



Raytheon

AWIPS Operational Build 7.2: DRAFT Release Notes

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AWIPS OB7.2 DRAFT Release Notes

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1.0 D2D/TEXT/OTHER APPLICATIONS

1.1 Radar

- For all-tilts displays, the four arrow keys on the keypad now control the motion up and down or forward and back in time, without using the shift key. Once you have set the mode of motion (vertical or time), the Page Up/Page Down keys will start and adjust loop speed. To switch from vertical to time mode or from time to vertical mode, press the desired arrow key function.
- This table compares key press functions between OB6 and OB7.

Button	OB6 function	OB7 function
up arrow	speed up loop	step upward through all tilts for the currently displayed time
down arrow	slow down loop	step downward through all tilts for the currently displayed time
left arrow	step backward through all frames ignoring any tilt considerations	step backward in time through all frames with the currently displayed tilt
right arrow	step forward through all frames ignoring any tilt considerations	step forward in time through all frames with the currently displayed tilt
shift up arrow	step upward through all tilts for the currently displayed time	no function
shift down arrow	step downward through all tilts for the currently displayed time	no function
shift left arrow	step backward in time through all frames with the currently displayed tilt	step backward through all frames ignoring any tilt considerations
shift right arrow	step forward in time through all frames with the currently displayed tilt	step forward through all frames ignoring any tilt considerations
Page Up	no function	speed up loop
Page Down	no function	slow down loop
Notes	OB6	OB7
	If one has a standard loop loaded (that is, not an all tilts or a space load from the Volume Browser) the left and right arrows do the same thing regardless of	With this new mapping, if one accidentally (or out of habit) uses the unshifted up/down arrows for the standard product case, one will end up

<p>whether they are shifted or not. This is not because the key mappings are any different for space load versus non-space load, but rather because a standard loop has in effect one tilt.</p> <p>Also, when looping is turned on, the behavior of D-2D is sensitive to which key step function was used last. The default functionality is to loop, ignoring tilt considerations. If one uses the shift up/down, then looping will result in a loop of only frames for that time. If one uses the shift left/right, then looping will result in a loop of only frames of that tilt. Clearing restores everything to the default. One result of this is that using the shift up/down on a standard product and then turning on the loop results in a very uninteresting loop—it just stays on that time.</p>	<p>with one of the aforementioned uninteresting loops until the step forward/backward keys are used again.</p> <p>The default looping behavior immediately after loading is still to loop, ignoring any tilt considerations until one of the unshifted arrow keys is used. Otherwise, the same consideration as in OB6 applies: The form of looping depends on whether one has used the left/right or up/down arrows prior to starting the loop.</p>
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Note: There are a number of options from which to choose. Some of these options include a text overlay, a graphical overlay, or a small graphic that is part of each image.

- Essentially all products that can be requested from your local radar can now be requested from non-associated radars, as well. The only exceptions are RCS, VCS, and SWA products for RMR, since these need a baseline or point, which is ambiguous for multiple radars.
- Send environmental data from AWIPS to RPG.
 - a. AWIPS will provide 3-dimensional grids of temperature(kelvin), pressure (Pa), dew-point temperature (kelvin), u and v wind components (in m/s).
 - b. These grids will be provided from the highest resolution RUC model that AWIPS stores.
 - c. If the model is late, the matching forecast time of the previous model run is used. As an example, if the 1 hr forecast of the current model run is not available, the 2 hr forecast from the previous model run will be used.
 - d. The grids will be within approximately 200 nautical miles of the radar site.
 - e. AWIPS will provide the capability to configure the source of the data.

- f. The following information will be sent along with the data: model name, horizontal/vertical resolution, model run data/time, forecast time, lat and lon of the 4 corners of the clipped grid.
- g. The data will be provided to the dedicated ORPG(s) in the generic grid format.

See <http://fxa.noaa.gov/requirements/awips-OB7/OB7.reqs.html> for more information.

- Generate products for non-associated user requests.

AWIPS will make all of the products that are available on the RPS list available on the One-time request and RMR applications.

See <http://fxa.noaa.gov/requirements/awips-OB7/OB7.reqs.html> for more information.

1.2 System for Convection Analysis and Nowcasting (SCAN)

- **Guardian:** SCAN now sends its monitor messages to Guardian, instead of the severe weather symbol button under the WarnGen button in the D2D. Check out the Guardian web page for details: <http://www.nws.noaa.gov/mdl/guardian>.

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

SAFESEAS has several new features in OB7.2:

- New attributes have been included in the table: Wind Direction, Temperature, Dewpoint, Sea Level Pressure, Sea Surface Temperature, and Wave Steepness.
- Redesigned configuration interfaces accommodate the larger number of parameters while minimizing the interface's screen footprint.
- An attributes menu allows users to select and de-select which attributes will appear in the SAFESEAS table.
- A drag feature allows the user to adjust the number of visible rows.
- "Max Wind Speed" has been renamed to the more familiar "Peak Wind".
- Peak Wind has been included in the Marine Product threshold displays and configurations.
- MAROB reports are ingested and displayed.
- The SAFESEAS monitor thresholds button (e.g., the anchor on the top left of the D-2D) has been removed and placed in the Guardian display.

