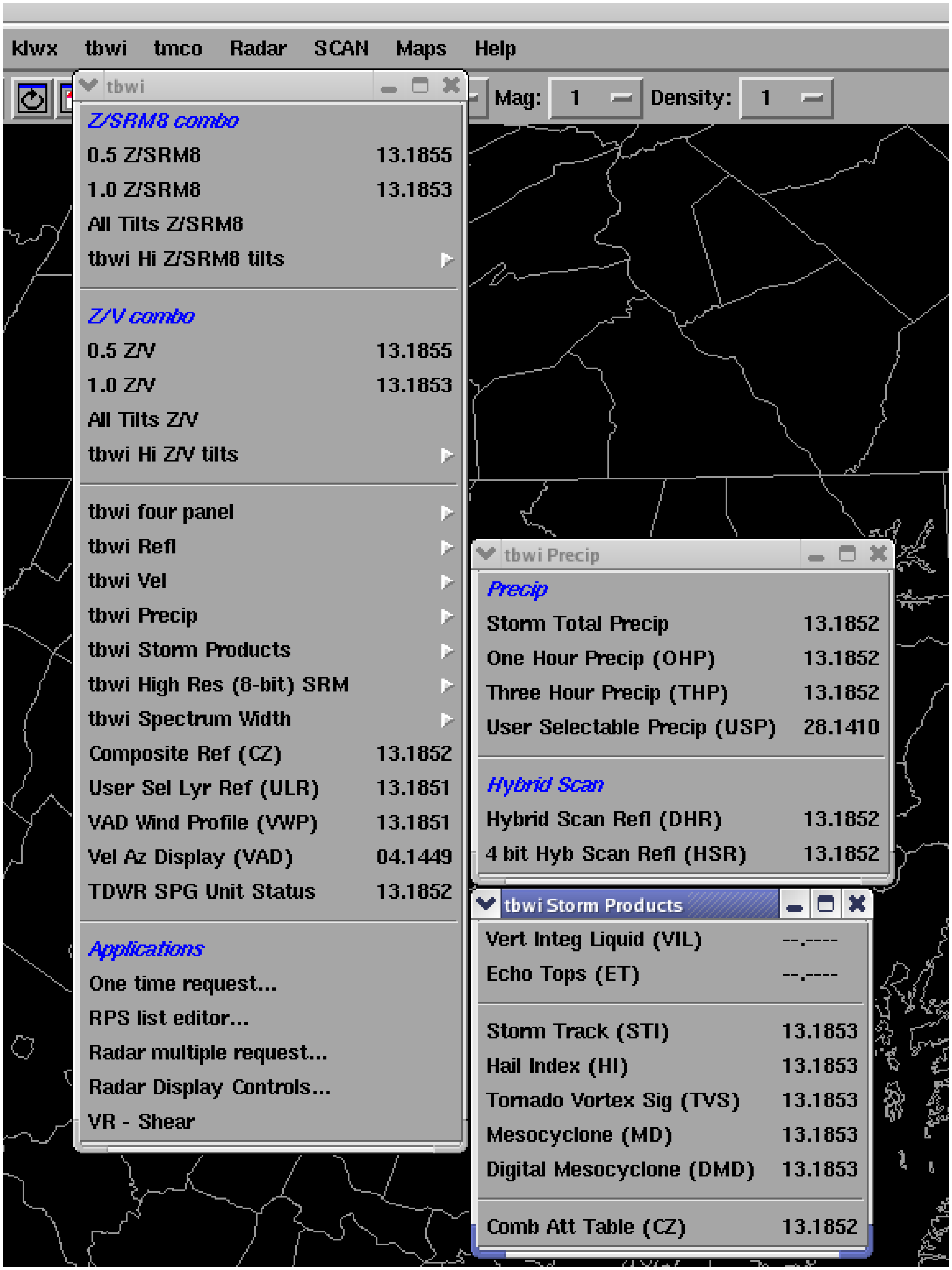
- **Note:** OB8.2 WarnGen was supposed to implement the ability for sites to add affected basins to a hydro warning via a CTA choice. This CTA choice relies on a particular FFMP shapefile. This shapefile implementation has been pushed to OB8.3.

