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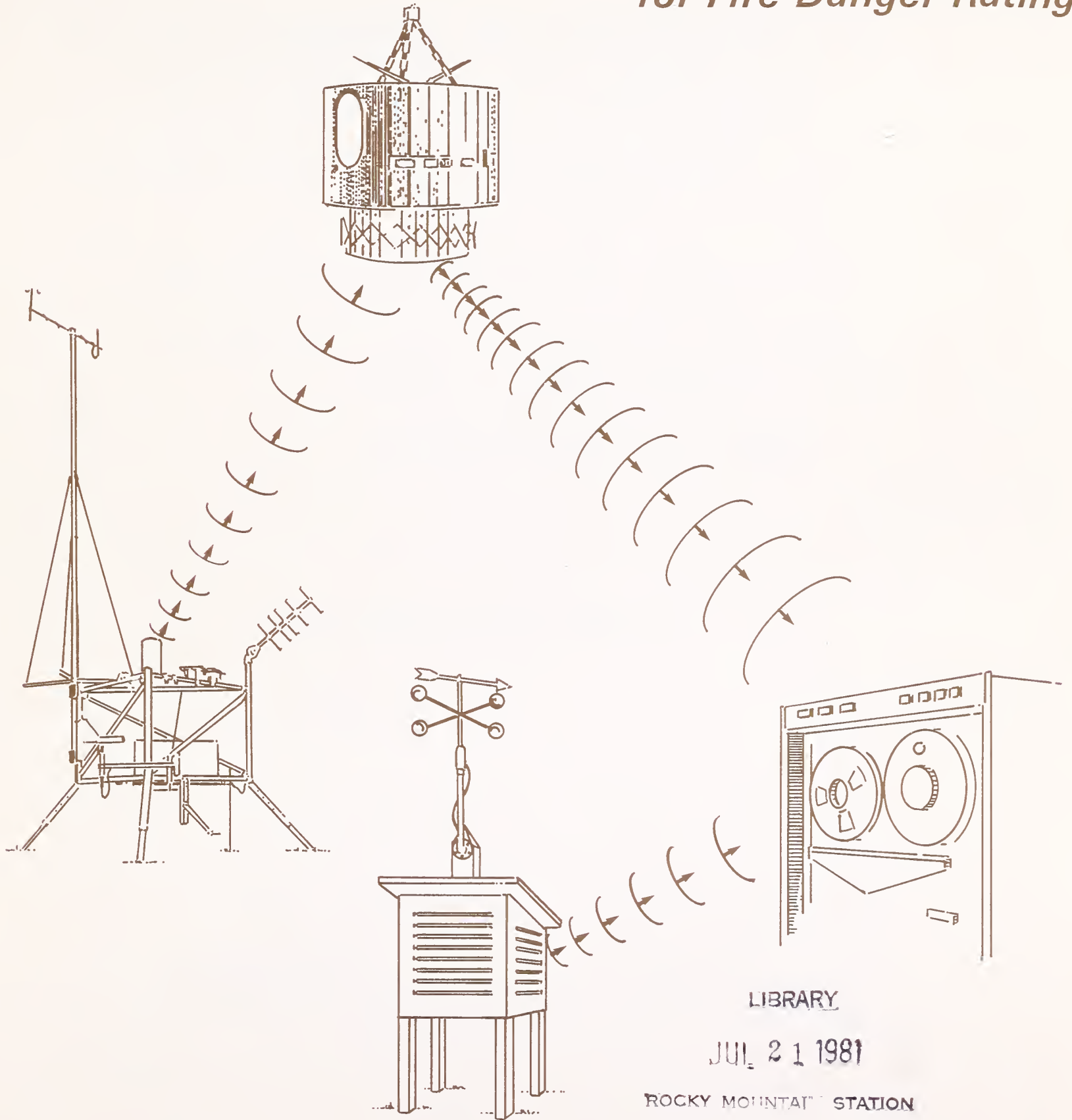
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# AFFIRMS:

*Time-Share Computerized Processing*

*for Fire Danger Rating*



USDA Forest Service General Technical Report INT-82  
INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION  
U.S. Department of Agriculture, Forest Service

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## RESEARCH SUMMARY

This User's Guide is a comprehensive manual for persons accessing the 1978 version of National Fire Danger Rating System on AFFIRMS. AFFIRMS, the Administrative and Forest Fire Information Retrieval and Management System is a user-oriented, interactive computer program. Weather observations and fuels data are processed to produce a rating of probable forest fire danger in the form of fire danger indexes. Fuels and weather data are also automatically checked for errors and archived. Other program output includes narrative messages sent between users, and observed and forecasted weather. This version of the User's Guide to AFFIRMS supercedes the August 1975 version published as USDA Forest Service General Technical Report RM-15. The Guide is written in nontechnical language for persons without a computer background.

User's Guide to **AFFIRMS:**  
Time-Share Computerized Processing  
for Fire Danger Rating

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## AFFIRMS Reference List

<u>Command</u>	<u>Purpose</u>	<u>Section</u>
ARCH	Enter noncurrent weather for archiving . . . . .	2.2.2
BYE	End a session with AFFIRMS. . . . .	1.4.3
CTLG	Specify initial catalog entry for a station . . . . .	2.1.1
DATE	Temporarily modify the date of a data entry . . . . .	1.4.6
DEL	Remove a station from the catalog . . . . .	2.1.8
DESC	List the station catalog . . . . .	2.1.7
DSP_	Display weather and fuels information, and fire danger ratings . . . . .	1.5.1
DSPC	Display user defined weather, fuels, and or ratings . . .	1.5.2.1
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HDEF	Define type of moisture data to be entered for a station	2.1.6
HERB	Specify the herbaceous vegetation stage . . . . .	2.1.5
LINK	Access ancillary routines . . . . .	4.3
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NAME	Change a station name . . . . .	2.1.9
OBS	Enter regularly scheduled weather observations . . . . .	2.2
OPT	Specify additional station catalog information . . . . .	2.1.3
POST	Cause automatic routing of messages to other users . . .	1.9.1
SET	Control various program operations . . . . .	1.4.7-.11
SIG	Originate, modify, list, or eliminate a special interest group . . . . .	1.6
SPC	Enter off-station or off-hour weather observations . . .	2.2.2
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## 1. GENERAL

### 1.1 \*\* PROGRAM DESCRIPTION \*\*

Administrative and Forest Fire Information Retrieval and Management System, referred to throughout this manual as AFFIRMS, is a user-oriented interactive computer program designed to permit simultaneous entry of fire-weather observations from field stations over a large network. Fire weather data may be entered from any of a number of data terminals; then that data and the associated fire indexes may be displayed at any terminal in the network.

Simple, easy-to-learn language permits entering commands to AFFIRMS. The commands fall into four broad categories:

- 1) Commands used to enter observed and forecasted fire weather data.
- 2) Commands used to display weather data and/or fire danger ratings.
- 3) Commands used to maintain station catalogs and special interest groups.
- 4) Commands used to maintain user-constructed files containing either commands or plain-language text.

Field operation of AFFIRMS is intended to include:

- 1) Use at the Forest or District level (or similar administrative units) for the entry of observed weather data.
- 2) Use by fire weather forecasters for display of observed weather and entry of fire weather forecasts and narratives.
- 3) Use at the Forest (or similar unit) level to display fire danger indexes computed from both observed and forecasted weather, both for that unit and for any adjoining areas of interest.

- 4) Use at the Regional (or State) office level for monitoring fire danger over the Region (or State).
- 5) Use at the Interagency Fire Center at Boise for displaying fire danger indexes for any selected area of interest.
- 6) Use at all levels to send administrative and other messages from any user to any other user(s).

One of the most powerful features of AFFIRMS is its automatic archiving program. AFFIRMS retains only one regular observation per station. Entry of a new observation replaces the old one. An independent computer program, called the ARCHIVER, operates automatically every night at 2300 hours Mountain Standard Time. ARCHIVER inspects the files into which AFFIRMS places its regular observations. Any observations which are recognized as current will be copied and added to an archive file.

ARCHIVER retains the fire danger observation records. Periodically, it causes these records to be copied onto tape and shipped to the Fort Collins Computer Center for entry into the National Fire Weather Data Library. All of this data handling is entirely automatic. The manual keypunching of fire weather data is eliminated.

AFFIRMS permits most commands to be used in any order, any number of times. Each command is processed as it is entered, and once processed, frees AFFIRMS for new tasks. AFFIRMS is intended to be user-proof; that is, most operator errors have been anticipated and can be detected and noted without disrupting the system. Appendix A illustrates the typical user interaction with the program. Appendix B points out the most common errors that users have made in the past.

To avoid repeatedly entering such station-dependent semipermanent parameters as station elevation, agency, and time zone, a station catalog is used to store this information for program retrieval as needed. Commands are available for cataloging and uncataloging stations, as well as for specifying fuel models, slope classes, fuel conditions, and other station descriptors.

Weather data can be entered as regular-scheduled observations (OBS), off-hour or off-station special observations (SPC), and forecasts (FCST). In addition, a zone forecast feature permits entry of weather trends for an entire fire-weather forecast zone. The trends are then automatically applied to all stations in the zone and forecasts are generated for each station, based on the current weather.

