

N-AWIPS 5.9.3 Release Notes

May 19, 2006

Version 5.9.3 covers development from February 23, 2006 to May 19, 2006

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. Items 1 through 16 pertain to Step 3 requirements. Items 17 through 21 pertain to Step 4 requirements.

1. Clip FROM and OUTLOOK Areas at International Borders

A change was made to the AIRMET formatter to ensure that FROM lines and outlook BOUNDED BY lines are properly clipped at the international borders, i.e., the boundary defined by the union of the three FA regions.

2. Modified AIRMET Formatter Font to Courier

The AIRMET text is now displayed using a fixed-width (courier) font. This makes it much easier to see the indentation within the AIRMET bulletins and is much closer to WYSIWYG with respect to what the end users will see when they view the bulletins.

3. Corrected VOR ordering for Freezing Level Contours

The ordering of the FZLVL contours has been corrected based upon the 5.9.2 evaluation (item 2.1.1). Sometimes the order of the VOR-relative points for a given FZLVL was changed from the order in which they were drawn in the process of generating the From line. The order is now preserved for both open and closed FZLVL contours.

4. Corrected Outlooks for Mountain Obscurations and Strong Surface Winds

The AIRMET formatter now uses the correct phrasing for Mountain Obscuration

and Strong Surface Wind outlooks. A bug was found in the 5.9.2 evaluation (item 2.3) that, if there was only a single outlook, would report these two hazard types as `MT_OBS` and `SFC_WND` instead of `MTN_OBS` and `STG_SFC_WNDS`.

5. Update State Ordering Rules for Coastal Waters

The `CSTL_WTR` phrase in the AIRMET state list has been revised in accordance with the 5.9.2 evaluation (item 2.4). If any portion of an AIRMET touches both land and water, then the formatter lists the affected states (those whose land and/or water is touched by the AIRMET) followed by `AND CSTL_WTR`. If the AIRMET covers only water, then the formatter lists the affected states (their coastal waters) followed by `CSTL_WTR` -- the `AND` is not used in this case.

6. Update ZULU Ordering

The order of elements in the Zulu AIRMET bulletin has been changed in accordance with the 5.9.2 evaluation (item 2.2). The order is now AIRMETs, outlooks, freezing level paragraph. (Formerly the order was AIRMETs, freezing level, outlooks.)

7. Updated Multiple Freezing Level Handling of Base with Zero Height

`M_FZLV` hazards drawn with a base of `000` are now formatted in the Zulu AIRMET value of `SFC` in both the area ranging from statement and the flight levels of the `M_FZLV` hazard itself. This change makes the `M_FZLV` format consistent with the `FZLV`.

8. Freezing Level Contours not Intersecting Forecast Areas

The AIRMET formatter now handles the situation where freezing level contours are drawn but none of them intersect the area for which a Zulu AIRMET is to be formatted. In this situation, the formatter looks at all the drawn freezing level contours and determines if the FA Area's centroid lies to the left or right of each contour line. The highest level to the right is selected, or if there are no contours to the right, then the lowest level to the left is selected. The level found is adjusted by +/- 040 to create the ranging from line of the freezing level paragraph.

9. Improved Point Reduction Added for Freezing Lines

A second point reduction algorithm has been added to the `FZLV` contour

processing prior to producing a Zulu AIRMET bulletin.

After a FZLVL contour has been reduced to the FZLVL_REDUCE_THRESHOLD value (which is specified in the \$GEMTBL/config/prefs.tbl file) it is potentially reduced further using a "kevlindex" reduction algorithm. This algorithm takes points of the FZLVL contour and considers whether any middle points of any segment lie within a specified tolerance value of the end points. If the points do lie within this tolerance, then the middle points are not necessary to get the basic shape of the line, and they are removed. Thus the line is safely reduced below the FZLVL_REDUCE_THRESHOLD value while the shape remains generally unchanged.

The tolerance value is specified by the FZLVL_REDUCE_TOLERANCE value contained in the \$GEMTBL/config/prefs.tbl file. A higher value means a greater tolerance, and hence, more point reduction; a lower value is a smaller tolerance and less point reduction. Suggested values are from 1.0 to 10.0. The default configuration is set to 5.0. The units are in device coordinates.

10. Improve Clipping for Freezing Lines

The FZLVL contour clipping has been improved by removing all short contours and by eliminating short gaps in contours.

