N-AWIPS 5.8.4 Release Notes 8/18/05

Version 5.8.4 covers development from May 13, 2005 to August 18, 2005

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I.   NMAP Product Generation Improvements

   A. GFA/AIRMET (AWC)

   Several new features and enhancements have been added to NMAP GFA GUIs
   and formatting functions in support of creating the Graphical AIRMET
   (GAIRMET) and the derived text AIRMET product.

      1. Include Lakes and Coastal Waters in AIRMET

      The state list in the AIRMET text reports now includes applicable Great
      Lakes. If a smear used to generate an AIRMET text report touches any of
      the Great Lakes, the two letter identification for that lake (LS, LH, LM,
      LO, or LE) is included in the state list.

      The phrase "AND CSTL WTRS" is added to the end of a state list if the
      smear touches any marine zone off the coast of an included state. Note
      that "AND CSTL WTRS" only appears once, and always at the end of the
      state list, regardless of which state's (or states') coastal waters are included
      by the smear per rules defined by the AWC.

      2. Single Hour Smears

      Users may now draw "single hour" smears, or smears that have a forecast
      time of a single hour. The available hours are 0, 3, and 6.

      To draw a single hour smear open the GFA window and select either the
      "0-0", "3-3", or "6-6" forecast hour. Draw the GFA as usual. It will be
      treated as a smear by the AIRMET text report formatter. Note that the

forecast time of "0-0" (or any time with a dash in it) is different than the "0" (or corresponding single hour). "0" is a snapshot, while "0-0" is a smear. These single smear hours are now included in the tables $GEMTBL/pgen/gfa.tbl and filter.tbl.

3. Add SFC and FZL default flight levels

All support for "XXX" as a flight level has been removed at the request of the AWC. "XXX" is no longer a valid flight level for GFAs. Top flight levels must always be a numeric value. Bottom flight levels may be a numeric value, "SFC" (surface), or "FZL" (freezing level). Note that "FZL" is only valid if the hazard type is Icing, however Icing hazards can use "SFC" as well.

Any missing bottom flight level for a Turb hazard GFA defaults to "SFC". Any missing bottom flight level for an Icing hazard GFA defaults to "FZL". For example the user may enter "300" or "300/" in the flight level text field. When the user moves the mouse cursor outside of the flight level text field, the bottom flight level value of "SFC" or "FZL" is inserted. Lower case and mixed case text is valid too (i.e. the user may enter "sfc" or "Fzl"). Any lower case text is automatically promoted to upper case. Also partial entries of "SFC" (i.e. "SF", "sf", "S", or "s) and "FZL" are automatically completed to "SFC" or "FZL".

Validation of the top/bottom flight level text field is now done as the user enters data. Invalid characters result in a system beep and the entered character will be rejected (not displayed in the flight level text field).

If no flight level information is entered, an error message window pops up when the user attempts to draw the first point of the GFA. This window includes a flight level text widget which the user can use to enter the missing data. Once the flight level has been provided, the user may select the GFA's points.

4. Remove update number from GFA GUI

The update number and associated controls have been removed from the GFA GUI at the request of the AWC. Update number is no longer an attribute of the GFA element.

The AIRMET text formatter no longer includes the update number in the output.

The Smear All function smears GFAs of identical hazard type and tag. It no longer considers the update number when selecting GFAs in order to construct smears.

The From line text file that is produced from the GFA GUI is now named GFA_[hazard type]_[tag].from. The update number is no longer part of the file name format.

5. Smear Clipping for AIRMET Text Creation

The AIRMET hazard smears are now processed ("clipped") according to the specifications outlined in the document "AIRMET FROM Line Rules" (with the exception of IFR CIG and IFR VIS overlap processing). For example, the formatting now takes into account clipping for areas less than 3000 square nautical miles. These changes are fully reflected in the AIRMET text product as generated via NMAP. Clipping rules for snapshots will be incorporated in a future release.

6. Smear Cycle Time Incorporated into AIRMET

The cycle menu in the AIRMET formatter window is now table driven. A new table, $GEMTBL/pgen/airmetcycle.tbl, contains the available cycle times and corresponding issue times. The available cycle times are 02, 08, 14, and 20 if daylight savings is in effect, or 03, 09, 15, and 21 if standard time is in effect.