1.16 TDWR RADAR

- **Add SPG3 products:**

  More TDWR radar products generated by SPG build 3 were added to AWIPS. AWIPS will ingest, decode, store and display these products in the same way as NEXRAD RPG products.

- **New Menu for TDWR radars:**



Note: RPG product Supplemental Precipitation Data (SPD, 82), and Digital Precipitation Array (DPA, 81) are not displayed on D2D. Thus these 2 products are not displayed for SPG products.

1.17 FSI

The Four-Dimensional Storm Cell Investigator (FSI) is defined as the graphical user interface (GUI) for the National Severe Storms Laboratory (NSSL) Warning Decision Support System – Integrated Information (WDSSII). The FSI has been designed for specific NWS warning operations, and is a separate radar interrogation application that is to be launched from the D2D. The FSI gives severe weather warning decision meteorologists advanced WSR-88D radar analysis capabilities. Because dynamic cross-sections (both vertical and at constant altitude) can be created, the user can "slice and dice" storms and view these data in three-dimensions and across time.

Operational benefit: The dynamic and 3D display capabilities of the FSI allow the user to assess the vertical structure of severe storms and their attendant signatures in a much more robust way than is currently provided by the D2D. The FSI is aimed at improving the forecasters' understanding of storm signatures, and allowing them to discover new signatures to help improve severe weather warning performance.

Operations impacted: The FSI will affect severe weather warning operations for those WFOs that use the FSI. We expect a positive impact on severe weather warning performance.

- The following AWIPS configuration changes are necessary for the implementation of FSI:
  - The population of new local directories under ${FXA_HOME}/FSI/, to store NSSL-created libraries, executables, shapefiles, and configuration files.
  - The installation of two GTKGL libraries to server as Redhat Package Managers.
  - Environmental variable additions to the readenv.csh file. (3446)

- The persistent process that populates a linear buffer index file with locations of base radar data files. The FSI display uses this index to locate and read the radar data.

- The FSI can be launched by selecting FSI from the Radar menu (in the Applications section) and clicking with Mouse Button 3 at a location of interest. The application brings up a separate four-panel display of radar that allows rapid interactive quasi-3D viewing of radar volumes. (NSSL, MDL).

1.18 Climate

Site DFW wanted to have more than 20 cities in its climate database, but was only set up to have 20. A software change was made to accommodate this.

1.19 GOES

AWIPS will ingest new GOES Low Cloud Base product imagery from the SBN, decode it, and store the results for display in D-2D. The decoded imagery will be displayed in D-2D when requested. Displays shall have the same characteristics and functionality as other GOES-derived product imagery already in AWIPS.

1.20 Graphic Workstation

A reference map is drawn in the upper left or upper right corner of skew-T, var vs. height, cross section, and other similar displays. This map shows the location of the sounding, cross section, etc., and one can zoom the reference map independently of the main display. The new feature introduced allows one to suppress display of the map by adjusting the global density setting (i.e., the one from the menu, not the pop-up from the product legend). By default, the minimum display density is set to 1; any density setting less than that (e.g., 0.5) will result in the map not being displayed.

1.21 Low Cloud Base

Note: This is a issue related to DR 19516

The Low Cloud Base (LCB) product helps identify ceilings < 1000 ft for aviation users. The "Fog Depth" image is a special enhancement that estimates the thickness of a low cloud layer, based on the temperature difference between the two IR channels. The red areas indicate cloud bases lower than 1000 ft, while the green areas denote bases greater than or equal to 1000 ft. Blue regions denote cirrus. This product is only for use at night, daytime images are polluted by light and are useless.

Background...

