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AWIPS Operational Build 8.3: Final Release Notes

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AWIPS OB8.3 Final Release Notes

Section I – New Functionality in OB8.3

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* **NOTE:** Section 8.0 is a new section. It lists the enhancement DRs.

1.0 D2D/TEXT/OTHER APPLICATIONS

1.1 Radar

- Accommodation is made for dual-polarization radar products, including menu and Volume Browser entries. In the latter, many more height levels are included for new CAPPIs. Dual-pol products will become available with ORPG Build 11, which is slated for field release beginning mid-2009.

Note: Over the next few years the hardware on the 88D radars will be upgraded such that alternating horizontally and vertically polarized pulses can be broadcast. Comparing the intensity and phase of the differently polarized returns results in three new base data parameters and a new algorithm output for classifying targets and estimating precipitation. The purpose of this work is to ingest and incorporate into the D-2D meaningful displays of this new radar output.

- Integrated radar/environment sampling. This tool projects model analysis and forecast grids onto radar volume tilt surfaces and lets you sample the temperature, relative humidity, wind, equivalent potential temperature, wet-bulb temperature, and pressure at the height of the radar beam. A new '0' setting is added to the Density menu to support this, as the model fields are initially displayed 'invisibly.'

Two main capabilities are being added here. First, for several numerical models, and for an objective analysis of RAOB data, one can overlay on radar data sampleable but invisible overlays of temperature, dewpoint, and wind. The data in these overlays is interpolated to the level of the currently viewed radar tilt. A group of these sampleable but invisible overlays is called an Environmental Data Package. Existing Packages can be modified and new Packages can be added by reconfiguring the VB tables.

The second main capability being added is a Radar Popup SkewT. When activated in the presence of radar data, this shows a temp and dewpoint profile at the sampling location based on a user-selected data source. The profile can update dynamically as one sample in different locations, and this diagram shows the height of the current radar tilt at the sampling location.

1.2 Grib Decoder

No enhancements.

1.3 NCEP

No enhancements.

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)

Please refer to DR (16653) and DR (18954) in Section 8.0, Enhancement DRs.

1.6 NGM-LAMP

No enhancements.

1.7 Volume Browser

- More aviation changes include several maps in a new FAA pull-right menu; new VB 'Other' fields turbulence, icing, and super-cooled water; a selection of heights from 1kft to 45kft (using 'FLxx' terminology 18kft+); and new Center Weather Advisory, SigWx, and VAA displays. New AVIATION Turbulence Index and AVIATION Icing Severity color tables are used for some of these products.
- Probabilistic storm surge is added to the VB (source TPCSurgeProb). Fields (on the Sfc/2D menu) include probabilities of several surge heights and a 10% chance of exceedance height.
- High-res scatterometer winds are added. There are now two menu items: QuikSCAT (now higher resolution) and ASCAT winds. Note: The QuickSCAT data will be available, but the ASCAT data will not be available for OB8.3.

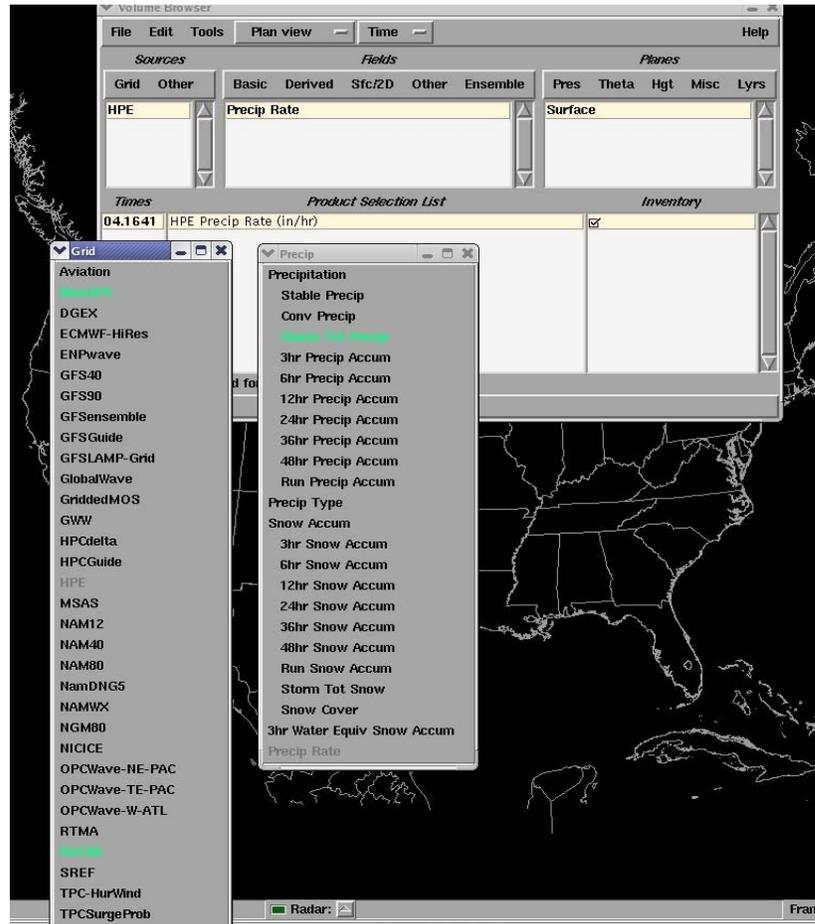
The current resolution ocean surface winds (direction and speed) from scatterometry are at 25 km. The higher-resolution ocean winds will allow winds to be generated closer to the coast and thus increase the utility of these data. The ASCAT will continue the generation of the ocean surface winds, but from an operational satellite. The current satellite scatterometer source – QuikScat – is from a NASA experimental satellite. The European satellite (METOP) will replace the NOAA polar orbiter in the morning mission. Data from both satellites will be available for some time (time period is TBD as the end of availability of data from the NASA satellite is not known).

- Several new wave grids are available, as part of the WAVEWATCH III package.
- Gridded MOS/NDFD grids are available for Alaska.
- New BiasHPE and HPE grid sources are added to allow you to display Storm Tot Precip (actually, one hour, in most cases) and Precip Rate estimated from radar. These grids are computed from DHR and DSP (256-level STP) radar precipitation products, and are used as input to FFMP.

High-resolution Precipitation Estimator (HPE/BiasHPE) Products for D-2D and FFMP-Advanced (without/with bias correction): The High-resolution Precipitation Estimator (HPE) will provide approximately 1km x 1km rain rate and 1-hour rainfall amount mosaics every 5 minutes over part of a ¼ Hydrologic Rainfall Analysis Project (HRAP) grid covering a WFO's (or an RFC's) area of responsibility in standard AWIPS NetCDF format. These gridded datasets can then be viewed in D-2D and used by the Flash Flood Monitoring and Prediction Advanced (FFMP-A) system (also see section 2.8 Precipitation Processing under 2.0 HYDROLOGY).

In order to accommodate the new rain rate fields, the Precip Rate field was added to the 'Fields' section of the Volume Browser:

Sfc/2D → Precip → Precip Rate. The 1-hour rainfall amount mosaics can be displayed under the Storm Total Precip field, which was already present under the Precip sub-menu.



1.8 Local Storm Report

No enhancements.

1.9 FFMP

With OB8.3, FFMP will move from radar centric precipitation processing to grid-based precipitation processing. This will allow for easier FFMP processing and displays for WFO sites with multiple radars. There is also an expected benefit for WFOs with limited radar data as FFMP will be able to ingest any forecaster-selected multi-sensor gridded precipitation estimates and forecasts data. The current small basin files, provided by NSSL, were only provided for the area under the radar umbrella. All WFOs will need to obtain new small basin files that cover their entire warning area and any backup areas they are responsible for. **FFMP OB8.3 will not work without these new small basin files.**

If desired, WFOs will still be able to select the local radar as their precipitation input source, but they must still update their small basin files for FFMP OB8.3 to work.

For more information and pre-install instructions, please refer to
http://www.weather.gov/mdl/ffmp/Critical_UpdateOB83.pdf

FFMP Advanced provides some interesting and significant new functions to FFMP:

- **Ingest gridded data**
This is by far the most significant of the changes. FFMP can now ingest various types of gridded data, based on the Data Source Configuration entries. Thus, if a grid exists that combines multiple sensors and applies good quality control; FFMP can potentially make use of it! Examples are HPE and NMQ, but there are potentially many others.
- **Split Window (QPF)**
The “P” in FFMP stands for “Prediction,” but until now, FFMP itself did not actually do much predicting. Now you can split your time window of interest between QPE and QPF, and compare the sum to Guidance. (For example, compare (2hrQPE + 1hrQPF to 3hrGuidance).)
- **On-the-fly CWA coverage**
The old FFMP required a re-localization to change the CWAs it ‘saw.’ Now, changing the CWA domain of FFMP can be done on the fly, and independently for both display and monitoring, while still maintaining the ‘boundary’ of the desired domain.
- **Site-controlled Time Window Maximum**
The old FFMP saved 90 time steps’ worth of data, which usually led to a maximum time duration of 6-9 hours (depending on VCP). FFMP Advanced uses the purge value from the AWIPS Intelligent Purger, which is under the control of the site. The delivered value is 24 hours, so FFMP can potentially provide data on a time window as large as 24 hours.
- **Attribute Inclusion in the Basin Table**
The columns in the Basin Table in FFMP have been static, until now. Now you can decide which columns to include or exclude from your tabular display in the Basin Table.
- **Enhanced Basin Trend**
The Basin Trend in FFMP Advanced is much more flexible than the old Basin Trend. The new trend allows the user to do things like control which plots gets displayed, control which plot is used for underlay color, and control how many hours are potentially displayed.
- **Increase in Number of Monitor Sets**
Because FFMP Advanced (FFMPA) allows for the ingest of a variable number of data sources (QPE, QPF, and Guidance) and also allows for potentially large time durations, we increased the maximum number of monitor sets in the FFTI GUI from 3 to 5.

- **Localization Containment**

The old FFMP had its localization executed in the –scan localization switch. Now, it has its own –ffmp localization switch, which should enhance troubleshooting, fixing configuration or environmental bugs, and eliminate the impact of FFMPA re-localizations on other applications.

The following is a list of files in a handful of directories that are obsolete as of OB8.3. They are all related to FFMPA. All of these are also under the D2D tree:

...D2D/src/dm/ffmp:

FFMPdataAccessors.H
 ffmpdatastruct.h
 time_convert.c,h
 time_defs.h
 FFMPPradarToCWA.C,H
 FFMPPradarToCWA.template
 FFMPtableData.C,H
 FFTIdataAccessor.C,H
 fftiThresh.txt
 gagedatastruct.h
 splitTextString.C,H

...D2D/src/ffmp/localize:

localizeForFFMP.C,H
 FFMPlocUtilities.C,H
 llgd.f
 testFFMPlocalize.C

...D2D/src/depict:

FFMP_BasinFFGFDepict.C,H

...D2D/src/ffmp/processor:

FFMPprocessor_globals.H
 dbzToRainRate.C,H
 FFMPacq.C,H
 FFMPglobal.C,H
 decodeDHR.C,H
 dhrPattern.txt
 ffgMosaic.C,H
 FFMPmiscStruct.H
 FFMPprocessor.C,H
 FFMPtrigger.C,H
 FFTIoptions.default
 FFTIselections.default
 readRadarPattern.C
 triggerFFMP.C

writeFFMPNetCdfFile.C,H

...D2D/src/extensions.ffmpDisplay:

FFMPextSrcs.txt

ffmpGuiSuite

- **Enhanced DRT**
FFMPA retains a Displaced Real-Time mode of operation, but it is easier to use and more flexible. It is likely to be of more value in WES, due to potential conflicts with real-time data, but you can run a full suite of data through FFMPA at the same time for a more complete DRT case.