The AIRMET formatter GUI now only offers the appropriate four cycle times in the cycle pulldown menu. When the AIRMET text report is generated, the selected cycle time is used to determine the corresponding issue time from airmetcycle.tbl.

7. FROM Display Improvements

The FROM line for a GFA is displayed as soon as all the GFA element's points have been located by the user. However, in the previous release, the FROM line display was not reset (to empty/blank) when it should have been. Now the FROM line display is reset when the window pops up as the user begins to draw a new GFA element.

Additionally, when the user draws a GFA, the FROM line is displayed after the user signals an end to point selection (using the mouse button 2). If the user elects to begin drawing a second GFA (without closing and reopening the GFA window), then when the first new point of the second GFA is selected, the previous FROM line is removed from the GFA window.

8. Miscellaneous Formatter Corrections

The following formatter modifications have been made in response to the GFA Team's June evaluation.

The AIRMET TANGO header line does not exceed 66 characters.

The wording for the STG SFC WINDS AIRMET now is properly formatted to SUSTAINED SFC WINDS GTR THAN 30KT EXP.

When no turbulence is forecast, the TANGO AIRMET now is properly formatted to NO SGFNT TURB EXP OUTSIDE OF CNVTV ACT. Similarly, the SIERRA AIRMET is also properly formatted to NO SGFNT IFR EXP OUTSIDE OF CNVTV ACT when no IFR is forecast.

In TANGO AIRMETS, the Due to section is now preceded by the phrase DUE TO.

The SIERRA AIRMETS no longer include the tag MT_OBSC before the mountain obscuration type. Similarly, the word IFR no longer precedes the IFR type.

The LLWS for TANGO AIRMETS now uses the phrase BOUNDED BY in front of the VOR points.

B. VAA Enhancements (NESDIS, AR)

The following enhancements were made in support of the Volcanic Ash Advisory:

1. Ensure that "FL" is appropriately prefixed to the flight levels in the VAA text product. That is, prefix "FL" before the lower level unless the lower level is "SFC"; never prefix "FL" before the upper level unless the lower level is "SFC".

2. Implement table-driven option for (lat,lon) point format in the VAA text product per ICAO standard. An option to replace the current format with a blank between the latitude and longitude string has been added. The option is specified by setting the NEW_VAA_LATLON_FORMAT entry in the $GEMTBL/config/prefs.tbl table to TRUE.   If the parameter is set to FALSE, then the old format (no blank) is used.

C. Added QC for County Inclusion/Exclusion in Watch Generation (SPC)

A quality control check is now available during watch creation. This QC feature (1) checks for counties/independent cities/marine zones inside the watch area that are not active (on screen they do not have a marker) and (2) checks for counties/independent cities/marine zones which are turned on (on screen they do have a marker) but they are not touching any of the watch's active areas. This new feature has been added to the top of the "Watch Specifications and County List" GUI.

After the watch has been drawn and the county list created, the check on the active county inclusion or inactive county exclusion is selected by clicking a new radio button titled, "QC Counties". When the "QC Counties" radio toggle button is checked, the counties that are found in error are displayed in the county list section of the "Watch Specifications and County List" GUI. The county list section states the warning condition(s) and lists the UGC, state, county name, lat/lon, county FIPS and WFO information for each county found with that error. This information aids the user in locating the counties in question. The user can select "Add/Delete" to correct any of the counties listed or continue with watch processing.

The QC County list is a dynamic list, like the county list. That is, if the QC county list is displayed and the "Add/Delete" button is used to correct any excluded/included counties, these changes are reflected in the county window as changes are being made on screen.

The two flagged conditions that appear in the county list section are:

'Active counties OUTSIDE the watch area' – If a county is found active outside of the watch area, it is listed under this heading.

'Inactive counties INSIDE the watch area' – If a county if found inactive inside the

watch area, it is listed under this heading.

D. New ITCZ Symbology Added (TPC)

A new special line pattern to draw a double line with slanted lines between them (essentially, a string of Z's connected to each other) has been added to support the ITCZ symbology. This new pattern is available as a new object in the "Lines" class in NMAP2's product generation palette. The line type attributes include color, pattern size and line width. Note that the new line type has been added to the table $GEMTBL/pgen/setting.tbl. The entry for the ITCZ line type must be included in the setting.tbl for NMAP2 product generation to properly draw the line.