1.4 Volume Browser/Grid Products

- New grid source rfcMPE provides composite QPE grids from multiple RFCs. Fields include 1, 6, and 24hr estimates.
- Short-range ensemble forecast (SREF) products are now available via the Volume Browser. Sources include SREF (grid 212), AK-SREF (grid 216), and PR-SREF (grid 243).

- Significant wave height grids from the Ocean Prediction Center and Tropical Analysis Branch (OPC-TAFB) can be displayed using the Volume Browser. The grid sources are OPCWave-W-ATL (grid 180), OPCWave-NE-PAC (grid 181), and OPCWave-TE-PAC (grid 182).
- NCEP/EMC produces hourly Real-Time Mesoscale Analysis grids of T, Td, u, v, sky cover, and precip. These are displayable via the Volume Browser (grid source RTMA) and also integrated with GFE.
- RUC13 grids are available in the VB, and integrated with GFE. The grids (source RUC13, grid 130) are clipped to your Regional scale.
- A new 1/12-degree sea surface temperature grid from NCEP is now available in the Volume Browser (grid source RTG_SST_HR-Analysis). The analyses are done once per day.
- Simulated reflectivity from the new WRF model (in the NAM slot) can be viewed using the Volume Browser. Reflectivity is already available under the Other heading in the VB *Fields* menus.
- TDWR menus now include VAD, VWP, and ULR.
- The LAMP and LAMP QPF sections of the LAMP/MOS forecasts menu are retitled NGMLAMP and NGMLAMP QPF, respectively, and a new GFSLAMP section is added. GFSLAMP is also available via the Volume Browser. There's a new color table under LAMP for CTSTM Best Category.
- The GOES DPI menu now includes a cloud amount product, and the color table menu has a new Cloud Amount entry in the Sat section.
- GFS soundings are activated on the rearranged Sounding-derived plots submenu under NCEP/Hydro. Available products are similar to those from the existing NAM soundings.
- WSFO logic removed from localization.

1.5 Local Storm Report

- No Enhancements.

1.6 FFMP

- Service Backup: FFMP's handling of Service Backup has been greatly improved. Among other things, we have removed its dependency on the WFO scale AWIPS geoinfo. What this means is your FFMP localizations will be smoother, FFMP will be able to 'see' beyond the WFO scale, and FFMP is much more independent of your D2D's localized WFO site.
- ZoomX: The ZoomX feature has returned! When you use FFMP's Zoom and Recenter function, the D2D will pace a small white X at the center of the entity of interest. This X will stay at the desired lat/lon, regardless of the map placement.
- Forced FFG Graphical Emphasis: If you use the Forced FFG GUI to provide FFG

values to FFMP, and those values have not expired, you will see them graphically emphasized in the Basin Table with an orange background for the FFG value cell.

- Basin Trace fix: The initial version of the Basin Trace (new in OB6) had a bug in the way it determined its stipple resolution, which showed itself occasionally, depending on the basin and parameters chosen. This bug has now been fixed. Now, your stippling should appear uniform and much more visible.
- VGBs Return: The VGBs (Virtual Gage Basins) were lost in the transition from Informix to PostGres, but now they have returned. You can once again use the Gage trend in the Basin Trend to evaluate radar precipitation estimation performance.
- Guardian: FFMP now sends its monitor messages to Guardian, instead of the 'FF' button under the WarnGen button in the D2D. Check out the Guardian web page for details: <http://www.nws.noaa.gov/mdl/guardian>

1.7 GFE

The GFE OB7.2 build contains a number of enhancements and bug fixes. Major enhancements to the text formatters include a tabular version of the FWS. Other text formatter enhancements include AFM/PFM first period sampling, expiration time algorithm adjustments, Multiple Element Table update issuances, and better support for Local Hazards. New VTEC hazards for Hard Freeze and Excessive Wind have been added. The order of Headlines in routine and hazard products have been updated.

Smart tools and VTEC changes were made for the 2007 Tropical Season where the forecast paradigm with the TPC TCV and the forecast office changes. New tropical call to actions have been added.

The GFE Practice Mode has been enhanced to make it easy for the forecaster to clear the grids and VTEC table.

User Enhancements

- Some sites were using Save File and Open File to save an intermediate draft to allow multiple forecasters to edit a product in sequence. This had adverse effects because the product definition is not carried with the saved text. When the product was loaded back into the editor, the segment expiration times were incorrectly adjusted due to missing product definition information. To correct this situation, a new Save Draft and Load Draft capability has been added to the Product Editor. A Save Draft button has been added to the Product Editor (and the Save... and Store... buttons removed). Save Draft saves a copy of the current text in the editor along with the product definition to the ifpServer TEXT/DRAFT directory. Loading a draft is accomplished by Products -> XXX to create the product pane, just like getting ready to run the formatter. Then pressing a Load Draft button which immediately loads the draft text (and product definition) into the product pane. The product can be edited and then transmitted. The Save... to a file and Store... to the AWIPS database capabilities still exist, but only as menu entries and no longer as buttons.
- Two new options have been added to the GFE Practice Mode. A new main menu entry called Formatter Launcher's Product Editor. Previously the type field (corrected,

amended, delayed, etc.) would only be seen in the "Type" selector at the bottom of the editor. With this change, the current "Type" will also appear on the first line of the product.