All the above-mentioned functionality falls under these categories.

- **FFMP Processor:** This addresses the Processor components of the FFMP Advanced Design redesign task. Such items include data ingest and manipulation, data management for various data types (precipitation, guidance, forecast).
- **Forced Flash Flood Guidance:** This addresses the Forced Flash Flood Guidance (FFFG) GUI components of the FFMP Advanced Design re-design task. Such items include allowing the forecaster to provide guidance values to be used by FFMP via an existing GUI, which will require re-design.
- **FFMP Display:** This addresses the display components of the FFMP Advanced Design re-design task. Such items include the Basin Table extension, FFMP color image depictable.
- **FFMP Monitor:** This addresses the Monitor set-up components of the FFMP Advanced Design re-design task. Such items include the Flash Flood Threat Indicator (FFTI) GUI.

1.10 GFE

Service Backup Improvements: ISC Routing. This change benefits both normal operations and service backup operations. Rather than the sending site determining where ISC data should be routed, the paradigm has shifted; the destination sites register for ISC data. When new ifpServers are launched – for example, during service backup – the ISC routing automatically changes and the correct data flows to the started ifpServer. Note that ISC Routing also comes into play with the new feature of ISC Request/Reply and the existing feature of VTEC Table Sharing.

In this release, ISC is disabled by default until the site adds the appropriate entries to the localConfig.py file and restart the ifpServer.

Key Notes:

- I. Overall concept for controlling ISC is now different. **The site that wants the ISC data must be configured to request the data.** Previous versions of AWIPS controlled ISC data flow through the sending site's configuration.
- II. **A new request/reply ISC feature is added** allowing a site to get a one-shot data pull from a particular site. This pulls data from the remote Fcst database into your local ISC database. This is probably what should be executed by the forecaster after going into service backup in order to populate their ISC database. **Requests from OB8.2 sites will not work**, even though the dialog will show these sites as available sources.
- III. **By default, ISC is disabled for OB8.3 sites.** Sites must have a localConfig.py that enables ISC.
- IV. **Sites can tune which parameters and which sites for which they want to receive ISC data.** The default is all parameters in the Fcst database and all sites which touch the grid domain.
- V. **ISC configuration documentation** is in the GFESuite on-line help in the **serverConfig.html** file (GFESuite/doc/onlinehelp/serverConfig.html in the source tree).
- VI. VTEC table sharing configuration (VTECPartners/localVTECPartners) identified sites are no longer interpreted as MHS sites, but rather domains. **This means if you share with a site that is down and someone else is running service backup for them, the VTEC table share will go to the site running service backup.**
- VII. **The old installation of ISC files on dx1 is removed** (in the /data/adapt/GFESuite and /awips/adapt/GFESuite directories). These are now part of /awips/GFESuite/primary. Log files have also been moved to /awips/GFESuite/primary/... making all GFE log files together in the same location.
- VIII. **ISC Routing files no longer exist.** Examples are: iscReceiveRouteSITE.py and iscSendRouteSITE.py.
- IX. **The ISC configuration only applies to OB8.3 sites**, thus the receiving OB8.3 sites cannot control what is sent to them via OB8.2 sites. Data from OB8.2 sites will be missing the XML routing information, thus when received by OB8.3 sites, the data will be routed to all potential ifpServers on dx4/px3 with the result that many error messages may appear in the logs.
- X. **Data sent from OB8.3 sites to OB8.2.1 sites is controlled by the same ISC configuration.** There is nothing special that needs to be done with ISC in the OB8.3 system for OB8.2.1 sites.
- XI. **The old ISC configuration items are removed and are ignored.** These include ISC_Sites.
- XII. **ISC data is automatically sent (if configured) whenever data is saved by the GFE.** If a script (runProcedure) or iscMosaic is used to populate the Fcst database, then this data is not sent via ISC. **Users need to be careful when starting service backup to populate their Fcst database in order not to send out ISC data prior to when they take over operations.**

- XIII. **A web interface is available to the central IRT web service.** The web interface can be used to tell which ifpServers are currently registered and what data is requested for ISC for each site. The sites can contact the NCF if they need to access this website.

The GFE has been modified to accommodate the WAVEWATCH III grids. WAVEWATCH III is designed to improve near-shore wave guidance significantly. The added datasets include:

- AKwave10 - Alaska
- AKwave4 - Alaska
- EPwave10 - Eastern Pacific - (I think)
- GlobalWave - Global dataset
- WNAwave10 - East Coast and Gulf Coast
- WNAwave4 - East Coast and Gulf Coast
- WCwave10 - West Coast
- WCwave4 - West Coast

The full list of WAVEWATCH III elements in the model datasets includes:

- uw
- vw
- ws
- wd
- htsgw
- wvdir
- wvhgt
- wvper
- dirpw
- perpw
- swdir
- swper
- swell

Storm Surge grids: Users have told WFOs that they value impact graphics that summarize the cumulative effects/impacts from tropical cyclones. WFOs have been providing different versions/templates of impact graphics for some time and the team seeks to establish a national standard for the tropical cyclone program. Also, General Johnson has expressed concerns that existing NWS products do not adequately communicate the magnitude and full range of tropical cyclone impacts, particularly for persons away from the immediate coastline. This project was deemed a priority at the 2004 and 2005 NOAA Hurricane Conferences. Because the majority of tropical cyclone deaths are associated with inland flooding, we see the impact graphics as another tool for emergency managers and all citizens in developing planning and preparedness actions before the onset of tropical cyclone conditions.

In OB8.3, storm surge grids were added to AWIPS. This includes decoding, D-2D display, and GFE.

This implementation consists of Gridded Probabilistic Storm Surge. The Gridded Probabilistic Storm Surge image is displayable at 6-hour increments. The Gridded Probabilistic Storm Surge images are produced and sent out on an event-driven basis 4 times per day.

Gridded MOS was added to AWIPS for Alaska. This includes decoding, D-2D display, and GFE.

Python was upgraded from version 2.4.1 to 2.5.1.

ISC Routing: In this release, ISC is disabled by default until the site adds the appropriate entries to the localConfig.py file and restart the ifpServer.

1.11 Satellite

No enhancements.

1.12 Guardian

No enhancements.

1.13 Gridded MOS

Gridded MOS was added to AWIPS for Alaska. This includes decoding, D-2D display, and GFE.

1.14 Fog Monitor

No enhancements.

1.15 WarnGen

Tornado (TOR), Severe Thunderstorm (SVR), Flash Flood (FFW), and Special Marine Warnings (SMW) are prepared using WarnGen and Disseminated via AWIPS. All include 3 “issuance” times – WMO product issuance time, Valid Time and Event Code (VTEC) time, and Mass News Disseminator (MND) issuance time. These 3 times should always be the same time, and should reflect the time the warning is actually transmitted (i.e., the WMO product issuance time).

1.16 TDWR Radar

No enhancements.

1.17 Four-Dimensional Storm Cell Investigator (FSI)

FSI, which was new in OB8.1, is defined as the graphical user interface (GUI) for the National Severe Storms Laboratory (NSSL) Warning Decision Support System – Integrated Information (WDSSII). FSI has been designed for specific NWS warning operations, and is a separate radar interrogation application that is to be launched from the D2D. 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 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 at allowing them to discover new signatures to help improve severe weather warning performance.

In OB8.3, the following new functionalities were added:

- FSI will display super-resolution reflectivity, velocity, and spectrum width data when connected to a radar running ORPG10 and later versions. FSI will display the “highest resolution available.” At the time of the release of FSI8.3, this means that data at elevation angles below 1.8° will be displayed as super-resolution data.
- Readout is a continuous data sampling capability using a linked cursor on the 4 panels. The sampled value field will “color fill” using the same color corresponding to the product’s color map. Data readouts on the CAPPI or Vertical Cross Section panels will show a corresponding multiple readouts on the 3D panel, in three-dimensions.
- FSI will display the new polarimetric radar data moments (Zdr, ρ_{hv}, KDP) as well as Hydrometeor Classification Algorithm (HCA) output at all elevation angles once these products become available from the radars.

1.18 Aviation

- Add more graphical aviation products to D-2D: CIP, FIP, GTG, SIGWX, CWA, VAA.
- Add aviation map backgrounds and ARTCC/TRACON scales to D-2D.

1.19 Climate

No enhancements.

1.20 GOES

No enhancements.

1.21 Graphic Workstation

No enhancements.

1.22 Low Cloud Base

No enhancements.

1.23 LAPS

No enhancements.

1.24 Warning by Polygon

Warning templates can be configured to list affected basins, just as they historically have listed counties.

1.25 Distributed Hydrologic Modeling (DHM)

Enhancements to Distributed Hydrologic Modeling:

- Add the ability to specify SAC-State Mods using a percent of maximum mod value and modify the existing SAC-State Mods GUI to display the current sac state conditions as average values.
- Allow users the option to select MPE-based precipitation or SNOW-17 rain plus melt precipitation grids as the input precipitation data source.
- Update DHM’s algorithm for computing hourly QPF to account for observed data.

The following table compares the DHM design features in OB8.3 to the design features in OB8.2.

