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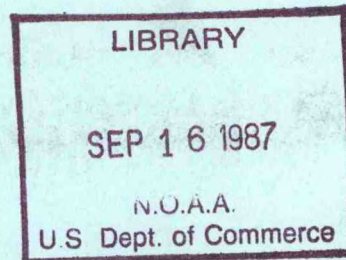
NOAA Eastern Region Computer Programs
and Problems NWS ERCP - No. 38



DWXR - SHEF Product Compression Program

Harold H. Opitz
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Scientific Services Division
Eastern Region Headquarters
September 1986



**U.S. DEPARTMENT OF
COMMERCE**

National Oceanic and
Atmospheric Administration

National Weather
Service

NOAA TECHNICAL MEMORANDUM

National Weather Service, Eastern Region Computer Programs and Problems

The Eastern Region Computer Programs and Problems (ERCP) series is a subset of the Eastern Region Technical Memorandum series. It will serve as the vehicle for the transfer of information about fully documented AFOS application programs. The format ERCP - No. 1 will serve as the model for future issuances in this series.

- 1 An AFOS version of the Flash Flood Checklist. Cynthia M. Scott, March 1981. (PB81 211252).
- 2 An AFOS Applications Program to Compute Three-Hourly Stream Stages. Alan P. Blackburn, September 1981. (PB82 156886).
- 3 PUPPY (AFOS Hydrologic Data Reporting Program). Daniel P. Provost, December 1981. (PB82 199720).
- 4 Special Search Computer Program. Alan P. Blackburn, April 1982. (PB83 175455).
- 5 Conversion of ALEMBIC\$ Workbins. Alan P. Blackburn, October 1982. (PB83 138313).
- 6 Real-Time Quality Control of SAOs. John A. Billet, January 1983. (PB83 166082).
- 7 Automated Hourly Weather Collective from HRR Data Input. Lawrence Cedrone, January 1983 (PB83 167122).
- 8 Decoders for FRH, FTJ and FD Products. Cynthia M. Scott, February 1983. (PB83 176057).
- 9 Stability Analysis Program. Hugh M. Stone, March 1983. (PB83 197947).
- 10 Help for AFOS Message Comp. Alan P. Blackburn, May 1983. (PB83 213561).
- 11 Stability and Other Parameters from the First Transmission RAOB Data. Charles D. Little, May 1983. (PB83 220475).
- 12 TERR, PERR, and BIGC: Three Programs to Compute Verification Statistics. Matthew R. Peroutka, August 1983. (PB84 127521).
- 13 Decoder for Manually Digitized Radar Observations. Matthew R. Peroutka, June 1983. (PB84 127539).
- 14 Slick and Quick Data Entry for AFOS Era Verification (AEV) Program. Alan P. Blackburn, December 1983. (PB84 138726).
- 15 MDR--Processing Manually Digitized Radar Observations. Matthew R. Peroutka, November 1983. (PB84 161462) (Revised June 1985, PB85-220580/AS)
- 16 RAMP: Stability Analysis Program. Hugh M. Stone, February 1984.(PB84 161447)
- 17 ZONES. Gerald G. Rigdon, March 1984. (PB84 174325)
- 18 Automated Analysis of Upper Air Soundings to Specify Precipitation Type. Joseph R. Bocchieri and Gerald G. Rigdon, March 1984. (PB84 174333)

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DWXR - SHEF Product Compression Program

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I. Introduction

A. Purpose of the Program

DWXR strips preformat-generated SHEF encoded products of unnecessary and/or unwanted characters and transmits them. As an option, it will also reorder the data in the output product.

B. Motivation for Development

SHEF code is used for a multitude of meteorological and hydrological data that is primarily transmitted via the National Weather Service AFOS communications system. AFOS message composition preformats are commonly used to enter this data. Preformats assist the operator by allowing both free-formatted and pre-positioned data entry, and often comments and instructions are included in the preformats to help the operator. However, such preformat comments, instructions and intra-line data spacings generally need not be transmitted with the product over the AFOS communications lines and there is no feasible way to rid the product of the unnecessary characters without re-editing the product. Therefore, these products are unnecessarily long.

C. Benefits to the User

The new product will be smaller since DWXR will post only the characters necessary. This results in more efficient AFOS communications, both synchronous and asynchronous.

A major benefit will be to allow an AFOS operator to repeatedly use a single message composition preformat for transmitting multiple products. DWXR strips any station entries (or entire .B bodies as the case may be) without at least one piece of data. DWXR will also provide minor quality control of SHEF data because the software requires the data to be positionally correct.

II. Methodology and Software Structure

A. Program Flow and Description

Program input may be either preassembled RDOS disk file(s) or (multiple) AFOS product(s). Program output may be directed to an RDOS file, an output device, or queued for AFOS database storage and/or transmission.

DWXR will operate on all 3 SHEF encoding schemes, .B, .E, and .A, which may be mixed in the input. The actual input content and structure is not important since the software will search sequentially for all SHEF encoding schemes and process them accordingly. A data line will be reassembled and posted to the output only if it contains at least one data value (or character) for any encoding scheme. Any comments (including those embedded in the data lines) are eliminated. An option exists to leave any comments intact.