FZLVL contours that are shorter than the FZLVL_MINIMUM_LENGTH value (in \$GEMTBL/config/prefs.tbl) will be ignored, rather than formatted in the Zulu AIRMET bulletin. The default threshold value is set to 100 nautical miles (nm). A FZLVL contour must be longer than FZLVL_MINIMUM_LENGTH in order to result in a line within the FZLVL paragraph of the Zulu AIRMET bulletin.

Gaps in a freezing level contour may result from the contour crossing out of and then back into an FA Area. When clipping is applied, two or more FZLVL contours can result, depending on how many times the contour crosses and re-crosses the FA boundary. If these gaps are determined to be less than FZLVL_MAXIMUM_GAP_LENGTH (in prefs.tbl), then the clipping is not applied, and the contour is allowed to pass out of, then back into the FA area without interruption. If the gap is greater than the FZLVL_MAXIMUM_GAP_LENGTH, then the clipping is applied and the contour is broken into two (or maybe more) separate contours. The default value of FZLVL_MAXIMUM_GAP_LENGTH is 100 nm.

11. Corrected ZULU AIRMET Indentations

The indentation within the freezing level paragraph of the Zulu AIRMET has been modified. Each line for a freezing level contour or multiple freezing level area is now indented 3 spaces (it was previously indented 6 spaces). If a line for a freezing level contour or multiple freezing level area is longer than one line of text, each additional line is indented 6 spaces (it was previously not indented).

12. Added State Exclusion List for Mountain Obscuration

The state list for mountain obscuration AIRMETS (MT_OBSC) is now verified against an inclusion list. The states on the inclusion list are allowed to have MT_OBSC AIRMETS. If a MT_OBSC AIRMETS state list includes states not on this inclusion list, then those states are removed from the state list. Note that the FROM line is not modified in this operation, only the state list is affected.

The inclusion list is found at \$GEMTBL/pgen/mt_obsc_states.xml. The table is in an xml format, and a generic xml library function is used to read this table. The table may be modified by users but it must be well-formed in order to be used. To check if it is well formed open it in a browser. Most browsers will complain if it is not well-formed.

13. New Program to Generate Freezing Lines GFA Elements from Grids

A new program GDFZRL is available to generate GFA freezing levels from grid data. GDFRZL generates a VG file that contains grouped contours and labels and then converts them to GFA FZLVL elements. GDFRZL operates in a similar fashion as GDCNTR and includes all of GDCNTRs user parameters. GDFRZL has three new parameters which are required to create GFA FZLVLs. These three parameters are FHR(forecast hour), TAG, and STAT(issuing status). Note that GDFRZL accepts only VG as the output device.

14. Flip supports Freezing Level Contours

The Flip action has been enhanced to support ^aflipping^o or changing the point direction of freezing level contours. If a freezing level contour is drawn the wrong way, Flip can be used to reverse the direction. Simply select Flip on the pgen palette, then select the desired freezing level contour by clicking on it (MB1) and click a second time (MB1) to flip it. The contour will be be redisplayed in the reverse direction.

15. Use IFR Layer to Process both CIG and VIS Types

A single IFR GUI now handles both IFR_CIG and IFR_VIS. A checkbox for CIG

and a pop up dialog for VIS additional types have been added into the new IFR GUI.

16. New GUI Added to Allow Freezing Level Range for ICE AIRMETS

A new text box has been added to the ICE GFA GUI that allows specification of the freezing level range if "FZL" is set as the bottom flight level. If "FZL" is specified as the bottom flight level, the freezing level top/bottom field is activated and the user is required to enter the range of the freezing level, either either before the points of the GFA are place or afterwards.

When smearing a sequence of ICE GFA snapshots, if the lowest flight level is FZL, then the worst case bottom and top values from among the snapshots is carried forward into the AIRMET. In the AIRMET, the range of the freezing level is now included immediately after the flight levels.

17. Use snapshot information for AIRMET Conditions Wording

Changes were made to the AIRMET formatter to include wording for "Conditions developing", "Conditions ending", and "Conditions continuing beyond". Snapshot information is used to determine the appropriate wording according to rules supplied by AWC.