Display commands are provided which permit a large selection of display options of weather and/or NFDRS indexes. Users may define special interest groups (S.I.G.) to permit groupings of stations outside such usual aggregations as county, State, and Region.

File-manipulation commands allow users to create, purge, list, and execute files. Such files are automatically made accessible to all other users, facilitating transmission of plain-language information from user to user. A posting command is included to permit automatic routing of messages to other users. Control commands are provided to permit changing standard program defaults.

### 1.1.1 Organization of the User's Guide

We anticipate the need to revise the User's Guide from time to time. The book is designed to allow updating instructions by issuing one or more pages rather than reprinting the entire book. Note that, instead of page numbers we have used chapter and subchapter headings for easy insertion and deletion of material. We suggest filing the Guide in a loose-leaf binder.

Chapter 1 contains instructions for all users; Chapter 2 is for the Fire Manager; Chapter 3 is for Fire Weather Forecasters, and Chapter 4 is for Regional Fire Managers. The Appendixes contain information of general interest.

## 1.2 \*\* PROGRAM COMMANDS \*\*

Commands are entered on the keyboard of the data terminal whenever the terminal prints:

COMMAND:

This is a 'prompter' to indicate that the program is awaiting your next request. If any other response occurs after an operation, see appendix C for guidance.

After typing a command, hit the carriage-return key. This signals the computer that you are ready to have your command processed.

1.2.1      Command Format

All commands have a simple format, as described below:

- 1) All begin with a verb--a 3- or 4-letter abbreviation for the kind of operation you wish to perform. No spaces are allowed between the prompter and the verb.
- 2) Following the verb is a list of one or more operands--the numeric or alphabetic items which are the input to the command. The verb and operands must be separated from each other by a space, a comma, or a slash.
- 3) The number of operands varies, depending on the command used. Most commands require one or more operands; some require none at all. Many commands have a variable number of operands. These operands are also separated from each other by a space, a comma, or a slash.

1.2.1

1.2.2

Here are some examples:

```
COMMAND:CTLG 292001 1720 MST GILA 3 1 15 8
COMMAND:DATE 72/04/15
COMMAND:DSPW OBS,REG,3
COMMAND:DSPI/FCST,FOR/GILA 3
COMMAND:DEL 020209
COMMAND:POST MSG503,501,009,527
COMMAND:BYE
```

The purpose of each of these commands is discussed later in the User's Guide.

\*\*\*-Note: In the first command, a space was used as a separator, in the second a slash, in the third, a comma, and in the fourth, all three were intermixed. In the fifth command, there is only one operand, while the last command has none.

### 1.2.2 Continuing Commands on a Second Line

Some commands, particularly OBS, SPC, and FCST can be quite long. Any command may be continued onto a second line by ending the first line with an ampersand (&) followed by a carriage return. AFFIRMS will then ask OK MORE:, and you can continue typing the command. Note that AFFIRMS attaches the text of the second line to the first line, leaving out the ampersand. If a separator (space, comma, slash) is needed, it must either precede the ampersand on the first line or be the first character typed on the second line. An example of continuation:

```
COMMAND:OBS 292001,13,1,85,78,1,15,NW,5,3,90,&
OK MORE:72,90,30,0,0,1,23
```



### 1.2.3     Entering Missing Data

In certain situations, you may need to indicate missing data for one or more operands. This may be accomplished by using the single letter M as an operand.

Only the ARCH, FCST, OBS, OPT, SPC, and ZONE commands permit missing-data entries, and only in certain operands. In an OBS command, you would indicate a missing maximum temperature this way:

```
COMMAND:OBS 292001,15,1,69,65,1,30,NE,3,10,M,56,85,34,0,0,1,24
```

### 1.2.4     STACKING Multiple Commands in One Entry

More than one command may be entered at one time; either on a single command line, or in a two-line continued format, as described in 1.2.2.

Multiple commands must be separated from each other by the exclamation point (!). After a multiple-command line has been typed in (followed by the carriage-return), AFFIRMS analyzes the first command on the line and executes it. Then, if an exclamation point is found, the second command is processed, the third, and so on, just as if the commands had been typed in separately.

For example:

```
COMMAND:SET DAYS 1 HEAD OFF! DSPW OBS SIG 012
```

A long two-line multiple command series could also be entered:

```
COMMAND:DSPW OBS SIG 154 ! SET HEAD OFF ! DSPW OBS&  
OK MORE:CNTY 0456! SET HEAD ON ! DSPX OBS SIG 154
```

Note: Blanks (spaces) can be put in before and/or after the exclamation point.

Note that no STACKED commands may follow any FILE commands on the same line.

Use of multiple-command lines noticeably speeds up processing of commands.

If a syntactic error is encountered in a multiple-command line, a message will advise that the text following the erroneous command has been ignored.

### 1.2.5      Requesting AFFIRMS Operational Schedule--SCHED\$L

Periodically, the hours that AFFIRMS is available change as G.E. schedules regular maintenance or changes hardware. These changes are announced by G.E. with a message like:

```

HH
U#=MAN68709,GEORGE,STRAUB
PLEASE RUN SCHED*** FOR WEEKEND SCHEDULE CHANGES.
NFDR AFFIRMS (RSH:118/25/ 4/ 5)

```

The AFFIRMS user does not have the capability to run SCHED\*\*\*. Therefore, the AFFIRMS staff does this for you and places the changes in a permanent file named SCHED\$L. To receive a copy of the schedule, follow the illustration below.

```

COMMAND:FILE LIST SCHED$L
AFFIRMS NETWORK SERVICE AVAILABLE 24 HOURS EXCEPT:
OFF SAT. 14:45 TO 15:00 MDT
OFF SAT. 22:00 TO SUN. 08:00 MDT
OFF MON. 21:45 to MON. 2200 MDT
OFF TUE. 04:45 TO TUE. 05:00 MDT

```

\*\*\* Note: This is an illustration only and may be very different from the actual schedule on any given day.

1.2.6     Getting Tutorial Assistance

Tutorial information about AFFIRMS commands is available by entering:

COMMAND:FILE LIST TUTOR\$D

AFFIRMS will respond by printing a summary of command forms and assistance phone numbers. When the command in question has been listed, you can prevent any further listing of these tutorials by hitting the Break-key.

1.2.7     Requesting Past NFDR-AFFIRMS Announcements--BLURBS\$L

Both the National Fire Danger Rating System and AFFIRMS are dynamic systems with technical and administrative changes occurring from time to time. If you are a new user, or an old one returning after an absence of several months, check the file named BLURBS\$L to bring yourself up to date. An example of this request:

COMMAND:FILE LIST BLURBS\$L

ALL USERS:

PLEASE REMEMBER THAT IF YOU EVER GET AFFIRMS ERROR MESSAGES WHICH HAVE THE LETTER 'R' AS THE SIXTH CHARACTER OF THE MESSAGE NUMBER, YOU SHOULD CONTACT BOISE A.S.A.P.

FOR EXAMPLE...

..... THIS IS THE LETTER TO WATCH FOR:

FIL03R SEQ. FILE READ-ERROR, CODE: 107

THE 'R' STANDS FOR 'REFERRAL'. THE USUAL SUFFIX IS 'A' FOR ACTION OR 'I' FOR INFORMATION.

ALL AFFIRMS USERS:

G.E. WILL BE MOVING US FROM SYSTEM 'B' TO SYSTEM 'L' LATE THIS SATURDAY (NOV. 2) EVENING.

ALL THIS MEANS IS THAT YOUR USER NUMBER'S FIRST LETTER WILL CHANGE FROM 'B' TO 'L'. EXAMPLE: BAN68711 BECOMES LAN68711.

PLEASE REPORT ANY STRANGE GOINGS-ON AFTER THE CHANGE-OVER HAS BEEN MADE.

---

COMMAND:

\*\*\*-Note: In this example, BLURBS\$L contained two announcements. You were returned to the COMMAND point when the list was complete. Since the list is typically much longer, read along with the printer and terminate the listing by hitting the Break-key when you begin to see familiar announcements.

1.2.8      Directory of AFFIRMS Users -- USRLST\$L

A directory of user numbers, names, four-letter unit abbreviations and airport codes is available from an AFFIRMS file. User numbers are needed for the POST command explained in Section 1.8.1. Four-letter abbreviations can be used in the display commands specifying a particular unit as explained in Section 1.5.1. Three-letter airport codes of National Weather Service offices are used to obtain fire weather forecast narratives as explained in Sections 2.3 and 3.1.6. To receive this directory, type:

COMMAND:FILE LIST USRLST\$L

This list of users is several pages long and changes infrequently. Requesting it once or twice a season should be sufficient. Some Central Offices have saved money by sending copies of their list to users in their local area.

## 1.3 \*\* TROUBLE SHOOTING \*\*

### 1.3.1 Error Detection

AFFIRMS can detect many common errors, including 1) bad syntax, 2) impossible or inconsistent data-values, and 3) required data entered as missing. In most cases, the specific location of the error in the command-line will be indicated with an up-arrow (↑). For example:

```
COMMAND:MODL 292001,5,A2P,1418,B3P,17
ERROR AT .....↑
CTL04A IMPROPER LENGTH
COMMAND:
```

The program indicates the operand in which the error was detected and a brief note is made of the kind of error found. The error code, CTL04A, may be looked up in appendix C of this guide, where a more detailed explanation is provided. In this case, AFFIRMS detected that the manning index percentiles for a MODL command had the wrong number of digits (four, five, or six were expected but only two were found).