The GOES LCB product uses surface temperatures from Meteorological Aviation Reporting (METAR) stations in combination with GOES 10.7 ?m Infrared (IR) cloud top temperatures. If differences between the surface temperature and the 10.7?m IR channel are = 3K or less, cloud base heights are classified as <1000 feet Above Ground Level (AGL), known in aviation as Instrument Flight Rule (IFR) ceilings. This algorithm is based on a vertical temperature profile associated with low stratus cloud formation in which a thermal inversion exists above a well-mixed layer. Under these conditions, the GOES IR observes the top of the stratus cloud, where the IR temperature is usually warmer than the inversion base, and possibly the surface also. The closer the cloud top temperature (CTT) is to the surface temperature (Tsfc), the smaller their difference, and the more likely IFR ceilings are to exist. In addition to detecting IFR ceilings, the LCB product also displays non-IFR ceilings and cirrus. Imagery is produced hourly during the night from GOES-8 and GOES-10 satellite data.

Users need to know...

1) shows where low ceilings & fog are likely

2) Based on GOES IR ? surface temperature

3) Verification (lower 48)

POD ~ 72%

FAR ~ 11%

4) Low clouds may be obscured by cirrus

5) Only use at night.

1.22 LAPS

Enhancement:

The LAPS temperature (T) and dew point temperature (Td) were underestimating the current observations. In some cases there would be a minimum bull's-eye were there was no observation to call for that. LAPS was off by about two degrees Fahrenheit from the metar observations.

Meteorological analysis is the interpolation of discrete and randomly scattered observations to a regular consistently spaced grid. This interpolation process uses weighting functions to interpolate from the observations to the grid. The criterion for any analysis is to match the observations but at the same time impose some sort of smoothness to the interpolation so that isolines are smooth and regularly spaced. Thus the analysis is a balance between matching the observations and smoothness. In LAPS we recognize that individual observations have error associated with the measurement of an atmospheric quantity, typically 1-2C for temperature and 2-4C for dewpoint. There are two components to this error: the sensor error itself and representativeness error...that is, error associated with poor placement of the instrument or impacts of small scale systems of no interest. This gives us some estimate of tolerance in how the isolines may vary from the actual observation. In other words, if we can make the set of isolines smooth by tolerating a difference related to the observation error we do so. The weighting functions are variable and allow one to fit the observations exactly if that is desired. Here we can reduce the expected sensor error as low as desired. However, in the real world instruments have error and we utilize this characteristic to develop a smooth analysis. Differences seen in the station values to isolines should be very close to the assumed instrument and representativeness error.

1.23 Distributed Hydrologic Modeling (DHM)

Enhancements to Distributed Hydrologic Modelling

- Allow users to specify precipitation modifications (Mods)
- Allow users to specify SAC state Mods
- Allow users to model basins which use multiple upstream inflows

- Improve OB8.1DHM performance (i.e. the time needed to simulate a basin during operations)
- Improve an existing script used to copy grid data to a user's local directory.
- Allow users to define times other than 12Z for grid output.
- Develop a utility to create operational DHM grids from a previous Calibration. (3416)

A comparison of DHM design features in OB8.2 compared to OB8.1 is provided in the following table.

Design Feature	AWIPS OB8.1	AWIPS OB8.2
Programming Languages	Java 1.5, C, C++, Fortran	Java 1.5, C, C++, Fortran
Mode of Use	Batch Mode: as an operation within OFS/FCST GUI Mode: as an operation, with IFP	Batch Mode: as an operation within OFS/FCST GUI Mode: as an operation, with IFP
Graphical Displays	Timeseries: Tulsa Plot and/or PLOT-TS operations through IFP (XMOTIF) Grids: D2D viewer	Timeseries: Tulsa Plot and/or PLOT-TS operations through IFP (XMOTIF) Grids: D2D viewer new Mod Utility: Precipitation mod display through IFP (JAVA), Sac State mod display through IFP (JAVA) new Calibration Utility: stand-alone application to transfer calibrated grid values to operations (JAVA)
Libraries	4 shareware jar files • commons-io1.1.jar • toolsUI-2.2.12.jar • jgrapht-0.6.0.jar • commons-collections-3.1.jar 5 OHD developed jar files • dhm.jar • dhm-tests.jar • ofs.jar • distrouting.jar • simplexmrg.jar 2 OHD developed shared libraries • libsimplexmrg.so • libdistrouting.so	4 shareware jar files • update commons-io1.3.1.jar • toolsUI-2.2.12.jar • jgrapht-0.6.0.jar • commons-collections-3.1.jar 5 OHD developed jar files • dhm.jar • dhm-tests.jar • ofs.jar • distrouting.jar • update simplexmrg replaced with rdhmutilities.jar • new dhmguis.jar 2 OHD developed shared libraries • update libsimplexmrg.so replaced with librdhmutilites.so • libdistrouting.so