18. Modify Smear Action to Ignore Freezing Lines

The smear tool functions (Smear and Smear All) now have no effect on FZLVL contours. The smear tool has never contained an algorithm to smear FZLVL contours, but smearing freezing contours produced undesirable results. This problem is now corrected by preventing Smear/Smear All from trying to smear the FZLVL contours. No change has been made to the way in which FZLVLs are drawn ± users may still draw snapshots and "smears" (meaning contours with a forecast time spanning the forecast period), and the 0-3 or 0-6 hour FZLVL contours will be formatted in the Zulu AIRMET. Smear/Smear All works normally on all other GFA hazard types, including multiple freezing hazards.

19. Correct Kink Problem with Smears

The smear algorithm has been modified to remove the occasional kinks that appeared. The \$GEMTBL/config/prefs.tbl table entry GFA_SNAP_CLUSTER_DIST (default 30nm) is used by the algorithm. Clusters of consecutive snap points within GFA_SNAP_CLUSTER_DIST are consolidated into a single point and appropriately snapped.

20. Modify snapping algorithm for sparse snap points.

The snapping algorithm for smears was modified to account for areas where the density of snap points is low. These areas are typically along and just outside the international borders. The new algorithm adds points to appropriately represent the smear in these areas, thus the result may produce a slightly larger smear area than anticipated or desired. Given the sparseness of the snap points, however, this is the only viable solution.

21. Added Special Processing

Added processing of special snapshots (hereafter termed ^ospecials^o) to the smear and AIRMET processing. Specials are defined as snapshots that have a forecast hour other than the standard 0, 3, 6, 9, or 12 hour periods. The forecast time of a special may be between 0:00 and 5:45 for a normal issuance, and 0:00 and 2:45 for an amended issuance. The valid times of specials are limited to 15 minute increments (00, 15, 30, and 45) in this release.

Within the GFA GUI, the special time box appears when a forecast time of ^oOther^o is selected. The location of this box has been moved directly underneath the forecast time pop up menu.

When a special is found, its information is sent into the smear, and from there into the AIRMET formatter for purposes of constructing the ^oconditions beginning/ending^o statement.

B. Allow ^oStart Layer^o button to be removed from the palette (AWC)

At the request of the AWC, modified the product generation palette to allow the ^oStart Layer^o button to be removed. Added a check on the existence of the button before displaying the alternate label ^oAdd Layer^o. Without this check, removing the button from the table caused NMAP2 to crash.

C. Add Automatic Insertion of Advisory Number to VAA (NESDIS)

The advisory number text field on VAA edit window is now automatically filled when the window is invoked. The new number is calculated by finding the most recent VAA text product of the same volcano in the directory defined by TXT_PATH in \$GEMTBL/pgen/vaa.tbl and getting the advisory number and year from it. If the current year is the same year, the new number is this advisory number plus one. If the current year is a new year, the new number will be 001. If the program is not able to

get the most recent VAA text product of the same volcano for any reason, the advisory number is set to 001.

The correction text field on the VAA edit window is initially blank when the window is invoked. If the user fills something in it, the advisory number and the year will automatically change to the values found in the most recent VAA text product of the same volcano. If the user once again removes everything in the correction text field, the advisory number and the year will change back to the initial values. If the program is unable to find the most recent VAA text product of the same volcano for any reason, the advisory number and the year will stay the same no matter what is in the correction text field.

D. Added History File Directory Location Option to AODT (PR, TPC)

The AODT history file directory location is now table driven. Previously the location of the history file was hard-coded to the directory from which NMAP2 is executed. The history file directory location is specified in the \$GEMTBL/config/prefs.tbl using the following tag: AODT_HIST_DIR.

E. Added Direction Indicator for Arrowed Lines (SPC)

A option has been added to indicate the direction of lines as they are drawn by showing an arrow head at the tip of the ghost line. This option was added to aid SPC forecasters in determining the right side of a line when drawing outlooks. A new flag GHOST_ARROW_HD has been added into \$GEMTBL/config/prefs.tbl to specify whether the ghost arrow head is on or off.

F. TCV/TCA Modifications and Corrections (TPC)

The TCA program break point handling has been modified to account for the change in the Key West WFO ID and location scheduled for May 17th, 2006. A new parameter, TCV_KEYWEST has been added to the \$GEMTBL/config/prefs.tbl to specify the Key West WFO name. This parameter should be changed to "KEY" when the change goes into effect.

The following corrections have been made:

The issuance time in the header of the Tropical Cyclone VTEC (TCV) product has been changed to specify "1200 AM" and "1200 PM" instead of the respective strings "MIDNIGHT" and "NOON", when appropriate.

