AWIPS OB6 Final Release Notes

Section I - New Functionality in OB6

1.0 D2D/TEXT/OTHER APPLICATIONS

1.1 Local Storm Report (LSR)

- QuickList: You can populate your own easy-access for Event Types and Event Sources. Shift left-click will move the entries to/from the list.

- LocalCitiesInfo.txt change: The location of the LocalCitiesInfo file used by LSR GUI has changes from /data/fxa/customFiles to /awips/fxa/data/localizationDataSets@@@, which is more correct and safe. (@@@ is the 3-letter ID of your WFO).

1.2 Radar

- The product selection menus for RPS List Editor, OTR, and RMR applications have been reorganized into functional groupings with pull-right submenus.

- The Radar Multiple Request Application (RMR) now accommodates TDWRs.

- There is a new format for the Clutter Filter Control product. When requesting a CFC product, you now specify the segment number (1-5).

- RadarStorage generates a new directory for any radar for which it receives data and then stores the product. Later on, RadarStorage checks to see if the radar is within the area of influence, and if it is not, it removes the product. This storage and removal of products is inefficient. So RadarStorage had been made to store the product only if the radar is in the area of influence.

- In addition, references to ingesting radar mosaics from a 'national' radar had been removed.

- The orpgInfo.txt file is no longer being read by the ORPGCommsMgr process and restartRadar script. This file has now been separated into two new files:orpgDedicated.txt and orpgOTRs.txt

  orpgDedicated.txt - contains entries for dedicated class1/98 connections to associated radar(s) and now contains RPS List maxRPSsize
  - restartRadar will watchdog each entry in this file.
  - read by restartRadar, ORPGCommsMgr, and RadarServer

  orpgOTRs.txt
  - contains class2 OTR entries
  - read by ORPGReqMgr

  This separation was made to correct an ongoing problem whereby erroneous ORPGCommsMgr processes were being started for class 2 radars (remote radars).

  A new feature is the ability to change a class 2 (remote OTR/RMR radar) into a dedicated connection, using a Frame Relay connection. The file *orpgBackups.txt* will contain the necessary entries for the remote radar(s) and is used to start up an ORPGCommsMgr process for that radar. This new capability will allow a

site to access a remote radar using RPS Lists. This is only available with paired AWIPS OB6 and ORPG Build 8.0 baselines.

- Backup connections are started from the command line:
  ~fxa/bin/ORPGCommsMgr <radar>
  ORPGCommsMgr backgrounds itself, so there's no ampersand '&' needed. An entry in wmoSiteInfo.txt for the backup radar will be needed.

1.3 System for Convection Analysis and Nowcasting (SCAN)

- Mesocyclone Detection Algorithm (MDA) (radar product MD, #141) output from ORPG used in place of old Meso Algorithm (radar product M, #60) on the ORPG. SCAN displays this info in the Cell and Meso tables, and also makes use of it in the Unwarned County functionality and in the issuance of New Alarms.

- A new Hail Diagnostic Grids section on the SCAN menu includes VIL Density, Digital VIL Density, and Enhanced Digital VIL Density; a VIL Density color table is added to the new MDL section of the color tables menu. Beyond OB6, additional multiple-sensor hail diagnostic grids will b made available. Warning decision making guidance will be made available from the WDTB as these new products are released to the field.

- Time of Arrival/Lead time is available via the Tools menu on the D2D.

- The time threshold used for determining New Alarms for the DMD have been added to the New Alarm Time Setup GUI, and thus can be manually changed more easily.

- SCAN performance had been noted as an issue in the past. Officially, SCAN's performance is no longer significant enough to be tracked by OOS.

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

- SAFESEAS will have a column displaying Fog Monitor data for each zone/county.

- SAFESEAS alert anchor alert button will also (optionally) respond to Fog Monitor output.

- SAFESEAS will also have a new column for Max Wind Speed (Peak Wind). Users will also be able to configure the distance within which a ship can be included in a monitored area.