### 1.3.2 Error Correction

The AFFIRMS program allows two methods of correcting errors in a line of input before the carriage return key is depressed. The operator can delete individual characters in a line or the entire line if needed. Different brands of computer terminals have different symbols for these functions. The back arrow is the most common character-delete symbol and the "control X" the most common way of deleting a complete line. Instruction manuals, sales representatives, or the office listed at the front of this publication can help you with specific questions. The ASCII binary code for the G.E. backspace is 1011111, while the control X is 0011000. Examples of these functions follow:

```
COMMAND:DSPQ←I OBS LIST 041010 040101
COMMAND:DSPI OBS LIST 041010 040101 DELETED
DSPI OBS LIST 041010 040101
```

In the first example, the back arrow caused the computer to back up one space allowing the letter I to be typed in to replace the erroneous letter Q. In the second example, the error was not recognized until the entire line was completed. It is not practical to use multiple back spaces to clear the entire line. A break-key or carriage return would cost about 15¢ because AFFIRMS would respond with an error message. The line was deleted by pressing the control key and the "X" at the same time. "DELETED" is printed and the carriage returns to the left hand margin. Since the computer did not see the deleted material, a COMMAND: prompter was not reprinted. The corrected input line was typed starting at that point. See Section 1.4.4 for use of the break-key.

If you made an error in the retyped line, the position of the up-arrow (↑) will not accurately indicate the defective item in the command line. This is due to the lack of the word COMMAND: off-setting the input line eight spaces. (Line-delete and character delete are performed by 'front-end' equipment, not by the computer itself.)

### 1.3.3      System Failures

Because AFFIRMS is a program which operates on a multipurpose commercial computer network, it is possible for certain types of system failures to directly affect the user. Under some conditions, you may receive error messages which do not originate in AFFIRMS, but rather in the computer operating system. Examples might be:

1. SERVICE TEMPORARILY INTERRUPTED
2. SYSTEM UNAVAILABLE ENTER ALTERNATE U#
3. Phone rings -- but no answer, or line is constantly busy
4. ::SOME MESSAGE::  
     LINE CALLING ROUTINE  
     999   ::SOMENAME::  
     999   ::SOMENAME::  
     READY

\*\*\*-Note: In the situation listed above, the user would contact G.E. for the first three problems. When calling G.E., identify yourself and remember that G.E. people know nothing about the internal programming of AFFIRMS. They can only help in such situations as those in examples 2 and 3; and persistent repeats of example 1. Probable actions on the above examples would be:

Ex. 1:           Wait a few minutes and try again.

Ex. 2: YOU:       "Can you tell me how soon system 'M' will be operating?"  
(M is the first letter of your user number. Note: This letter will change, depending upon G.E. schedules.)

GE:            "Probably within 15 minutes." [Down times are rarely very long.]

Ex. 3: YOU:       "I'd like to report that the port in Rialto, California is ring-no-answer. The access number is area code 714, 875-8751. Is there another number in that area?"

GE:            "Try 825-5781 in Colton."

The toll-free G.E. user assistance number is 800-638-8730.

The fourth example should be referred to the AFFIRMS staff at the telephone numbers listed on the program heading. Please send your printed output or a machine copy of it to us. These 'tracebacks' are invaluable in finding and correcting program bugs. A vague verbal description like 'something went wrong' is not much help in a program of this size. The entries of RUI (to go back to AFFIRMS); or BYE (to sign off) are correct responses to READY or WHAT. If these responses fail, hang-up and reaccess AFFIRMS.



5. Extremely high session costs or other very unusual occurrences should be reported to the AFFIRMS staff. SAVE THE PRINTED OUTPUT.
6. VALIDATION FAILURE, PLEASE CONTACT YOUR T/S REPRESENTATIVE. This message is usually the result of not following the sign-on format exactly. Check your entry, including the punctuation, and call the AFFIRMS staff if everything seems in order. Sign-on MUST follow an EXACT format.
7. The error message code coming from AFFIRMS end in one of three possible letters: "A," "I," and "R." All "R" messages should be reported to the AFFIRMS staff. See appendix C for explanation of the error message.

## 1.4 \*\*TERMINAL OPERATIONS \*\*

1.4.1      Accessing AFFIRMS

The AFFIRMS program can be reached by a large number of computer terminals, with varying keyboard layouts and hardware switches. Rather than producing instructions for all these possibilities, a few common, but important, switches are discussed. Note that not even these necessarily exist on your machine. (Hardware questions not addressed here can be referred to the staff at the address on the frontispiece of this manual.)

<u>Switch</u>	<u>Position</u>
Duplex	HALF
Mode	ON LINE
Speed	30 (however, 15 and 10 will work)
Parity	EVEN

\*\*\*-Note: Given a choice, always select 30 characters per second as the sending speed since faster printing reduces the time spent on the system and, therefore, reduces costs.

An AFFIRMS session begins by dialing the local telephone number of the computer network on which AFFIRMS is implemented. When the computer "answers" and sends back a high-pitched tone, the handset of the telephone is placed in the audiocoupler on your terminal. The audiocoupler has two rubber cups which fit a standard phone handset. As soon as your terminal detects the presence of the carrier signal, it will send back an acknowledging signal and will light up an indicator on its control panel. Usually, this light is marked as Carrier Detect, Ready-to-Send, or On-Line. No light at this point usually indicates that the telephone handset is in backwards.

Within the first 5 seconds after the indicator lights, you must send the character H several times. The device which connects the telephone line to the computer will analyze the way in which your terminal sent the H and adjust itself to the proper speed and mode of transmission. If no response is made by the computer to the H's, check to insure that your terminal is in the "On-Line" mode.

The computer network will then request the log-on sequence containing a user-number, password, and user-name. The protocol for this sign-on is very specific and must be followed exactly since you are not yet dealing with AFFIRMS but with the operating system itself. AFFIRMS will tell you what mistakes you have made, but since the computer network does not want anyone to use its services who is not authorized to do so, it is very intolerant of errors during the log-on procedures.

You type in the log-on sequence and follow it with carriage return. Depressing this key always signals the computer to accept a line of information. The computer will never start to process what has been typed until the carriage return key is hit.

Your user-number is set up so that it has only one possible function--it can access the AFFIRMS program--nothing else! As soon as the user-number is recognized, the AFFIRMS program will be loaded and made ready for your command. An example follows:

HH 1/

U#2/MAN 68707,MARANA,DCP 3/ (CR) 4/

INCORRECT FORMAT, RE<sup>5/</sup>ENTER U#MAN68707,MARANA,DCP 6/ (CR) 7/

- 1/ User typed in HH
- 2/ Computer has replied U#= indicating "User number please".
- 3/ User has used an incorrect format, note the space between MAN and 68707.
- 4/ The carriage return key was depressed signalling the entry completed.
- 5/ Computer has rejected the entry and asked for another try. You have three tries to enter a correct user number.
- 6/ User has correctly entered his user number, password, and user name. Typing started immediately following the last symbol from the computer.
- 7/ Carriage return key must always be depressed at the end of each line of information to enter the information into the computer.

#### 1.4.1.1 Messages Received at the Start of an AFFIRMS Session

After the computer has accepted the user number, several types of messages may be received. These messages may come from the computer network or the AFFIRMS program.

Messages from the computer network precede the "NFDR" banner and should be ignored if they direct action on your part. The AFFIRMS staff will carry out any required tasks for all users. An example of a message that should be ignored is:

BACKGROUND USERS PLEASE RUN SCHED\*\*FOR UPDATED SCHEDULE  
CHANGES.

Now AFFIRMS will print a message containing the version of the program and the communications equipment identifiers; for example, MFDR '78 AFFIRMS (118/25/4/5). This banner indicates you are using the AFFIRMS program. The information within the parenthesis contains the program version/port number/the remote concentrator/local concentrator. These last three numbers will be required by G.E. to track down communications problems that are reported.

At this point, two kinds of messages can be received: 1) messages from the AFFIRMS program staff; 2) messages originating from other users and sent to you by the POST command. An example of these messages follows:

FOR AID CALL (208) 384-9455 (Com) or FTS 554-9458

EXC061 MSG /DEEM711 / FROM USER-NO. 711 DATED 780809

DEEMING: TRIED TO REACH YOUR OFFICE THIS PM BUT COULDN'T  
GET THROUGH YOU CAN REACH ME AT THE 5 R.O. (JACK CARTER'S  
OFFICE) BETWEEN 10 AM and 3 PM ON THE 20TH (TUESDAY)

.....HELPMAN

- - -

\*\*\*Note that three dashes (---) signal the end of each message.

Finally, AFFIRMS issues a COMMAND: prompter to tell you it is ready for your first request. An example of the complete sign-on procedure follows:

1.4.1.1  
1.4.2  
1.4.3

HH

U#=MAN68519,WHIZBANG,SMITH

NFDR '78 AFFIRMS (328/28/8/3)

FOR ASSISTANCE, CALL FTS 554-9458 OR COM (208) 384-9455

EXC06I MSG 'EXAMP709' FROM USER-NO. 709 DATED 7903/05.