Design Feature	AWIPS OB8.3	AWIPS OB8.2
Programming Languages		Java 1.5, C, C++, Fortran
Mode of Use	Same as OB8.2	Batch Mode: as an operation within OFS/FCST GUI Mode: as an operation, with IFP
Graphical Displays	Same as OB8.2	Timeseries: Tulsa Plot and/or PLOT-TS operations through IFP (XMOTIF) Grids: XDMS and 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	Same as OB8.2	4 shareware jar files <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • dhm.jar • dhm-tests.jar

Design Feature	AWIPS OB8.3	AWIPS OB8.2
		<ul style="list-style-type: none"> • ofs.jar • distrouting.jar • ^{update} simplexmrg replaced with rdhmutilites.jar • ^{new} dhmguis.jar <p>2 OHD developed shared libraries</p> <ul style="list-style-type: none"> • librdhmutilites.so • libdistrouting.so
Scripts	Same as OB8.2	<p>Batch Mode: ofs – used to set CLASSPATH and LD_LIBRARY_PATH environment variables prior to executing DHM</p> <p>abort_nwsrfs – used to cleanup any log files created by abnormal termination of FCST</p> <p>GUI Mode: start_ifp_nwsrfs – used to set CLASSPATH and LD_LIBRARY path environment variables prior to executing DHM</p> <p>abort_nwsrfs – used to cleanup any log files created by abnormal termination of IFP (same script used in batch mode)</p> <p>ifp_cleanup – used to cleanup any temporary DHM grids copied for executing DHM within IFP</p>
Memory (Physical disk space and RAM)	Same as OB8.2	<p>RAM – default AWIPS environment</p> <p>Disk Space – Grid Data in /awips/hydroapps and /data/dhm</p>
Application Default Tokens (APPS_DEFAULTS)	<p>All tokens from OB8.2 and</p> <p>New dhm_rain_plus_melt_data_dir – directory with rain+melt XMRG grid data</p>	<p>dhm_data_dir – directory with input/output XMRG data</p> <p>dhm_d2d_data_dir – directory used to write output viewable in D2D</p> <p>dhm_d2d_notify_bin – directory with dhmNotify exe; used to ping D2D notification server</p> <p>ifp_griddb_dir – directory with user's local set of precipitation XMRGs (used when running DHM-OP through IFP)</p> <p>ifp_dhm_data_dir – directory with user's local set of dhm input/output data (used when running DHM-OP through IFP)</p>

2.0 HYDROLOGY

This is an umbrella DCR for OHD software that is delivered to both WFO and RFC installations, and which runs on the AWIPS workstations. This includes the WFO Hydrologic Forecast System (WHFS), hydro Data Ingest, and hydro Precipitation Processing software.

This is part of an ongoing effort to 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.

The Multi-sensor Precipitation Estimator (MPE) is a software-based application used by the RFCs and WFOs to produce one-hour quantitative precipitation estimates (QPE) at approximately 4 km by 4 km Hydrologic Rainfall Analysis Project (HRAP) grid resolution. These precipitation fields are derived by combining radar, satellite, and rain gage observations to produce unbiased precipitation estimates. These estimates are further augmented using radar and monthly precipitation climatology.

The QPE algorithms employed by MPE have limitations in areas with poor radar coverage and sparse gage networks. Also, the MPE QPE algorithms are computationally intensive, requiring up to half a minute to complete at some offices. For these reasons and because accurate QPE plays a vital role in river/small stream modeling and forecasting, some RFCs have developed in-house QPE algorithms and tools for their operations. Daily Quality Control (Daily QC) is an example of a locally developed QPE tool. One of the main goals of Daily QC is to generate quality controlled 6-hour gage values for use by the National Weather Service River Forecast System (NWSRFS).

The Colorado Basin River Forecast Center (CBRFC) originally developed Daily QC as part of a larger suite of software known as "Mountain Mapper." The Daily QC program was written to help quality control precipitation gage data on a 6- and 24-hourly time step. It was also designed to assist in performing quality control in flat as well as complex mountainous terrain. Daily QC is a GUI-based application that quality controls precipitation gage and temperature values, stores the results, and generates Mean Areal Precipitation (MAP) and Mean Areal Temperature (MAT) values.

The National Weather Service needs a robust, comprehensive methodology and software system to produce the best possible QPE. The system must process the inputs and provide flexible output formats in both space and time. The technologies must be aware of future needs and support the spatial and temporal requirements for distributive modeling and the finer time scales within NWSRFS. The Office of Hydrologic Development (OHD) proposes a single, unified, nationally supported QPE software system. The integration of Daily QC capabilities into MPE (to perform quality control on 24-hour and 6-hour precipitation gage values and temperature values) will further this goal. An enhancement to the Daily QC will include disaggregated 6-hour gage values into 1-hour values for use by MPE.

The considerable benefits of this project include the following.

- Integrating Daily QC features within MPE will give all RFCs and WFOs the combined benefits of MPE and Daily QC functionality within a GUI with which they are all familiar.
- The realization of this project would also transfer the responsibility of maintaining the Daily QC program code from CBRFC to the OHD/Hydrologic Software Engineering Branch (HSEB).
- There are COTS changes that will affect OHD source code. The most significant of these COTS changes is the postgres upgrade. This DCS reflects the changes needed to ensure that OB8.3 software changes performed by OHD will adapt to the modified COTS.

2.1 Forecast Services Database and Interface

No Enhancements.

2.2 HydroGen

No Enhancements.

2.3 SRA Tools Enhancement

2.4 HydroView/MPE

2.5 RiverPro

No Enhancements.

2.6 WHFS/IHFS Database

This task involves the synchronization of static data within the RFC Archive (RAX) database with comparable information in the Integrated Hydrologic Forecast System (IHFS). The IHFS is the standard operational database used at both the WFOs and the RFCs. The RAX database resides only at the RFC. The RAX and IHFS databases both use PostGres implementations. The synchronization of the databases is between the RAX and RFC instance of the IHFS. The WFO IHFS database plays no direct role in this synchronization project. The task involves automated procedures to transfer information from the IHFS to the RAX. No reverse flow of information (from the RAX to the IHFS) is planned. Additionally, some basic user interface will be created and used to display and edit certain information in the RAX database.

2.7 RFC Archive Database (RAX)

See 2.6.

2.8 Precipitation Processing

As discussed in Section 1.7 Volume Browser, the HPE was added to the Hydrology suite of Precipitation Processing routines. Although the HPE grids can be viewed and manipulated via D2D, its primary purpose is to provide high-resolution rain rate grids frequently (every 5 to 15 minutes) to FFMP-A, also delivered in OB8.3. HPE provides a mosaic from multiple radars over

the entire CWA instead of just one radar source at a time to FFMP-A. As DHR data "goodness" diminishes farther from a single radar, the HPE mosaics provide an improved data quality over most of their grids.

HPE was designed as input for FFMP-A to assist with Flash Flood warning support, and is therefore primarily intended for WFO use. RFCs could still run HPE, but the information may not be as useful for RFC operations. Therefore, it is recommended that RFCs ensure the HPE cron scripts are commented out so HPE is not running unintentionally.

Although similar to the Multi-sensor Precipitation Estimator (MPE) in the sense that HPE also produces mosaics from multiple radars over a WFO's section of the HRAP grid, HPE is an entirely separate program and will not replace MPE. HPE uses different data, produces different output grids more frequently and at higher resolution, and runs with little user interaction. The only connection between HPE and MPE is that HPE uses the mean field bias per radar (or local) bias determined by MPE.

Like most other Hydrology applications, HPE processes run on PX1. Two crons start scripts that run every minute to gather the raw Digital Hybrid Reflectivity (DHR) and Digital Storm total Precipitation (DSP) radar products from surrounding radars. If the DHR Precipitation Status Message (PSM) at any radar to be included in the mosaic indicates that there is precipitation, then the HPE field generator process will begin and continue to produce products at approximately five-minute intervals. At present, the default products are instantaneous rain rate and 1-hour accumulated precipitation grids, with and without bias correction. As indicated above, by default, the bias correction is the mean field bias values, but a local bias can also be used. If there is no precipitation indicated by the PSM at any of the radars within 20 minutes, HPE will stop generating products until precipitation is again detected.

HPE normally requires two radar reports to interpolate to the mosaic's valid time, which is the HPE runtime value. However, due to the rapidly updating situation and different Volume Control Patterns being used by the surrounding radars, HPE will sometimes have to use the latest radar report available. This was done so the mosaics would appear continuous and not contain "holes" where an interpolated radar report might not be possible.

While the instantaneous rain rate mosaics are usually available within 5 to 10 minutes after HPE begins, the accumulated precipitation grids will be available only after enough time has passed. Usually, this time is 60 minutes (1 hour), but this can be reduced via a user-configured token in the /awips/hydroapps/.Apps_default_site file. However, it is not recommended to reduce this value to less than 15 minutes as studies have shown the information's value for flash flooding use is greatly reduced.

Many other tokens could be used to control other aspects of HPE. They are described in detail in documentation on the OCWWS/HSD Web page, <https://ocwws.weather.gov/intranet/whfs/>.

2.9 NWSRFS

Enhancements to NWSRFS have been implemented to improve the capabilities of the tools used by forecasters to model reservoirs.

- **Multi-valued Time Series Lookup Operation.** The existing LOOKUP3 operation linearly interpolates for a dependent result given two independent arguments and a family of curves relating the two independent arguments to the dependent argument. This method utilizes a 3-variable relationship between upstream flow (Q1), downstream elevation (E2) or flow (Q2) and elevation from the upstream location (E1): $E1 = f(Q1, E2)$. Only single-valued time series are allowed. Soil moisture zone contents and runoff time series can be useful in making operational decisions related to streamflow regulation. For example, soil moisture and runoff can be considered when estimating diversions that are occurring for agriculture. The Sacramento model includes two multi-value time series containing zone contents and runoff components. The values from these time series may be plotted using PLOT-TS (e.g., to facilitate calibration); however, the time series cannot otherwise be accessed for manipulation by other NWSRFS operations. Enhancing the LOOKUP3 operation to have access to the multi-value time series will allow the information to be used in regulation modeling. Additionally, allowing a lookup based on the day and time within a year will allow operating rules to be specified in lookup tables.
- **Integrate NWSRFS Rating Curves.** The existing MAXSTAGE method in RES-J allows control of a reservoir release based only on allowable stage at a downstream streamflow station control point. The MAXSTAGE method requires the user to input a rating curve for the downstream node. It is requested that rating curves defined in the system be accessible to this method in place of the rating curve defined in RES J. Additionally, the rating curve will always be entered through the NODE Component corresponding to the downstream station. Adding the rating curve at nodes will allow the specific nodes to be used as a forecast point. An option will be allowed to enter a rating table at any node in lieu of the rating curve. The existing rating table in the MAXSTAGE Method will be retained only for backward compatibility. This enhancement will ensure the model always uses the most up-to-date rating curve data from the NWSRFS database. The current MAXSTAGE method also requires that a stage value be specified, which limits application in cases where operations are based on discharge; consequently, the ability to specify a maximum discharge is needed.

The enhanced functionality will be available in the following NWSRFS programs: the Forecast Component Initialization Program (FCINIT); the Forecast Program (FCST, including Forecast Execute (FCEXEC); the Interactive Forecast Program (IFP); the Manual Calibration Program (MCP3); and the Automated Optimization Program (OPT3).

2.10 Interactive Verification Program

No enhancements.

2.11 Historical Data Browser

No enhancements.

3.0 SYSTEM

3.1 COTS Software

As part of the OB8.3 COTS upgrade, the core GRIB2 decoder 'COTS' freeware (degrib) was upgraded from version 1.76 to version 1.86. This change has potential impact on the AWIPS Grib2Decoder, which uses this software.

The following were also upgraded:

- LDM (6.6.4) (HP-specific in the previous release it was HP specific, but Linux-specific for this release)
- PostgreSQL (8.2.6)
- python (2.5.1)
- Numeric Python (24.2)
- Scientific Python (2.6)
- perl-DBD-Pg-1.43 (a rebuild and not a version number change)
- swig (1.3.31)
- tcltk (8.4.11) (a rebuild and not a version number change).