Design Feature	AWIPS OB8.1	AWIPS OB8.2
Scripts	Batch Mode: ofs – used to set CLASSPATH and LD_LIBRARY_PATH environment variables prior to executing DHM GUI Mode: start_ifp_nwsrfs – used to set CLASSPATH and LD_LIBRARY path environment variables prior to executing DHM get_ofs_data – used to copy precipitation grids (XMRGs) to a local directory prior to executing DHM	Batch Mode: ofs – used to set CLASSPATH and LD_LIBRARY_PATH environment variables prior to executing DHM new abort_nwsrfs – used to cleanup any log files created by abnormal termination of FCST GUI Mode: start_ifp_nwsrfs – used to set CLASSPATH and LD_LIBRARY path environment variables prior to executing DHM update get_ofs_data – remove portion of script used to copy precipitation grids (XMRGs) new abort_nwsrfs – used to cleanup any log files created by abnormal termination of IFP (same script used in batch mode) new ifp_cleanup – used to cleanup any temporary DHM grids copied for executing DHM within IFP
Memory (Physical disk space and RAM)	RAM – default AWIPS environment Disk Space – default AWIPS environment and a local partition created on each workstation (/data/dhm: 1 GB) on each LX and XT workstation	RAM – default AWIPS environment update Disk Space – Will be writing more data to /data/dhm in OB8.2 due to changes associated with user-selected times; size of /data/dhm on each LX and XT workstation needs to be increased from 1GB to 2GB.
Application Default Tokens (APPS_DEFAULTS)	dhm_data_dir – directory with input/output XMRG data dhm_d2d_data_dir – directory used to write output viewable in D2D dhm_d2d_notify_bin – directory with dhmNotify exe; used to ping D2D notification server ifp_griddb_dir – directory with user's local set of precipitation XMRGs (used when running DHM-OP through IFP)	dhm_data_dir – directory with input/output XMRG data dhm_d2d_data_dir – directory used to write output viewable in D2D dhm_d2d_notify_bin – directory with dhmNotify exe; used to ping D2D notification server ifp_griddb_dir – directory with user's local set of precipitation XMRGs (used when running DHM-OP through IFP) new ifp_dhm_data_dir – directory with user's local set of dhm input/output data (used when running DHM-OP through IFP)

2.0 WATCH WARNING ADVISORY (WWA)

No Enhancements.

3.0 HYDROLOGY

3.1 Forecast Services Database and Interface

No Enhancements.

3.2 HydroGen

No Enhancements.

3.3 SRA Tools Enhancement

No Enhancements.

3.4 HydroView/MPE

Integration of Local QPE Tools Into National Baseline

- Baseline the various local tools used at RFCs to provide QPE products for use in their river modeling activities and for general situational awareness. The locally generated application known as DailyQC/Mountain Mapper is being integrated with the MPE suite of operations. This will allow for a single unified tool for QPE operations to be implemented into the national baseline.

3.5 RiverPro

No Enhancements.

3.6 WHFS/IHFS Database

No Enhancements.

3.7 RFC Archive Database (RAX)

No Enhancements.

3.8 Preciptation Processing

RFC Bias Transfer to WFO RPG: WFOs to automatically receive a mean-field bias generated at an RFC. The quality control of rain gage data results in better bias information. WFO will be able to:

a. Select which RFC it receives the bias from,
b. Use the RFC generated bias in local MPE operations, and
c. Select whether to send the RFC-generated or locally generated bias to its associated RPG.

Satellite Rain-Gage Products: The MPE application suite currently manages over a dozen different types of QPE products. Among these are satellite products that are adjusted using radar estimates. However, there is no multi-sensor product for merging gage and radar data with satellite data. The three new products to be generated are: satellite-radar, satellite-gage, satellite-radar-gage (SRG). The automatic generation of these fields will replace the manual cut-and-paste now required to combine the satellite field with the radar-gage multi-sensor field in areas with poor radar and gage coverage. This includes both the generation (through MPE_fieldgen) and the display (through MPE_Editor) of the new fields.