HI THERE, I SEE THAT YOU HAVE SUCCESSFULLY MADE YOUR FIRST CONTACT WITH  
THE AFFIRMS PROGRAM....BOB STRAUB ---

COMMAND:

#### 1.4.2     Obtaining A User Number and Password

Contact the National Fire Danger Rating, CFP, S&PF Liaison Office at RIFC,  
3905 Vista Avenue, Boise, ID 83705, or FTS: 554-9455, COM. (208) 384-9455.

#### 1.4.3     Terminating an AFFIRMS Session--the BYE Command

The BYE command is used to exit from AFFIRMS and disconnect your terminal.  
Sessions should always be ended with BYE as this assures that all system  
housekeeping has been properly completed. Ending the session by simply  
hanging up the telephone should be avoided whenever possible.

The command can take two forms. The comments after the examples below  
indicate what each form does:

BYE            The session ends and the terminal shuts down.  
BYE NEW       Ends the present session and permits the user to  
                 sign on with another user number, password, and ID  
                 (combination) without redialing the telephone.

Before the computer disconnects, an estimate of the cost of the session will be printed (this figure reflects government discounts which may not apply to nongovernment users).

Terminating an AFFIRMS session:

```
COMMAND:BYE
(TSP) COST: $ 6.04
00023.07 CRU 0000.22 TCH 0003.38 KC
```

```
OFF AT 10:33MDT 08/19/78
```

\*\*\*-Note: CRU - Computer Resource Units - physical equipment used  
TCH - Connect time in decimals of an hour  
KC - Thousands of characters sent and received.

#### 1.4.4    Escape Provisions (Use of the Breakkey)

If you enter a command and then wish to abort it, hit the breakkey once. You will be returned to the COMMAND: point.

The breakkey may be hit at any time to interrupt the program in any task. It is important to realize that the task is actually abandoned. If you enter an OBS command and then hit "Break" before AFFIRMS asks for the next command, the observation will not be stored and cannot be retrieved. See Sec. 1.3.2 for use of the back space and delete functions.

Whenever the breakkey is hit:

- 1) The date is set back to today even if a DATE command preceded has been executed.  
(See Section 1.4.6).
- 2) The program goes back to terminal mode even if it was processing in file mode (see Section 1.7.2).

### 1.4.5 The Control Shift

As you have come to expect from using typewriters, computer terminals have a shift key allowing the change from lower to upper case letters and numbers. The AFFIRMS program is case blind--that is, it makes no difference if it receives a "B" or a "b", the same action results. It is usually most convenient to set the keyboard so that shifting is not required to send the numerals. By setting the character switch, it is possible to get both capital letters (easy to read) and numbers without shifting back and forth.

Unlike a typewriter, terminals have a second shift. It is called the CONTROL shift and will usually be located above the lefthand regular shift key. By holding this key down and typing with the other hand, a series of nonprinting control signals can be sent. These control signals are identified by the strange two- and three-letter abbreviations on some of the otherwise normal keys.

AFFIRMS only uses one of these control functions, that is the control CAN or control "X." Hitting this key allows the line you are presently typing to be destroyed and retyped without returning to the COMMAND prompter. This technique is particularly useful while constructing files since it permits limited repairs without having to start the entire file over.

\*\*\*-NOTE: IF READING THROUGH FOR THE FIRST TIME, THE  
REMAINDER OF SECTION 1.4 SHOULD BE SKIPPED UNTIL SECTION 1.5  
HAS BEEN STUDIED.

### 1.4.6 Changing The System Date--the DATE Command

The DATE command permits today's date to be overridden during execution of some date-dependent commands.

The DATE command requires three operands:

Year;	A two-digit number (for example, 78 for 1978)
Month;	A two-digit number (for example, 08 for August)
Day;	A two-digit number (for example, 03 for the third)



As soon as the break-key is hit, the date automatically reverts to today. An example of a DATE command:

```
COMMAND:DATE 78,03,27  
EXC04I DATE OVERRIDDEN 78/03/27
```

If an OBS command were now entered, the data would be considered by AFFIRMS to apply to March 27, 1978, rather than the current date.

The DATE command is of particular interest to fire-weather forecasters. They frequently want to update their forecasts in the morning utilizing yesterday afternoon's observations. By entering a DATE command which specifies yesterday's date, followed by a ZONE command, the trends specified will be applied to yesterday's observations and forecasts will be generated with today's date. (If the DATE command were not used, AFFIRMS would look for observations dated today which would not be available in the morning.)

Only the following commands are legal while a DATE command is in effect:

```
OBS, FCST, ZONE, HERB, WOOD, DATE, DSPW, DSPI, DSPX,  
DSPM, DSPS, ARCH, FORM, DSPC, STOW, SET, LINK, DSPU,  
FILE, and BYE.
```

#### 1.4.7.1 Displaying Stale Data--The SET DAYS Command

Sometimes you may wish to display stale data from stations which have not currently reported; that is, observations not dated today or forecasts not dated tomorrow. The SET DAYS command allows you to do this. Recall that AFFIRMS only holds the most current data in accessible storage. Today's OBS overwrites yesterday's OBS.

The SET DAYS command has the form:

SET DAYS nn

Where nn indicates how many days you want the computer to look back for stale data in subsequent displays. You may use any number from 0 to 31 or -1. A value of 2 will cause data for today or up to 2 days earlier to be displayed. A value of zero will cancel previous SET DAYS commands.

To limit displays to tomorrow's forecast only, a value of -1 can be used. If the DSPU command is used and tomorrow's forecast DSPU is desired rather than the forecast for today, the SET DAYS -1 must be used.

\*\*\*-Note: AFFIRMS shows only the latest data entered. SET DAYS simply allows you to ignore or accept stale data as you wish.

#### 1.4.7.2 Suppressing Display Headings--The SET HEAD Command

The SET HEAD command allows you to control whether headings will appear above data listed with any of the display commands. For example, if you were doing several DSPW displays, you could allow the heading on the first one and turn off the headings on the subsequent ones. This saves both time and computer costs; it takes the savings from three or more headings, however, to offset the cost of processing this command. The SET HEAD command takes two forms:

SET HEAD OFF - Headings will not be printed on subsequent displays.

SET HEAD ON - Headings will be restored on subsequent displays.

### 1.4.7.3 Displays with Station Names--The SET NAME Command

The AFFIRMS program is structured to begin each line of display with the six-digit station number. If the user's operation is better served by a display identified with the station name, this number can be replaced with a six-letter abbreviation of the name. This command has the form:

```
SET NAME ON      Each display line starts with the name
SET NAME OFF     Each display line starts with the number
```

If a station has not been named (either when initially cataloged or subsequently with the NAME command), then the station number will appear regardless of the SET NAME command.

### 1.4.7.4 Requesting Statistics on DSPW OBS Display--The SET MEDIAN and SET MEAN Commands

A pair of SET commands exists to allow the user to get both the median and/or the mean values of the weather elements displayed with the DSPW OBS command. They have the form:

```
SET MEDIAN ON   Median values follow the display
SET MEAN ON     Mean values follow the display
```

Both of these commands are terminated by the command SET MEDIAN (or MEAN) OFF or when the session ends.

If the SET commands precede a DSPW OBS in which the data from at least three but no more than 20, stations is retrieved, the median or mean values of dry bulb temperature, relative humidity, windspeed, maximum and minimum temperatures, maximum and minimum relative humidities and precipitation duration are printed out at the bottom of the display.

The median value is defined as "that value above and below which an equal number of observations will be found when all of the observations are arranged in order of magnitude." The mean is "the average numerical value."

#### 1.4.7.5 Mixing SET Commands

To save typing required of both the system and the user, all SET commands can be combined on one line. You must retain the paired structure. For example:

```
SET NAME ON,DAYS 5,HEAD OFF,MEAN ON
```

This example is perfectly legal and is interpreted by the computer as:

```
SET NAME ON  
SET DAYS 5  
SET HEAD OFF  
SET MEAN ON
```

#### 1.4.7.6 Forecasting Dewpoint Temperature--The SET DWPT Command

Many forecasters think of air mass moisture in terms of dewpoint temperature. To save the time required to convert dewpoint to relative humidity (RH), AFFIRMS can be directed to accept dewpoint in the FCST and ZONE commands where RH would normally be expected. This command has the form: SET DWPT ON.

From the receipt of this command and until SET DWPT OFF or the Sign Off is encountered, the moisture input to FCST and ZONE commands will be automatically converted to RH from dewpoint temperature.

In the case of the ZONE command, the dry bulb temperature is trended, the OBS time RH converted to dewpoint and also trended. These two trended values are then used to determine the forecast RH.

Note: The Max and Min RH values are not affected by this SET command.

#### 1.4.7.7 Changing BREAK Control Key--the SET BREAK Command

The break key is used in several important ways in the program, such as closing files, turning back the date, and terminating an erroneous command. The BREAK is not a character in the normal sense; therefore, it cannot be put on either magnetic or paper tape. An alternate key can be selected to perform these BREAK functions if tape operations require it. The form of the command is: SET BREAK #.

Note: In this example, a number symbol was used. BE CAREFUL! Any character will work and most characters are already used for something else. Never set the BREAK key to a letter, number, blank, comma, period, exclamation, ampersand, semicolon, \$, or slash. The best choice left is #.

Once set to something else, the BREAK function cannot be set back to a break key, since this key does not send a normal character. It does return to normal with the Sign Off.