- A new MDL:Fog Monitor Levels color table is added to the menu.

- Sampling station plots now shows a table of values.

- In the Monitoring Area configuration GUI (brought up from the background screen), a scroll bar for "Ship Distance" has been added.

- The SAFESEAS processor will be "woken up" every few minutes by notificationServer, not by expiring sleep calls, and the File access Control.

- The SFSfacServer process on px1 will be turned off since it will be obsolete.

1.5 Text Workstation

- When in Test or Practice mode, the background of the text window changes to dark gray or orange, respectively. (SEC)
- When in Practice mode, WMO/AWIPS ID queries are not supported. (SEC)
- Help files for text scripts are once again available. (SEC, FSL)

1.6 Volume Browser/Grid Products

- Grids produced by the Multisensor Precipitation Estimator algorithm are available for display on the State(s) and WFO scales. These can also be found in the Hydro section of the NCEP/Hydro menu, under QPE. MPE grids are displayed using a new 'truncated' grid color table which shows zero values in gray to let you see the limits of the site-specified domain.
- GFE grids can be exported to allow display on the Volume Browser. Fields available include WindWave, WaveHeight, Swell, T, Td, RH_Sfc, MinT, MaxT, Heat Index, Wind (no spd/dir or u/v components), Gust, PoP, QPF, Tp.
- A Test/Practice mode GUI is available that allows you to generate warnings tagged "TEST" or that will not be sent out. You start this "Test Mode Control Program" from the appLauncher menu (click over workstation root menu). (SEC)
- MAROB displays (station plot, sea state, clouds and visibility) are added in the Maritime area of the Obs menu. (SEC)
- Additional GFS grids are available for OCONUS sites. These include Grid 160 (47.5 km polar stereographic for Alaska, replaces 190 km Grid 203), Grid 161 (0.5 deg lat-lon for Puerto Rico, replaces 190 km Grid 205), and Grid 254 (40 km Mercator for Pacific Region, replaces 80 km Grid 225 and 40 km Grid 204). For CONUS sites, GFS40 (Grid 212) replaces GFS80 (Grid 211). All of these are 6h intervals to 24h, four times per day. (SEC)
- New GFS VB planes include Low, Middle, and High Cloud Base pressure; and 0.5, 1.0, 1.5, and 2.0 PV surfaces. (SEC)
- A GFS Ice Accretion and Visibility Guidance NH lat-lon grid (232) dataset is now available. The VB data source is GFSGuide, with forecasts at 3h intervals from 3-24h, 6h from 30-72h, and 12h from 84-168h. Fields available are Visibility and (new) Ice growth rate (under Sfc/2D>Marine). (SEC)
- TPC Tropical Cyclone Gridded Probabilistic Wind ("TPCWindProb") grids are available via the Volume Browser. Fields include probabilities of 34kt, 50kt, and 64kt surface winds. Selectors for these are found in a new TPC Guidance submenu on the *Fields*>Sfc/2D menu. (SEC)
- SSM/I wind speeds (ocean areas) can be displayed from the Satellite menu, just below Scatterometer winds. (SEC)
- Additional color tables developed by CIMSS and SSEC are added for GOES sounder imagery. These are added to new Sat:Precip Water, Sat:Lifted Index, and Sat:Skin Temp submenus. (SEC)
- A new Time of Arrival tool is available on the Tools menu.

- FNMOC Wave Watch III model guidance.
- MPE ingest and display: Locally created QPE forecast grids. Hourly plus forecaster edited grids, x/y dimensions variable per site, grid corner points differ per site, only precip parameter for OB6.

1.7 Localization

- fogmon localization option for Fog Monitor.
- Trigger localization moved from the DS to DX.
- Users can make override cities entries with extensions to the state field and not break LSR. This will allow sites to have multiple cities with the same name be handled in warnGen. Override cities entries can go into either customFiles/LocalCitiesInfo.txt or into localization/LLL/LLL-LocalCitiesInfo.txt.