SHEF .B code, with the data body in single line or packed form, receives full file compression unless otherwise specified. This includes searching the line for at least one piece of data, compressing and eliminating intra-line spaces and comments where applicable, and deleting unnecessary end-of-line slashes (Figure 1). (The deletion of end-of-line slashes is only valid for .B SHEF encoded products utilizing the version 1.1 SHEF decoder.) The SHEF .E and .A process is the same as SHEF .B except there is no elimination of intra-line spaces.

The output will have the data in the same order as the input unless the option to re-order is used. An external format parameter file determines the new order (Figure 5).

C. Relationship Among Disk Files

The required input is one or more AFOS product(s) or a single RDOS disk file. The data is temporarily posted to a scratch disk file, WXR.IN, if AFOS product(s) are used. A scratch file is not utilized if an RDOS disk file is input.

If the re-ordering option will be used, a format parameter file will be needed. This file contains the output call letter sequence and optional output labels. It must have the name of WXR.*, where * is a template specifying any single ASCII character (Figure 5). The parameter file must begin with .STATION and terminate with .END. A comment label of up to 20 characters may be added to any .STATION line. This will associate the comment label with the subsequent group of call letters. The number of .STATION commands is unlimited. DWXR will begin searching for call letters following the first recognized .STATION entry. Call letters are entered sequentially left to right, then top to bottom. Total call letter entry is limited to the first 500 sets of contiguous characters under all .STATION

commands. Duplicate call letters are not permitted and will be flagged as an error to the output console. Each set of call letters must be separated by at least one space with a maximum 72 characters per data line. Blank lines are permitted. The file must terminate with an .END command.

Output will be sequentially posted to any file, device, or output scratch file (and optionally queued for AFOS database storage) according to the command line. DWXR will check the system status of a requested output file if the output is to be posted to an RDOS file (filename/O). The RDOS file will be first deleted and subsequently re-created if it already exists. Device outputs (ie., \$LPT, \$TTO, \$PPM, etc.) are treated the same way since they appear as files to the RDOS operating system. Data is posted to an RDOS scratch file, DPO:WXR.99, if AFOS database storage is requested (product/O/S). The scratch file is created in the same manner previously described.

D. Program Flow Logic and Subroutine Functional Description

```
.MAIN
:
:...RCMD
:
:
:
:
:
:
:...SHTY
:
:
:
:
:
:
:...DAFO!
```

MAIN

This module directs control to the three sub-main modules controlling program execution. The program logic is divided into four phases; command line interpretation, AFOS product extraction/RDOS file assemblage, SHEF scheme processor, and AFOS product storage and transmission.

RCMDL

Reads and interprets the command line options and entries.

FICHK

This module checks for input data. Specifically, if the command line indicates that an RDOS file is to be used, FICHK checks the status of that file. If instead the input is one or more AFOS products, it initializes a dummy disk file and posts the product(s) there for later processing. When appending multiple products into one RDOS disk file, the program will also determine the appropriate pointers for properly appending AFOS products together. This program pointer table is more efficient than allocating multiple channel I/O and utilizing system APPEND calls.

DPULL

This module performs the actual AFOS database product extraction. (A subprogram to the FICHK module.)

LDBS

If the re-ordering option is used, LDBS reads and stacks call letters and basin names from an external format parameter file and subsequently alphabetizes the stack list for binary search purposes.

SHTYP

This module establishes the temporary disk file, WXR.SC. It also performs disk I/O and determines the appropriate module to call for the different SHEF encoding schemes.

DOTB

This self-supporting module will process single and packed .B SHEF code and is invoked via module SHTYP.

DOTAE

This self-supporting module will process all .E and .A SHEF code and is invoked via module SHTYP.

DTOUT

This module will re-file temporarily stored data that was originally posted from the DOTB or DOTAE modules to the appropriate output file or device. Input to this file is thru block I/O while output is transmitted by sequential writes. It also keeps track of the appropriate data pointers for posting data. Basin names and "extra" labeling to the output file are handled by this module.

DAFOS

Initiates AFOS database storage.

INTHVG

Interval halving routine.

ALBT

Alphabetizing routine by pointer, not character.

III. Cautions and Restrictions

DWXR is coded in Data General FORTRAN IV and is designed to run under RDOS on either an S/230 or S/140 computer system. The AFOS system software is not mandatory for this program.

DWXR requires approximately 25K to execute and will operate in either the foreground or background partition. Disk file usage is dependent on input and output requirements with nominal temporary file storage of about 1-15 blocks. The temporary scratch file is deleted prior to termination.

The SHEF .B body must contain at least one station with at least one data value in order for the SHEF .B message to be posted to the output file. Nothing will be posted to the output file for a particular scheme if this requirement is not fulfilled. Each .B encoding scheme is separately considered in a product containing multiple .B schemes.

Format parameter files being used with WXR software may also be used with DWXR software. No changes to the format parameter file will be necessary. DWXR will only search for ".STATION" and ".END" commands. All other WXR format parameter file commands will be ignored.

IV. References

Bonnin, G.M. and Cox Jr., R.S., 1983: An Explanation of the Standard Hydrologic Exchange Format (SHEF) and Its Implementation in the Central Region. NOAA Technical Memorandum NWS CR-67, NOAA, U.S. Department of Commerce.

Bonnin, G.M., 1984: The Standard SHEF Decoder 1.1. NOAA Technical Memorandum NWS CR-72, NOAA, U.S. Department of Commerce.

