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MANAGING APPLICATION PROGRAMS IN AN ERA OF CHANGE

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1. Introduction

A number of upper air sites have been relocated or renamed during the past two or three years, and many more such changes are anticipated over the next few years. For those charged with managing application programs and their associated files, each such change can be akin to opening a can of worms. In order for data from the new sites to be accessible to the various application programs that process upper air data, several associated support files must be revised. In a worst case situation, as many as ten different AFOS data files will have to be changed, not to mention PILEDITing the data base and revising macros and background schedule files. In the PC arena, files need to be adjusted for Mike Foster's UA/AUA programs, Jeff Last's PC-THETA-E, John Werth's ANALYZE, and John Hart's SHARP.

The toughest part of the task is usually just remembering all the files that have to be revised and what has to be done with each of them. The situation arises just often enough to be an operational problem, but not often enough to become second nature. This paper is meant to serve as a guide so changes to important application programs and files aren't overlooked.

2. **STDIR.MS**

This is AFOS' master station directory file and contains the index number, elevation, and location of every SAO, SSM, and upper air site in North America. An interactive utility program, **SEDIT**, is used to maintain it. First use **SEDIT** in the list mode to see if an entry for a new upper air site already exists and, if so, if the information is correct. If changes are necessary, the entire entry must be deleted and then added, since there is no direct edit capability ("E" in the program menu stands for "Exit"). When adding information, follow the format displayed at the Dasher. Only the last four characters of the index number are entered; elevation is entered in meters; and latitude and longitude are entered in degrees and hundredths. **SEDIT** works best if it resides in the same directory as the actual **STDIR.MS** file, and you direct to that directory before running the program.

3. **SGLFL**

This file contains the SGL product identifier (i.e., cccSGLxxx) of every known upper air site in North America, and is used to create the **TBBSTAS.DB**

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file used by TTBBDB and other programs. Sites are listed alphabetically by xxx. Since this file is too large to be edited using the E:F/ ADM command, an RDOS text editor can be used, or the file can be ported to the ABT for editing (see CRPN 57, RSTORE; and CRPN 58, DBRPP).

4. TTBBSTAS.DB

This file is a subset of the SGLFL file and lists only those SGL products stored in your data base. Once you've edited the SGLFL file (and PILEDITed your data base), you can create a new TTBBSTAS.DB file using the DBSGLS utility program (WRPN 60 or ERCPE 12), or you can simply edit your old TTBBSTAS.DB file. This file is usually small enough to edit using the E:F/ ADM command.

5. STNN2

STNN2 is used by CONVECTA/E (ERCP 37) to determine which upper air reports to process, what hodographs to produce, and what data to archive. Recreate this file by running the STNN utility program (since STNN references the TTBBSTAS.DB and STDIR.MS files, make sure they are up-to-date first). Once created, STNN2 must still be manually edited (E:F/) if you wish to "turn off" the processing for individual sites, specify production of hodographs, or specify data to archive. Refer to ERCP 37 for details.

6. cccMCPNST

This is the setup preformat for Phil Bothwell's ADAP package (NOAA Technical Memorandum NWS SR-122) and is used to create the NSTATIONS file from which the WXDATA1.DT file is generated. The list of RAOB sites at the end of the preformat must be kept current if new sites are to be accessible to the program. Edit the preformat using the standard E:MCPNST AFOS command. Make sure the existing format is maintained (i.e., 19 upper air sites per line of data, listed alphabetically) and that the number denoting how many upper air stations are listed is also kept current.

7. NSTATIONS

This is the setup file for ADAP and is originally created from the cccMCPNST preformat (above). It can be regenerated either by using the MCPNST preformat or by directly editing an existing file using the E:F/ command. RAOB sites listed at the end must include new sites if they are to be processed by ADAP. Refer to NWS Technical Memorandum SR-122, specifically the BLDWXD program documentation, for details.

8. WXDATA1.DT

This is the data file for ADAP. It can only be regenerated by running the BLDWXD utility program (since BLDWXD references the NSTATIONS and STDIR.MS

files, make sure they are up-to-date first). Refer to NWS Technical Memorandum SR-122, specifically the **BLDWD** program documentation, for details.

9. CCCLIST.US

This file, used by the **MANDEC** program (CRPN 2), will need updating only in the rare event that a **RAOB** site is added to a state not included in this **CCCLIST**. This did occur when the Paducah site was added in late 1988, since Kentucky was not in the original **CCCLIST.US**. **CCCLISTs** are created using the **cccMCPSDC** preformat (refer to the **SAO** decoder documentation, TDL CP 84-2, for a discussion on the creation of **CCCLIST** files).