General Enhancements

- The Call To Actions file format has changed to allow descriptive words along with the call to action text. If the descriptive words are provided, then the Call To Action Dialog will display the descriptive words instead of the call to action text.

Text Product/Infrastructure Enhancements

- The FWS now honors the "useRH" flag just as the FWF and FWFTabular products.
- AFM/PFM: The sampling technique has been changed for certain elements in the "1st period" to not be the entire first period under certain conditions. For weather elements, QPF, PoP, SnowAmt, Max Heat, and Min Chill, if the formatter is run while in the "1st period" time span, the sampling will be done from the current time through the remainder of the "1st period". For example, assume there are four three-hourly grids each with 0.10" QPF in them, the first period is 6am to 6pm Local Time, and the current time is 1000am. In previous releases of the software, the 12-hr QPF would be reported as 0.40". Now the software starts sampling at 10am for these elements, with the result that the reported QPF will be 0.27".

The FWS was enhanced with the following:

- Ability to specify a product creation date/time
- Ability to include Narrative phrases, Tabular output or a combination of both.
- Ability to include ignition time sub-phrases in the narrative phrases.
- There are other more minor features such as configuring the units for certain parameters e.g. kft or ft for mixing height, etc.
- The algorithm to compute expiration time on a segment in the GFE was modified to handle multiple active events. Now the expiration time will be set to the soonest of the latest ending time of all active hazards and the spinbox. Cancel or expire events by themselves in a segment result in a one-hour expiration time. Previously if there were more than one active event, the segment expiration time would be set to the earliest ending time of the active events.
- Additional Call To Action statements were added to the CallToActions file for the tropical events. The series of new statements use the new format of the CallToActions file with a short descriptor followed by the call to action text. Statements have been added for Tropical Storm (Inland) and Hurricane (Inland) for various expected wind speeds. This was an action item from the NWS NOAA Hurricane Conference in late 2005.
- Visibilities associated with weather subkeys not reported in the text, should not be reported. To meet directives for public products, visibility should only be reported for significant weather types. To meet directives for marine products, the visibility_phrase was added to the product components.

- "visibility_words" (WxPhrases): Filtered rankList through "checkPoP" method, added check for significant subkeys.
- "addEmbeddedVisibility" (WxPhrases): added check for significant subkeys.
- "significant_wx_visibility_subkeys" (WxPhrases): updated to meet directives
- "CWF", "CWF_Pacific", "NSH", "GLF", "OFF": Added override for "significant_wx_visibility_subkeys" to report visibility for all weather types.

Note: This was not done for CWF_Pacific because it has significant_wx_visibility_subkeys specified.

- To meet directives, the "pop_sky_lower_threshold" (ScalarPhrases) was modified so that sky is not reported if the majority of the period has $\geq 60\%$ PoP.
- It is now possible to create products that are not automatically set to uppercase. To do so, add a Definition['lowerCase'] = 1 variable to your product Definition overrides and make sure your overrides are not automatically converting to upper case. NOTE: Most of the resulting text in Hazard products and Call to Action statements will still be in upper case regardless of the setting of 'lowerCase'.
- SimpleTable products: It is now possible to specify a method for "beginningText" and "endingText" to allow for headers. The method should be included BEFORE the Definition in the Simple Table product and take arguments: (self, fcstDef, argDict) and return the beginning or ending text.
- There is now better support for producing local headlines with user-defined timing phrases. The following enhancements were added:
 - "headlines_words" (DiscretePhrases): Added the option of using hazard_hook wording when constructing the headline words for local headlines. The "hazard_hook" method can examine the area containing the hazard and add qualifying words such as "in the mountains". This way, the same hazard_hook logic can be used for VTEC-related headlines and local headlines.
 - "getTimingType" (DiscretePhrases): Modified to call a new "getLocalHeadlinesTiming" method for local hazards instead of using hard-coded settings as it does now.
 - "getTimingPhrase" (DiscretePhrases): Allows the startPhraseType and endPhraseType in the "headlinesTiming" method to be user-supplied methods which when given an issueTime, eventTime, timeZone, and timeType, return a phraseType (e.g. "FUZZY8" and a tuple: (hourStr, hourTZstr, description) in the same way methods such as "timingWordTableFUZZY8" operate.
 - "headlinesTiming" (DiscretePhrases): Changed defaults to None so that prior Local Headlines hard-coded defaults will still apply
- In certain sky/weather situations where we have many clouds early in the period, we will now produce:

BECOMING MOSTLY SUNNY LATE IN THE AFTERNOON. WIDESPREAD SHOWERS IN THE MORNING...THEN SLIGHT CHANCE OF SHOWERS IN THE AFTERNOON.

instead of:

MOSTLY SUNNY. WIDESPREAD SHOWERS IN THE MORNING...THEN SLIGHT CHANCE OF SHOWERS IN THE AFTERNOON.