DATA COL Rev 7.20; David C. Leader, January 1983

National Weather Service, 1982: Standard Hydrologic Exchange Format (SHEF) Version 1 (Working Draft). Unpublished manuscript, Northwest River Forecast Center, National Weather Service, NOAA, U.S. Department of Commerce.

Opitz, Harold H., 1984: WXR. NWS Eastern Region Scientific Services Division, NWS Eastern Region Computer Programs and Problems NWS ERCP No. 24, NOAA, Department of Commerce.

Opitz, Harold H., 1984: DWXR, Version 2.0 (unpublished)

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ERCPC #38
September 1986

DWXR - SHEF Product Compression Program

PART A: INFORMATION AND INSTALLATION

PROGRAM NAME: DWXR

AAL ID: XXXXXX
REVISION NO.: 3.30

PURPOSE: DWXR will compress and transmit SHEF products composed from AFOS preformats. Its main function is to strip unnecessary and/or unwanted characters inherently found in products created this way. Optionally, it will also reorder the data entries in the output.

PROGRAM INFORMATION:

Development Programmer:

Harold H. Opitz

Location: RFC CIN

Phone: (FTS) 684-2371

Language: DG FORTRAN IV/5.20

Date: 8/21/86

Running Time: Varies with input product/file size

Disk Space:

Program 52 RDOS blocks

Data variable

Maintenance Programmer:

Harold H. Opitz

Location: RFC CIN

Phone: (FTS) 684-2371

Type: Standard

Revision Date: NA

PROGRAM REQUIREMENTS

Program Files:

<u>Name</u>	<u>DP Location</u>	<u>Comments</u>
DWXR.SV	APPL1	No overlays

Data Files:

<u>Name</u>	<u>DP Location</u>	<u>R/W</u>	<u>Comments</u>
WXR.99	DPO	WRITE	Temporary output scratch file for AFOS product storage
WXR.IN	DPO	READ	Temporary input scratch file
WXR.SC	DPO	READ/WRITE	Temporary buffer/scratch file
WXR.#	DPO/APPL1	READ ONLY	Format parameter file, where # is any single character (may be one used by WXR)

AFOS Products:

<u>ID</u>	<u>Action</u>	<u>Comments</u>
various	READ/STORE	input: any SHEF product

LOAD LINE

RLDR/P/N DWXR.SV/S DWXRMAIN DBLOK DREV RCMDL FICLK DPULL LDBS SHTYP DOTB
DOTAE DTOUT DAFOS DWNH DWNAL <UTIL BG FORT230 AFOSE SYS230>.LB 30/C

PROGRAM INSTALLATION

1. Move DWXR.SV to APPL1 and link from DP0.
2. Create new format parameter files, if desired. Files should begin with .STATION and end with .END. Up to 20 characters can be appended to the .STATION command as a title (basin name, for instance) and included in the output if global /B is used. Station id's will be read from left to right, top to bottom. Lines should not exceed 72 characters. (You can also use format parameter files from WXR without alteration.)

Format parameter files should be on DP0 or linked to it.

DWXR - SHEF Product Compression Program

PART B: EXECUTION AND ERROR CONDITIONS

PROGRAM NAME: DWXR

AAL ID:

REVISION NO.: 3.30

PROGRAM EXECUTION:

Either at the Dasher or ADM (RUN:), enter the following command line (macros are highly recommended):

DWXR/A/C[R/B/E] INPUT[/R,/A,/A/M] N[/V,/V/T] OUTPUT[/O,/O/S] AAA/X #/F

Global switches:

- /A Append an input product (ccnnnxxx) to input process file only
- /C Post all comments and spaces to output (deleted by default)
- /R Re-order the output in accordance with a format parameter file (local #/F must be used to specify which file)

Last two global switches can be used only with /R:

- /B Post basin names from format parameter file to output, if available
- /E Remove "extra" stations from output (those not listed in format parameter file)

Local entries and switches:

INPUT/R INPUT is an RDOS filename
INPUT/A INPUT is an AFOS product key cccnnnxxx
INPUT/A/M INPUT is an AFOS product key and there are multiple products in the command line (DWXR appends them all into a scratch file)

N/V N is a number 1-9 specifying a previous version of the AFOS product in INPUT. 1 indicates first previous version, etc.
N/V/T N is a number 2-9 specifying a total number of versions of the product in INPUT. For example, 2/V/T would collect the current and first previous version of INPUT, for a total of two versions.

OUTPUT/O OUTPUT is an RDOS filename (unprotected) or device (e. g., \$LPT)
OUTPUT/O/S OUTPUT is an AFOS key cccnnnxxx

AAA/X AAA = Addressee of OUTPUT (if AFOS product) Default is 000

#/F Extension of format parameter file name WXR.#. # is any ASCII character. Used only with global /R.