The "Cancel All" button in the TCA Attributes window was not changed to an "active"

state when the storm advisory number was incremented from 1 to 2 and when there were more than zero breakpoints set for the storm. This problem has been corrected.

The "Cancel All" button created an incorrect TCW message with the continuation (CON) VTEC code when a VG file for the cancel advisory was previously saved with the "Save TCA" button prior to "Cancel All". This change ensures that the "Cancel All" TCW contains the appropriate cancel (CAN) VTEC codes.

II. Product Generation Pre/Post Processing Improvements

A. WOUPDT Corrections (SPC)

The following corrections were made to the woupdt program.

The SPC reported that WOU-updates generated from the -e flag did not reflect extensions in time issued in WCNs for watches 58 and 70. This problem has been corrected.

B. Updated Wording for Satellite Precipitation Text Products (NESDIS)

At the request of NESDIS, the product template generated by the program spenes, has been modified as follows:

OLD:
SATELLITE ANALYSIS TRENDS...#####
...NESDIS_SAB IS A MEMBER OF 12 PLANET....

NEW:
SATELLITE ANALYSIS AND TRENDS...#####
...NESDIS IS A MEMBER OF 12 PLANET....

C. Updated VAA Product Formated (NESDIS)

The date/time format for lines starting with "ISSUED:" and "NEXT ADVISORY:" has been changed in VAA text products in the following manner:

Old Way: ISSUED: 2006MAR15/2222Z VAAC: WASHINGTON
New Way: ISSUED: 20060315/2222Z VAAC: WASHINGTON

Old Way: NEXT ADVISORY: WILL BE ISSUED BY 2006MAR16/0415Z
New Way: NEXT ADVISORY: WILL BE ISSUED BY 20060316/0415Z

D. Remove Forecaster Name from SEL Cancellation Product (SPC)

With Watch By County implemented, the WFOs control when a watch is canceled. Prior to this the SPC lead forecaster did. Since the WFOs control the watch cancellation, SPC forecasters requested the SPC forecaster name be removed from the SEL cancellation product.

This development was conducted by the SPC in collaboration with the N-AWIPS team.

E. Correct MND Header for Outlook Points Product (SPC)

The points product was not generating a 10-1701 compliant header. The program DAT2PTS that creates this product was corrected. The corrected header includes: `^NWS STORM PREDICTION CENTER NORMAN OK^`.

This development was conducted by the SPC in collaboration with the N-AWIPS team.

F. Update GPTCWW for Addition of Storm Identifier (TPC)

On May 15, 2006, the tropical storm identifier is being added to the end of the issuing center line in the header of the Tropical Cyclone Public Advisory (TCP). The program GPTCWW, which creates the Tropical Cyclone Watch/Warning graphic has been modified to recognize this upcoming change. The TCP product is read when GPTCWW is run to produce a graphic for an intermediate advisory.

III. NMAP2 Display Improvements

A. Adding Table Driven Time Matching Rules (AWC, ALL)

The capability to change the time matching rules for each dominant data source type has been added to NMAP2. A time matching field has been added as the tenth column in `$GEMTBL/config/datatype.tbl`. This column will take precedence over the `^TIME_MATCH^` tag in `$GEMTBL/config/prefs.tbl`. However, if the tenth column is missing or invalid, then the value in the `prefs.tbl` is used. The time matching rules are as follows:

- 1 exact only
- 2 closest before or equal
- 3 closest after or equal
- 4 closest before or after

The default values for the time matching field in `datatype.tbl` are 4, except for data types TAF and ACFT, both of which are 2.

Having the time matching field for TAF in the datatype.tbl set to 2 provides the AWC with the TAF forecast times matching the model forecast time steps as desired. Making TAF the dominant source, the time steps of the model data matching the TAF is the closest before or equal to the time steps of the TAF.

The hard-coding of the time matching value of 2 for displaying ACFT data has been removed from NMAP2. Instead, the time matching field for ACFT has been set to 2 in the datatype.tbl to provide the same functionality.

NOTE: If the datatype.tbl is not updated with the tenth column, NMAP2 will operate as in previous versions except when the dominant source is ACFT.

B. Display Flash Flood Watches in NMAP2 and GPMAP (HPC)

The Flash Flood and Areal Flood watches are now displayable using NMAP2 and GPMAP in the same manner as winter storm watches. The option is available to display the watch time, the watch county/zone name, the immediate cause of the flood, and whether to display the outline of the watch county/zone.