II.   Product Generation Pre/Post Processing Improvements

A. WOUPDT Enhancements (SPC)

Several enhancements and corrections were made to the WOUPDT program. This development was done in collaboration with the SPC.

WOUPDT and NMAP2 have been modified with additional checks to create WOU-update and WOU-final products when $GEMTBL/txtprd/woudef.tbl or certain tag files are not accessible. Most of these tags affect the VTEC line. When woudef.tbl or tag entries are not accessible, default values have been set so that the product(s) can still be created and an error message is created.

The bug in WOUPDT (using -e and -u flags) in which multiple identical WOUs for watch #504 were being issued has been fixed.

The bug in which erroneous WOUs were issued for watch #641 having a "CON" in the VTEC action code for a watch that had already been canceled by the SPC has been fixed.

The incorrect Mass News Dissemination (MND) line containing "EXPERIMENTAL" in a WOU-final created by NMAP for replaced watches has been fixed. WOUPDT now uses the tag value of "UPDT_WOU_PROD_CODE" to determine if WBC is "operational" and can be used this fall so that "EXPERIMENTAL" will not appear in the MND.

B. AWN and PWN Products Removed (SPC)

At the request of the SPC, the AWN and PWN watch products are no longer automatically created.

C. Hurricane Watch/Warning Track Graphic Enhancements (TPC, HPC)

There were some cases when the scale legend on the Hurricane Watch/Warning/Track graphic obscured some of the watch/warning outlines and forecast times when it was plotted at the bottom. A change was made to always draw the scale legend at the top of the chart to minimize the chance of inadvertently hiding any forecasts. Also, the plotting logic was modified to properly account for different X server screen sizes. This correction addressed the clipping problem found on HPC platforms.

III. NMAP2 Display Improvements

A. Added Display of SEAWIND Data (OPC)

NMAP2 has been enhanced to display archived SEAWIND satellite retrieved wind data. These data sets are not available in real time because the satellite sensor failed after launch. The SEAWIND data are displayed in a similar fashion as the QuikScat data sets. Click on SEAWND or SEAWND_HI under the MISC data category to select these data sets. New entries have been added to the table $GEMTBL/config/datatype.tbl to accommodate these data sets. The display attribute defaults are specified in a similar fashion as QuikScat data in the table $GEMTBL/config/miscset.tbl.

B. Added County Union Display Option and Performance Improvements (SPC)

A county union display option for the WOU and WCN displays has been added to NMAP2 and GPMAP. The union option creates one polygon that combines the counties outer edges.

In NMAP2, click the "Union" button in the "WOU or WCN Attributes" GUI to display the union of the counties.   If the "Union" button is on, then the other attributes, e.g., outline, apply to the single combined polygon. If the "Union" button is clicked off, then the other attributes apply to individual counties as in previous versions of NMAP2. The default for the union flag is set in the table $GEMTBL/config/miscset.tbl. A value of 0 and 1, turns off and on the union option, respectively.

NOTE: Since miscset.tbl has been changed, SPF files displaying WOUs and WCNs should be updated.

The county union plotting option is also now available in GPMAP. A new "union" flag has been added to the WOU and WCN parameters. Set the union flag to YES to plot the county union.   If the "union" flag is set, the "label" flag is ignored.   See the help files wou.hl2 and wcn.hl2 for more details on using this option in GPMAP.

Modifications have also been made to improve the performance of displaying WOU county data (using markers, outline, or fill) in GPMAP and NMAP2.

C. QuikScat – Add circles for rain-flagged winds (TPC)

A new option for plotting QuikScat data has been added to programs GPMAP and NMAP2. The option allows users to choose whether circles are plotted along with the wind barbs/arrows for rain-flagged winds. This option flag has been added to the end of the QSCT parameter list in program GPMAP, and is also available in the "QSCT Attributes" window that is displayed in NMAP2 when the "Edit Source" button is selected for Data Source: MISC/QSCT. The default for plotting the circle for NMAP2 is specified in the table $GEMTBL/config/miscset.tbl.