#### 1.4.7.8 Limiting the Station Output--the SET LINES Command

The program permits a user to catalog as many as four combinations of model-slope-herbaceous type per station. Whenever a display is requested that contains information that varies by these combinations, as many lines of output as there are combinations will be printed. Often another user wishes to display data from this station, but does not want to see all of the combinations. The command has the form:

SET LINES (number from 1 to 4)

Since this command is often used by headquarters units to reduce the total volume they receive, the cataloging unit should make the first combination the most important one for that station since that may be the only one monitored.

#### 1.4.7.9 Initial 1000HR Moisture - The SET THOU Command

AFFIRMS begins each observational season by setting the 1000HR fuel moisture for a station to a default value based on climate class. These defaults are 15, 20, 25, or 30 corresponding to climate classes 1, 2, 3, or 4. The need for initialization is determined by whether or not a 50-day break occurs in the observations.

Often the manager has a better value available than these defaults, based on nearby stations that have operated throughout the season, or from actual measurement of the heavy fuels. This better value is entered with the SET THOU command. This command must be entered in the same session as the first OBS of the season and before the OBS itself is entered. The form is:

SET THOU (value from ?.0 to 200.0)

This SET will affect any station that has its first OBS entered after the SET and in the same session as the SET. Any station without a 50-day observational gap will not be affected. If the 1000 hour fuel moisture is in error, see Section 4.4 for a method of forcing it to another value.

#### 1.4.7.10 Magnetic and Paper Tape Timing--The SET TAPE Command

Many users of AFFIRMS prepare magnetic or paper tapes off-line for later entry into the system. This process permits editing the input for errors before connecting to the computer. When large bodies of input data must be entered this technique is worthwhile because of the savings in connect time and increased accuracy of the data.

1.4.7.11  
1.4.7.12  
1.4.7.13

The devices that read these prepared tapes into AFFIRMS use a different timing sequence than do normal keyboard operations. To make the computer aware that this other timing is about to occur, send a SET TAPE ON command just before the FILE MAKE command (see Section 1.7.1). The command has the form:

SET TAPE ON

**\*\*Note:** This is the one SET command that automatically cancels itself when the break key is hit to close the file just created. If two files are to be created, then the SET Command must be repeated.

#### 1.4.7.11 Printing Back Erroneous Commands--The SET ECHO Command

This feature causes AFFIRMS to print a copy of any command it has received that has generated an "ERROR AT" message. Unless the user enters the 'ON' half of this command the feature is not active. The command has the form:

SET ECHO ON

The copy printed is the command text as seen by the computer. Thus, the feature is useful in detecting noisy phone lines which sometimes garble your commands before the computer ever sees them.

#### 1.4.7.12 Screening Display Output by Manning or Adjective Class-- The SET MC Command and SET AC Commands

(See Section 4.1)

#### 1.4.7.13 Controlling the Minimum Wait Time--The SET WAIT Command

Several terminals (techtronics) and minicomputers require the ability to delay AFFIRMS responses. The SET WAIT command can define wait times of 1 to 30 seconds. An ESC ETB sequence is used. The form of the command is:

SET WAIT (1 to 30)

## 1.5 \*\* DISPLAYING WEATHER AND FIRE DANGER INFORMATION \*\*

The commands used to display weather and fire danger ratings have the form:

Verb type,Scope,nnnnn,mmmmmm

\*\*The SET commands influence the content of displays. See Sections 1.4.7.1 through 1.4.7.13.

1.5.1      Displaying Station Weather and Fire Danger Information--  
the DSPC, DSPI, DSPM, DSPS, DSPW, and, DSPX Commands

The command Verb determines if weather or computer fire indexes are displayed. Five Verbs are used:

DSPC	The C indicates a Custom display ( <u>C</u> ustom ).
DSPI	The I indicates a fire danger rating display ( <u>I</u> ndexes).
DSPM	The M indicates a managers F.D.R. display ( <u>M</u> anager ).
DSPS	The S indicates the shortest F.D.R. display ( <u>S</u> hort ).
DSPW	The W indicates a weather display ( <u>W</u> eather ).
DSPX	The X indicates an abbreviated F.D.R. display.

Type specifies whether observed or forecast data is to be displayed. Three operands are used:

OBS	Weather or fire danger data derived from the regular, fire weather observations.
SPC	Weather or fire danger data derived from off-time or off-site weather observations.
FCST	Predicted weather or fire danger ratings.



The second operand, Scope, specifies what geographical or political criteria are to be used in selecting the data to be displayed. Only those stations which meet your criteria will appear in the output. Nine operands are available to specify the scope of the display.

<u>REG</u>	U.S. Forest Service Region, or Regions
<u>STAT</u>	State
<u>CNTY</u>	County
<u>ZONE</u>	Fire Weather Zone
<u>SIG</u>	Special-Interest-Group (S.I.G.)
<u>ID</u>	Single station or range of stations
<u>LIST</u>	List of specific station numbers
<u>UNIT</u>	National Forest or administrative unit

The third and fourth operands (nnn... and mmm...) are used to indicate numeric value of the scope operand specified.

You may use any combination of Verb, Type, and Scope to create any selection criteria you wish. Below are some examples of the more commonly used combinations:

DSPW OBS, ID, 020503	(Display OBS weather for station no. 020503 only.)
DSPI SPC, ID, 201009, 495689	(Display SPC indices for all stations with numbers between 201009 and 495689.)
DSPW OBS, ZONE 303 3	(Display OBS weather for all stations within fire weather zone 303 in Region 3.) Note that both the zone number and Forest Service Region number must be entered.

DSPM,FCST UNIT,KOOT,1	(Display forecast values for Kootenai NF, R-1. Four-letter abbreviations for units and forests are found in the USRLST\$L, Section 1.2.7. Note that Forest Service Region number must be entered.) This is the most expensive way of getting a display: avoid it.
DSPi FCST,STAT,29	(Display FCST indexes for stations in state number 29.)
DSPM OBS,CNTY,2920	(Display OBS indexes for station located in county 20 of state 29.)
DSPW FCST,REG 3,4,5	(Display FCST weather for stations located in Regions 3, 4, and 5.)
DSPX OBS,SIG 006	(Abbreviated display OBS indexes for those stations previously placed in S.I.G. 006.)
DSPS OBS,LIST,020202,045691,292001,045302,045228	(Display OBS manning for the listed stations - up to 18 numbers can be entered.)

\*\*\*Note: Each fire weather station has been assigned a six-digit identifier code by the National Weather Service. The first two digits indicate the State; the second pair, the county; and the third pair, the specific station within that county.

### 1.5.2 Examples of Display Headings/Formats

There are six standard display format. Examples of the displays are:

COMMAND:DSPW OBS ID 045691

```
-----05/11/78--OBS---17:47GMT-----
STAT'N HR DY W DBT DPT RH Y M DIR WS 10 TMX TMN HMX HMN PD PPAMT UNKO
045691 13 10 2 75 52 45 3 2 NE 9 16 79 56 75 35 0 0.00 FAKE
```

COMMAND:DSPW FCST ID 045691

```
-----05/11/78--FCST--17:48GMT-----
STAT'N DY HR W DBT DPT RH AL TL DIR WS 10 TMX TMN HMX HMN P1 P2
045691 11 13 0 85 62 46 1 1 NE 12 13 90 57 57 26 0 0
```

COMMAND:DSPI OBS ID 045691

```
-----05/11/78--OBS---17:48GMT-----
STAT'N MSGC DY WS WDY HRB 1H 10 HU TH IC LR LO MR MO SC EC BI FL MC R 045691
A3P3 10 9 0 164 6 16 17 24 9 13 3 35 3 10 0 5 6 2- L
```

COMMAND:DSPX OBS ID 045691

```
-----05/11/78--OBS---17:49GMT-----
STAT'N MSGC DY HR TH IC LR LO MR MO SC EC BI FL MC R
045691 A3P3 10 13 24 9 13 3 35 3 10 0 5 6 2- L
```

COMMAND:DSPM OBS ID 045691

```
-----05/11/78--OBS---17:49GMT-----  
STAT'N MSGC DY DBT DPT RH WS PPAMT PD 1H 10 IC SC EC BI FL MC R  
045691 A3P3 10 75 52 45 9 0.00 0 6 16 9 19 0 5 6 2- L
```

COMMAND:DSPS OBS ID 045691

```
--05/11/78--OBS---17:49GMT--  
STAT'N MSGC DY PPAMT PD MC R  
045691 A3P3 10 0.00 0 2- L
```

### 1.5.2.1 Setting Up Custom Displays - The DSPC and FORM Commands

DSPC provides the user with a completely flexible way of producing displays. The DSPC command works exactly the same way as such display commands as DSPW and DSPI. It permits the \*User\* to determine precisely which data items will appear in the display line and in what order they will be printed. The "FORM" command is used to make this specification.

The syntax for the FORM Command is:

```
COMMAND:FORM LL,MM,NN,....
```

Where the LL,MM,NN,... are up to 20, one- or two-digit item-numbers selected from Table 1.5.22. Item numbers range from 1 to 47.

Once a FORM command is entered (either from your terminal's keyboard or from a command file), it remains in effect until you either sign-off or enter another FORM command.

The table of item numbers is shown in alphabetical order by the 'HEADING' which each generates in any display - including the standard displays shown in 1.5.2.