"sky_timeDescriptorModeration" (ScalarPhrases): Modified to handle this case.

- The baseline setting of "temporalCoverage_dict" (SampleAnalysis) for PoP has been changed to 0%. 20% of 12 hours is 2.4 hours, so a PoP would have had to cover 3 hours or more of the period (or be contained entirely in the period) to get reported. This was changed to be consistent with the directive.
- The headline order for non-marine products has been changed. Previously headlines reflecting Expirations or Cancellations would appear first. The new algorithm has the Expirations and Cancellations appearing last. The algorithm first lists active (NEW, EXB, EXA, EXT, ROU, CON) headlines first, sorted chronological by starting time, sorted by action code (NEW, EXB, EXA, EXT, ROU, CON), sorted by significance (Warning, Advisory, then Watch), sorted by VTEC phenomena code (alphabetically). The algorithm lists non-active (EXP, CAN, UPG) headlines next, sorted chronological by starting time, sorted by action code (EXP, CAN, UPG), sorted by significance (Warning, Advisory, then Watch), sorted by VTEC phenomena code (alphabetically).
- A new program, ghETN, is now part of the GFESuite distribution. This program is used by WarnGen to find the highest ETN for some phen/sigs.

ifpServer Enhancements

- Two new VTEC codes have been added. The HZ.W (Hard Freeze Warning) and the HZ.A (Hard Freeze Watch) codes have been added to the AFD, ZFP (AreaFcst), NPW, and AFM/PFM.

The MakeHazard procedure has had these two entries added to the Non-Precipitation category. The MergeHazard procedure has been modified to detect the conflict between HZ (Hard Freeze), FZ (Freeze), and FR (Frost). If you have modified these procedures, please look carefully at the modifications in the baseline and migrate them into your modified version.

The color table for Hazards has been updated to include new entries for these two codes. If you have previously modified the Hazards color table, you will find that all entries past HW.W have been shifted to the right by two. Start with the baseline supplied color table and then modify it through the GFE to restore your specific colors.

Until all sites have this version of the software, it is possible that ISC (Intersite Coordination) grids containing these new values will be rejected by the receiving site because older sites will not be able to validate these codes.

- Map Shapefiles were updated in this version of GFESuite. Map shapefiles are not normally released with the software; thus each site must update its own set of shapefiles as appropriate. The etc/SITE/localMapFiles.py file should be updated when you update your own set of shapefiles. The etc/BASE/MapFiles.py file is updated for this version, which makes it imperative to have an etc/SITE/localMapFiles.py that identifies ALL of the shapefiles you use.

The following shapefiles were removed: ba18mr05, c_08au05, cf10mr05, cm02se05, fz20se05, mz12se05, w_06oc05, z_06ja06.

The following shapefiles were added: ba28mr06, c_16mr06, cf20se05, cm06jn05, fz14ap06, mz01se05, w_14jl05, z_14fe06.

- New data items include Gridded MOS, NCDC/PRISM climate data, OPC and TAFB Offshore Gridded Wave guidance (data available in OB7.2 timeframe), and renaming of Eta to NAM.
- Numerous bug fixes are included in this release; refer to the release notes details for further information.
- GFESuite is compatible with the new expanded format of the Call To Actions file, which is introduced in OB7.2.
- See GFE Release notes.

http://www-md.fsl.noaa.gov/ef/AWIPS/ob7.2a/doc/onlinehelp/CHANGES_OB72a.html for more detail on OB7.2 enhancements.

1.8 Infrastructure

- Extreme Wind Warning (EWW) was added as a new warning product.

NWS began an experiment in 2004 to use the TOR product to issue Extreme Wind Warnings prior to hurricane landfall. This continued in 2005, with a plan to add a new "EW" VTEC code in 2006. The final decision is to continue with the TOR piggy-backing in 2006 with local addition of EWW bullets. For 2007, and therefore in OB7.2, a new EWW product will be created using the EW VTEC tag.

See <http://fxa.noaa.gov/requirements/awips-OB7/OB7.reqs.html> for more information.

1.9 Time Zone Changes (OB7.1 Updates for your information)

- Time Zone Name Change for Guam (Deployed in OB7.1 to no more than 2 sites): This involved changing the Time Zone name from Local Standard Time (LST) to Chamorro Standard Time (CHST) for two sites: WFO GUM Tiyan, Guam; and WFO HFO Honolulu, Hawaii.