In NMAP2, the FFA data source is listed under MISC and its attributes are controlled by the miscset.tbl file. By default, only the watch time will be displayed for Flash Flood watches while Aerial Flood watches is not plotted. The ^aFFA Attributes^o GUI controls whether to plot the areal flood watches as well as the watch county/zone name, the immediate cause, and the county/zone outlines. The GUI also controls the watch color, symbol size and width, and line width.

A new FFA parameter line has been added to GPMAP to control the flash flood and flood display:

FFA = End time|flash flood color;aerial flood color|Time flag|label flag|Immediate Cause flag|Outline flag/flash flood line width; flood line width.

Each flag is either YES or NO to control whether to display the parameter or not.

This development was conducted by the HPC in collaboration with the N-AWIPS team.

C. Added Option to Allow Group Write Permissions for SPFs (HPC, ALL)

An option to allow a user to create Stored Procedure Files SPFs with group write permissions has been added. A new flag has been added to the prefs.tbl, GROUP_PERMS_SPF, to allow this capability. If GROUP_PERMS_SPF is set to TRUE, then SPF files will have group write permissions. Please note that this means

that anyone in your group can modify this file. The default value in the table for GROUP_PERMS_SPF is FALSE; meaning the permissions are the same as in previous releases.

D. Enhancement of Tropical Storm and Radial Wind Forecasts (TPC)

The display of tropical storm location and radial wind forecasts has been enhanced in NMAP2 and GPMAP for datatype MISC/HRCN. The storm forecasts can now be plotted every six hours from 00 to 96, and at 120 hours. The data plotted at 00, 12, 24, 36, 48, 72, 96, and 120 hours are decoded from the Tropical Cyclone Forecast Advisory. The storm locations at all other forecast hours are calculated using a linear interpolation from the previous and subsequent decoded forecast hour, and the wind radii ranges are assigned the values from the previous decoded forecast hour. In addition, the valid time is now plotted at every storm forecast displayed, when the ^aTime^o flag is set. The table \$GEMTBL/config/miscset.tbl has been updated accordingly to set attributes for the intermediate times.

IV. General Improvements

A. New Layer Diagnostics (AWC, ALL)

The AWC has developed two new layer diagnostics in collaboration with the N-AWIPS team.

The Layer Max/Min function computes the maximum or minimum of a scalar quantity over the specified levels. The function can also compute the value of an ^aoutput^o grid where the max or min of the ^ainput^o grid occurs. The syntax for the function is:

```
LYR_MXMN ( ARGIN & FLDOU [ & ARGOUT ] [ | LEVELS ] )
```

FLDOU controls what grid values are returned to the user. If FLDOU is MXVAL or MNVAL, then the values are the maximum or minimum values of grid specified by ARGIN. If FLDOU is MXOUT or MNOUT, then values are from the grid specified by ARGOUT at the same level as the maximum or minimum of ARGIN. LEVELS is a list of individual levels or a range. See the help for GFUNC for examples.


The Layer Value on an Isosurface function computes the value of a function on a specified isosurface of a second function. The function finds the isosurface by either searching the levels from the bottom or from the top. It will also return values associated with the Nth isosurface. The syntax for the function is:

```
LYR_FVONISFC ( FVALU & FISFC & VISFC & N & GRADFLAG [ |
```

LEVELS])

FVALU is the grid that is interpolated to the isosurface. FISFC is the grid that represents the isosurface. VISFC is the threshold applied to FISFC. This can be a grid or a constant value. N is the occurrence number of the isosurfaces. If N is positive, the search is conducted starting at the bottom. A negative N starts the search at the top level. GRADFLAG is a function to specify whether the data is increasing or decreasing across the threshold during the search. LEVELS is a list of individual levels or a range. See the help for GFUNC for examples.

A. Single Time Ensemble File Handling (HPC, ALL)

The ensemble functionality has been upgraded to handle the new GEFS ensemble, which has  embedded in its template entry in the data type table (datatype.tbl) and is in single-time files. This change also fixes a bug that caused members from cycles other than the first of lagged ensembles to be eliminated if the cycles all have the same template and number of members.

This development was done by the HPC in collaboration with the N_AWIPS team.