For example, if one wanted the following items to appear in the display line:

```
STAT'N DY MSGC DBT PPAMT UNKO LR SC FL MC
```

Then one would use this FORM Command:

```
COMMAND:FORM 1,4,41,5,15,22,32,36,39,40
```

Note that the order you use to enter the 'ITEM-NUMBERS' is the order in which the custom display will print those items.

You should usually include item number 1 (STATION NUMBER) in any FORM command. Item number 41 (MODEL SPECIFIER 'MSGC') should be included in any FORM command which includes an item number of 32 or higher (that is, model-dependent items).

It is also permissible to have the same item number appear twice. This is handy for having the station name appear at both ends of the display line.

Once you have entered the FORM command, you can have any number of DSPC commands after it, and they can be intermixed with any of the normal displays.

If you want to change the arrangement of the custom displays later in the session, you simply enter another FORM command with the new specifications.

For convenience, you should determine what kind of customized displays you need in your work. You can then build FORM and a DSPC commands in a command file. You can then get your customized display by just entering a FILE READ command (see Sections 1.7.1 and 1.7.3).

These commands will be very useful when you find that the standard displays give you too much or too little information.

### 1.5.2.2 ITEM-NUMBERS For Use In The FORM Command

<u>DATA DESCRIPTION</u>	<u>HEADING SHOWN</u>	<u>ITEM NUMBER</u>
AFTERNOON L.A.L. (FCST ONLY)	AL	25
ADJECTIVE RATING *	R	42
BURNING INDEX	BI	38
DATE (YYMMDD)	DATE	48
DAY (DD)	DY	4
DEWPOINT (COMPUTED, DEG. F)	DPT	20
DIRECTION (WIND)	DIR	9
DRY-BULB TEMPERATURE (DEG. F)	DBT	5
ENERGY RELEASE COMPONENT	EC	37
FIRE LOAD INDEX	FL	39
FREEZE COUNTER	FZ	31
FUEL MODEL-SLOPE-GRASS TYPE-CLIMATE CLASS	MSGC	41
HERBACEOUS FUEL MOISTURE	HRB	43
HERBACEOUS STAGE CODE (NOT THE SAME AS CATALOG HERB COMMAND INPUT)	V	46
HOUR OF OBSERVATION (OR FORECAST)	HR	3
100-HOUR-TIMELAG FUEL MOISTURE	HU	28
IGNITION COMPONENT	IC	33
LIGHTNING OCCURRENCE INDEX	LO	34
LIGHTING RISK	LR	32
MAN-CAUSED OCCURRENCE INDEX	MO	35
MAN-CAUSED RISK (TODAY'S)	MR	21
MAN-CAUSED RISK (PREDICTED - OBS ONLY)	PR	19
MANNING CLASS **	MC	40
MAXIMUM RELATIVE HUMIDITY (PCT)	HMX	13
MAXIMUM TEMPERATURE (DEG. F)	TMX	11
MINIMUM RELATIVE HUMIDITY (PCT)	HMN	14
MINIMUM TEMPERATURE (DEG. F)	TMN	12
MORNING L.A.L. (OBS ONLY)	ML	18
1-HOUR-TIMELAG FUEL MOISTURE	1H	27
OPTION LEVEL (COMPUTED)	O	30

<u>DATA DESCRIPTION</u>	<u>HEADING SHOWN</u>	<u>ITEM NUMBER</u>
PREDICTOR VALUE FOR 1000-HR	X1000	45
PRECIP. AMOUNT	PPAMT	15
PRECIP. DURATION (1ST PERIOD, FCST)	P1	23
PRECIP. DURATION (2ND PERIOD, FCST)	P2	24
PRECIP. DURATION (TOTAL, OBS)	PD	16
RELATIVE HUMIDITY (PCT)	RH	6
SPREAD COMPONENT	SC	36
STATE OF WEATHER	W	7
STATION NAME (AFFECTED BY SET NAME ON)	STAT'N	1
STATION NUMBER	STAT'N	47
10-HOUR-TIMELAG (STICK) FUEL MOISTURE	10	8
1000-HOUR-TIMELAG FUEL MOISTURE	TH	29
TOMORROW'S L.A.L. (FCST ONLY)	TL	26
UNIT NAME	UNIT	2
'UNKO'FIELD	UNKO	22
WINDSPEED (MPH)	WS	10
WOODY FUEL MOISTURE	WDY	44
YESTERDAY'S L.A.L. (OBS ONLY)	YL	17

\*See Appendix D

\*\*See Appendix E

### 1.5.3 Comparative Efficiency of Display Options

Users should be aware of the varying costs of the display options. The following list is in order of increasing costs (decreasing efficiency). The display scopes grouped in parentheses are equally efficient:

(REG,ZONE,STAT,CNTY)(ID,LIST)SIG,(FOR,UNIT)

UNIT scope should be avoided when possible since it results in the highest cost to the user. This does not mean that you should never use it; rather, it means that it should not be adopted for day-to-day routine operations. The SIG scope joins the next best cost group if it contains five or more stations.

#### 1.5.4 Displaying Weighted Average Fire Danger for a Protection Unit -- the DSPU Command

The DSPU command allows the AFFIRMS user the flexibility to produce a display of the weighted fire danger information associated with up to nine individual stations. This command provides a mechanism for the user to consider the relative importance of all the available stations in the area of interest and to produce a single integrated display of the fire danger on that area. See appendix F for details on the DSPU weighting method.

The command has the form:

```
DSPU TYPE,REGION,STA-NO-MODEL-SLOPE,WEIGHTING FACTOR
```

In which:

Type; OBS,SPC or FCST (See 1.5.1)

Region; A one- or two-digit USFS Region number in which all the stations which follow are found.

Sta-No-Model-Slope; eight characters: six for station number, one for fuel model, one for slope classs. A maximum of nine stations are allowed.

Weight; A one- or two-digit number indicating the percent of the final rating that this station is to contribute.

NOTE that the herbaceous indicator, annual or perennial, is not given. If a station has the same model and slope associated with both an annual and a perennial combination the program will use whichever one appears first in the MODL command.

For example:

```
COMMAND:DSPU OBS 5,045408G2 20,045409I3 25,045413A1 15, &  
OK MORE:045110B3 30,045414B3 10
```



When preparing this command, check to insure that the sum of all the weighting factors is 100 percent. In the event that one or more of the stations cited in the command lack current OBS, SPC, or FCST information, the computer will automatically take action. The stations with current data will have their weighting increased proportionately to once again total to 100 percent. Whenever this re-weighting is done, a message will be issued warning the user that the display is based on fewer stations than intended.

It is possible to request a DSPU at a time when some of the requested stations have a forecast for today and others have tomorrow's forecast. To prevent a weighted product for two different dates, the SET DAYS command (See Section 1.4.7.1) takes on a new significance. Without a SET DAYS command the program will select those stations with a forecast valid for today. If tomorrow's forecast is desired, a SET DAYS -1 is required.

Since the same station can be called in any number of different DSPU commands and assigned different weighting factors, no station group facility like the S.I.G. (see Section 1.6) has been provided. To avoid the tedium of typing in several DSPU's each day with all the associated station data, create a command file (see Section 1.7) to be executed each day.

If two command files had been created earlier with DSPU700 containing the above example and FSTDU700 requesting forecasted DSPU's, the following example might result:

HH  
 U#=MAN68519,WHIZBANG,SMITH  
 NFDR '78 AFFIRMS (328/28/8/3)  
 FOR ASSISTANCE, CALL FTS 554-9458 OR COM (208) 384-9455

COMMAND:FILE READ DSPU700

FILO2I NOW EXECUTING FILE /DSPU700

--07/24/78--OBS---22:35MGT--

DY	IC	MC	R
----	----	----	---

-----  
 24 27 3+ M

SYNO6I END-OF-FILE ENCOUNTERED

COMMAND:SET DAYS -1

COMMAND:FILE READ FSTDU700

FILO2I NOW EXECUTING FILE 'FSTDU700'

--07/24/78--FCST--22:36GMT--

DY	IC	MC	R
----	----	----	---

-----  
 25 46 4- V

SYNO6I END-OF-FILE ENCOUNTERED

COMMAND:BYE

TSP COST: \$ .65

0003.71 CRU 0000.01 TCH 0000.41 KC

OFF AT 15:35MST 01/24/78

In the above example, we obtained a DSPU for observed weather and a second DSPU for tomorrow's forecast weather. Note that the displayed manning classes always use the nine-class system (See appendix E).

## 1.6 \*\* THE SPECIAL INTEREST GROUP \*\*

Frequently, users of AFFIRMS will find that they wish to display data from several stations which do not conform to any one geographical or political grouping. A typical example would occur on the Tahoe National Forest in California. This forest adjoins the Toiyabe National Forest which is in a different region. The use of a display-by-forest would, because of the extent of the Toiyabe, supply more data than the Tahoe would probably want to see. In such a case, a user would create a list of stations from both forests, called a special interest group (S.I.G.).

The SIG is an identifier for a list of station numbers. Use of the SIG 'scope' in a display command has the same effect as use of the LIST scope with these station numbers. The SIG saves you the trouble of remembering the station numbers and the time necessary to type them. Since the SIG group does require additional overhead, try to use it when five or more stations are required. Use the LIST scope for fewer stations.