- Time Zone Changes for Indiana (Deployed prior to OB7.1 to no more than 12 sites): In 2005, the Indiana State Legislature voted that the entire state would observe DST starting at 2:00 a.m. on April 2, 2006. Prior to April 2, 2006, some Indiana counties observed DST while other counties observed EST year-round. After April 2, 2006 at 2:00 a.m., these counties were to observe DST. Some made the switch from EST to EDT. Others made a request to the U. S. Department of Transportation to switch from the Eastern Time Zone to the Central Time Zone. On January 18, 2006, the U.S. Department of Transportation issued a decision that 8 Indiana counties would move to the Central Time Zone. The 8 counties moving from EST to CST and CDT are Pulaski and Starke in northwest Indiana and Davies, Dubois, Knox, Martin, Perry, and Pike in southwest Indiana. This was deployed as the Indiana Daylight Savings Time (DST) Emergency Release OB6.0.1 to 12 sites. The sites affected include sites that have County Warning Areas in Indiana (WFOs PAH, ILN, IWX, LMK, IND, and LOT); sites that have Primary Backup responsibility for Indiana Counties (WFOs JKL, and ILX); and sites that have Secondary Backup responsibility for Indiana Counties (WFOs SGF, MKX, CLE, and GRR).
- Key West Identifier Change (deployed prior to OB7.1 to Key West and four backup sites): This change was made to accommodate the move of the Key West WFO from the Key West Airport to a new building located on 1315 White Street in Key West, Florida in the spring of 2006. This caused the Key West WFO to change its identifier name from EYW to KEY. This was deployed as the Key West Location Identifier Change Emergency Release OB6.0.2 to 5 sites. The sites affected by this change include the seven neighboring or backup WFOs that are responsible for the backup or inter-site coordination with the Key West WFO. These backup sites are WFOs MFL, SJU, MLB, TBW, JAX, TAE, and EHU. WFOs SJU, TBW, and TAE did not install this Emergency Release.

1.10 Decommission DS

- MHS Server and NIS Master had been decommissioned.

1.11 Satellite

- Polar Microwave Products (Rainfall rate, total precipitable water)
- Cloud Amount DPI

1.12 Model Data

- GFS BUFR Sounding Data
- Full suite of SREF products for CONUS and OCONUS
- All 40 km RUC products upgraded to 13 km
- LAMP Products (Text, BUFR, gridded)
- OPC and TAFB Offshore Gridded Significant Wave Height Forecasts
- Analysis of record (Real-Time Mesoscale Analysis – RTMA)

- Simulated Reflectivity from WRF
- High Resolution Global SST Analysis

1.13 Guardian

Guardian is a new tool that will be a communicator between AWIPS software and AWIPS forecaster and a persistent process on each workstation. Guardian can be customized and tailored to allow forecasters to set preferences for receipt of notifications (pop-up, text, audio, blink, etc.), based on the source of the message, the priority of the message, and the category of the message. It will also adopt the Monitor buttons that currently exist under the WarnGen button in the D2D. It is expected that such flexibility will reduce the number of unwanted pop-ups and allow each WFO to do its own thing regarding notifications to forecasters.

Guardian becomes operational in AWIPS OB7.2, and it is hoped that AWIPS users will realize immediate benefits/relief from a few of the changes Guardian will bring will bring. For example:

- Guardian will exist on only 1 of the 3 LX screens, thus any red banners (pop-ups) that are produced will only be displayed on the one screen. (You can choose which screen.)
- With the user account changes associated with Guardian, pop-ups should no longer take cursor focus when they appear. Guardian will auto-start on the LX and XT machines when your desktop starts. You won't have to remember to start it up or shut it down.
- Guardian will allow you to control pop-up behavior. The Guardian that runs on the XT machines can have all pop-ups turned off to eliminate any potential duplications with the LX machines.

1.14 NWRWAVES

SETUP GUI CHANGES:

- Install script and GUI modified to handle new core county/zone and effective time fields.
- Per suggestion by AMA, GUI adjusted to align product configuration settings for easier setup.
- Modified a few of the help pop-ups to better explain scenarios that were deemed confusing based on listserv traffic.
- Removed 24 hour restriction on broadcast duration override.
- VIP (Concatenated Voice) pull down replaced by VIP (Default)
- Addition to handle transmitter specific GLF settings

2.0 WATCH WARNING ADVISORY (WWA)

- WWA has been decommissioned, and the Send to WWA button is gone from WarnGen.

3.0 HYDROLOGY

3.1 Distributed Hydrologic Modeling (DHM)

- The distributed model was implemented as a new operation for NWSRFS, outputting grids in netCDF format so that D-2D can access them.

3.2 HydroView/MPE

- Integration of Local QPE tools into national baseline

The OHD HydroView/MPE application had been modified for Build OB7 to incorporate features currently found in a set of local software known as DailyQC. The DailyQC application is a local application currently being used by Western Region RFCs in their daily operations to perform quality control of precipitation and temperature data, along with freezing level data. Some of its functionality exists already in the Multi-sensor Precipitation Estimation (MPE) application. The DQC capabilities extend beyond MPE in its use of temperature and freezing level data and its more comprehensive method for tracking quality control edits of precipitation data. It also includes enhanced user tools for analyzing and manipulating station precipitation reports. The resulting precipitation estimate data serve as critical input to the RFC and WFO river forecast models.