IV.   Decoder Improvements

A. Decode and Display of 12Z GFS Extended MOS Data (ALL)

On September 13, 2005, the NWS will add extended-range MOS guidance based on the global forecast system (GFS) for the 12Z cycle. The extended range GFS MOS decoder DCXMOS has been modified to process 12Z as well as 00Z data.

B. Fixed Bugs in AIRMET Decode/Display (AWC)

Corrected and canceled AIRMETs are now displayed over the proper time periods. A bug in the code was causing the display of these AIRMETs to end at the whole hour before the actual time of the correction or cancellation. For corrections, this sometimes left a gap in the display when looping.

In the decoder DCAIRM, the output sequencing of 'NEW' AIRMETs in amendments was changed. This improves the matching of amended, corrected

and canceled AIRMETs with their corresponding originals when the amendment includes a 'NEW' area.

The AIRMET decoder DCAIRM has also been modified to fix a bug which caused incorrect plotting of AIRMETs in NMAP2. This resulted from the decoder using the originating site to construct the identifier field of the decoded product. The area designator in the FAA header of an AIRMET is now used instead. This development was done by the AWC in collaboration with the N-AWIPS team.

C. Treat "Close-to-Surface" Winds as Surface for Dropsondes (TPC)

The upper air decoder DCUAIR has been modified to allow "close-to-the-surface" winds to be stored as surface winds for dropsondes when the actual surface winds are missing. The decoder now uses the 'LST WND' field in the '62626' national practice section of the report. If the surface wind is missing and the LST WND height in meters is within a specified tolerance above the surface, the decoded wind speed and direction closest to the surface is assigned to the surface. The default tolerance for the substitution is 20 meters. To change this value, use the "-w" option on the decoder command line, specifying the desired cutoff value in meters. (See dcuair.hlp.) The "-w" option has no effect for other decoders.

V. General Improvements

A. New Ensemble Diagnostics Added (ALL)

The members of an ensemble listed between curly brackets ({}) in GDFILE input may be assigned weights. If no weights are assigned, the members are equally weighted. The weight values range from 0 to 100 and must sum to 100. The weight is prefixed to the name of the member and followed by a "%" which acts as a delimiter between the weight value and the name. If the member name refers to a collection of individual members (e.g., SREF), then the weight value is divided equally among those individual members. These weights can be used in computing ensemble scalar and vector means (ENS_SAVG and ENS_VAVG) and the ensemble percentile funcion (ENS_PRCNTL, see description below), but not spreads. The help for GDFILE provides more information.

A new ensemble function, ENS_PRCNTL, has been added to compute the value of a function associated with a given percentile of occurrence within a weighted ensemble. The percentile may be specified as a constant or as a parameter or function that is valued between 0 and 100. For example if the value of 50 is

specified, then the median of a diagnostic over ensemble members can be computed. The help for GPARM has more information on ENS_PRCNTL.

A new ensemble function, ENS_MODE, is now available to estimate the mode, the most frequently occurring value, in a weighted ensemble. This function will usually find the dominant mode closest to the mean. Secondary modes are ignored. An iterative trisection algorithm is used that takes into account the weights of the members.

New ensemble functions to calculate the maximum, minimum and range for a scalar diagnostic field over the range of ensembles have been developed. These functions are ENS_SMAX, ENS_SMIN and ENS_SRNG, respectively. See the GPARM help for additional details.

This development was done in collaboration with the HPC.

B. Objective Analysis Program Improvements (ALL, OPC)

Parameters have been added to the OABSFC program to improve the overall program usability and to support graph-to-grid requirements for vectors. The new parameters permit user control over the naming of the output analyzed grids. GDATTIM may now be used to override the default values provided by DATTIM; GFUNC may now be used to override PARMS; GLEVEL and GVCORD may now be used to override '0' and 'SFC', respectively. See the help file for OABSFC for more information and restrictions.

**** Important Please Note ****

Existing scripts may be inadvertently affected by this change. Specifically, the values for GDATTIM, GFUNC, GLEVEL, and GVCORD set by other scripts will now affect the output of OABSFC. Therefore, these parameters MUST be set to blank in existing scripts to ensure that OABSFC continues to operate as before this release.