3.9 NWSRFS

The system design of the OB8.2 NWSRFS Deterministic Verification Tools software includes the following (changes from OB7.2 are in red):

- Written in Java 1.5
- Forecast, observed, and processed data, verification forecast-observed pairs, and some location parametric information are stored in the archive database on the AWIPS RAX machines.
  - Forecast data is stored in the pedfsep, pehfsep, and peqfsep tables.
  - Observed data is stored in the pecrsep, pedrsep, and peoosep tables.
  - Processed data is stored in pehpsep, pedpsep, peqpsep, and peoosep tables.
  - Forecast-observed pairs are stored in the vfypairs table.
  - Location parametric information is stored in the vfyruninfo table.
  - Critical stages are stored in the rivercrit table.
  - RFC identity is stored in the location table.
  - Verification add-adjustment factors are stored in the vaddadjust table.
- Database access is provided by the JDBC API
  - Incorporates a postgres driver.
- The batch file interface, via the IVP Batch Program, provides the user the ability to (1) build pairs, (2) set parameters of a verification run, (3) compute verification statistics, and (4) generate graphics.
  - Commands are used to define parameters that specify what data to pair, what data to verify, and how to do the verification.
  - Actions are used to perform some kind of action, including building forecast-observed pairs, calculating statistics, and generating a graphic.
- The GUI, via the IVP, provides tools to manage the same parameters provided in the batch file interface.
  - Internally, the GUI defines command token values corresponding to batch file commands and then executes actions as needed.
  - For a particular graphic, the GUI can be used to create a batch file for the IVP Batch Program that, when executed, will generate the same graphic and save it to a file.
- Chart rendering is done using ChartDirector Version 4.0.
- Charts may be saved to files in PNG or JPEG format. (3396)

3.10 Interactive Verification Program

No Enhancements.

3.11 Historical Data Browser

No Enhancements.

4.0 SYSTEM

4.1 COTS Software

ChartDirector in NWSRFS verification tool had been upgraded to Version 4.0.

4.2 Processes

- FSIprocessor added to PX1.

4.3 Purging and Crons

- MSAS runs jobs every 5 minutes starting at minute 1; jobs are also run at 05:35, 11:35, 17:35, 23:35, and 00:05.

4.4 Database Engine and Operating System

- No changes to the Database Engine.

- The Operating System is Red Hat Enterprise Linux 4u2, and the Kernel has been upgraded to 2.6.9-55.0.2.

- Nvidia driver is updating to version 9639 on the LX workstations that run 3-D application such as FSI on the LX workstations. This is the same driver that will be delivered with the new XT replacement workstations.

- The RFC awips_GFESuite partition will change from 20MB to 35860MB. The RFC awips_adapt partition will change from 1024MB to 2068MB. The Total Allocated space for RFCs will change to 185GB and the Total Unallocated space for RFCs will drop to 209GB. (See SMM OB8.2 APP E for more info)

4.5 System for Nowcasting of Winter Weather (SNOW)

No Enhancements.

4.6 AVNFPS

No Enhancements.

4.7 MHS Server

MHS Servers at BNCF have been updated to have the correct configuration for the NDFD interface. SMTP (Simple Mail Transfer Protocol) is fully functional on both ANCF and BNCF. MHS servers are up and running without any traffic from/to sites. SMTP is now stable after a few corrections/modifications done at the configuration level for both sendmail and SMTP.

4.8 SMTP

The transition to SMTP and sendmail has been completed. At this time, the NCF X.400

servers are still powered up, but no X.400 message traffic is being generated and they will be powered off in the near future. The site X.400 servers (ds1 and ds2) will be decommissioned soon. Some of the OB8.1 beta sites have already powered them off for testing and verification purposes.

4.9 DMD

No Enhancements.

4.10 Localization

No Enhancements.

4.11 Configuration Management

The baseline source code from all the AWIPS Development Organizations was transferred to Raytheon's Configuration Management System, Serena Dimensions 9.1.3 web client in OB8.1 and is maintained in OB8.2.