The DailyQC functionality will be released in stages during OB7.x. For OB7.1, the existing HydroView/MPE application will be separated into two applications: HydroView and MPE. Also, the data processing infrastructure will be modified to process and store, but not use, 6- and 24-hour precipitation data. The OB7.1 MPE application will contain a revamped menu interface containing the DailyQC options; however, these options will not be selectable. In OB7.2, plans are to make the options selectable, and provide support for integrating the quality control model. WHFS HydroView Mapper Enhancement

The full “Mapper” functionality is a two-application system for displaying station data on a geographic display. The first application extracts and pre-processes observed data from the database into data files, and the second application displays the data. The current WFO Hydrologic Forecast System (WHFS) “Point Data Control” (PDC) feature in the HydroView application provides much of this ability already. The Mapper design approach provides the ability to display data in a more responsive manner as well as the ability to “time-step” through point data.

The pre-processing (i.e., extraction/derivation) step allows the data to be displayed quickly because it avoids the WHFS HydroView need for re-querying the database each time a request is made. Mapper also has the ability to “time-step” through data – e.g., to show hourly data for one hour, or the previous hour, with a single user mouse click.

The release of this functionality will be performed in stages.

For OB7.1, the existing PDC functionality was preserved and the HydroView user interface has undergone some modifications as follows:

- **New Filtering Features:**
 - Allows Multiple type/source filtering (instead of just single).
 - Allows Value Filtering with operators (instead of just suppress zeros).
 - Allows Elevation Filtering with operators.
- **New Annotated Display:**
 - Can display elevations of location and SHEF "parameter codes" (PEDTS) associated with value.
 - Rearranged PDC Window Layout:
 - No functional changes implied by this change.

The OB7.1 PDC will not support the new Mapper time-step mode because we are still working on performance improvements for extracting the required precipitation data.

Note: For OB7.2, the data extraction pre-processor was completed and the full station data display is functional.

Adaptation to OB7 COTS changes:

- Assorted minor bug fixes including the restored ability to properly restart the SHEF decoder from the HydroBase application.
- The ability to store and manage low water (i.e., drought) impact statements in the HydroBase application.
- The ability to perform alert/alarm against lower limit thresholds, to complement the existing upper limit exceedance thresholds.

Changes for OB7.2 include the implementation of the “Mapper” station data display function into WHFS, which currently operates as a local application used primarily in the Western Region. It provides a robust method for displaying hydrometeorological data, similar in many ways to the existing WHFS TimeSeries and HydroView station data display control functions. Its benefits are in its more direct methods for displaying desired data sets (i.e., less mouse clicking), its time-stepping features, and its speed of display. A new simplified TimeSeries feature is included with this new data display feature. This feature, dubbed “TimeSeriesLite”, is a scaled-down version of the current WHFS Time Series feature.

3.3 RiverPro

Enhancements are also made to the RiverPro VTEC functionality. One of the changes involves full support for operating RiverPro in a practice mode. The changes extend the practice mode to be able to allow simulation of full event life-cycle testing for VTEC. For example, after the initial NEW event issuance, the subsequent EXTended or CONTinued actions can be issued, and culminating CANcel can be issued, all without transmitting any external product information and without interfering with the VTEC event sequencing and tracking associated with operational products

3.4 WHFS/IHFS Database

The data monitoring tool RiverMon, which was delivered initially in OB7.1, is provided to monitor information related to river forecast points, including the VTEC event status. This application is intended to run continuously, with an automated refresh of color coded tabular information to identify alert/alarm conditions. Related to this is an automated application for monitoring differences between river forecast and observations to better identify unreliable forecasts such as when QPF forecasts are inaccurate. This monitoring tool fits within the existing WHFS Alert/Alarm functionality.

Some minor enhancements are also provided, including:

- A new editor interface in HydroBase for the HydroGen support information.
- A new feature to adjust the icon sizes in HydroView.
- New features in the TimeSeries tabular mode for copying forecast time series data Globally setting quality code attributes.
- Transition of the OHD HSEB software from using an Informix DBMS on HP-UX servers to using a PostgreSQL DBMS on Linux workstations. Also, IHFS_DB has been converted from Informix to PostgreSQL, and all the application software has been converted to access the PostgreSQL database.

3.5 RFC

All RFC Archiver Databases and Software have been converted to PostgreSQL.

3.6 Precipitation Processing

A major change to MPE operations is the incorporation of the Daily QC functions used in the Western Region into MPE operations. The goal is to provide a nationally-supported and baselined application usable by all offices to perform QPE operations. For OB7.2, the existing Daily QC functionality is integrated into MPE. This involved new temperature and freezing level data quality control features, additional precipitation gage quality control options, and assorted interactive features.

A new utility application (build_hourly) was provided to assemble hourly precipitation Reports from sub-hourly data, so that the resulting data can be used in MPE operations.