3.2 Processes

3.3 Purging, Crons and Scripts

CRS Keys Generation: Starting in OB8.3, messages will be sent to the CRS system via ssh. In order to facilitate this communication, AWIPS ssh keys for the fxa user will need to be installed on your CRS system. Without the correct configuration, NWR messages in AWIPS will not make it to your CRS!

Scripts have been developed to perform this tasks. As root on dx1, run the following:

```
cd /home/awipsadm/ssh
./installCRSssh.sh
```

You will be prompted for the root password on your CRS systems twice. (The script assumes the root password is the same on 0mp and 5mp. If they are not the same, then either change the root password on the CRS system to match, or contact the NCF for assistance.) The script will then copy over the fxa key to 0mp and 5mp. It will also copy back the rsa key for 0mp and 5mp, and install it in the known_hosts on each AWIPS device. You can verify that this script worked correctly if, as user fxa on any device, you can run the following without being prompted to enter "yes" or for a password:

```
ssh crs@0mp ls
ssh crs@5mp ls
```

If you ever run VerifySshKeys.sh, or if you run any CRS procedures to generate keys (or example, VIP keys), you will need to rerun installCRSssh.sh.

3.4 Database Engine and Operating System

- No changes to the Database Engine. (For reference only)
- The Operating System is Red Hat Enterprise Linux 4u2, and the Kernel is 2.6.9-55.0.2. (For reference only)
- awips_hydroapps increase 1.5G for WFOs and 5G for RFCs.
- **For RFCs only:** The smart inits are disabled. All RFCs should refer to online help (<http://www-md.fsl.noaa.gov/eft/AWIPS/ob7.2a/doc/onlinehelp/GFESuiteDoc.html>) to determine how to enable it. This online help describes how to override the baseline default for any site (not just RFCs). It is basically a simple localConfig change. The latest online help documentation is found under the **GFE's Help-> On Line Table of Contents**.

Note: The smart inits were disabled to ensure that the RFCs are not wasting a lot of CPU resources computing smart inits when not using their GFEs. (For reference only.)

3.5 System for Nowcasting of Winter Weather (SNOW)

No enhancements.

3.6 WaveWatch III (WW3)

The last public release of WW3 was in 2002. Since 2002, a major part of the development effort has been focused on a multi-grid or mosaic approach to wave modeling. Enhancements to WW3 are designed to significantly improve guidance currently lacking near the shore. This will improve forecasts (including operational NDFD grids) and warnings in the coastal waters forecast areas and for coastal communities in all coastal regions. Specifically, the enhanced WW3 will bring 5 to 10km resolution wave guidance to within 4km (or less) of the shore and includes shallow-water wave physics (which the current version of WW3 lacks). Adding the enhanced version of WW3 to the SBN will ensure the best possible guidance is delivered to WFOs in a consistent and timely manner for direct input into GFE and NDFD-significant wave height grids. In addition, the enhancements to WW3 fall under the continuum of nearshore wave modeling solution requirements as detailed in OSIP Project numbers 05-002 and 06-093.

This includes decoding Wave Watch III grids, store decoded data, and display decoded data in D-2D.

3.7 AVNFPS

Enhancement to AvnFPS to take official TAF and combine with latest GFS LAMP guidance to generate human-machine based guidance TAF.

Other visible enhancements to AvnFPS 3.4 Release are:

- Transmit privilege provided on user-by-user basis.
- TWEB QC function enhanced to adhere to NWSI 10-805.
- Various balloon pop-ups to describe various MOS categories.

3.8 Chat Server

Configuration files, jar executable and related database files for the chat server was installed.

3.9 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. (For reference only.)

3.10 SMTP

The transition to SMTP and sendmail has been completed. The NCF X.400 servers are powered down and will be removed within the OB8.3 timeframe. The site X.400 servers (ds1 and ds2) has been decommissioned. (For reference only.)

3.11 DMD

No enhancements.

3.12 Localization

No enhancements.

3.13 Geographic Resources Analysis Support System (GRASS)

GRASS is an Open Source Linux Geographic Information System (GIS). It replaces the ESRI software currently running on the DS boxes (HP-UX). This DCS covers implementing this software at RFC sites for their use.

3.14 GFESuite

Graphical Hazards Generator. New Graphical Hazards Generator (GHG) Formatter has been implemented.

Attribution Phase. The attribution phrase occurs just after the headline, as the first line of text in the body of a segment in any long-duration watch/warning/advisory product. It is mandatory for initial issuances of a hazard, and optional thereafter for the duration of the hazard. It was designed to make sure the National Weather Service name is attached to all warning products...it gives us “attribution”; hence it is called the attribution phrase. However, most products issued from GHG are given an attribution phrase that merely repeats the headline word for word. The

attribution phrase does not mention the NWS, which was the reason the phrase was generated in the first place. Further, the attribution phrase cannot be deleted before issuing the product because GHG uses this phrase to mark what text should be captured for use in the next statement.

3.15 Interactive Calibration Program (ICP)

For RFC-Only: Re-Implement/Modernize the NWSRFS Interactive Calibration Program (ICP) in order to facilitate future maintenance and enhancements to the program.

3.16 Configuration Management

The Dimensions server operating system conversion from windows 2003 to Red Hat Linux v 4u2 has been completed.

The primary benefits of converting the Dimensions server operating system from Windows to Linux will be as follows:

1. Uniform operating environment for Dimensions and the AWIPS development organizations
2. Elimination of extra carriage returns in files that cross O/S platforms (from Windows to Linux)
3. Elimination of Case Insensitivity in files and directory names
4. Improved performance of Dimensions server processes
5. Improved stability of Dimensions server operating system.

3.17 Archive Server

It was found back in OB7.2 that DVD-RWs could not be burned on the current operational AXs. In OB8.3, it was discovered that CD-RWs that burn at 4x to 12x also do not work. However, it was verified that older CD-RWs do still work and from past experience that 1x to 4x CD-RWs work.

Note: Deployment of the new AXs is expected to be completed at about the same time that OB8.3 begins deployment, but the schedule is currently trending later and later. An update on this will be provided in the Final Release Notes.

3.18 Workarounds

Please Note:

The workarounds for the following DR is in Section 2.

DR 19897: AvnFPS: Error Message Displays When Viewing NGM-MOS guidance.

The workarounds for the following DRs are in Section 3.

DR 20087: Red-X on External Processes On AWIPS Process Monitor for hmingest.

DR 20085: OB8.2: RUC13 3-hour precip stops at +8HR Forecast (should go to +12HR)

DR 20206: DE: TPC Wind Prob geographic definition incorrect.

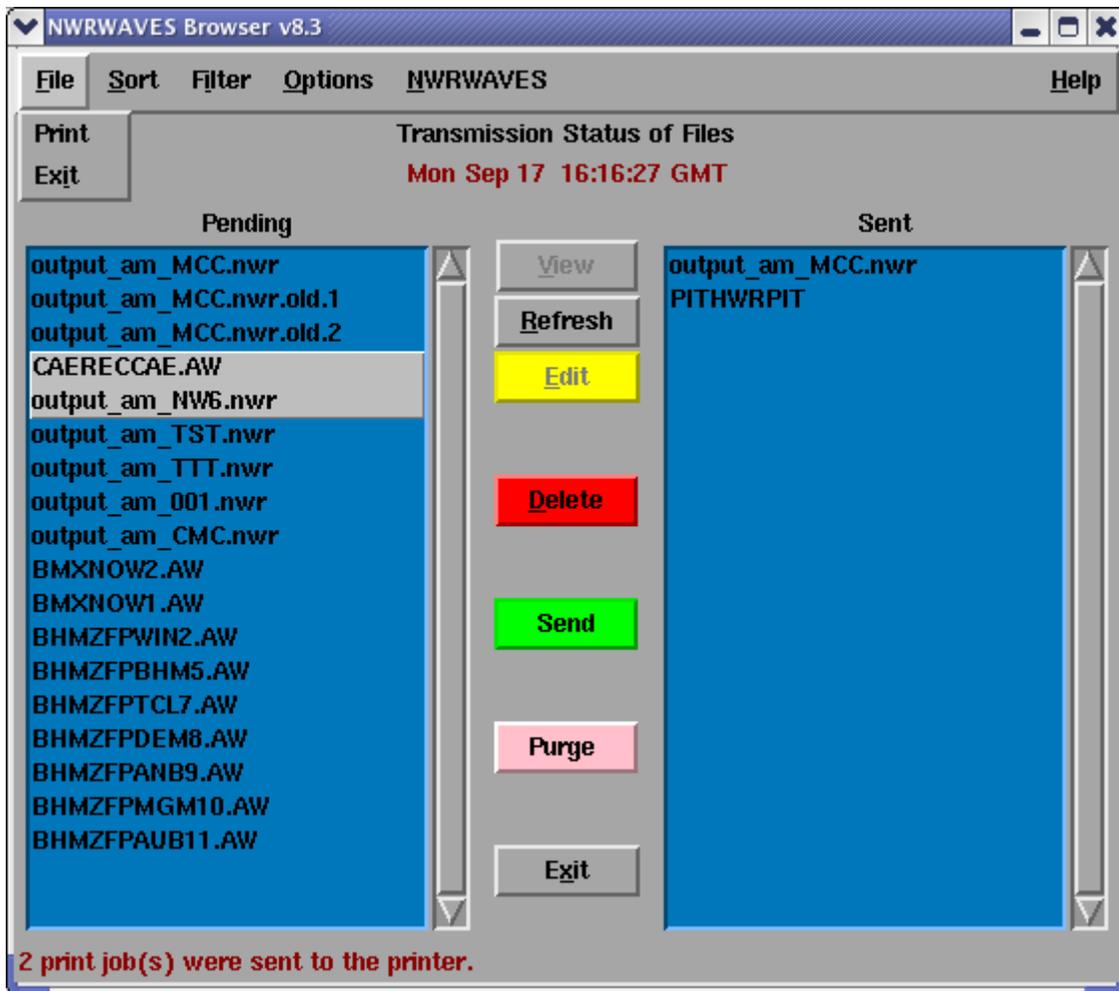
DR 19887: Hydro Database Manager: Could not enter new River Gage Data.

4.0 NWRWAVES

Add print option capability in the browser.

The main interface that users will notice as they use NWRWAVES is the NWRWAVES Browser. This browser will be linked during the install so that it can be launched using the standard “NWRBrowser” entry in the AWIPS workstation applications menu.

Note the **Print** option in the browser.



NWRWAVES Browser (front-end application to NWRWAVES)

There is a series of pull-down menus across the top of the NWRWAVES interface:

- 1) **File** Menu (Keyboard Shortcut Alt-F)
 - a. **Print** – Print highlighted items from Pending/Sent lists
- Support a new Marine Weather Warning Bulletin (MWW) product: Warning (MWW) bulletins. The MWW is intended to better inform mariners of adverse marine weather hazards and serve as a dedicated long duration marine Watch, Warning and Advisory

product. The MWW bulletin will provide the marine community with more specificity and vital marine hazard information, patterned after the winter weather watch/warning/advisory (WSW) bulletin and the non-precipitation watch/warning/advisory (NPW) bulletin.