ERROR CONDITIONS

Messages from ADM

Meaning

None

Dasher Messages

Meaning

Command line errors:

/F illegal or incorrect format parameter file entry
/A/R illegal or incorrect input entry (filename or cccnnnxxx)
/O illegal or incorrect output entry (filename or cccnnnxxx)
/V illegal or incorrect version AFOS key version specifier
COM unknown local switch or command

AFOS retrieval errors:

KEY AFOS key cccnnnxxx not in database (DATAKEY0)
VER unavailable product version
PBLK primary AFOS product block unavailable (AFOS problem)
NBLK subsequent AFOS product block(s) unavailable (AFOS problem)
EOF AFOS product ETX unlocatable (specifies valid end of file)
ABEOF abnormal program termination due to end of file

SHEF product error:

ABEND program termination due to missing .END in .B body code

Format parameter file errors:

FPFIL unlocatable format parameter (* /F)
FPEOF abnormal file termination (missing .END ?)
DUP duplicate call letters in format parameter file (The duplicate call letters are sent to the output console for operator information. See common system errors below.)

AFOS database storage:

AFOS unsuccessful AFOS database storage

Common system errors:

Errors 00004, 00014, 00017 will indicate that file creation was not successful, possibly because of protected files. Check files DPO:WXR.99, WXR.SC and any specified output filenames (OUTPUT/O) to be sure they are not protected. Other errors will point to system inconsistencies such as channel

allocation errors, i/o function errors, or illegal device codes and are flagged by the same five (5) numeric character notation.

A note about the DUP error. This error will flag only the first occurrence of duplicate call letters in a format parameter file (used in re-ordering data output). It has the true form of:

S1S1S1S1 S2S2S2S2 DUP

where "S1S1S1S1" is the first and "S2S2S2S2" is the second occurrence of matching call letters, and "DUP" is the error flag. If this duplication is corrected, subsequent DUP errors (if any) will be flagged on additional program runs. DWXR will not process any data until all duplications are eliminated.

HYDROLOGIC OBSERVATIONS LOUISVILLE PART 3
 .B SDF 0613 E DH07/PPP/HG/HP/HT/NG/NG/QR/TX/TN/TA/TW

VI. Figures

```

:
PITP1 / 16.4 //: PITTSBURG PA
PARW2 / 21.46 //: PARKERSBURG WV
GALW2 0.00 // 12.3 / 17.2 / 18 //: GALLIPOLIS LOCK
ASHK2 / 34.8 //: ASHLAND
GNUM2 0.10 // 12.3 / 19.2 / 14 // 35.134 //: GREENUP LOCK
PORO1 0.14 / 17.2 //: PORTSMOUTH
MYSK2 0.10 / 33.8 // 59 / 44 / 44 /: MAYSVILLE
MELO1 0.32 // 12.0 / 17.1 / 26 //: MELDAHL LOCK
CCNO1 0.21 / 27.3 //: CINCINNATI
ADTO1 0.31 / 30.7 //: ADDYSTON OHIO
MKLK2 0.04 // 12.1 / 18.1 / 17 / 3 //: MARKLAND LOCK
MKLK2 // 28.7 // 46 / 72 : MARKLAND LINE2
MLPK2 0.01 // 12.1 / 18.7 / 30 / 8 // 49 /: MCALPINE LOCK
CNNI3 0.00 // 9.5 / 16.5 / 46 // 50 / 70 : CANNELTON LOCK
CRD12 / 28.8 //: CAIRO
.END

```

GREEN RIVER BASIN

```

:
:
:
:
.B SDF 0613 E DH07/PPP/HG/HP/HT/QR/TX/TN/TA/EP
:
GRLK2 0.00 // 677.35 / 598.64 / 2.315 //: GREEN RIVER LAKE
GRLK2 // 68 / 42 / 44 /: GREEN RIVER LAKE LINE 2
NOLK2 0.04 // 510.72 / 423.76 / 0.05 //: NOLIN LAKE
NOLK2 // 68 / 41 / 42 /: NOLIN LINE 2
NOLK2 // 0.19 : NOLIN EVAPORATION
BRRK2 0.23 // 542.92 / - / 0.045 //: BARREN RIVER LAKE
BRRK2 // 72 / 44 / 47 /: BARREN LINE 2
RRLK2 0.00 // 594.95 / 434.5 / 0.05 //: ROUGH RIVER LAKE
RRLK2 // 66 / 42 / 43 /: ROUGH LINE 2
GNSK2 0.00 / 6.08 //: GREENSBURG
CLBKY / 4.0 //: COLUMBIA
MFVK2 / 7.52 //: MUMFORDVILLE
BROWK2 / 10.58 //: BROWNSVILLE
BWGK2 0.12 / M // 47 //: BOWLING GREEN
WDBK2 0.07 // 97.59 / 12.4 //: WOODBURY LOCK 4
FRHK2 / 3.57 //: FALLS OF ROUGH
HBRK2 / 2.28 //: HORSE BRANCH
RCHK2 T / 10.6 // 72 / 46 / 46 /: ROCHESTER FERRY
GRPK2 0.00 / 367.9 //: GREEN RVR PWR PLANT
LVRK2 / 7.41 //: LIVERMORE AHOST
CALK2 0.00 // 13.1 / 19.0 //: CALHOUN LOCK 2
SPTK2 0.00 // 14.3 / 21.9 //: SPOTTSVILLE LOCK 1
.END

```

KENTUCKY STATE POLICE

```

:
:
:
:
RHMK2 0.02 : RICHMOND POST 7
.END

```

FIGURE 1.