Delivery of RFC-generated QPE products to the SBN for subsequent receipt and use at WFOs. Changes were made to make these RFC QPE products displayable in D-2D at WFOs, to complement the locally generated QPE products which can be displayed in D-2D as of OB6.

4.0 SYSTEM

4.1 COTS Software

Degib – 1.76

Eliminate Compiler Warnings.

4.2 Processes

- The following proces moved from DS1 to DX1
 - MHS Processes
 - NIS
- SNOWprocessor, pdc_preprocessor, obsfcst_monitor, process_qpe_mosaic runs on PX1.
- sendEnvironmentalData runs on DX2.
- IFPS/GFE runs on DX4.

4.3 Purging

- The continuous purging mechanism introduced in OB5 is now extended to cover everything else. Maritime and Synoptic observations now feature variable time frequency purging similar to that previously applied only to METARs.

In OB5, a new program for handling purging came on line, and there are new data structures that control how this purger works. Current plans are to phase this new purger in. In OB5, metars, radar, and grids were implemented. OB6 added purging of satellite images and redbook graphics with the new purger. The new purger now includes logic that will prevent it from attempting to purge any directory referred to in the file \$FXA_HOME/bin/fxa-data.purge, and it will also attempt to use default purge parameters if necessary to purge any valid data key that points to a directory not in either the new or old purger's tables. **Everything should be moved over to the new purger in OB7.2.**

The new purger is a persistent process. Instead of waking up on a schedule and generating a huge burst of activity every so often, this new purger is designed to maintain a very constant CPU load, and it informs the notificationServer of what it purges, which helps with notificationServer performance. The new purger is smart enough to ignore directories and non-time-stamped files in normal purge operations, and has a separate mechanism for cleaning up non-time-stamped files. Files named literally 'template' will always be ignored by the non-time-stamped file logic; thus, no extra steps are required to manage template files. The new purger allows for much more sophisticated purging schemes beyond the simple version purging, among them

time purging.

4.4 Database Engine and Operating System

- No changes to the Database Engine and Operating System.

As of OB7.1, the PostgreSQL DBMS had replaced Informix as the HP-UX DS machines are retired and replaced by the Linux DX machines. The Operating System is Red Hat Enterprise Linux 4u2 and the Kernel is 2.6.9-37.

4.5 AVNFPS

AVNFPS 3.2 is maintained in OB7.2.

- **New Conditional Climatology Tools.** The second generation of conditional climatology tools helps forecasters to better extract information out of the climate database. The wind rose GUI offers the traditional wind rose display. Additionally it allows the aviation forecaster to narrow the results to a variable range of hours and/or flight categories. The monthly ceiling visibility trend GUI, as you might expect, either summarizes each months' frequency of non-VFR conditions by hour. Or can see how non-VFR conditions are distributed hourly for each month. The ceiling and visibility trend tool allows a forecaster to set a value and or range of conditions and then query the climatology database to obtain a forecast of flight conditions based on those starting conditions.
- **Collaborative Convection Forecast Product Monitoring.** The CCFP issued by the Aviation Weather Center (AWC) is another guidance source to consider for forecasting thunderstorms in your TAF. AWC issues the product every two hours forecasting initiation and movement of thunderstorms, two to six hours in advance. AvnFPS TAF Monitoring GUI, aka AvnWatch, will use this product to notify you when AWC thunderstorm guidance and your TAFs are inconsistent. Like most monitoring tools, it can be customized individually for each of your TAF sites.
- **Airport Impact Tool.** For busy airports, AvnFPS introduces an 'Impact' check during TAF preparation. This tool is customizable to each TAF site and can alert the forecaster based on wind, visibility and/or ceiling criteria, TAFs which can adversely impact airport operations.
- **Support for the experimental 30 hour TAF forecast.** Under WMO agreement and for a few airports receiving international flights, a new airport forecast product exists extending the original 24-h TAF an additional 6 hours. If configured for a TAF site, AvnFPS TAF Editor will recognize and properly format the new 6 hour extension of the TAF forecast. The AvnFPS transmission server will disseminate the product under a separate header.
- Retired ifpServerWatcher as of OB7.1 and uses GFEsuite as the replacement.
- Informix product replaced by PostgreSQL as of OB7.1.
- Improvements:
 - Improving TWEB Quality Control in AvnFPS 3.2.

- Enhance Grid Monitoring to Include Ceiling and Visibility Fields in AvnFPS 3.2:
 - Upper sections create a query.
 - Lower sections display data.
- Improving Climatology Tools in AvnFPS 3.2:
 - General reactions:
 - Query interfaces confusing.
 - Displays sub-optimal.
 - Desire to capture functionality of climatology tables developed by Air Force.
 - Data stored in binary files tuned for performance. Standard format requested.
 - Guidance source within AvnFPS as an aid to forecasters in preparing TAFs. This code transforms MOS/LAMP guidance into TAF form to make more readily usable by forecasters.
 - AvnFPS to monitor flight categories.
 - AvnWatch to monitor ceiling and visibility grids from IFPS.
 - Creation of Guidance TAFS.
 - Generate Draft Terminal Aerodrome Forecasts (TAF) from the Localized Aviation MOS Program (LAMP) in AvnFPS 3.2.