C. Added Support for Additional Satellite Projections (All, Unidata)

N-AWIPS applications now support navigating on images in the native GMS and Mollewide satellite projections. Note that the Mollewide projection is a global

composite image available in the university community. This development was done in collaboration with Unidata.

D. GAIRMET Snap Points Utility Program Improvements (AWC)

The build_snap program was modified to accept optional command line arguments to control the starting radius around VOR points and the radius of empty space around coordination points.

The build_snap program now accepts optional command line arguments of -v, -h, and -c. The -v and -c arguments must be followed by a numeric value. The output file name is still a required argument and must be the final argument. The optional arguments have the following meanings:

-h   Display the usage (help) message

-v #   The number following the -v option is the distance of the radius in nautical miles from each VOR point at which the snap points begin plotting.   For example a value of 30 would mean that all snap points start at 30nm from a VOR. The default value is 20nm.

-c #   The number following the -c option is the distance of the radius in nautical miles of the cleared space around coordination points. No snap points are located within this circle. A value of 20 means that no snap points are located within 20nm of any coordination point. The default value is 10nm.

E. Allow for different formats when plotting values in GDMAP (NCO)

Added a new format flag to the POSN parameter. POSN specifies the position number and the format name separated by a slash. The only special format currently defined, WAFT, is for WAFS Temperature charts. This format plots positive values with a plus sign and negative values with no sign.

F. New parameters for NSHARP (OPC, ALL)

New sounding diagnostics have been added to NSHARP. This development was done in collaboration with the OPC.

The current modifications include three main changes: 1) Page 2 of the diagnostic panel is now the new "OPC Low Level Stability" page, 2) this page details three

measures of atmospheric stability with calculations and relevant layer data, and 3) the mixing heights from the various OPC calculations are now shown graphically on the SKEWT display.

The new OPC diagnostics are measures of low level atmospheric stability. The simplest of these is the temperature gradient between the 975 hPa level and the surface, which is negative under mixed conditions. A basic measure of the surface mixing height is the height of the lowest temperature inversion; this level is drawn on the SKEWT display as a solid yellow line. Two alternate measures of the mixing height are calculated using either a layer-based or surface-based lapse rate. The threshold criterion for the mixing level is 85% of the dry adiabatic lapse rate (as in BUFKIT). The layer-based calculated height is shown as a dotted cyan line on the SKEWT graph, and the surface-based height is shown as a dashed magenta line.

The new mixing height lines are fully dynamic and will automatically be redrawn when looping or manually altering the data profile.

VI. Bug Corrections

A. Program GDTSER Missing Data Checking (ALL)

GDTSER plots time series of the grid data. In previous releases, if a data gap exceeds twice the minimum data interval, the plotting function did not connect the segments between the points even though the data exists. This posed problems for grid data such as GFS when forecast hours change from 3h to 12h after F180. The connecting segments abruptly stopped at the temporal discontinuity point. This release removes the data gap checking mechanism so grid fields are connected at each data point as long as the data exist.

B. Aircraft Decoder Bug Fix (AWC)

The aircraft decoder DCACFT was modified to fix a bug in the decoding of icing and turbulence data for PIREPs. When a range of data was specified (e.g., LGT-MOD), the decoder looked for a hyphen to separate the two values. If the hyphen was omitted (LGT MOD), only the first value (LGT) was decoded. The decoder has been changed to recognize a blank as a separator between two turbulence or icing values.

C. Bug fix for decoding JTWC bulletins (OPC)

Tropical cyclone bulletins from JTWC are once again being decoded and displayed. The bulletins, which had been successfully decoded and displayed in the 2004 season, were not being processed this year due to both a bug in the decoder and an unannounced change in the JTWC format.

D. Problem Processing Pressure Label Conversion (OPC)

A problem converting 4 digit pressure values to 2 digit pressure values using the $GEMTBL/pgen/uattribd.tbl option in post-processing was corrected.

E. Watch County Notification (WCN) Decoder (SPC, Unidata)

The WCN decoder was hanging in an infinite loop when decoding a WCN bulletin whose county/zone line began with a range of zone ids indicated by a '>' character. However, bulletins that first use a '-' separator in the county/zone line are decoded successfully. The decoder was modified to recognize either occurrence. This correction was done by Unidata in collaboration with the N-AWIPS team.