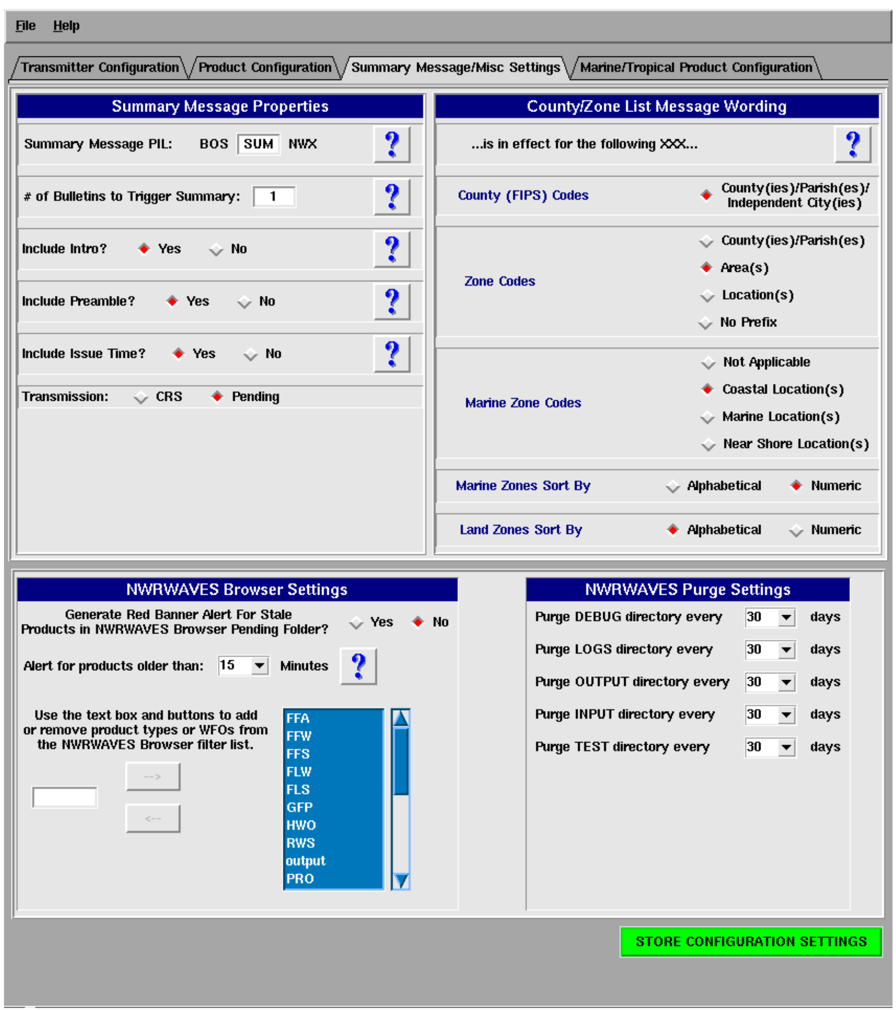
5.0 NWRWAVES

Add capability to list counties or zones by alphabetical/numeric order: A new capability to list counties or zones (both land and marine) by alphabetical and numeric order while formatting the output products was added. In order to support this new feature, the GUI was enhanced with a new option to allow forecasters to choose either alphabetical or numeric order for both land and marine options. 1> Add Marine Zones Sort By <> alphabetical <>Numeric 2> Add Land Zones Sort By <> alphabetical <>Numeric:

The NWRWAVES formatter was also modified to utilize these selections.