4.6 IFPS

As part of OB7.1, the DS machines, which host the Informix server, have been decommissioned. Because of that, it is a requirement that IFPS use Postgres instead of Informix in OB7.1 and OB7.2.

4.7 System for Nowcasting of Winter Weather (SNOW)

OB7.2 is the first operational build for SNOW in AWIPS. SNOW is an AWIPS application suite which continuously monitors surface observations for winter weather hazards. It automatically alerts the forecasters whenever such conditions are detected. SNOW provides capabilities to display observed winter weather threats in ways that help forecasters focus on what they consider most important.

This application's design was based on that of the SAFESEAS tool already running at maritime WFO's, so users of SAFESEAS will find SNOW familiar.

SNOW will have the look and feel of SAFESEAS, though users of both will notice subtle differences (for example, temperature and dewpoint are ranked lowest to highest in SNOW, but highest to lowest in SAFESEAS).

4.8 Simple Mail Transfer Protocol (SMTP)

- After OB7.1 is deployed, the migration of the X.400 COTS product to SMTP (Simple Mail Transfer Protocol) will occur. However, to keep the necessary changes to a minimum, and to make the changeover as transparent as possible, many file names remained the same or similar and process names were kept as similar as possible to the previous X.400-based MHS process names. For example, **x400sc** under X.400 became **smtp_send** for SMTP, and **x400rd** under X.400 became **smtp_recv** for SMTP.

- **Transition**

All sites will be transitioned from X.400 to SMTP after the deployment of OB7.1 is complete. X.400 and SMTP are generally incompatible message protocols due to differences in addressing and mail formats. Mail gateways are the standard method of translating messages from one form to the other. AWIPS cutover to SMTP should be done only after all sites are at OB7.1.

- **Deployment Strategy**

OB7.1 deployment has to be completed before SMTP migration occurs. Alpha and Beta testing will be performed at various sites first, and after a successful cutover to SMTP, there will be a national deployment to cutover all sites to SMTP. Deployment is scheduled to begin mid February 2007, lasting for two weeks.

- **SMTP Design Change**

- Interface to AWIPS Applications:
 - No change to the APIs.
 - `Msg_send` command uses environment variable to determine message disposition.
 - New file system for message queue's(/data/mhs instead of data/x400).
 - Receiving applications are invoked by the `msgrcv_svr` on the DX instead of on the DS.
- Monitor and Control:
 - All messages will be logged as with X.400.
 - Sendmail logs to `/var/log/maillog`.
 - OVO templates will be deployed to monitor processes and queues.
 - Sendmail has an SNMP (agent) MIB which could be used to provide statistics.
- Performance:
 - Sending throughput is roughly 12 msgs/sec for radar-sized messages. This is about the same as X.400.
 - Receiving throughput is much higher than 12 msgs/sec. This is much better

than X.400.

- WAN data volume is expected to decrease.
- MHS Hub server load is expected to decrease.

4.9 Emergency Releases

- **Radar Displacement**

The Radar displacement fix is already in the OB7.1 and OB7.2 baselines. (See OB7.1 Release Notes for more information)

- **Notification Server**

During severe weather conditions the notificationServer hangs, preventing messages from being sent. SMS support was requested to verify a fix for the notificationServer socket/IPC communication problems. This problem was fixed by a new notificationServer executable and deployed via ATAN 821 to OB6.1 sites for installation.

5.0 NWRWAVES

NWRWAVES version 2.6 (used in OB6.1 baseline) is also used in OB7.2. Major Enhancements include:

- Marine product handling.
- Multiple VTEC lines.
- Split FIPS coding.

6.0 LDAD

AWIPS has upgraded the Local Data Acquisition and Dissemination (LDAD – Is1) network firewalls. The old Gauntlet firewall has been replaced with redundant Juniper NS-25 “Netscreen” firewalls to enhance the network security for the AWIPS network. Each AWIPS site will have two firewalls controlled by central configuration manager servers. The configuration manager servers are located at the NCF and Raytheon engineering facility in Silver Spring, MD to support the deployment. As part of the deployment, each regional headquarters will also receive a configuration management server. The regional configuration management servers will allow the regions to manage the configurations of the firewalls at each of their AWIPS sites and submit the changes to the central configuration management server. The control over the firewall configurations is tiered with the central configuration management server having ultimate control; the regional servers control their sites but are subject to potential override from the central server. Individual AWIPS sites (forecast offices) will not have direct control over their own configurations.

The old Gauntlets are proxy firewalls. The new Netscreens are stateful inspection firewalls, not proxy firewalls. The Netscreens use Network Address Translation (NAT) to prevent AWIPS IP addresses from being advertised outside of the AWIPS network.