- Implement "SWAPS" capability: SWAPS capability is another level of word replacement within the lead-ins for different NWRWAVES products. This feature allows the forecasters to substitute/replace the wordings for two or more or a group of counties by a simple phrase.

RA9-009

Problem: NWRWAVES does not suppress NWRSAME Tone during the silence period when "NWR Only." (DR 19957)

The current NWRWAVES OB8.3 or older version does set the alarm flag to a <blank> when the "NWR Only" option is selected. This is fine during the "unsilence" period. However, during the "silence" period NWRWAVES should suppress the Alert Tone (1050 Hz) and the NWRSAME Tone regardless to what is being selected by the forecasters. The alarm flag should be set to "N" to suppress both the Alert Tone and the NRWSAME Tone.

Temporary Solution: Select "off" for this option instead of "NWR Only."

This will be fixed in NWRWAVES version OB9.

5.0 MARINE WEATHER WARNING (MWW)

Marine Weather Warning (MWW) is a new application. A brief introduction to MWW and a description of application's scope follow.

Marine warnings and advisories are currently disseminated through headlines in CWFs, NSHs, and GLFs. Other than being headlined in these three routine marine forecast products, no dedicated long-duration marine Watch/Warning/Advisory product exists to provide specificity and vital marine hazard information.

The MWW product, which is patterned after the WSW and NPW products, was created to fill the need.

MWW Objectives:

- Provide consistency with products and methodologies currently used in other National Weather Service Watch/Warning/Advisory programs (for example, NWS Public program).
- Provide marine users and external partners with more detailed and specific Watch/Warning/Advisory information.
- Provide external partners an improved and enhanced product format for more efficient dissemination of marine Watch/Warning/Advisory information.

Note: The MWW is also the first text product to contain Common Alerting Protocol (CAP) markup tags. In conjunction with the MWW, marine watches are also being added to the suite of available hazards

- Hurricane Force Wind Watch
- Storm Watch, Gale Watch
- Hazardous Seas Watch
- Freezing Spray Watch.

6.0 LDAD

The RSH command is used instead of SSH/CHP for LDAD-to-AWIPS Connection

7.0 RFC-ONLY SOFTWARE IN AWIPS RELEASE OB8.3 (01/31/2008)

This section contains release information for RFC-ONLY Software provided by OHD for AWIPS Release OB8.3.

Information about program enhancements and bug fixes is included. Each bug fix is designated by a DR number. More information about each bug can be found on the Web page for the HSEB bug list that is maintained by the HSD RFC Field Support Group.

7.1 Distributed Hydrologic Modeling (DHM) Release Notes

OB8.3 DHM was updated to add 3 new features.

1. Allow users to specify Mods to the SAC-SMA states as a percentage of storage zone capacity in addition to as a multiplier of the current value. As an aid to the user, the Mod GUI will display the current value (as an absolute or percentage value), which will be the average over the area. If a percentage Mod is specified the modified percentage will be applied to the maximum in each pixel.

The use of DSACST mod is described on NWSRFS document Section: VI.5.3C-FCEXEC-MOD-DSACST PROGRAM FCST FUNCTION FCEXEC MOD DSACST

2. Use hourly observed precipitation data rather than disaggregated QPF data whenever it is available.
3. Allow users to specify lumped or distributed snow model calculations for each basin (currently Snow-17). The DHM will accept gridded fields of rainfall plus snow melt produced by Snow-17.

See NWSRFS document section: V.3.3-DHM-OP DISTRIBUTED HYDROLOGIC MODELING OPERATION for details.

Apps Defaults Tokens

dhm_rain_plus_melt_data_dir: \$(geo_data)
directory location for rain plus melt grids.

7.2 CALB Release Notes

ICP: The new java ICP is replacing the old (X-Motif) ICP. See NWSRFS document for the updated ICP User Manual. No new token is added.

Script to run new icp is "icpnew". It is located under ../icp/scripts directory.

MCP3

1. *Multi-valued Time Series Lookup Operation.* The existing LOOKUP3 operation linearly interpolates for a dependent result given two independent arguments and a family of curves relating the two independent arguments to the dependent argument. This method utilizes a 3-variable relationship between upstream flow (Q1), downstream elevation (E2) or flow (Q2) and elevation from the upstream location (E1): $E1 = f(Q1, E2)$. Only single valued time series are allowed. Soil moisture zone contents and runoff time series can be useful in making operational decisions related to streamflow regulation. For example, soil moisture and runoff can be considered when estimating diversions that are occurring for agriculture. The Sacramento model includes two multi-value time series containing zone contents and runoff components. The values from these time series may be plotted using PLOT-TS (e.g., to facilitate calibration); however, the time series cannot otherwise be accessed for manipulation by other NWSRFS operations. Enhancing the LOOKUP3 operation to have access to the multi-value time series will allow the information to be used in regulation modeling. Additionally, allowing a lookup based on the day and time within a year will allow operating rules to be specified in lookup tables.
2. *Integrate NWSRFS Rating Curves.* The existing MAXSTAGE method in RES-J allows control of a reservoir release based only on allowable stage at a downstream streamflow station control point. The MAXSTAGE method requires the user to input a rating curve for the downstream node. It is requested that rating curves defined in the system be accessible to this method in place of the rating curve defined in RES-J. Additionally, the rating curve will always be entered through the NODE Component corresponding to the downstream station. Adding the rating curve at nodes will allow the specific nodes to be used as a forecast point. An option will be allowed to enter a rating table at any node in lieu of the rating curve. The existing rating table in the MAXSTAGE Method will be retained only for backward compatibility. This enhancement will ensure the model always uses the most up-to-date rating curve data from the NWSRFS database. The current MAXSTAGE method also requires that a stage value be specified, which limits application in cases where operations are based on discharge; consequently, the ability to specify a maximum discharge is needed.

7.3 IDMA Release Notes

No changes.

7.4 OFS Release Notes

Ifp/fcst

Multi-valued Time Series Lookup Operation. See CALB Release Notes mcp3 for more detail.

Integrate NWSRFS Rating Curves. See CALB Release Notes mcp3 for more detail.

fcinit

Multi-valued Time Series Lookup Operation. See CALB Release Notes mcp3 for more detail.

Integrate NWSRFS Rating Curves. See CALB Release Notes mcp3 for more detail.

fcst

Multi-valued Time Series Lookup Operation. See CALB Release Notes mcp3 for more detail.

Integrate NWSRFS Rating Curves. See CALB Release Notes mcp3 for more detail.

filesize

No Changes

ppdutil

No Changes

ppinit

ASM Bug Fixes:

shefpars

No Changes

shefpost

No Changes

7.5 IFP Release Notes

parse_mods_by_segment

No changes.

IFP_Map

No changes.

ifp_nwsrfs

Multi-valued Time Series Lookup Operation. See CALB Release Notes mcp3 for more detail.

Integrate NWSRFS Rating Curves. See CALB Release Notes mcp3 for more detail.

7.6 X Program Release Notes

xnav

ASM Bug Fixes:

xsets

No changes.

7.7 FFG Release Notes

ffguid

No changes.

7.8 GRIB Release Notes

No changes.

7.9 UTIL Release Notes

No changes.

7.10 Ensemble Program Release Notes

ens_

No changes.

espadp

No changes.

builder

No changes.

espvs

No changes.

etsgen

No changes.

7.11 Verification Program Release Notes

HSD Bug Fixes:

Fixed problem in which only some forecasts were paired by the IVP Batch Program if the forecasts came from either the peqfsep or pehfsep table. [DR 91874]

7.12 Archive SHEF Decoders

shef_decode_raw

No changes.

shef_decode_raw, shef_decode_pro

No changes.

7.13 OFSDE Release Notes

No changes.

7.14 SYS_FILES Release Notes

No changes.

7.15 Script Release Notes

No changes.

7.16 Documentation Release Notes

NWSRFS document: DHM Operation in sections V.3.3, VI.6.5.3c, and VIII.3.3 in the NWSRFS User Manual.

7.17 Contact Information

Contact the HSD RFC Support Team if there are any questions.

8.0 ENHANCEMENT DR'S¹

This section lists the enhancement DRs for this release.

DR 20233: The follow-up severe products were being given date based on Zulu time.

The follow-up severe warning products were being given dates based on Zulu time and not local time. The MND time/day line changed from the original time/date that was in the WRK file that came out of warnngen.

This has been assigned to the Next Release.

DR 20071: CTA Markers change for Marine Weather Warning products.

There is a change of requirement on the Call-To-Action BEGIN and END markers. The changes are from:

</INSTRUCTION>

CTA statements

</END INSTRUCTION>

to a new proposed markers of:

(BLANK LINE)

PRECAUTIONARY/PREPAREDNESS ACTIONS...

(BLANK LINE)

CTA statements

(BLANK LINE)

&&

(BLANK LINE)

This requires NWRWAVES software to make a corresponding change to filter the CTA statements.

DR 20068: Puerto Rico NAM DNG: change the grid designator of the wmoid to a "C".

Need to change acq patterns in order to handle NCEP changes for WMO header of Puerto Rico NAM DNG data flow. **(DR 20068)**

DR 20009: FFMP: Further performance enhancements.

Performance is of high concern for the FFMP Advanced application. We recently discovered a couple of methods that could potentially improve apparent performance.

¹ Section 8.0 is a new section. It lists the enhancement DRs.

1. Use a FAC method for communicating from the Basin Table to the color image in the D2D (telling the color image when it needs to redraw itself based on configuration changed made in the Basin Table). This will avoid the use of the notificationServer, and any potential slow-downs related to its receipt of data update messages and its subsequent transmission of data receipt messages to its clients..
2. Force the FFMP multi-load to default to load one frame (instead if use the D2D default of 12 frames). We have always suggested users load FFMP into one frame to improve performance, but a lot of users still do not know to do this. Once loaded with the default of one frame, the user still has the opportunity to change the number of frames, if they desire.

DR 20068: Puerto Rico NAM DNG: change the grid designator of the wmoid to a "C".

Need to change acq patterns in order to handel NCEP changes for WMO header of Puerto Rico NAM DNG data flow.

The grid designator "P" which was to be used for Puerto Rico was already being used by the 32 km NAM grid going to AWIPS so we had to change the grid designator of the wmoid to a "C". (Example: LAPF86 KWBE will be changed to LACF86 KWBE) Please adjust your AWIPS codes to account for this change. Here is the link to the updated table.

<http://www.nco.ncep.noaa.gov/pmb/docs/on388/appendixa.html>.

This has been assigned to the Next Release.

DR 20009: FFMP: Further performance enhancements.

Performance is of high concern for the FFMP Advanced application. We recently discovered a couple of methods that could potentially improve apparent performance. 1) Use a FAC method for communicating from the Basin Table to the color image in the D2D (telling the color image when it needs to redraw itself based on configuration changed made in the Basin Table). This will avoid the use of the notificationServer, and any potential slow-downs related to its receipt of data update messages and its subsequent transmission of data receipt messages to its clients.

DR 19981: SWAPS does not work when there is a mix of LACs from different states.

The SWAPS option does not work when the UGC line contains a mix of Listening Area Codes (LACs) from different states.