RAW INPUT TO DWXR.SV

```

.B SDF 0613 E DH07/PPP/HG/HP/HT/NG/NG/QR/TX/TN/TA/TW
PITP1 /16.4
PARW2 /21.46
GALW2 0.00//12.3/17.2/18
ASHK2 /34.8
GMLK2 0.10//12.3/19.2/14//35.134
PORO1 0.14/17.2
MYSK2 0.10/33.8/////59/44/44
MEL01 0.32//12.0/17.1/26
CCNO1 0.21/27.3
ADT01 0.31/30.7
MKLK2 0.04//12.1/18.1/17/3
MKLK2 /////28.7///46/72
MLPK2 0.01//12.1/18.7/30/8/////49
CNNI3 0.00//9.5/16.5/46/////50/70
CRO12 /28.8
.END
.B SDF 0613 E DH07/PPP/HG/HP/HT/QR/TX/TN/TA/EP
GRLK2 0.00//677.35/598.64/2.315
GRLK2 /////68/42/44
NOLK2 0.04//510.72/423.76/0.05
NOLK2 /////68/41/42
NOLK2 //////////0.19
BRRK2 0.23//542.92//0.045
BRRK2 /////72/44/47
RRLK2 0.00//594.95/434.5/0.05
RRLK2 /////66/42/43
GNSK2 0.00/6.08
CLBKY /4.0
MFVK2 /7.52
BROK2 /10.58
EWGK2 0.12/M/////47
WDBK2 0.07//97.59/12.4
FRHK2 /3.57
HBRK2 /2.28
RCHK2 T/10.6///72/46/46
GRPK2 0.00/367.9
LVRK2 /7.41
CALK2 0.00//13.1/19.0
SPTK2 0.00//14.3/21.9
.END
.B SDF 0613 E DH07/PPP
RHMK2 0.02
.END

```

FIGURE 2.

OUTPUT FROM DWXR.SU OF FIGURE 1.

.B EVU 0613 Z DH12/PPP/HG/HP/HT/SD/SW :THIRD DATA ROUNDUP EVANSVILLE

```

:
:SID 24 HR 7 AM LOCKS SNOW WATER STATION
: PCPN RVR STG UPPER LOWER DEPTH EQUIV NAME
:
TEL13 / / / / / :TELL CITY IN
NBG13 / / 10.1 / 21.2 / / :NEWBURGH IN
EVV13 0.00 / 19.5 / / / / :EVANSVILLE IN
: :
: 6PM 19.8
EPC13 / / / / / :PIGEON CREEK
MTV13 T / 25.2 / / / / :MT VERNON IN
UNWK2 / / 12.2 / 20.4 / / :UNIONTOWN KY
SHN12 / 21.1 / / / / :SHAWNEETOWN IL
SML12 / / 12.3 / 18.6 / / :SMITHLAND KY
BRK12 / / / 19.9 / / :BROOKPORT IL
GCT12 / / / 27.9 / / :GRAND CHAIN IL
PAHK2 0.02 / 17.8 / / / / :PADUCAK KY
MCR12 / 6.6 / / / / :MT CARMEL IL
: :
: 6PM 6.2
NHR13 / 3.9 / / / / :NEW HARMONY IN

LWV12 / / / / / :LAWRENCEVILLE IL
STM12 0.02 / 11.0 / / / / :STE MARIE IL
CAR12 / / / / / :CARM1 IL 6NW
WYN12 / / / / / :WAYNE CITY IL
CLA12 / / / / / :CLAY CITY IL
GLT12 / / / / / :GALATIA IL
HSB12 / / / / / :HARRISBURG IL
MCL12 / / / / / :MCLEANSBORD IL
EFF12 / / 9.3/ 304.2 / / :KENTUCKY LAKE
: :
: WTR TEMP 74
.END

```

FIGURE 3.

RAW INPUT TO DWXR.SV


```
.B EVV 0613 Z DH12/PPP/HG/HP/HT/SD/SW :THIRD DATA ROUNDUP EVANSVILLE  
NBGI3 //10.1/21.2  
EVVI3 0.00/19.5  
MTVI3 T/25.2  
UNWK2 //12.2/20.4  
SHNI2 /21.1  
SML12 //12.3/18.6  
BRKI2 ///19.9  
GCTI2 ///27.9  
PAHK2 0.02/17.8  
MCR12 /6.6  
NHR13 /3.9  
STM12 0.02/11.0  
EFF12 //9.3/304.2  
.END
```

FIGURE 4.