F. Graph to Grid Problems (SPC, HPC)

The following changes were implemented in graph-to-grid:

1. Improved weighting algorithm for directional line cases.
2. Directional line algorithm now addresses 'shadow' areas (hidden grid points) via new right-of-line function.
3. NDFD grid now accommodated (note, however, that performance is slower than lower resolution grids).
4. Maximum number of intersections increased from 30K to 50K.
5. When no graphical contours exist, missing values (-9999.0F) are now assigned to all grid point values.

G. Problems Processing GRIB Level Information (UNIDATA)

Program nagrib2 was not correctly processing the vertical coordinate level information in GRIB2 messages that contained "missing" indicators for the appropriate level values. This error has been corrected.

The abbreviations for the Boundary layer cloud layer (BCY) and the Convective cloud layer (CCY) have been changed to "BCLY" and "CCLY", respectively, in both GRIB1 and GRIB2 vertical coordinate tables, $GEMTBL/grid/vcrdgrib1.tbl and $GEMTBL/grid/g2vcrdncep1.tbl.

VII. Map and Table Updates

A. Zone Table Updates (ALL)

The zone table $GEMTBL/stns/zones.tbl has been updated in accordance with NWS changes distributed in May and June, 2005.

B. VOR Table Update (AWC)

The VOR MQT was replaced with SAW at the request of the AWC.

C. VAA Table Updates (NESDIS)

The following tables were modified at the request of NESDIS:

$GEMTBL/pgen/setting.tbl - change default volcano color from 2 (red) to 6 (cyan).
$GEMTBL/pgen/vaa.tbl - numerous changes/modifications for VAA text product generation.
$GEMTBL/stns/volcano.tbl - added several volcano names.

D. New Outlook Bounds Files (SPC)

The following bounds files have been created to support SPC production of Outlook grid files:

SPC outlook area specification: $GEMPAK/data/vgf/SPC_outlook_area.vgf

Attendant bounds files: $GEMTBL/bounds/SPC_outlook_area.tbl, $GEMTBL/bounds/SPC_outlook_area.tbl.info

D. Updated Tropical Cyclone Tables (TPC)

The tropical cyclone breakpoint tables used in creating the watch/warning graphic and the TCV text message were updated with additional breakpoints for California and Guatemala and minor changes to UGCs. The track error tables were updated for the 2005 season using information provided by the TPC.

See the NAWIPS log $NAWIPS/versions/tables.log for additional description of table changes.

VIII. Calling Sequence Changes

    A. $GEMPAK/source/bridge/am/amdecd.f, amhdr.f

    B. $GEMPAK/source/nmaplib/pgen/nmap_pggfaw.c, nmap_pgsmear.c

    C. $GEMPAK/source/programs/util/snap/build_snap.c

    D. $GEMPAK/source/nmaplib/pgen/nmap_pggfaw.c

    E. $GEMPAK/source/cgemlib/cvg/cvgscangfa.c

    F. $GEMPAK/source/programs/gui/nmap2/nmap_aodtw.c, nmap_mbtnw.c

    G. $GEMPAK/source/programs/oa/oabsfc/oacinp.f, oacdsp.f

    H. $GEMPAK/source/bridge/dc/dcgopt.c, $GEMPAK/source/programs/dc/dcuair/dcudcd.f, $GEMPAK/source/bridge/ru/rudecd.f, rudrp1.f, rudupe.f, ruttaa.f

    I. $GEMPAK/source/bridge/ms/msclim.f, msdcdm.f

    J. $GEMPAK/source/gemlib/gg/ggwwtp.f

    K $GEMPAK/source/gemlib/gg/ggwlso.c

    L. $GEMPAK/source/bridge/br/brvtec.f

See the nawips.log and changes.log for additional details concerning these routines.

IX. Configuration Management Changes

    A. External Library Location Changes (ALL)

All external libraries needed by N-AWIPS have been moved to sub-directories under $NAWIPS/extlibs. The sub-directories include:

AODT, GAMET, GPC, JasPer, melBUFR, NDFD, netCDF, PNG, xml2, xslt, and

zlib.