Example: UGC contains the following LACs will not work:

CTZ002-CTZ003-CTZ004-MAZ002-MAZ003-MAZ004-RIZ001-RIZ002

DR 19973: GFE - NDFD_QPF_Check Tool requires non-baselined tool to run first. (DR 19973)

The NDFD_QPF_Check tool requires that the Collaborate_PoP_SnowAmt_QPF tool runs first to populate newly defined grids needed to run the NDFD_QPF_Check tool. The

Collaborate_PoP_SnowAmt_QPF should have been baselined along with the DFD_QPF_Check tool to make the NDFD_QPF_Check tool useful.

DR 19943: DHM: System crashes when cancel button is clicked on the SAC Mod window.

While testing DCS_3474 on LX2-TBDR (S2) - fail on page 22, step 3, when selected 'cancel' button to close the SAC MOD screen, the system crashes (Mods GUI disappears). As a result, unable to continue testing (refer to test procedure attached for more details).

DR 19890: AF: MHS message formatting error causing dropped messages.

Incorrect pointer math when calculating string length produces intermittent malformed SMTP messages. This causes the receiving MHS software to drop the message unconditionally. This happens infrequently and can only occur when messages are addressed to more than two sites. The biggest risk is that occasional WWAs sent via MHS from the NCF to all sites may get dropped, though MHS is a backup to the SBN for these message types. This would only affect sites that do not get the SBN version. Other types of messages, such as intersite coordination storm warnings, will be affected in rare instances.

DR 19839: GFE: NAM DNG 5km CONUS: add 3-hour snowfall (RA8-137)

Ingest new element for NAM 5km DNG per RA8-137 for OB8.3

3-hour snowfall

DR 19838: D2D - NAM DNG 5km CONUS: add 3-hour snowfall (RA8-137)

Decoding and display new element for NAM DNG 5km for OB8.3 per RA8-137

3-hour snowfall

DR 19837: GFE: Add NAM 5km DNG for Puerto Rico (RA8-137)

Enable ingest of NAM 5km DNG for Puerto Rico sites for OB8.3 per RA8-137

DR 19836: NAM DNG 5km: add Puerto Rico grid to D2D (RA8-137)

Decoding and display NAM DNG 5km Puerto Rico grid for OB8.3 (RA8-137)

DR 19835: GFE: Add NAM 5km DNG for Hawaii (RA8-137)

Enable ingest of NAM 5km DNG for Hawaii sites for OB8.3 per RA8-137.

DR 19834: NAM DNG 5km: Add Hawaii grid to D2D (RA8-137)

Decoding and display NAM DNG 5km Hawaii grid for OB8.3 (RA8-137)

DR 19828: AOR RTMA: Add Puerto Rico grid to D2D (RA8-137)

Decoding and display RTMA Puerto Rico grid with 10 elements for OB8.3 per RA8-137

Add Puerto Rico RTMA grid to D2D with following 10 elements:

- Temperature
- Temperature analysis uncertainty
- Dewpoint Temperature
- Dewpoint analysis uncertainty
- u wind component
- v wind component
- Wind Direction
- Wind Direction analysis uncertainty
- Wind Speed
- Wind Speed analysis uncertainty

DR 19827: GFE: Add RTMA ingest for Puerto Rico (RA8-137)

Add RTMA ingest for Puerto Rico with following 10 elements per RA8-137 for OB8.3:

- Temperature
- Temperature analysis uncertainty
- Dewpoint Temperature
- Dewpoint analysis uncertainty
- u wind component
- v wind component
- Wind Direction
- Wind Direction analysis uncertainty
- Wind Speed
- Wind Speed analysis uncertainty

DR 19814: GFE: Add NAM 5km DNG for Alaska (RA8-137)

Enable ingest of NAM 5km DNG for Alaska sites for OB8.3 per RA8-137.

DR 19813: GFE: Add RTMA ingest for Hawaii (RA8-137)

Add RTMA ingest for Hawaii with following 10 elements per RA8-137 for OB8.3:

- Temperature
- Temperature analysis uncertainty
- Dewpoint Temperature
- Dewpoint analysis uncertainty
- u wind component
- v wind component
- Wind Direction
- Wind Direction analysis uncertainty
- Wind Speed
- Wind Speed analysis uncertainty

DR 19812: GFE: NAM DNG 5km CONUS: add new element (RA8-137)

Ingest new element for NAM 5km DNG per RA8-137 for OB8.3

3 hr Precip probability

DR 19801: NAM DNG 5km: add Alaska grid to D2D (RA8-137)

Decoding and display NAM DNG 5km Alaska grid in OB8.3 per RA8-137.

DR 19800: AOR RTMA: add Hawaii grid to D2D (RA8-137)

Decoding and display RTMA Hawaii grid with the following 10 elements for OB8.3 per RA8-137

- Temperature
- Temperature analysis uncertainty
- Dewpoint Temperature
- Dewpoint analysis uncertainty
- u wind component
- v wind component
- Wind Direction
- Wind Direction analysis uncertainty
- Wind Speed
- Wind Speed analysis uncertainty

DR 19799: D2D - NAM DNG 5km CONUS: add 3 hr Precip probability (RA8-137)

Decoding and display new element for NAM DNG 5km in OB8.3 per RA8-137

3 hr Precip probability

DR 19791: FFMP: Use of option menu indicator

The FFMPA Basin Table GUI makes use of option menu indicators, but should not. An option menu is a menu that uses a variable value for its label; thus the label changes depending on what is selected in the menu. The menus in the FFMPA Basin Table that use these do not use the variables values as labels; thus, it should not use the 'option' type menu indicator.

Workaround: None. This should be a very low effort.

DR 19789: Addition to HLS in GFE (Ref OB8.2.1 DR 19230)

Note: OB7.2 is listed as the release discovered because this is a required field. The correct entry should be N/A because it is an enhancement.

The following is from Scott Kaiser at NWS Headquarters:

I missed providing a requirement for OSIP project #06-021, segmentation of the Hurricane Local Statement (HLS). 06-021 is slated for OB8.2.

The requirement I failed to include and am now asking to be fixed is to allow the use of (have the option of using) the VTEC significance code of "S" for "statement" when WFOs issue a HLS. Other significance codes are for example "W" for warning and "A" for watch. Use of the "S" code allows for the HLS to be issued when there are no tropical cyclone watches or warnings which is allowed by policy.

The VTEC string would look something like...

O/NEW.KBRO.HU.S.0001.050501T2045Z-050501T2345Z/

DR 19786: Volcano locations map appears to be incorrect

After looking at the volcanoes mapping issue a bit more, it became evident that the problem is that the first two columns of volcanoes.lpi are swapped. Each entry has longitude, latitude, goodness value, and name. The standard for these is latitude, longitude..., so they are all plotted in the wrong locations.

DR 19779: FSI tarball: Re-organize Preferences menu tree

Move certain items under Advan DCS 3440 3441 3442

FSI tarball: Re-organize Preferences menu tree - move certain items under Advanced Settings.

DR 19773: FSI tarball: Change mouse-over pop-up on spyglass to "Data Sampling (Readout)".

DR 19765: Bad Gridded Storm Surge Legend Labeling

DR 19755: FFMP: localization file copies

In the new FFMP (OB8.3), the localization has been made independent of machine and even independent of CWA. This means, when a localization is done on one machine, some files should be copied to the rest. This issue has been known for a while, but it was debated whether to simply have this copy be a post-localization step, or to include the copies in the FFMP localization scripts. Independent Alpha testing at LOX indicates we should probably make this automated, as, on occasion, a relocalization could change these copied files in a way that makes FFMP not fully operational.

Workaround: Manually copy the files.

DR 19734: FFMP: Configuration summary in Basin Table

The Configuration Summary launcher in the Basin Table should look like a clickable button.

DR 19727: Fog Monitor

Better syncing between FM table and D2D display is needed. The user will sometimes get a Time Mismatch message when selecting a zone from the Fog Monitor table. This problem occurs when new METARs come in before the top of the hour and D2D creates a new FM obs display pane with the new obs. The FM table still displays the previous hour, so there is a time mismatch between the display and table. The FM table is created from the hourly file in /data/fxa/point/metar/netcdf/. The table will go to the next hour once this new file is created. The user can select the Link to Frame option on the FM table to prevent this problem.

DR 19723: FFMP display performance

The FFMP's display performance (D2D color image) does not seem to be as good as it should be. We need to explore ways to improve performance, including the identification of any

bottlenecks, and seeing if any bugs are getting in the way. The effort is expected to be significant. Although this is considered to be an enhancement, because it is related to performance, this should be considered a high priority.

DR 19722: FFMP name for precip attribute in the Basin Table

Currently, the name for the accumulation element to the Basin Table is "precip", but it is referred to in other places as "QPE". In order to reduce user confusion, we should change the label of "precip" to "qpe".

Workaround: None. Level of effort is expected to be a low.

DR 19719: FFMP: Gap handling

Currently, when there is a 'big enough' data gap in FFMP data, it is not necessarily clear to the user that the issue is a data gap. (The resulting error messages are too vague.) And sometimes, no error messages get generated (if the gap is fully enclosed by valid data). We need to improve on gap handling. No known fix.

Workaround: None. Level of effort is expected to be moderate.

DR 19718: FFMP: FFTI Guidance durations

The FFTI GUI provides the user with a drop-down choice of Guidance source durations. This disallows any interpolation, which is used heavily by FFMP display. In order to allow interpolation in the FFTI GUI for Guidance sources, we need to change the widget from a drop-down menu to a scale (like the existing Time Frame slider). This is an enhancement, and should be from low to moderate effort.

Workaround: None. .

DR 19717: FFMP: debug clean-up

The 'vlfag' debug utility (FFMP-specific) was taken out of FFMP when it was redesigned, but we always had the intention of putting it back in, but it was always a low priority. This DR is intended to be a code clean-up task, which will benefit developers, debuggers, and testers, and should not have an operational impact. This also stemmed from code walk-throughs.

DR 19703: December 2007 testbed security scans detected vulnerabilities**DR 19677: OB8.2 Beta WarnGen**

WarnGen crashes when you double click an existing product on D2D.

Workaround: Use WarnGen GUI instead of "right click" to issue a follow-up. The impact to the forecaster of using the workaround is not significant.

DR 19674: DHM grid editor program data path and run script

Need to update run script to use the correct package name and update the code to use the correct sac state data path.

DR 19668: Modify IFPS export configuration data to both ANCF and BNCF

Now that we have a BNCF, we want to also send the site configuration there any time that the site configuration goes out to ANCF to keep things in sync.

DR 19655: Update dhm to reflect new input grid file name changes

Update to reflect new input file name change.

DR 19639: AF: Change the utility to compress log files both at NCF and sites

Currently, the compression utility being used to reduce the size of the log files at sites and NCF is compress. The compression ratio of compress utility is lesser than Gzip (utility for compression). Gzip is more effective and popular than compress. So remove Archives script will be modified to include Gzip rather than compress utility to compress log files.