1.8 Flash Flood Monitoring and Prediction (FFMP)

- You can use FFMP to choose a basin and show the up and/or downstream are/path related to that chosen basin. The graphic will crosshatch or stipple the area of interest.
- Both Basin Trend and Basin Trace capabilities have been included. You can either choose the Basin table or the D2D color image.
- You can now use the FFTI to set up to 3 attribute/time frame sets for FFMP o monitor at the same time.
- If you have seen gages (VGBs) being used by FFMP that you don't care about at all, you can now provide the ID of that gage and it will be ignored by FFMP. This requires re-localization.

1.9 TDWR

- In OB6, the current WSR-88D RMR has been extended to the TDWR-WSR-88D RMR. There is a radar type menu to switch the product editors of the TDR and WSR-88D radar. The RPG lists, products selector, and parameters are different for the type radars. For the TDR radar, a default elevation angle list is used and it is configurable. In a request, each request item (product + parameters + rpgs) can be sent to same type radars only.

1.10 GFEsuite

- New functionality includes three additional product formatters (ESF, RFD, PNS)
- Integration of the new OB6 AWIPS Practice/Test mode and dual NotifyTextProd processes.
- Updating the Product Editor contents when the segment purgetime spinbox is changed.
- Dual configuration for the FFA for both zones and counties.
- Addition of the HPC 4-7 day guidance grids.

1.11 Infrastructure

- The logged-in user's name is set at startup, so procedures and color tables are available immediately. Setting the name in the window frame, introduced in OB5, still happens after 15 seconds, and the igc_mgr_priv error can still happen on a slow/overloaded system.

1.12 Fog Monitor

- OB6 version of Fog Monitor only uses the satellite data for its observations.

2.0 WATCH WARNING ADVISORY (WWA)

- The background color of the WarnGen window changes to reflect the Test/Practice mode setting.

WarnGen behavior in Operational Mode

- If WWA monitor is still being used, the Operational Mode will send messages to WWA.
- If D2D clock is set back from current time, the WarnGen will not generate products. If Create Text is selected in this case a red box will pop up.
- All products will be formatted as operational products.

WarnGen behavior in Test Mode

- If WWA monitor is still being used, the Operational Mode will send messages to WWA
- If D2D clock is set back from current time, the WarnGen will not generate products. If Create Text is selected in this case a red box will pop up.
- All products will be formatted as test products.

WarnGen behavior in Practice Mode

- If WWA monitor is still being used, the Practice Mode will not send messages to WWA.
- WarnGen and the text workstation will write and read all text products from the flat text.
- If D2D clock is set back from current time, the WarnGen will generate properly formatted test products.
- If D2D clock is at current time, the WarnGen will generate properly formatted operational products.

3.0 HYDROLOGY

3.1 HydroBase

- On the AWIPS systems front, the PostgreSQL DBMS (Version 7.4.7) has been selected as the next Relational Database Engine for AWIPS. It will replace Informix as the HP-UX DS machines are retired and replaced by the Linux DX machines.

- All OHD database software will use PostgreSQL in AWIPS Release OB6 except the software on the RFC Archiver machine which will continue with Informix for OB6.

- Field offices that have local database software must be ready when AWIPS OB6 arrives. OHD has provided for download scripts to convert a site's current IHFS database to OB6/PostgreSQL.

- A tar file containing the OB6/PostgreSQL version of shefdecode and db_purge is also available for download to sites that need to test their local applications with a real-time data feed. Offices that have their own Informix databases or tables must begin to plan for the transition.

3.2 Site-Specific

- The Red Hat Enterprise Linux Workstation Basic Version 3 Update 4 (RHEL 3u4) has been selected as the operating system for **AWIPS** Release **OB6** and beyond for all systems except the RFC Archiver which stays at Red Hat 7.2.