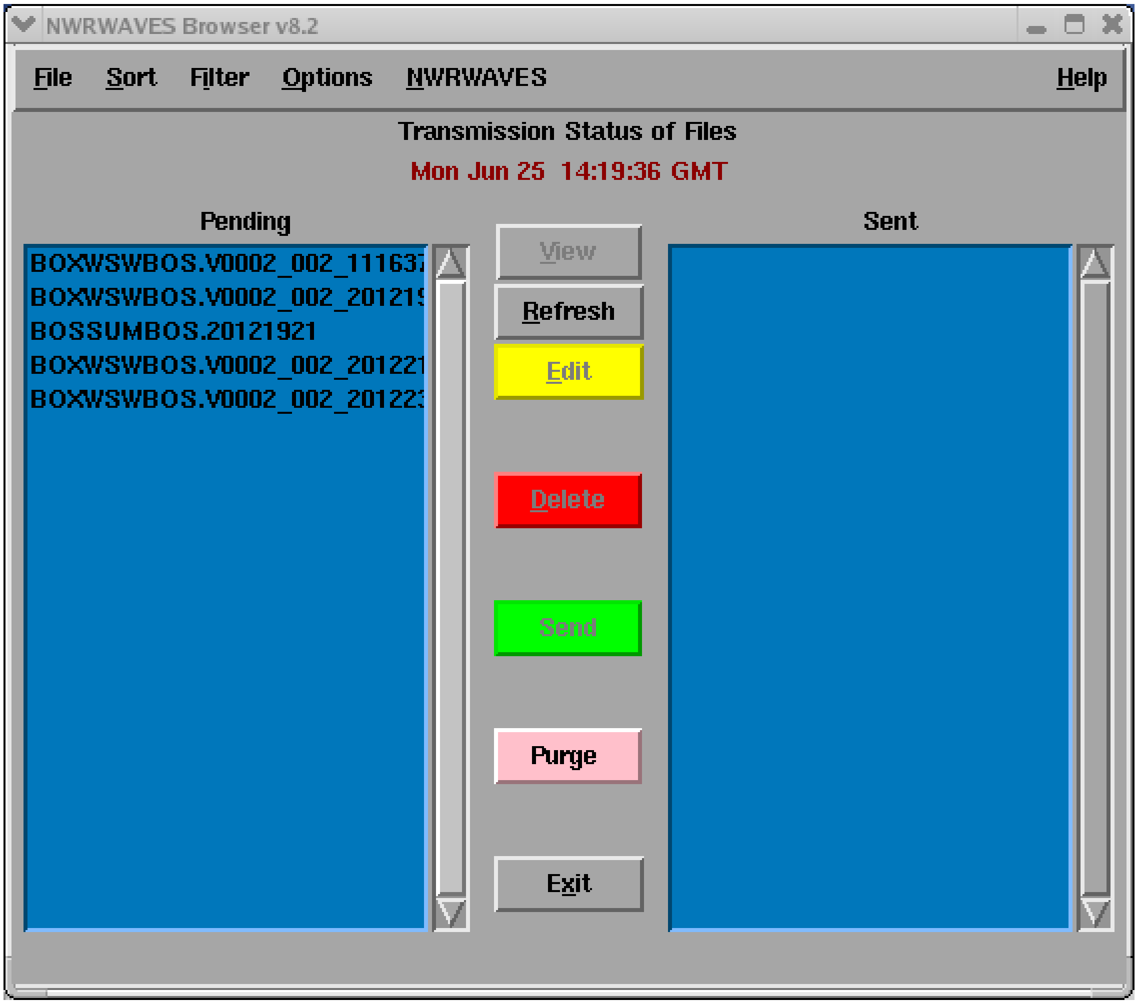
As shown in the exhibit the follows, the NWRWAVES setup GUI under the "Summary Message/Misc Settings" tab will have 2 additional components:

a. Marine Zones Sort By
b. Land Zones Sort By

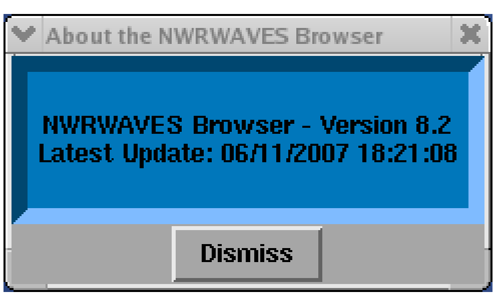


GUI interfaces should use version numbers that reflect the AWIPS build: GUI interfaces were changed to use version numbers that reflect AWIPS build versus local version tracking number. For example, v2.62 was equivalent to the OB7.2; now the delivering version will be OB8.2 instead of, say v2.7. See the following example.