A station can be in several different users' SIG's, because it may be of interest to users other than its owner.

### 1.6.1 Locating A Free S.I.G. Number -- the SIG 999 LIST Command

S.I.G.'s are identified with a three-digit number. Since the groups are constructed in a random manner by the various AFFIRMS users, it is not obvious which S.I.G. identifiers are free. To locate a vacant S.I.G., enter this command:

```
COMMAND:SIG 999 LIST
INT111 AVAILABLE GROUP: 23
```

In this case, the computer had indicated that S.I.G. 023 is available. \*\*\*Note: The computer will not print a leading "0" but the "0" must be entered by the user, that is, you would use 023 to identify this SIG.

### 1.6.2      Maintaining the S.I.G. -- the SIG Commands

The SIG verb is used for maintaining a special interest group. One can: 1) add stations to the group, 2) delete stations from the group, 3) empty the group, or 4) list the group.

The forms of the command are:

SIG nnn,ADD,M1,M2,M3,.....;	Where nnn is the S.I.G. number, M1,M2,.... are 6-digit station numbers to be added to the S.I.G. SIG
nnn,DEL,M1,M2,M3,.....;	Where the M1, M2 ... are station numbers to be deleted.
SIG nnn,LIST;	The stations in the S.I.G. are listed.
SIG nnn,CLR;	All stations are removed from the group, and the owner's jurisdiction over the group ceases.

The S.I.G. number (nnn) must be three digits long (for example, 004).

If a SIG nnn ADD ... command is entered for a S.I.G. which is not already assigned, the S.I.G. is automatically assigned. If the S.I.G. is already owned, a message will be printed.

Requests to delete stations not in the list and/or to add stations already in the list will be ignored--no message will be given.

If you attempt to expand a S.I.G. to more than 20 stations, as many stations as can be accomodated will be added; the rest will be ignored. You can determine how many stations in your list were actually added because the up-arrow will indicate the first station which was **\*\*NOT\*\*** accepted from the ADD command.

If you list out a group and there are no stations in it, you will receive the message: GROUP EMPTY. If the group is not owned, you will get: GROUP UNASSIGNED.

### 1.6.3      S.I.G. Examples

Here is an example of setting up a special interest group; the comments after each command describe its function:

```
COMMAND:SIG 999,LIST (Asking for the number of a free group)
INT11I AVAILABLE GROUP: 5
```

```
COMMAND:SIG 005,ADD,020209,021201 (this makes the S.I.G. "yours")
```

```
COMMAND:SIG 005,LIST (Checking the contents of the S.I.G.)
INTEREST GROUP CONTAINS THESE STATIONS:
020209 021201
```

```
COMMAND:SIG 005,DEL,021201,020209 (Deleting two stations)
```

```
COMMAND:SIG 005,LIST (Again, checking the contents)
INT04I GROUP EMPTY
```

```
COMMAND:SIG 005,CLR (Freeing group back to the pool)
```

```
COMMAND:SIG 005,LIST (The S.I.G. should now be free)
INT07I GROUP UNASSIGNED
```

## 1.7 \*\* FILES \*\*

Files are created by users to make use of the computer's memory capabilities. Usually messages to be sent to other users (text files) or frequently used AFFIRMS commands (command files) are stored. You may create files (FILE MAKE), view the contents of a file (FILE LIST), execute the commands in a file (FILE READ), or delete a file from the computer (FILE PRGE). Only the creating user may purge a file. For instance, a fire weather narrative can be placed in a file; then, any user can view the file by using a FILE LIST command. The same user may have created a file containing the commands needed to display fire danger indexes; a FILE READ command is used to execute the commands in this file just as if they were entered from the terminal keyboard.

### 1.7.1      Generating a File---The FILE MAKE Command

In order to generate a file, respond to the computer's prompter, COMMAND:, by typing FILE MAKE "name,", where "name" is the file's name.

File names must be four to eight characters in length, with the last three digits of your user number as the last three characters of the file name. For example, user number MAN68552 might make a file called JUNK552 or JU552 or even just J552. Using the last three digits of the user number in your file names assures that you will not select the same file name as another AFFIRMS user. Never use blanks, commas, periods, or any other special characters as part of a file name; the first character must be a letter. File names beginning with FWX are exempt from the user number requirement.

After you have supplied a file name, AFFIRMS will instruct you to enter the information you wish stored in the file, one line after another. When you have no more to enter, hit the break-key after the last carriage return. See 1.3.2 for instructions on whole line repair. See 1.4.7.11 for instructions on creating a file from magnetic or paper tape.

Example:

```
COMMAND:FILE MAKE HEF309
```

```
FIL11I HIT 'RETURN', THEN 'BREAK' AFTER LAST LINE OF TEXT  
READY FOR INPUT  
JUNE 25/1300MDT
```

```
BOB, WHENEVER YOU ROUTE A MESSAGE TO FORECASTERS, INCLUDE  
NUMBERS 005 and 010.
```

\*\*\*Note: If you try to make a file with the same name as one you already have stored, a message will tell you so. You will be allowed to overwrite your old file with new text if you answer the 'want to overwrite' question with YES. Note that the new text would replace the old text; it is not added to the existing old text. If you type NO, the computer will return to the COMMAND: point and you must start over with a new FILE MAKE and another file name.

(Each line of text is ended with a carriage return. The Break-Key is hit after the last carriage return.)

### 1.7.2 Viewing the Contents of a File --The FILE LIST Command

Once a file has been created, its contents can be reviewed with the FILE LIST command. The only requirement is that the user be able to supply the FILE NAME. Up to 19 names may be called in the same command.

Example:

```
COMMAND:FILE LIST OBS709
```

(At this point, the computer will print a complete copy of what user number 709 typed into FILE OBS709.)

Frequently used file names that do not follow the general rules stated in 1.7.1 are:

FILE LIST BLURBS\$L	See Section 1.2.6
FILE LIST SCHED\$L	See Section 1.2.4
FILE LIST USRLST\$L	See Section 1.2.7
FILE LIST FWXnnn	See Section 3.1.6
FILE LIST ARCSTA\$L	See Section 4.2

### 1.7.3    Entering Commands from a Command File --The FILE READ Command

A file can consist of a series of valid AFFIRMS commands. Such a file is called a command file. If the file is executed using the FILE READ command, AFFIRMS takes its commands from that file instead of the terminal's keyboard. One might construct a file containing several display commands. Then, by entering a FILE READ command, the stored commands would be processed one after another. If this list of commands were needed every day, you would save the trouble of typing them each time they were needed.

Further, because the computer does not have to "read" your commands via your terminal, there is usually a dramatic increase in the speed with which the commands are carried out.

Example:

```
COMMAND:FILE MAKE R3WEA300
```

```
FIL11I HIT 'RETURN', THEN 'BREAK' AFTER LAST LINE OF TEXT  
READY FOR INPUT
```

```
SET NAME ON  
DSPI OBS STAT 29  
DSPI OBS STAT 02
```



Then each day, instead of entering those three commands separately, you could enter:

```
COMMAND:FILE READ R3WEA300
FILO2I NOW EXECUTING FILE 'R3WEA300'
```

AFFIRMS would execute the three commands in sequence and then expect its next command from your terminal's keyboard.

#### 1.7.4     Producing Headings from a Command File -- The \*

Whenever AFFIRMS finds a line in a command file preceded by an asterisk, \*, it parrots it back on your printer. In this way, you can insert special comments or headings on output. This procedure consists of creating a command file which contains the needed commands with heading and comment lines inserted. The location of these marked lines in the file determines where they will appear on the output. For example:

```
*OBSERVED WEATHER AND INDICES FOR ARIZONA
DSPI OBS STAT 02
*THE FORECASTED FIRE DANGER INDICES FOR REGION 9 ARE:
DSPX FCST REG 9
```

The two displays obtained when this command file is executed with FILE READ will appear with those headings.

1.7.5 Obtaining A List of Saved Files--The FILE NAMES Command

Users commonly lose track of files which they have created. There are two ways to obtain a list of the files saved under your user number.

When you signoff on Mondays, AFFIRMS will automatically produce a list of the files saved under that user number. This will prevent creating a text file and then forgetting it. (Each file costs about \$0.48 per month for the first 1,000 characters, and \$0.48 for every additional 1,000.) An example follows:

COMMAND:BYE

(TSP) COST: \$0.54

EXC31I REMINDER: YOUR CURRENTLY-MAILED TEXT-FILES ARE:

```

SAVED FILE,      USER NUMBER AN68700
12/23/78          TIME 10:11MST
ZER0709  1 OCT      SAV709   5 NOV      MICH709   11 NOV

0001.15 CRU      0000.02 TCH      0000.72  KC

OFF AT 10:12MST  12/23/78

```

\*\*\*-Note: When you receive this list of your existing files, check the date that each was last used. If any are obsolete, see 1.7.6 for instructions on purging them. If any file is not used for over 10 months, you will receive a warning message every Monday for 60 more days. If a file has not been accessed for over a year; it will automatically be purged and a message will advise you.

The second way to obtain this list is FILE NAMES. The computer will react as if BYE were typed on Mondays, except, instead of disconnecting the terminal, the computer will return to the COMMAND: point after the accounting is printed.