- A new application called Hydrogen will replace Rivdat application.

3.3 HydroView/MPE

- Hydro from the NCEP/Hydro menu reorganized.

3.4 RiverPro

VTEC Changes

- Updated H-VTC structure to have NWSLI.
- New H-VTEC cause fields.
- Added support for ROU.HY.S non-flood events in flood products.
- Added support for FL.A (Flood Watch) and FL.Y (Flood Advisory) events (products).
- Added database support for H-VTEC near-record crest determination.
- Added controls for UGC coding preceding VTEC lines.
- Added MND datetime field after VTEC lines.
- Added popup VTEC QC window.
- Database purging of VTEC events.

WFO Hydrologic Product Specification

- New headline product section adopted from existing summary prologue product section.
- Headline section generation now supports VTEC event-driven phrasing.

- Call-to-actions statements can be seperated on different lines.
- Tabular section can be included within or outside VTEC event segment block.
- New bullet phrasing supported in RiverPro templates.
- New indented phrasing supported in RiverPro templates.
- Numerous new template variables added to support VTEC status, flood areal impacts, stage/flow units handling.

3.5 RFC

- All applications have been ported to PostgreSQL and to the new RHEL 3 operating system.

3.6 RFS

- A new technique to allow users to select from a set of parameters for the default diurnal disaggregation parameters for the MAT pre-processor. These are the coefficients used to convert the Max/Min temperatures into six hour time steps. The default parameters are used when there are no hourly or three hourly stations available from which the disaggregation can be inferred.

3.7 WHFS/IHFS DATABASE

- Transition of the OHD HSEB software from using an Informix DBMS on HP-UX servers to using a PostgreSQL DBMS on Linux workstations. Also, IHFS_DB has been converted from Informix to PostGreSQL and all the application software had been converted to access the PostGreSQL database. SHEFdecoder and db_purge had been installed.

3.8 PRECIPITATION PROCESSING

- Incorporated the MountainMapper functions used in the Western Region into MPE operations. The goal is to provide a nationally- supported baselined application for all offices to perform QPE operations
- Incorporated the ABRFC P3 application into MPE operations

4.0 SYSTEM

4.1 Crons

- The PostgreSQL vacuum/analyze cron executes every 4 hours (0000Z, 0400Z, etc) to maintain a fairly level steady-state usage of disk space. PostgreSQL's vacuum command must be run on a regular basis for several reasons:
- The entire PostgreSQL database is backed up daily at about 2205Z by running a cron that executes a backup of each individual database. The log files created from this backup are stored using the following naming convention:

backup_<db>_<date>

- Where <db> is the database - in AWIPS it is pgdb (PostgreSQL database), and <date> is the month and day in MMDD format.

- GFS output to hour 180 from each run (0Z, 06Z, 12Z, and 18Z) at highest possible horizontal and vertical resolution.

4.2 Text Triggers

- In OB6, PostGreSQL ('postgres') running on dx1 replaces Informix running on ds1. Several details change, but the basic trigger process remains.

The triggers are formatted and installed in Informix [PostGreSQL] by the -trigger localization option:

./mainScript.csh -trigger XXX XXX

In OB6, this option must be run on the dx.