OUTPUT FROM DWXR.SV OF FIGURE 3.

```

.PILL
CRWRKIND CIN WOUSOO KCIN
.FORMAT
PPP 4 SD/T 5 SW 5 YY 1 NM 14 HG 7 HP 8 HP/C 7 HT 8 HT/C 7 QT 6
.STATION UPPER WABASH RIVER
LYN13 BLF13 MKL13 HUN13 HNT13 PLD13 WRN13 SLA13 WAB13
FRM13 HAR13 MZZ13 MSS13 PER13 GUS COL13 NOM13 LGN13
SHARP PHLOX OKK13 BULIN FRK13 LYTI3 ASW13 TIPPY TALMA RCR13
WAGON MOTRY ORA13 KEW13 WIN13 MCX13 LAF13 LAF LDN13
LFY13 ATTIC FWLER
.STATION LOWER WABASH RIVER
CVG13 HOP12 URB12 DMV12 PYV13 COAL SID12 CRW13 SHADE
MTZ13 FIN13 CHL13 FRN13 CATIN COXIN CLN13 HUF13 THT13 HUT12
RVT13 VCS13 VIN13 VCN13 TSC12 NEW12 CRS12 TDO12 GRU12 STM12 MTV12
LWV12 MCR12 ECK13 DUB13 PRL13 HBTIN JAS13
PDCLN SPG13 PRC13 MHR13
.STATION LITTLE WABASH RIVER
WSI12 CSM12 WYN12 CAR12 EFF12 CLA12 FLR12
.STATION UPPER WHITE RIVER
I22 MIE13 AND13 ELW13 NBL13 TPT13 SHRDN MRS13 LFM13
NOR13 ONL13 RVN13 IRS13 IND13 ISE13 WHT13 ZON13 INS13
IND BRB13 DAN13 MOORE
CNT13 CEN13 MAR13 ICR13 BMG13 SPN13 JAM13 GRC13 RLV13 EMN13
CAG13 BWL13 BZL13 ELL13 NWB13 LIN13 SND13 EDW13 WAS13
PTR13 HAZ13
.STATION UPR EAST FORK WHITE RIVER
NCW13 KNT13 CARTH CLV13 SHB13 SBV13 GRF13 WML13 EDN13 RSH13 GSB13
SPL13 CWW13 BAK13 GRB13 SER13
MED13 VRN13 BUT13 CRH13 SMAN VRS13 DEP13 SCT13 BED13
MTL13 BFR13 NSH13 KUR13 MON13 OTC13 WLL13 SHL13 WNDM
GREEN PORVL
.STATION WHITEWATER RIVER
CAM13 ALP13 RWW13 ABT13 SPV13 LIB13 BKV13 BRK13
.STATION MAUMEE RIVER
FTL01 STM01 CEL01 RFD01 BER13 DCR13 ANG13 NVL13 WLO13
FWA FWY13 FWN13 FTW13 HICO1 MNV13 VNWO1
MOTM4 TSFWA ANQ13 BPH13 PIGRV LGG13 KDV13 LIG13 WMLIN WML13
GSN13 GSH13 EKN13 SBN
VAL13 MSN13 RZL13 KLD13 NORIN LAP13 KAKIN DAV13 SJC13
PHY13 KNX13 LOMAX DBR13 KTS13 WAN13 WFD13 HEBRO SLB13
WILLO
.STATION OHIO/MINOR TRIBS
DAY CVG FRR13 CLF13 MAD13 SDF COY13 PLY13 SLM13 ENG13 EPC13
NBG13 TEL13 EVV STMNR EVV13 MTV13 UNWK2 SHN12 MCL12 MDC12
GLT12 HSB12 BRK12 SMLK2
.END

```

FIGURE 5.

EXAMPLE OF A FORMAT PARAMETER FILE.

:SID/PCPN/STAGE/POOL/TAIWTR/DISCH-KCFS/STATION NAME

PYM13 0.02 4.53/// :PLYMOUTH
RSH13 0.14 ///: RUSHVILLE
SMD13 0.02 ///:ST. MEINRAD
SER13 0.08 / 6.54 ///:SEYMOUR
SMAN 0.20 ///: SUNMAN
ALP13 0.28 / 61.8 ///:ALPINE
LDN13 0.03 /// :LINDEN
THT13 0.08 /// :TERRE HAUTE AG
MOTM4 / 2.90 ///: MOTTVILLE MICHIGAN
NVL13 / 3.28 ///: NEWVILLE
MIE13 / 4.86 ///: MUNCIE
NBL13 / 6.72 ///: NOBLESVILLE
NOR13 / M ///: NORA
IND13 / 4.79 ///: MORRIS STREET BRIDGE
INS13 // 790.40 / 1.16 /:EAGLE CRK RSVR/LYNNHURST DR
DKK13 / 3.09 ///: KOKOMO
CARTH / 2.68 ///: CARTHAGE
RVT13 / 4.78 ///: RIVERTON
KNX13 / 5.37 ///: KNOX
DBR13 / 3.88 ///: DUNNS BRIDGE
KTS13 / M ///: KOUTS
SLB13 / 4.51 ///: SHELBY
HUN13 0.05 // 750.09 / M / .260 :HUNTINGTON RSVR
SLA13 T // 754.20 / 2.22 / .025 :SALAMONIE RSVR
MSS13 0.00 // 737.28 / 2.37 / .565 :MISSISSINAWA RSVR
BKV13 0.11 // 748.72 / 3.60 / .631 :BROOKVILLE RSVR
CHL13 0.05 // 661.67 / M / .050 :CECIL HARDIN RSVR
CAG13 0.15 // 637.85 / M / .415 :CAGLES MILL RSVR
MON13 0.06 // 538.03 / 486.2 / .050 :MONROE RSVR
PRL13 0.00 // 537.03 / 2.64 / .020 :PATOKA RSVR
LYN13 / 6.68 ///: LINN GROVE
WRN13 / 7.63 ///: WARREN
WAB13 / 3.56 ///: WABASH
MZZ13 / 3.39 ///: MARION
PER13 / 3.34 ///: PERU
LGN13 / 3.86 ///: LOGANSPOUT/CICOTT ST
ALP13 / 8.77 ///: ALPINE
BRK13 / 3.11 ///:BROOKVILLE
FIN13 / 3.26 ///: FINCASTLE
FRN13 / 0.88 ///: FERNDALE
CAT13 / 3.42 ///: CATLIN
COX13 / 4.88 ///: COXVILLE
RLV13 / 3.72 ///: REELSVILLE
BWL13 / 5.14 ///: BOWLING GREEN
SPN13 / 6.12 ///: SPENCER
PTR13 / 6.39 ///: PETERSBURG/61 BRIDGE
JAS13 / 8.06 ///: JASPER
POCLN / 10.95 ///: COUNTY LINE
DCR13 0.05 / 7.75 ///:DECATUR 1N
EDW13 T / 5.90 ///:EDWARDSPOUT
FWA 0.02 ///: :FT. WAYNE WSO
FTW13 / 2.10 ///: FT. WAYNE ANTHONY BLVD
HEBR0 0.02 ///: 11.5 HEBRON
HUT12 0.04 / 7.90 ///:HUTSONVILLE ILLINOIS