Accordingly, the following directories under $GEMPAK/source are removed:

aodtlib, gametlib, gpclib, jasper-1.700.2, libpng-1.2.8, melbufr-5.2, netcdf-3.4, and zlib.

Also, the NDFD libraries mdlg2dec and mdlg2enc are removed from:

$GEMPAK/source/programs/na/ndfdg2 and
$GEMPAK/source/programs/na/gd2ndfd respectively.

The compile scripts for these libraries have changed to reflect this new configuration including:

aodt_compile, external_libs_compile, gametlib_compile, gametlib_link, gpclib_compile, jasper_compile, melbufr_compile, melbufr_link, netcdf_compile, png_compile, zlib_compile.

The library names have changed for a few of these as well resulting in the following changes:

$GEMPAK/source/gemlib/gg/testgg_link;
$GEMPAK/source/cgemlib/cgr/testcgr_link;
$GEMPAK/source/cgemlib/clo/testclo_link;
$GEMPAK/source/nmaplib/nms/testnms_link;
$GEMPAK/source/programs/gp/gpmap/gpmap_gif_link, gpmap_link;
$GEMPAK/source/programs/gui/nmap2/nmap_link;
$GEMPAK/source/programs/util/bufrenc/bufrenc_link;
$GEMPAK/source/programs/util/sigbufr/sigbufr_link;
$GEMPAK/source/programs/util/aodt/aodt_link; and
$GEMPAK/source/textlib/airmet/af_link.

In addition, two new libraries, xml2 and xslt, have been added with their corresponding new build scripts, xml2_compile and xslt_compile.

**** SITE ADMINISTRATORS IMPORTANT PLEASE NOTE ****

Changes were required to the .cshrc and .profile files to accommodate these changes including the removal of $GEMPAK/source/aodtlib from the list of

include directories to search. The files .cshrc_v5.8.4 and .profile_v5.8.4 are included in the release to allow site administrators to add the required changes to their site's .cshrc and .profile files.

B. N-AWIPS Directory Tree Changes (ALL)

The N-AWIPS directory topology has been modified to conform to the UNIX paradigm for operating system (os) specific programs, includes, and object libraries. In other words, the bin, include and lib directories for a specific os will have a COMMON root path. Specifically, $GEMEXE is redefined from $NAWIPS/exe/$NA_OS to $NAWIPS/os/$NA_OS/bin. $GEMINC/$OS is redefined from $NAWIPS/gempak/include/$OS to $NAWIPS/os/$NA_OS/include.

Important note: $GEMINC will REMAIN as $NAWIPS/gempak/include. $GEMOLB is redefined from $NAWIPS/lib/$NA_OS to $NAWIPS/os/$NA_OS/lib.

Therefore, in order to locate the os specific programs, includes, and libraries for a particular operating system you only need to specify one unique root path, which for NAWIPS is $NAWIPS/os/$NA_OS.

Please note: N-AWIPS added the environmental variables CC and CFLAGS to the .cshrc/.profile files. AC and ANSI_CFLAGS will be deprecated. For now, they are defined as CC and CFLAGS respectively. However, in future releases they may not work, so we are encouraging everyone to avoid their use ASAP. In addition, four (4) new environmental variables have been added. They are $OS_ROOT, $OS_BIN, $OS_INC, and $OS_LIB. $OS_ROOT is defined as $NAWIPS/os/$NA_OS. The other three are defined as $OS_ROOT/bin, $OS_ROOT/include, and $OS_ROOT/lib respectively. Note that there are no longer any subdirectories named 'exe'.

**** IMPORTANT PLESE NOTE: ****

For this release, given the changes to the N-AWIPS directory structure, we are providing the ENTIRE source tree. Therefore, N-AWIPS should be installed in an empty directory. A script, create_os_subdirs.csh, has been provided to create the appropriate directories for site operating systems. Execute this script before building for each platform. This script is located at the top of the $NAWIPS tree.

X. Compiling and Linking Instructions

The necessary compiling and linking instructions are contained in the following file:

release_build_5.8.4

To execute the script and save its output in a file type:

cd $GEMPAK/build

release_build_5.8.4 >&! RELEASE_$NA_OS & ; tail -f RELEASE_$NA_OS

The output of the script will be written to RELEASE_$NA_OS.