Below is an example of the pre-OB6 output from this step (DEN localization, run on ds1-fsli).

```
ds1-fsli{fxa}15: ./mainScript.csh -trigger DEN DEN
Results of this localization are not being logged.
-------------------------------------------------------------------
Performing localization for DEN with the following steps:
trigger
LOCAL_WFO=BOU     INGEST_SITE=DEN     INGEST_WFO=BOU
running fxatextTriggerConfig.sh
Setting up informix triggers...
...reading ldad trigger info for  DEN
Calling ldad perl script
...reading ldad site backup trigger info for  DEN
Calling ldad perl script for backup
...reading hydro trigger info for  DEN
id is  Wxxx , string is  KBOU|KDEN|KGJT|KPUB
id is  Rxxx , string is  KKRF|KMKC|KFWR|KFTW|KTUA|KTUR|KTUL
id is  RegCode , string is  57
id is  www , string is  DEN
...reading adapt trigger info for  DEN
id is  www , string is  CYS
id is  www , string is  DEN
id is  www , string is  TOP
id is  www , string is  OMA
...reading site fax trigger info for  DEN
id is  DENTORDEN , string is  /awips/fxa/ldad/bin/sendFax.tcl
...reading site trigger info for  DEN
id is  DLDTSTDLD , string is  /awips/fxa/bin/testTrigger.csh
Now removing old triggers from the database...
```

- Also in OB6, a partial replacement for the whole trigger mechanism is being started, using NotifyTextProd on dx2.

- The text trigger functions are replaced on an AWIPS workstation.
  Description and Control: 1. This process will be a persistent process that will be started via the startIngest mechanism. 2. There will be no limit to the number of processes running on 1 machine or across the network. 3. The process will receive notifications from either the CommsRouter or the TextNotificationServer. 4. The process will invoke the action as specified in a pattern/action file as a child process. 5. The process will respond to the SIGHUP signal to re-read the pattern/action file. 6. The process will respond to a "ping" from the user to read a pattern file.

4.3 Freeware/COTS Software

- AppConfig 1.56
- pgAdmin III 1.2
- DBD-Informix 2003.04
- DBD-Pg 1.32
- DBI 1.43
- XML-Generator 0.99
- XML-Simple 2.12
- Psyco 1.2
- ChartDirector for Perl 3.0.4
- Biggles 1.6.4
- Acrobat 7.0
- Perl/Tk 5.8.5
- PostgreSQL 7.4.7
- libpng 1.2.7
- Tck/Tk 8.4.7
- zlib 1.2.1
- Python-Numeric 23.6
- Python-tk 2.3.4
- Scientific Python 2.4.9
- Jclass Chart 6.2
- netCDF 3.5.1

- SWIG 1.3.21
- GCC 3.4

4.4 Processes

- RadarServer, TextDB read/write, OH cron/apps, Shefdecoder, MHS processes, NWWSProduct, NIS have been moved from DS1 to DX1.
- Climate has been moved from DS1 to PX1.
- The following processes are ported to DX1: Trap Daemon, db_purge, metar2shef, DPAgather, ASOS-smDecoder, textdbNotify, and mhsPurger.
- The following processes are ported to PX1: mpe_fieldgen, purge_files, floodseq, report_alarm, and roc_checker.
- SSMI driver is hosted on DX1.
- The normal number of acqserver process running on DX1 is about 16.
- Migration of ADAPT libraries and Apps to Postgres.

4.5 Purge

- redbook.purge is called by master.purge
- In OB6, PostgreSQL ('postgres') running on dx1 replaces Informix running on ds1. Several details change, but the basic trigger process remains.
- The text trigger replacement functionality in AWIPS is being gradually replaced with a new function that accepts text notifications for products from either the SBN or the text database. This function, called NotifyTextProd, was originally written for GFE to satisfy its requirements to get text products from the SBN into IFPS. To satisfy the AWIPS requirement, NotifyTextProd was modified to not only accept text notifications from the SBN via the CommsRouter, but to also accept notifications from the textNotificationServer when text products are written to the text database.

4.6 Database Engine

- The PostgreSQL DBMS has been selected as the next Relational Database Engine for AWIPS, and had replaced Informix as the HP-UX DS machines are retired and replaced by the Linux DX machines.

4.7 SPG Software

- AWIPS will ingest the TDR data from the Supplemental Product Generator (SPG) using the same capability found in the ingest of the 88D data from the OpenRPG. The SPG will connect to the radar, receive the raw

data and generate products in the Nexrad format.

- The RPS list and One-time request mechanism will include the TDR.