10. USMAN

This file, used by the **STAB** program (ERCP 11), will require updating only if one of the five sites listed in the file is involved in a relocation. Edit using the **E:F/** command.

11. UPRDIR.MS

UPRDIR.MS, used only by the Cross-Section Analysis/Richardson Number programs called **CRS**, **WSANAL**, and **RICHNO**, can only be updated using the **OEDIT** octal edit program. It contains data for all North American upper air sites, listed in order of increasing index number. Examine using the **FPRINT/Z/L/D** Dasher command. Data for each station appears in a seven word format:

| Word # | Data |
|--------|---|
| 1 | Station index number, last four digits, in decimal format. |
| 2 | First two characters of station ID, in ASCII format. |
| 3 | Next two characters of station ID, in ASCII format (or one character and a space if only three characters). |
| 4 | Next two characters of station ID, in ASCII format (or two spaces if there are four or less characters). |
| 5 | US I-coordinate times 2, in decimal format.* |
| 6 | US J-coordinate times 2, in decimal format.* |
| 7 | Station elevation in whole meters, in decimal format. |

- * I- and J-coordinates for the US background (B03) are obtained from the **STDIR.MS** file, using the **SDEDIT** program to list the station(s) in question. Data appears in the following order: Station ID, station index number, elevation, latitude, longitude, NA I-coordinate, NA J-coordinate, US I-coordinate, US J-coordinate, NA I-coordinate (rotated), NA J-coordinate (rotated), and zoom threshold. Multiply the US I- and J-coordinates by two for inclusion in the **UPRDIR.MS** file.

12. RSTASNUM.DAT

This is a PC file and is the master station directory for Mike Foster's Upper-air Analyses and Quasi-geostrophic Diagnostics programs for PCs, otherwise known as UA or AUA. It lists, for each North American upper air station, the station index number, three-letter ID, name, latitude (degrees and hundredths), longitude (ditto), and elevation (meters). Stations are listed in order of increasing index number. Editing is easily accomplished using the included ASCII text editor called ED.EXE (see Appendix D, "Upper-air Analyses and Quasi-geostrophic Diagnostics for Personal Computers"). Any plain vanilla ASCII text editor, such as EDLIN, can also be used.

13. RAOBMAP.DAT

This is another support file for Mike Foster's UA (AUA) program and contains a directory of stations on the current grid. Once RSTASNUM.DAT has been updated, this file can be brought up-to-date by running the UA (AUA) program and selecting option three (View grid / Set up map background) from the main menu. First note the current grid values for X and Y (displayed at lower left) and then, when asked if you want to "Change? (Y/N)", respond "Y". Enter the original values for X and Y to regenerate the RAOBMAP.DAT file without changing the location of the grid.

14. UASTN.DAT

This is a PC file that contains the upper air station directory information for Jeff Last's PC-THETA program. Stations are listed in order by station index number, and for each station the list contains the station index number (in quotes), the latitude (degrees and hundredths), longitude (ditto), and elevation (meters). The file ends with a line containing all 9s (e.g., "99999",-99.-99,-99). Editable using any ASCII text editor.

15. UALIST.DAT

This PC file contains the upper air station directory information for John Werth's ANALYZE program. Stations are listed in order by station name, and for each station the file contains the station name, three-letter station ID, three-letter parent node ID, elevation (in meters), and affiliation (NWS, MIL, MEX, etc.). Editable using any ASCII text editor.

16. LOCATION.DAT

This PC file contains the upper air station directory information for John Hart's SHARP program. Stations are listed in order by three-letter station ID, and for each station the file contains the station index number, three-letter station ID, station name, elevation (in meters), AFOS product ID for the SGL product, and AFOS product ID for the MAN product. Spacing is

important in this file, so follow the existing format. An example, using Corpus Christi, follows:

72251,CRP, CORPUS CHRISTI TX, 13,SATMANCRP,SATSGLCRP

17. PILEDIT

Make sure new MAN, SGL, and ABV (if needed) product identifiers are added to your data base by your ASM/APL. In the case of a site change, DO NOT delete any old product identifiers until data actually begins to appear under the new headers.

18. Macros

Check any RAOB analysis/plotting macros you may have to see if updating is necessary.

19. Background Schedulers

If you're using a background scheduler such as WATCHDOG or AEX, check the schedule file(s) to see if any revision is necessary.