DR 19634: Increase hydroapps partition size for EMPE

A Request for Change was received to increase the /awips/hydroapps size for the Enhanced Multi-sensor Precipitation Estimator (EMPE). An increase of 1.5 GB at WFOs and 5 GB at RFCs is requested for additional data that this application will be storing.

DR 19622: Change SAC State Multiplier mod to be non-cumulative

Change SAC state multiplier mod to perform as percent full mod. The last mod wins.

DR 19601: SAC Mod GUI

Update GUI to disable Mod Value when toggle check box from on to off.

DR 19594: RTMA Model could not store ws, wd fields

```
dx3-napo:/home2/qni]252> pwd
/data/logs/fxa/20071031
dx3-napo:/home2/qni]252> grep LNMA98KWBR Grib2Decoder12503dx3-napo173711 |
grep NCF_FAIL
18:51:28.616 GridRoutines.C PROBLEM: NCF_FAIL LNMA98KWBR field not
storable WD (0) for RTMA
19:51:53.968 GridRoutines.C PROBLEM: NCF_FAIL LNMA98KWBR field not
storable WS (1) for RTMA
```

DR 19570: OB8.2: IFPS install script checks DX hosts incorrectly

For IFPS, the installation script uses an outdated method of gathering the list of DX and PX servers to install on. Instead, the AWIPS standard \$DX_SERVERS and \$PX_SERVERS variables should be used. This causes problems at sites such as NMTW where they have entries in their hosts' files for DX servers on other sites (i.e. DX1-NHDA & DX1-NMTR) where the

install fails unless the installation script is modified, or the hosts file changed prior and after installation.

DR 19534: GFE: HLS needs sub-headlines to be unlocked in the final product

In the new HLS formatter all of the sub-headlines need to be unlocked to make the formatter usable. The complexity of a segmented HLS paired with the less than intuitive nature of the interface makes the product too difficult to produce during a land-falling cyclone.

By unlocking the sub-headlines, the interface can be streamlined to remove the selections of sub-headlines as all will be placed in each segment and the forecaster will manually remove those which are unneeded.

DR 19505: OB8.2 WarnGen: reword WarnGen GUI content for dam break FFW

The content in WarnGen GUI for dam break FFW (`wwa_dam_break.preWWA`) should be reworded based on attached document and screenshot.

The content for dam break FFW follow-up (`wwa_flflood_sta.preWWA`) might need to be changed accordingly.

DR 19492: Enhancement of sending environmental grid data to Radar ORPG

Environmental grid data has been sent to ORPG every hour as a cron job since OB7.2 (DCS3277 implemented by GSD). The hourly RUC model data is used for CONUS site. RUC40 is currently used and will be replaced by RUC13 when RUC13 is available on SBN.

For OCONUS sites, other model data has to be used since there is no RUC model data available for OCONUS. The candidate models for OCONUS sites are GFS model (6-hour interval) and NAM12 model (3 hour interval).

On NAPO, GFS212 (6 hour) and NAM12 (3 hour) have been tested. Both GFS212 and NAM12 are received 4 times a day (00Z, 06Z, 12Z and 18Z). When using GFS212, at 04Z-09Z, 00Z6H (6 hour forecast of 00Z) is sent to ORPG; at 10Z-15Z, 06Z6H is sent; at 16Z-21Z, 12Z6H is sent; at 22Z-23Z and 00Z-03Z, 18Z6H is sent. When using NAM12, at 02Z-07Z, 00Z3H is sent; at 08Z-13Z, 06Z3H is sent; at 14Z-19Z, 12Z3H is sent; at 20Z-23Z and 00Z-01Z, 18Z3H is sent.

Mike Istok thinks this scheme can be improved. When using NAM12, at 05Z-07Z, 00Z6H is better than 00Z3H; at 11Z-13Z, 06Z6H should be used; at 17Z-19Z; 12Z6H should be used; at 23Z, 00Z and 01Z, 18Z6H should be used.

It is found from the source code that the desired valid time is derived from the latest netCDF. If the forecast file arrives late for several hours due to network problems or power outages, the environmental grid data sent to ORPG might be even farther away from the ORPG desired time. A fix is ready to be tested and can improve the scheme no matter what model is used.

Note: When switching to NAM12 model from RUC40 on NAPO, the size of the environmental grid data increases a lot. Due to the high resolution, the clipping size is increased to 70 x 70 from 22 x 22. The storage specified in the RPG side can not hold the large environmental data and RPG crashed. This problem has been reported to ROC and a fix is ready in ORPG Build10. To

avoid the RPG crash when testing this DR, be sure to install the RPG fix first or disconnect the RPG temporarily.

DR 19489: WarnGen: New (Dam Break) functionality needs dam status split out

In the new dam break interface, there are 2 new options under primary cause: Dam Failure Imminent and Dam Failure has occurred. These options do not belong under the primary cause list as the status of dam failure does NOT affect the VTEC.

A new category is needed (Status of Failure) after “primary cause” which gives the options of imminent failure and failure already occurred. Ideally these would only appear when either dam or levee failure is chosen as the primary cause.

The status of failure must be allowed to be changed in a follow-up to alert the public to a previously imminent failure that has now occurred.

DR 19469: NWRWAVES: Make product expiration time for cancellations configurable

The current design of NWRWAVES is to send over any type of cancellation message with a 15 minutes expiration assigned by default, thus ignoring the UGC coded time. Rather than hard-coded this default time in the source code which cannot satisfy all the WFOs' need, a configurable entry will be added in the NWRWAVES setup GUI to allow a flexible change.

DR 19466: OB8.1 - AF: Create NCF MHS availability monitoring application

The NCF has a need to report MHS availability statistics to the AWIPS program manager. This DR is for the creation of the applications that will generate the data points and create a daily report by site of MHS availability as a percentage. This application will have a component that resides at each site to parse the MHS logs for test messages. The main application will reside at the NCF. There is no impact to the forecasters of this new application.

DR 19465: OB8.1 - AF: Create NCF WAN availability monitoring application

The NCF has a need to report WAN availability information to the AWIPS program manager. This DR is for the creation of the applications that will generate the data points and create a daily report by site of network availability as a percentage. This application will only run at the NCF. No software will be installed at the sites. There is no impact to forecasters.

DR 19432: Upgrade heartbeat to 2.0.8-2

As a result of the approved BCR 20, heartbeat will be upgraded in AWIPS to 2.0.8-2 to match the heartbeat needed and installed on the new LDAD servers.

DR 19422: Incorrect Time Zone in Alaska Region as it applies to Climate (CI-CL)

Duane Carpenter from VRH said that the time zone is set at AST and should be AKST or AKDT depending on whether it is standard time or daylight time.

DR 19371: OB7.2 - AF: Create program to monitor logs for ITO

This is NOT a bug. It is a small enhancement strictly for ITO monitoring.

There is a need to provide a helper application for ITO that will allow real time triggering of important events (for instance, sendmail rejecting connections). The current method employed is to repeatedly grep log files on a periodic basis. This is both CPU and I/O intensive. In addition, critical events that occur when a log file rolls over between ITO scans will not be detected.

This program will be capable of monitoring any ASCII log file. Because the monitoring will be done in real time, it will not require redundant scans of the same file. It will also handle log file rollover issues.

This will be implemented initially on dx1/2 for monitoring MHS and sendmail logs for various events that require human intervention. It can be used to monitor any logs that are persistently located and named, however.

DR 19370: OB 8.1 - AF: Create generic program to perform operations at all sites

This is not a bug. It is a new small enhancement to allow the NCF to quickly and efficiently perform actions at multiple sites. For instance, this program could be used to get a copy of the current MHS logs from every site and copy them back to the NCF with a single command within 2-3 minutes.

This is for software that will only be installed at the NCF. It will never be a part of an OB release.

DR 19355: OB8.1 - AF: Increase MHS log retention time on dx1/2

Modify the dx1/2 logging parameters for MHS to keep logs for 7 days to allow troubleshooting of problems older than 48 hours.

This is not a bug in the code; rather, it is a change in the requirements for future troubleshooting purposes. There is no impact to forecasters and it does not affect any mission-critical functionality.

Log archival is controlled by an environment variable. Emulate what is done in the MHS startup scripts at the NCF. Keep a full seven days of log archives plus the current day.

These logs must be archived via a cron job to prevent the disk storage from being filled. Copy the MH server root cron job that performs this task and implement on dx1/2 in the root crons. A cron must also compress archived log files older than two days.

DR 19111: OB7.2 - AF: msg_stats not displaying data volumes correctly

Desired release is OB8.3.

msg_stats is a command line utility invoked mostly by the NCF to troubleshoot problems with MHS.

No trouble ticket, as this was noticed by the developers, not by the field or the NCF.

There is no impact to the forecasters or the end users because they generally do not use this utility. The impact is that the missing information can make troubleshooting MHS problems more difficult and time consuming.

Workaround: None.

DR 19078: OB7.2: XSETS "make forecast" Results Causing Confusion

Over the past few weeks, flooding ranging from minor to record levels has occurred in the Missouri Basin. During that time, the RFC forecast generation program XSETS was not able to correctly identify the river crests in the forecast time series. This problem caused considerable delays in the issuance of RFC and consequently WFO products. This was due to the fact that each forecast product had to be reviewed carefully and edited manually to ensure that the crest statement was accurate. Here are the 4 basic types of problems connected with the .A crest line that occurred, although there were many variations of some of these that occurred.

- 1) No .A crest line generated when there definitely should have been one.
- 2) Has an .A crest line but it is not the crest.
- 3) Multiple .A crest lines ... some of these crest lines were outside the time constants of the forecast time series contained in the RFC product.
- 4) Has an .A crest line when the forecast time series clearly indicates it is falling.

DR 19034: Small Enhancement: Add ability for user to easily define VTEC Times in Riverpro

The Riverpro application derives the times that appear in the P-VTEC and H-VTEC lines of a product by analyzing observed and forecast river data to determine when the river rises above flood stage, crests, and falls below flood stage. Users would like the ability to have the option to change one or more of these times via a graphical user interface.

Specifically, within Riverpro, the user will have the option to select individual forecast points and display a time series of observed and forecast data for those locations, as well as a graphical user interface that allows the user to manually define any one of the 5 VTEC times: 1) P-VTEC Event Begin Time; 2) P-VTEC Event End Time; 3) H-VTEC Rise Above Flood Stage Time; 4) H-VTEC Flood Crest Time; and 5) H-VTEC Fall Below Flood Stage Time. When the user manually defines any of the VTEC times via this interface, the Riverpro product creation software will implement these times in the VTEC coding of the product in place of the recommended times analytically derived by the application. Upon product issuance, these user-defined times will be written to the database as the appropriate VTEC times for that location.

DR 18954: SAFESEAS: Add text to Guardian alert button

This is a development DR. The purpose is to add a modicum of descriptive text to the SAFESEAS and SNOW alert buttons in Guardian. Currently, the SAFESEAS anchor button and the SNOW snowflake button don't tell the user why they have been colored red, yellow, or green. This lack of information has drawn several field complaints. With an enhancement from this DR, the text would state something simple, such as "Lowest Vis: 0.25 mi". Users could look at the SAFESEAS/SNOW tables for more details. Note that the affected code is shared by SAFESEAS and SNOW; this is why only one DR has been written.