4.8 GRID Data

- GFS40 (grid 212) replaces GFS80 (grid 211).

4.9 Hazcollect

- AWIPS message Handler processes accept, store, and disseminate non-weather related hazards messages to the CRS/NWR and the National Weather Service Weather Wire (Using the existing dissemination method for weather warning products).

4.10 Redbook Graphics

- Redbook Graphics moved to the intelligent purger.

4.11 Clutter Filter Control

- Clutter Filter Control (CFC) product is changing to remove the channel (Surveillance vs. Doppler) and notchwidth (low, medium, high) distinctions and increase the number of radials from 256 to 360. The version number within the CFC product will be 0 or 1, where 0 indicates the legacy version and 1 indicates the Open RDA version.

- CFC product request GUI and product display has been modified to remove the Channel option.

- Color legend has been modified to have just 4 values (0-force/filter off, 1-bypass map/no clutter, 4-bypass map/clutter, 7-force/filter on.

4.12 Simple Mail Transfer Protocol (SMTP)

- In AWIPS OB6, SMTP (Simple Mail Transfer Protocol) replaced the X.400 COTS product. However, to keep the necessary changes to a minimum, and to make the changeover as transparent as possible, many file names remained the same or similar and process names were kept as similar as possible to the previous X.400-based MHS process names. For example, **x400sc** under X.400 became **smtp_send** for SMTP, and **x400rd** under X.400 became **smtp_recv** for SMTP.

SMTP Design Changes

Interface to AWIPS Applications

No change to the API's.
Msg_send command uses environment variable to determine message disposition.
New file system for message queue's(/data/mhs instead of data/x400).
Receiving applications are invoked by the msgrcv_svr on the DX instead of on the DS.

Monitor and Control

All messages will be logged as with X.400.
Sendmail logs to /var/log/maillog.
OVO templates will be deployed to monitor processes and queues.
Sendmail has an SNMP MIB which could be used to provide statistics.

Performance

Sending throughput is roughly12 msgs/sec for radar-sized messages. This is about the same as X.400.
Receiving throughput is much higher than12 msgs/sec. This is much better than X.400
WAN data volume is expected to decrease.
MHS Hub server load is expected to decrease.

4.12 ICAT and Verification

- ICAT and Verification has been removed from the baseline.

4.13 Snowfall Accumulation Product

- The six new Snowfall Accumulation Products are OSW-One Hour Snow Water Equivalent, OSD- One Hour Snow Depth, SSW-Storm Total Snow Water Equivalent, SSD-Storm Total Snow Depth, USW-User Selectable Snow Water Equivalent and USD-User Selectable Snow Depth.