MSR

MSR

MSR

MSR

MSR

LAF 0.04 /// :LAFAYETTE FSS
LAF13 0.02 / 3.19 ///:LAFAYETTE
SHL13 0.02 / 4.53 ///:SHOALS
SBW T / 0.00 ///:SOUTH BEND WSO
HUF13 0 / 3.50 ///:TERRE HAUTE
VCN13 0 / 5.00 ///:VINCENNES MEMORIAL BR
AND13 0.05 / 6.35 ///:ANDERSON
BMG13 0.12 /// :BLOOMINGTON IU
BRB13 0.24 /// :BROWNSBURG 2N
CAM13 0.10 /// :CAMBRIDGE CITY
BAK13 0.12 / 2.50 ///:COLUMBUS
MOORE 0.02 /// :MOORESVILLE

MSR

.END
.B IND 0613 Z DH12/PPP/QT/DRH-6/QT/DRH-12/QT/DRH-18/QT
MCX13 0.02 / .603 / 1.050 / .640 / .492 :MONTICELLO
:2ND AND PROBABLY LAST MESSAGE
.END

FIGURE 6.

SAMPLE INPUT FOR RE-ORDERING OUTPUT

.B IND 0613 Z DH12/PPP/HG/HP/HT/QT :FIRST DATA ROUNDUP INDPLS

LYN13 /6.68
HUN13 0.05//750.09/M/.260
WRN13 /7.63
SLA13 T//754.20/2.22/.025
WAB13 /3.56
MZZ13 /3.39
MSS13 0.00//737.28/2.37/.565
PER13 /3.34
LGN13 /3.86
OKK13 /3.09
LAF13 0.02/3.19
LAF 0.04
LDN13 0.03
FIN13 /3.26
CHL13 0.05//661.67/M/.050
FRN13 /0.88
CAT13 /3.42
COX13 /4.88
HUF13 0/3.50
THT13 0.08
HUT12 0.04/7.90
RVT13 /4.78
VCN13 0/5.00
PRL13 0.00//537.03/2.64/.020
JAS13 /8.06
PDCLN /10.95
MIE13 /4.86
AND13 0.05/6.35
NBL13 /5.72
NOR13 /M
IND13 /4.79
INS13 //790.40/1.16
BRB13 0.24
MOORE 0.02
BMG13 0.12
SPN13 /6.12
RLV13 /3.72
CAG13 0.15//637.85/M/.415
BWL13 /5.14
EDW13 T/5.90
PTR13 /6.39
CARTH /2.68
RSH13 0.14
BAK13 0.12/2.50
SER13 0.08/6.54
SMAN 0.20
MON13 0.06//538.03/486.2/.050
SHL13 0.02/4.53
CAM13 0.10
ALP13 0.28/61.8
BKV13 0.11//748.72/3.60/.631
BRK13 /3.11
DCR13 0.05/7.75
NVL13 /3.28
FWA 0.02
FTW13 /2.10
MOTM4 /2.90
SEN T/0.00

KNX13 /5.37
DBR13 /3.88
KTS13 /M
HEBR0 0.02
SLB13 /4.51

:
:EXTRA
:
PYN13 0.024.53
SMD13 0.02
ALP13 /8.77

.END
.B IND 0613 Z DH12/PPP/QT/DRH-6/QT/DRH-12/QT/DRH-18/QT
MCX13 0.02/.603/1.050/.640/.492
.END

FIGURE 7.

SAMPLE OUTPUT FROM DWXR.SV UTILIZING A FORMAT PARAMETER FILE FOR FIGURE 6. STATIONS THAT DO NOT MATCH THE FORMAT PARAMETER FILE LIST ARE POSTED TO AN 'EXTRA' SECTION AT THE END OF THE FILE. THESE 'EXTRA' STATIONS MAY BE ELIMINATED BY INCLUDING THE GLOBAL 'E' SWITCH.

