National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 9949 (DSI-9949)

Surface Records Retention System (SRRS)

January 15, 1999

National Climatic Data Center
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Asheville, NC 28801-5001 USA

Table of Contents

1. Abstract: The National Weather Service (NWS) sends a 3480 cartridge tape that contains the Automated Field Operations and Services (AFOS) traffic for a single day. The tape contains a header file as tape file 1 and a data file as tape file 2. Both the header and data are in binary format and must be read unformatted even though there are some character (ASCII) data mixed in the data record.

These 2 files are loaded onto disk, merged into a single file, and archived.

2. Element Names and Definitions:

Special Notes

Because of the bit operations needed, it was necessary to use C language opens, reads, and writes for the header and data records. In XL FORTRAN (IBM), the bindings for the C language and FORTRAN are the same, so calling the C language requires no special compiling options or libraries. After the file has been opened, a low level C read places the data into a character string. That character string is then equivalence to an integer*1 array of the same length. The integer*1 array allows the bit operations where needed and the character string allows the ASCII data to be picked out where needed.

The following is an example of the FORTRAN code used to access this data set:

```
character *256 srrshdr
  character *284 srrsrec
integer*1 isrrshdr(256),isrrsrec(284)
integer*4 fd11,eof11,mid4,open,read

equivalence (srrshdr,isrrshdr),(srrsrec,isrrsrec)

fd11=open('9949jan1999-01\0',%val(2))
eof11=read(%val(fd11),srrshdr,%val(256))
eof11=read(%val(fd11),srrsrec,%val(284))
```

After the open, fd11 will contain a file assignment similar to the FORTRAN unit number. The \0 at the end of the filename inserts a null character. C uses null characters as string terminators and this must be present for consistent results.

The read statements will return the number of bytes read into eof11 and at the end of file it will return a -1.

The file cannot be sorted as is because it takes several records in different formats to make up a product transmission. However, the data is in date and time order that it was received by the NWS.

Data Format

This data set contains several different types of records. The first record is a header record sent by the NWS that is 256 bytes and contains the following elements:

Byte	Description	Data type
1	Month	Binary
2	Day	Binary
3	Year (2 digits only)	Binary
4	Hour	Binary
5	Minutes	Binary
6	Seconds	Binary
7-8	Record Station ID	Binary
9-10	Mlog version number	Binary
11-256	Unused	

All subsequent records are considered data records and are 284 bytes long and could contain any one of the following formats:

A) First block of a Multi-Block message:

```
|----------------------284 bytes-----------------------------------------------------|
|TLH|LAF|CF|MID|MAD|TPM|CCCNNNXXX|DTG|DT|VN|NFC|Data|
```

B) Intermediate full block:

```
|-----284 bytes------|
|TLH|LAF|CF|MID|Data|
```

C) Last block of a Multi-Block message:

```
|------------284 bytes-------|
|TLH|LAF|MID|Data|ETX|
```

D) Single block message:

```
|----------------------------284 bytes-----------------------------------------------|
|TLH|LAF|CF|MID|MAD|TPM|CCCNNNXXX|DTG|DT|VN|NFC|Data|ETX|
```

E) Message type 3 (?):

```
|--284 bytes--|
                |Unused|ETX|
```

The length of the Data field contained in each record will vary depending on the type of message, but each record will always be 284 bytes.

Abbreviations:

TLH 28 byte binary Tape Log Header

Byte	Description	Data type
1	Month	Binary
2	Day	Binary
3	Year (2 digits only)	Binary
4	Hour	Binary
5	Minutes	Binary
6	Seconds	Binary
7-8	Block Number	Binary
9-10	Line Number	Binary
11-12	Pause Flag	Binary
13-16	Unused	
17-18	Byte Count	Binary
19-20	Source Line	Binary
21-28	Unused	

LAF 8 bit binary ADCCP Link Address Field

CF 8 bit binary ADCCP Control Field

MID 16 bit binary Message Identification

MID format:

Bit	Description
0	last block indicator
1	first block indicator
2-7	Originators ID
8-15	Message sequence number

MAD 16 bit binary Message Address

Mad has two formats as follows:

Regional format:

Bit	Description
0	Format indicator, set to 0 for Regional format
1	SDC Origin
2	Eastern region Note: for all stations, all
3	Central region region bits are set
4	Western region
5	Southern region
6	Atlantic region
7	Pacific region
8-15	not used

Single station format:

Bit	Description

0	Format indicator, set to 1 for Single station format
1	SDC origin
2-7	WSFO ID
8	not used
9-10	WSMO ID (0=WSO/WSFO only, 1-2=WSMO ID, 3=Both WSMO's
11-15	WSO ID (0=WSFO only, 1-36=WSO ID, 37=All WSO's

TPM 8 bit binary Message Type and Priority

TPM format:

Bit	Description
0	National category
1-3	Priority
4-7	Type (0-Normal, 1-Supplement/Correction, 2-Remote/Request, 3-Intermediate reply, 4-Final reply, 5-Cancel, 6-Binary file, 7-Administrative, 10-Replenish)

CCCNNNXXX 9 character (bytes) PIL Identifier

CCC=Node
NNN=Product
XXX=Subnode

DTG	24 bit binary Message Creation Time
DT	16 bit binary Message Valid Time (Delta Time)
VN	8 bit binary product Version Number
NFC	8 bit binary Node Forward Counter
CRC	16 bit binary block Check Character (CCITT)
ETX	8 bit binary End of Text (203 octal)

3. Start Date: 19850501

4. Stop Date: 20010831

5. Coverage: US

a. Southernmost Latitude: -15S
b. Northernmost Latitude: 72N
c. Westernmost Longitude: 130W
d. Easternmost Longitude: -60E

6. How to Order Data:

Ask NCDC's Climate Services about the cost of obtaining this data set.
Phone: 828-271-4800
FAX: 828-271-4876
E-mail: **NCDC.Orders@noaa.gov**

7. Archiving Data Center:

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

8. Technical Contact:

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

9. Known Uncorrected Problems: None.

10. Quality Statement: None.

11. Essential Companion Datasets: None.

12. References: None provided with original documentation.