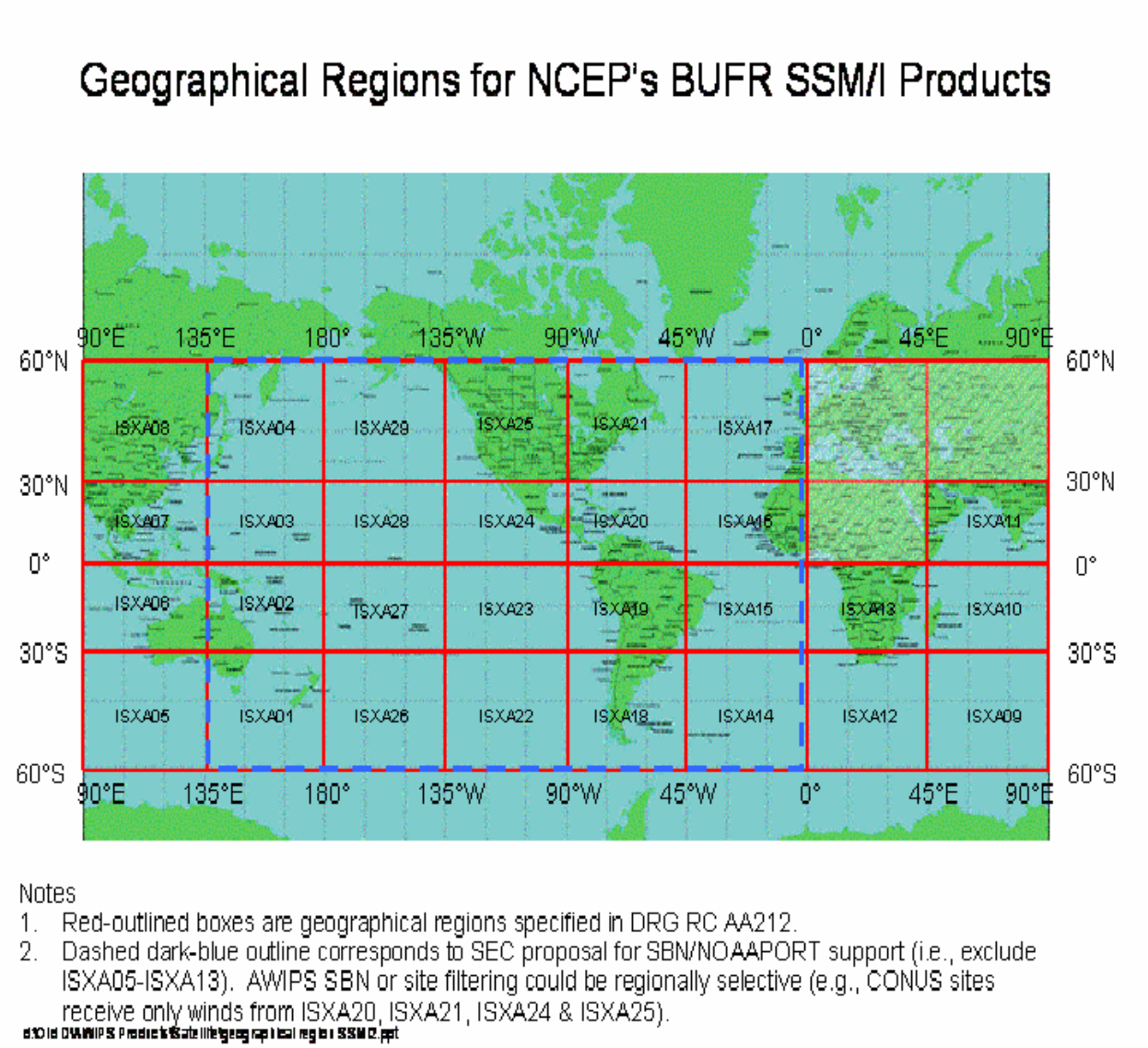
4.14 Special Sensor Microwave Imager (SSMI)

Instructions to include SSMI bulletins

Modify /data/fxa/customFiles/BCQ-acqPatternsAddOns.txt file to include the SSMI bulletins. (Any site XXX would modify their XXX-acqPatternsAddOns.txt file with the bulletins headers)

Then please refer to the Exhibit below. This indicates the geographic region for each SSM/I data file.

Note:



Notes
1. Red-outlined boxes are geographical regions specified in DRG RC AA212.
2. Dashed dark-blue outline corresponds to SEC proposal for SBN/NOAAPORT support (i.e., exclude ISXA05-ISXA13). AWIPS SBN or site filtering could be regionally selective (e.g., CONUS sites receive only winds from ISXA20, ISXA21, ISXA24 & ISXA25).

d:\OB6 OAWIPS Products\Satellite\geographical regions SSMI2.ppt

- Be very selective and use a minimum number of bulletins. Otherwise, there may be some performance issues (although the DX can handle) and display issues. The displays can take minutes to build if all the bulletins are included in the AddOns file.
- Bulletins 9-13 are not turned on yet and southern hemispheric bulletins probably aren't very useful. They'll only increase processing time if included.