THE COMMAND LINE FOR THIS OUTPUT WAS:

DWXR/R X/F INDORR1IND/A TEST/O

.B IND 0613 Z DH12/PPP/HG/HP/HT/QT :FIRST DATA ROUNDUP INDPLS

:
:UPPER WABASH RIVER

:
LYN13 /6.68
HUN13 0.05//750.09/M/.260
WRN13 /7.63
SLA13 T//754.20/2.22/.025
WAB13 /3.56
MZZ13 /3.39
MSS13 0.00//737.28/2.37/.565
PER13 /3.34
LGN13 /3.86
OKK13 /3.09
LAF13 0.02/3.19
LAF 0.04
LDN13 0.03

:
:LOWER WABASH RIVER

:
FIN13 /3.26
CHL13 0.05//661.67/M/.050
FRN13 /0.88
CATIN /3.42
COXIN /4.88
HUF13 0/3.50
THT13 0.08
HUT12 0.04/7.90
RVT13 /4.78
VCN13 0/5.00
PRL13 0.00//537.03/2.64/.020
JAS13 /8.06
PDCLN /10.95

:
:UPPER WHITE RIVER

:
MIE13 /4.86
AND13 0.05/6.35
NBL13 /5.72
NOR13 /M
IND13 /4.79
INS13 //790.40/1.16
BRB13 0.24
MOORE 0.02
BNG13 0.12
SPN13 /6.12
RLV13 /3.72
CAG13 0.15//637.85/M/.415
BWL13 /5.14
EDW13 T/5.90
PTR13 /6.39

:
:UPR EAST FORK WHITE

:
CARTH /2.68
RSH13 0.14
EAK13 0.12/2.50
SER13 0.08/6.54

SMAN 0.20
MON13 0.06//538.03/486.2/.050
SHL13 0.02/4.53

:
:WHITEWATER RIVER

:
CAM13 0.10
ALP13 0.28/61.8
BKV13 0.11//748.72/3.60/.631
BRK13 /3.11

:
:MAUMEE RIVER

:
DCR13 0.05/7.75

MUL13 /3.28

FWA 0.02

FTW13 /2.10

MOTM4 /2.90

SBN T/0.00

KNX13 /5.37

DBR13 /3.88

KTS13 /M

HEBRO 0.02

SLB13 /4.51

:
:EXTRA

:
PYM13 0.024.53

SMD13 0.02

ALP13 /8.77

.END

.B IND 0613 Z DH12/PPP/QT/DRH-6/QT/DRH-12/QT/DRH-18/QT

:
:UPPER WABASH RIVER

:
MCX13 0.02/.603/1.050/.640/.492
.END

FIGURE 8.

SAME OUTPUT FROM FIGURE 6 UTILIZING THE SAME FORMAT PARAMETER FILE
BUT WITH THE INCLUSION OF THE GLOBAL 'B' SWITCH; ADD THE BASIN
HEADERS TO THE OUTPUT FILE.

COMMAND LINE USED FOR THIS OUTPUT WAS:

DWXR/R/B X/F INDRRIIND/A TEST/O

Appendix A

Two locations in the DWXR save file must be changed via the octal editor in order to specify the WMO station id for your station. The default WMO header id is: TTAA00 KXXX 999999.

loc	current values
447/	"XX
450/	"X<40>

Appendix B

A safeguard is provided in DWXR to prevent storing a file into a computer system not configured for AFOS. DWXR will execute on either a Data General S/230 or S/140, both under RDOS. A single location should be changed to enable the safeguard. Octal edit the following location:

AFOS?	yes	no
loc 462/	-1	0

Eastern Region Computer Programs and Problems (Continued)

- 19 Verification of Asynchronous Transmissions. Lawrence Cedrone, March 1984. (PB84 189885)
- 20 AFOS Hurricane Plotter. Charles Little, May 1984. (PB84 199629)
- 21 WARN - A Warning Formatter. Gerald G. Rigdon, June 1984. (PB84 204551)
- 22 Plotting TDL Coastal Wind Forecasts. Paula Severe, June 1984 (Revised) (PB84 220789)
- 23 Severe Weather Statistics STADTS Decoder (SWX) and Plotter (SWY). Hugh M. Stone, June 1984. (PB84 213693)
- 24 WXR. Harold Opitz, August 1984. (PB84 23722) (Revised August 1985, PB84 100815/AS)
- 25 FTASUM: Aviation Forecast Summaries. Matthew Peroutka, August 1984. (PB85 112977)
- 26 SAOSUM: A Short Summary of Observations. Matthew Peroutka, October 1984. (PB85 120384)
- 27 TRAJ - Single Station Trajectory Plot. Tom Nizio1, December 1984. (PB85 135002)
- 28 VIDTEX. Gerald G. Rigdon, February 1985. (PB85 175669/AS)
- 29 Isentropic Plotter. Charles D. Little, February 1985. (PB85 175651/AS)
- 30 CERR: An Aviation Verification Program. M. Peroutka, April 1985. (PB85 204824/AS)
- 31 Correlation and Regression Equation - REGRS. Hugh M. Stone, May 1985. (PB85 213353/AS)
- 32 Scatter Diagram and Histogram Program - SCATR. Hugh M. Stone, May 1985. (PB85 213346/AS)
- 33 TIMCHEK. Gerald G. Rigdon, June 1985. (PB85-221257/AS)
- 34 A MOS Temperature - PoP Forecast Plot. William C. Randel, October 1985. (PB86 120029/AS)
- 35 ROTODRAW. Thomas Nizio1, November 1985 (PB86 131828/AS)
- 36 LAWEB: Data Processing for the Great Lakes. William C. Randel and Matthew R. Peroutka, March 1986. (PB86 176658/AS)
- 37 Convective Parameters & Hodograph Program - Convect. Hugh M. Stone, April 1986.

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