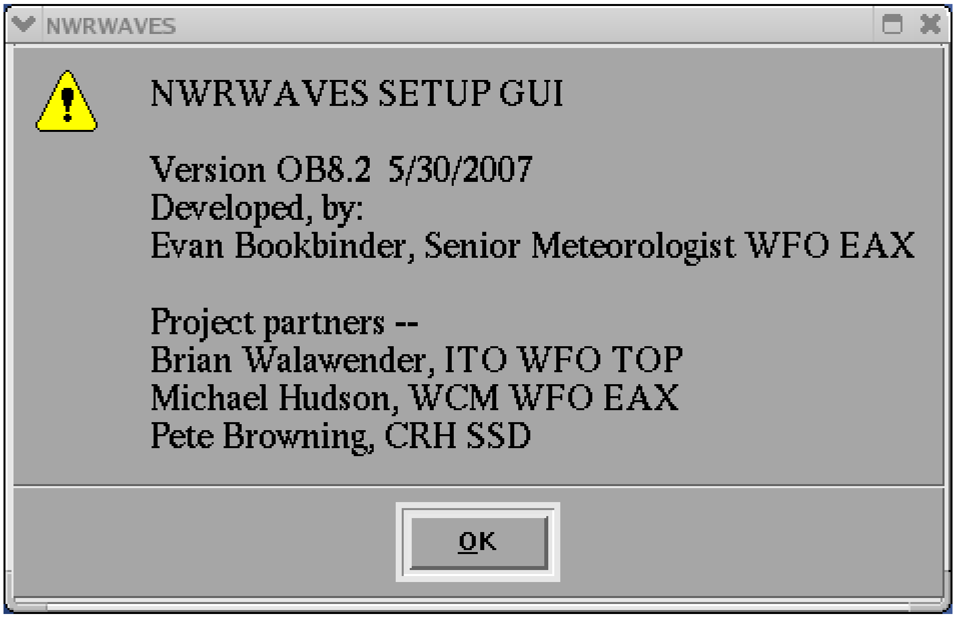
Example of GUI Interface Version Numbering: NWRbrowser



Select "Help" option from top-right corner of the NWRbrowser above, and the following dialog will be displayed with the AWIPS version:



In NWRWAVES setup GUI when "Help->About…" option is selected



- **Facilitate the removal of a core county/zone per transmitter:** Currently, once one is assigned it cannot be removed through the GUI. NWRWAVES will allow to save changes to disk.

- **Improve Control Of SAME Alert :**

  - Improve blackout capability to provide issuance of product within blackout period without tone/SAMES codes.

  - After blackout period has ended, NWRWAVES should automatically send a Red banner to use the CRS system to resend the product if required.

- **Provide ability to re-create or rerun NWRWAVES through the NWRBROWSER GUI for any issuance of product:** NWRWAVES currently provides this capability for all but the initial (VTEC NEW) issuances. For initial (VTEC NEW) issuances, NWRWAVES should pop up a Yes/No Dialog to ask if the operator wants to proceed. If the operator selects Yes then NWRWAVES will allow duplicate product to go through.

- **Problem:** Test warning products correctly contain test language and correctly get held in the browser. However, if enough versions of the test warning are generated to trigger the generation of a summary message, the summary message erroneously is sent to CRS.

  Workaround: The following are the steps to prevent this problem from happening when running NWRWAVES under TEST mode.

– From NWRWAVES browser select "*NWRWAVES->NWRWAVES Setup"* and you will see the *NWRWAVES Setup Utility* Window displayed
– Select the "*Summary Message/Misc Settings"* from *NWRWAVES Setup Utility* Window
– Set *the " # number of Bulletins to Trigger Summary"* to 30
– Click on the green "*STORE CONFIGURATION SETTINGS*" button in the lower right-hand corner of the *NWRWAVES Setup Utility* Window to save the current configuration.

Note: When you are finished testing, set *the " # number of Bulletins to Trigger Summary"* to a desired value, then repeat step number 4 to save the current configuration.

6.0 LDAD

No Enhancements.