DR 18949: OB7.2: No PostgreSQL log file on RFC Archive Server

Currently, on the RFC Archive Server (RAX) the transaction log for PostgreSQL is written to the System Log File. With time this has made providing support for the RAX more tedious as the complexity of the database issues have increased. I would like to recommend that the PostgreSQL Transaction Log be written to its own file in a fashion similar to the set up for the IHFS PostgreSQL database.

DR 18909: OB8.2: Correct D-2D displays of RAOB soundings to accommodate up to 150 levels

The D-2D Skew-T display uses RAOB sounding data from MicroART and RRS (the Radiosonde Replacement System), via the TUABUFR encoder and the RAOB BUFR decoder. RRS has higher data resolution and produces additional “significant” levels in the BUFR encoding. In particular, the TTBB or TempB product now includes up to 135 levels.

Both the RAOB BUFR decoder and the Skew-T display are apparently limited to 75 significant levels. Both need to be upgraded to handle 135 levels in TempB. Note: the Skew-T program merges the TempA plus TempB products for display, so the Skew-T upgrade needs to enable displaying a merged total of up to 150 levels.

Other AWIPS products that may be affected or may need similar RAOB upgrades are:

- Interactive Skew-T extension
- Plan View Plots
- IGC to display data in Volume Browser
- Model sounding displays.

DR 18824: OB7.2: RiverMonitor displays old forecast data

The RiverMonitor application allows the user to display, in tabular form, a column of information that provided the maximum forecast value for a given location. Also, another column will display the maximum of either the most recent observed value or the forecast value. However, there is no time filter on this column, so the application can display old forecast or observed data without presenting a visual cue to the user that the data is old (as is done with other columns of data in the application). Also, if this old data is greater than flood stage, the tabular cell displaying the data will be colored red, providing a false indication to the user that there is flooding occurring/forecast to occur.

These two columns of data—MaxFcstValue and ObsFcstMax—should allow the user to create time filters which consider both the valid time of the observed and forecast data, as well as the basis time of the forecast data. If the data is older than the user-defined time filter specifications, then the tabular cell displaying this data should either be colored gray, following the paradigm used by other data columns, or the data should not be displayed at all.

DR 18810: Small Enhancement: Inclusion of Tide Data into the Archive DB and Verification

Description of Problem: Data with a time interval of less than 15 minutes does not always fit cleanly in the 15-minute interval format of the RFC Archive DB pcrsep table format. In

particular, tidal gage data with a 6-minute interval is affected at NWRFC (and SERFC in the near future). The fact that this data is not stored with its best fit into the pcrsep table makes verification of forecasts extremely difficult.

Solution: A new database table, one new apps_defaults token and some code changes to the shef_decode_raw and IVP (verification) applications.

- New table would be a single value per row format.
- New apps_defaults token for shef_decode_raw apps this token would control if shef_decode_raw posts data to just the pcrsep table or to both the pcrsep table and the new table.
- shef_decode_raw, the software would be modified so that if the token is set to say "ON" the decoder would post all data that would go into the pcrsep table, to it and the new table as well.

This means that the same piece of data would be stored in both tables. In the pseudo array table, pcrsep data with the smaller time interval is shoved into the best fit time slot while in the single value per table, i.e., the new table, it would be stored with its true observation time. RFCs that do wish/need to post in parallel to this new table would set the token to "OFF" which should be the default setting.

- IVP (verification) the software would be modified to allow observed data during the paring process to be retrieved from this new table.

DR 18759: AF - OB8.2 - Add MHS handler for new hydro app to rcv_handler.tbl

Determine an appropriate message code for hydro apps and add the following to /awips/ops/data/mhs/rcv_handler.tbl on all DX and MH servers.

```
27 /data/x400/mhs/msg/hydro SYS /awips/hydropapps/precip_proc/bin/process_rfc_bias
%ENCLOSE(1) "%SUBJECT" "%MSGTYPE"
```

where 27 is the message code number that will be used.

There are no Trouble Tickets associated with this DR; it is a new requirement.

The impact to forecasters and end users of not doing this is that they will not receive any of the products associated with this, or whatever the new hydro application does will not be performed. This question should be addressed by OHD.

Workaround: None. This is not an existing problem. It is a new requirement.

DR 18626: Add station elevation to point forecast matrices (PFM)

Add Station Elevation to PFMs. By specifying elevation, users can better understand the forecast values within the PFM products. This is especially useful in areas of complex terrain where sites that are adjacent to each other may be located at significantly different heights.

DR 18625: Forecast matrices need to be in UTC instead of local time

Site ID - I am on the 13th floor here in SSMC2, NWS Headquarters. This change would be made to all sites within AWIPS.

Generation of Point Forecast Matrices (PFM) and Area Forecast Matrices (AFM) with respect to a UTC time label as opposed to a Local Time label.

* This modification is important to properly align 12-hr Probability of Precipitation (Pop), Quantitative Precipitation Forecast (QPF) and Snow Amount grids with model guidance and the National Digital Forecast Database (NDFD), which both of which use Coordinated Universal Time (UTC). Satisfying this need will relieve the necessity for hourly grid population in order to ensure local time data is available on a standard UTC hour (i.e., 0,3,6,9,12,18,21).

DR 18621: GFE Small enhancement request: Smart tool updates

Request from Joe Palko at PBZ/Eastern Region:

Update the baseline CheckTandTd Smart Tool to CheckTTdWind. The original tool was created and baselined by GSD to address an NWS requirement for the QC of Temperature and Dewpoint grids. A new requirement has been added to also QC Wind and WindGust grids.

To baseline this tool the developer simply needs to download the procedure at:

<http://140.90.90.253/~applications/STR/generalappinfoout.php3?appnum=1072>

Review code to assure it is compatible with current software. Place the file in:

`/awips/GFESuite/primary/data/databases/BASE/TEXT/Procedure/`

Estimated level of effort: 30 minutes.

DR 18620: GFE Small enhancement request

The following was called in by Joe Palko, PBZ/Eastern Region:

Starting in OB7.1 the gridded MOS guidance is available, but it has a naming convention of PoP12. The baseline forecast grids have a naming convention called Pop. Therefore 12-hr PoPs from the MOSGuide database do not populate into the Pop weather element in GFE.

Matt Hirsch (MLB) has posted "MyMOSGuide" smartinit to add this capability. Check it out at:

<http://www.mdl.nws.noaa.gov/~applications/STR/generalappinfoout.php3?appnum=1110>

This smartinit needs to be fixed/placed in the baseline for future builds.

DR 18608: OB7.1: Increase Number of Stations within NWSRFS

KRF has reached the upper limit on the number stations that can be used within the forecasting element (ofs) of the National Weather Service River Forecast System (NWSRFS). The current limit is 5,000 and the RFC is requesting that that limit be raised to 10,000. This request for an increase will allow KRF to include additional gages that are already in place and planned expansion of gaging networks within their service area. This will improve both the accuracy of the forecasts and verification statistics.

DR 18601: Climate small enhancement: F6 product does not have option to add remarks

Tim Kearns at site ABR requested that an option be added to the climate F6 product to add remarks.

DR 18510: GFE service backup: change needed to assist in testing

Service backup cannot be tested using just the testbeds. I propose modifying the service backup and rsync scripts to allow either a 3-letter or 4-letter site ID to be used. The change to the backup scripts should only be installed on the sites that have a 4-letter ID.

DR 18086: OB7.1 - AF: Make start_comms_upl_send detect operational NCF site

When start_comms_upl_send starts the uplink_send processes as part of the comm1 service on cs1 at the NCF, it assumes that the current site is actively uplinking SBN data. This is not necessarily true, however. In the case of HazCollect, it is possible for the BNCF to receive HazCollect messages while the ANCF is the active SBN site. The SBN uplink site can be determined from one of the MHS servers using the 'msg_ctl -A' command. This can be called from start_comms_upl_send to set the active uplink site. In addition to making this change, the procedure for switching the NCF operations between the ANCF and BNCF must be changed to include calls to stop/start_comms_upl_send after making the operational switch of MHS and SBN.

This only affects the NCF software. It is not run at any field sites.

Workaround: The workaround is an error-prone, manually intensive fix run by the NCF. If the NCF does not perform this task after an NCF switch operation, it is likely that some HazCollect messages will not be delivered over the SBN in a timely manner.

There are no trouble tickets associated with this problem.

DR 17329: Archiver Duplicate Files backup issue

The Archiver software (AX cron software) is not checking the dates on files before archiving them. This results in the Archiver backing up the same day's model data twice. This results in the /data partition becoming 90+% full.

This problem was noticed at OUN because OUN has 3 dedicated radars and receives more model data than other sites.

DR 16814: Remove TDWR configuration files from AWIPS baseline

The `tdwrElevations.txt` contains the elevation cut angles for every TDWR radar for both Hazardous and Monitor mode VCPs. Unlike the WSR-88D, the elevation angles of the TDWR VCPs vary from site to site in order to provide optimal coverage over the primary airport that the TDWR is protecting. The angles in `tdwrElevations.txt` are used during AWIPS localization to set site specific VCP 80 and 90 elevation angles which are subsequently used by AWIPS to provide product request and display functionality. These elevations could change in order to correct errors and/or to improve TDWR capabilities. For example, the file was updated in OB6.0 to incorporate errors discovered in the FAA database. This file should be made a National Dataset File so that future changes can be quickly and efficiently fielded. Updates to this file should be centrally maintained since corresponding changes to the NWS Supplemental Product Generator (SPG) system may also be necessary. The OB6.0 version of this file will be needed at VEF (Las Vegas) to support the SPG installation in December 2005.

Another configuration file, `tdwrRadars.txt`, which contains all the TDWR radar IDs, is used in localization. This file should be maintained in the same location as `tdwrElevations.txt`.

RC-10812 approved on August 1, 2007 requires that both `tdwrElevations.txt` and `tdwrRadars.txt` are maintained under NDM and removed from AWIPS baseline.

DR 16653: SAFESEAS: Reverse Parameter Rankings

This DR was originally intended as a minor fix for OB7.X, to reverse the sorting of the SAFESEAS swell period parameter to give emphasis for higher values instead of lower values. Several iterations of forecaster feedback (and higher development priorities) caused this DR to be delayed, and then transformed into a major small enhancement DR. Its expanded requirements now are:

1. To provide users of SAFESEAS with the ability, on a WFO by WFO basis, to choose whether a parameter should be ranked in the SAFESEAS table with higher or lower values emphasized. Parameters which don't have "linear" values (e.g. wind and swell azimuths, composite "product" parameters such as Small Craft Advisory) do not apply -- their ranking setup will not change.
2. To allow users to configure the display and monitor color thresholds with values that correspond to their ranking choices.

These changes are targeted primarily for SAFESEAS, but they will apply to Fog Monitor and SNOW as well, due to the code-sharing between the three applications.

This DR is submitted as an OB8.3 small enhancement. It is on the June 7 SREC list for proposed OB8.3 additions.