B. Graph-To-Grid Algorithm Enhanced to Handle Left of Line Cases (SPC)

The graph-to-grid algorithm has been enhanced to properly handle left-of-line scenarios. The algorithm should now properly handle outlooks that span over peninsulas. The DLINES parameter has been enhanced to allow for left-of-the-line processing in addition to right-of-the-line. See the DLINES help file for more information and proper usage.

V. Bug Corrections

A. Corrected Grid Packing Algorithm for Constant and/or Missing Values (ALL)

The DEC GEMPAK grid packing algorithm, which calculates the number of bits required to maintain a user specified precision for the grid data values has been corrected for two cases. The correction address the two cases in which the grid contains either a constant value plus some missing (-9999) data values, or all missing values. This packing option is used by program NAGRIB2 and can be requested using the GPACK parameter in the programs GDDIAG, GDEDIT, GDMOD, and GDOMEG.

B. Corrected NMAP2 Fatal Error for Invalid Group Type (SPC)

Invalid labels grouped with outlooks caused a fatal NMAP error. This problem has been corrected.

C. Corrected Fatal Error in Regional Digital Forecast (RDF) Decoder (Unidata)

A fatal error in the RDF decoder detected by Unidata has been corrected.

VI. Map and Table Updates

A. Key West Station Move (ALL)

On May 17, 2006, the communications header from WFO Key West is being changed from KEYW to KKEY. Many tables have been modified so that the Key West WFO is identified as KKEY. In addition, the new location of the WFO has been updated in the tables. Please see \$NAWIPS/versions/tables.log entry 12.24a for the complete list of tables that were modified.

B. Updated GRIB Table to Decode New Fields (EMC, ALL)

The table \$GEMTBL/grid/ncepgrib129.tbl has been updated to decode several additional fields for N-AWIPS access. The following fields have been added:

- 211 - Reflectivity
- 212 - Composite Reflectivity
- 165 - Derived radar reflectivity from rain
- 166 - Derived radar reflectivity from ice
- 167 - Derived radar reflectivity from convection

C. Add volcano products the necessary NWX tables (NCO, NESDIS)

Added volcanic ash warning products from the Aviation Weather Center (KNCI), the Honolulu WFO (PHFO) and the Alaska Aviation Weather Unit (PAWU) to the appropriate table for NWX.

D. Added AWIPS Redbook Products for Graphical Production (NCO)

Fifteen Redbook graphics products were added to the table \$GEMTBL/pgen/afdef.tbl to support the generation of these products on the CCS.

E. Added TIFF Products for Graphical Production (NCO)

The table \$GEMTBL/pgen/tiffprod.tbl was modified to support the production of the radar charts and additional WAFS products on the CCS.

F. Added Map and Bounds Files for Meteorological Watch Offices (NESDIS)

Added map and bounds files for Meteorological Watch Office areas at the request of NESDIS.

G. Fire Weather Zone Map and Bound Files Updates (SPC)

Updates were made to the fire weather map and bounds files to reflect changes that became valid on March 30th, 2006.

VII. Calling Sequence Changes

- A. \$GEMPAK/source/gemlib/ti/tielcl.f
- B. \$GEMPAK/source/cgemlib/clo/closnap.c
- C. \$GEMPAK/source/textlib/airmet/afcreate.c
- D. \$GEMPAK/source/nmaplib/pgen/nmap_pgvolw.c
- E. \$GEMPAK/source/nmaplib/pgen/nmap_pgsmear.c
- F. \$GEMPAK/source/programs/gd/gdfrzl/vg2frzl.c
- G. \$GEMPAK/source/cgemlib/ctb/ctbdtget.c

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

VIII. Configuration Management Changes

A. New Flags for 64 bit Platforms (ALL)

New compilation flags were added for 64 bit Linux systems to account for the need for six PR Fortran library functions to be declared as double on 64 bit platforms. The cshrc and profile source scripts were modified to add new compilation flag, -DG_64BIT, to the \$CFLAGS environment variable on 64 bit Linux systems. The cshrc and profile files are named .cshrc_v593 and .profile_v593, respectively.

IX. Compiling and Linking Instructions

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

```
release_build_5.9.3
```

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

```
cd $GEMPAK/build
```

```
release_build_5.9.3 >&! RELEASE_${NA}_OS & ; tail -f RELEASE_${NA}_OS
```

The output of the script will be written to RELEASE_\${NA}_OS.