### 1.7.6 Copying a File--The FILE COPY Command

Several user functions could require more than one copy of a file. For instance, if a message is to be POSTED to more than 19 other users, the route list for a single file would be exceeded (See Section 1.8.1). In this case, a second file with a different name could be created which would also have a potential of 19 recipients.

The form of the command is:

```
FILE COPY, 'name of the new file', 'name of the old file'
```

The old file does not have to belong to the user executing this command. All the rules for the new file name, however, are carried over from the FILE MAKE command (See Section 1.7.1).

An example of the command being used by User 709 follows:

```
COMMAND:FILE COPY,NEW709,OLD800
```

### 1.7.7 Purging a File--The FILE PRGE Command

To remove a file from the computer the FILE PRGE command is used. Only the user number that created a file may purge that file. An example command is:

```
COMMAND:FILE PRGE R3WEA300
```

Up to 19 file names may appear in this command.

### 1.7.8 Summary of FILE Commands

FILE COPY;	Create a new file with the contents of the original
FILE LIST;	Print the contents of one or more files.
FILE MAKE;	Create a text file.
FILE NAMES;	List the names of files saved under your user number.
FILE PRGE;	Remove one or more files from storage.
FILE READ;	Take commands from the file.

## 1.8 \*\* MANAGING COSTS

In almost every operation certain overhead costs exist. This basic rule has two cost impacts on the AFFIRMS user. First, if a toll telephone call is required to reach the computer port, a base minimum fee for 3 minutes is charged by the telephone company even if the session is completed in less than that time. The second overhead charge of approximately \$0.30 is involved in just signing on and off the G.E. Timeshare System. Since the telephone charge is quite variable depending on location, it has not been included in the following examples. The base computer charge on the other hand is included in the figures used below.

Several factors determine the cost of putting data and commands into AFFIRMS. The first is the number of operations sharing the overhead charges. Signing on to enter the fire weather observations for one station is more expensive on a per-station basis than signing on to enter data for 10 stations. The second point involves the time it takes the operator to complete the session. Time affects both overhead charges. The telephone cost is figured on a 3-minute minimum and on each additional minute after that. The computer service, on the other hand, charges a flat rate of \$12 per hour. Therefore, the sooner the session is completed, the lower the resulting cost. Several techniques are available which will decrease the time on the terminal. These remarks are aimed at particular groups of users. Therefore, consider each logically before adopting its use in your application.

### Output

Using Command Files: Once these files have been organized, the user references the file name with a FILE READ command. The computer is able to recall the file's contents and execute the commands found there. Each command entered in AFFIRMS has an associated cost. Therefore, the contents of the file must be large enough so that the saving in reduced typing time offsets the cost of the FILE READ command. If the operator is a fair typist, the command files need to be about 10

lines long to make the command file pay. The convenience of automatic operation, however, might well justify files of only three lines. Finally, remember that each file costs \$0.48 per month as a minimum.

Magnetic Tape: If your terminal has a paper or magnetic tape unit, the same saving is possible as with command files. The tape is started and stopped automatically by the computer as it reads one command at a time.

Selecting Display Commands: The relative efficiency of the different options for the display scope is discussed in Section 1.5.4. There are, however, other factors to consider. To minimize cost you should display only the data you need with the fewest possible number of the most efficient commands.

Since the DSPC allows you to display only the information that you wish to see, it should be used whenever the predefined displays give more information than is necessary.

Let us say that you are interested in 10 stations--five on your Forest and five on adjacent BLM land. Creating either a S.I.G. of 10 stations or using the LIST scope option would permit completing the operation with one command. On the other hand, if you displayed five stations with one command and the other station with a second, your costs would run about 30 percent higher than using one command.

### Input

OBS, FCST, and ZONE commands can be entered using tape (via a command file, Section 1.7.2). The above comments concerning the utility of using these two input methods apply here, too. But, since the OBS, FCST, and ZONE commands change daily, a new tape must be made every day. Tape making and correcting is an art in itself, so a fair test of tape as an entry method will require considerable skill development before a valid comparison against keyboard entry can be made. The skill of the operator will determine that point at which the volume of data to be entered will make using tape pay. For a good typist who is proficient at making tapes, our experience is that the break-even point averages about 10 lines of input. If your input is more than 10 stations, a tape prepared and checked for errors "off line" will usually prove a better buy than "on line" keyboard entry.

## 1.9 \*\* ROUTED MESSAGES \*\*

A useful administrative feature of AFFIRMS permits any user to route a message to other users in the AFFIRMS network. The procedure consists of putting a message in a text file and instructing the computer to print out that file automatically when a particular user signs on.

When any user signs on to AFFIRMS, his user number's last three-digits are checked to see whether they appear in a special route list that is generated by the message originator with the POST command. If the user's number is found in the list, he receives a copy of the message and his number is automatically removed from the list. Therefore, he receives the message only once, for each occurrence of his number in the list.

### 1.9.1 Sending A Message--The POST Command

An example of the POST command is:

```
COMMAND:POST Filename LLL,nnn,mmm,...
```

Where lll,mmm,nnn, etc. are the last three digits of the user numbers which are to receive the message. You can specify up to 19 numbers to this route list. The same user number may be entered more than once in the list; this causes multiple postings of the message to that user. The user numbers may be found in the USRLST\$L explained in Section 1.2.7.

The file name specified for posting should already exist; you will have created it with FILE MAKE.

Only one route list for a specific file name may be in effect at any one time. Entering a POST command that cites a file which is currently posted simply overrides the earlier posting request and produces a new route list.

It is permissible for one user to enter a POST command which cites a text file owned by another user. But, if the owner purges it before everyone on the route list receives it, the first late comer will get an error message and the file will then be deposited.

1.9.2      Removing a File from the Route-List

Entering a POST command with a file name but no user number(s) causes the computer to erase the route list for that file.

1.9.3      Examining the Route List

Entering a POST command with no operands at all will display the current route lists.

Example:

```
COMMAND:POST
```

```
PST08I CURRENT POSTS
```

FILE	POSTED	FROM	TO
NAME	ON	USER	USER(S)

NEWD509	780809	509	503 504 505 506 508
---------	--------	-----	---------------------

File NEWD509 was posted on May 3, 1975 by user number 509. Users 503, 504,505, 506, and 508 have not yet received it. If other files had been posted, but not yet received by all users on their respective route lists, the above example would have included all of them.



#### 1.9.4 Posting to AFOS Users

An interface system between AFFIRMS and the National Weather Service AFOS network will be implemented in the next several years. Most NWS AFFIRMS users will have AFOS terminals at their sites, and will access AFFIRMS through AFOS.

A regular AFFIRMS user can POST a message to an AFOS user (for example, the Fire Weather Forecaster) by placing a hyphen (-) in front of one or more user numbers in the POST command. For example:

```
COMMAND:POST BLM711 501 -551 502
```

AFFIRMS would post file BLM711 to two AFFIRMS users (501 and 502) and to user 551 via the AFOS network. The AFOS interface system will recognize that such a POST is intended for one of its users and will perform necessary posting within AFOS.



## 2. USING AFFIRMS -- THE FIRE MANAGER

### 2.1 \*\* THE STATION CATALOG \*\*

The catalog is a community data file maintained by the users which contain permanent and semipermanent information about each of your fire-danger rating stations. By storing such information in the catalog, you are saved the trouble of repeatedly supplying it when you enter observations for that station. A station must be cataloged before weather data can be entered for it.

A station may be cataloged at any time, even weeks or months before it is ever actually referenced. In normal use, a station will be cataloged once prior to the first time that observations are entered for it.

Once a station is cataloged by a particular user, no other user can modify or destroy that station entry. Any user, however, can inspect any station catalog with the DESC command.

#### 2.1.1 The Initial Catalog Entry--The CTLG Command

The CTLG command makes the initial catalog entry for a station.

The following list contains a description of the operands for the CTLG command in their order of entry:

ID	The six-digit numerical station identifier. Obtain number from fire weather forecaster. Stations whose last two digits range from 90 to 99 are not archived, and are known as dummy stations. See appendix G for their use in prescribed burning.
ELEVATION	Feet above sea level, one- to five-digits.

TIME ZONE	The standard time zone in which the station is located (AST,EST,CST,MST,PST,YST,HST,BST) <u>Note:</u> Most Alaska stations should enter HST (Hawaiian Standard Time). AST means Atlantic Standard time.
FOREST OR UNIT NAME	A four-letter code for the National Forest or administrative unit in which the station is located. Forest names are to be represented by the first four letters or a phonetic abbreviation. BLM units can be shown as the first letter of the state and then BLM. BLM units in Nevada would then be NBLM.
REGION #	The USDA Forest Service Region number in which the station is located (1-10). Enter the number even if the station is run by an agency other than the Forest Service.
OBSERVING AGENCY	A one-digit code indicating the agency which operates the station. Use the following table: <ul style="list-style-type: none"> <li>1 Forest Service</li> <li>2 Bureau of Land Management</li> <li>3 National Park Service</li> <li>4 Bureau of Indian Affairs</li> <li>5 State Agency</li> <li>6 City or County Agencies or Special Districts</li> <li>7 Private or Commercial</li> <li>8 Other Federal Agencies (such as DOD, NWS, and FAA)</li> <li>9 Unknown</li> </ul>

STANDARD OBS TIME    A two-digit number indicating to the nearest hour, the time at which the station normally takes fire weather observations (for example, 15 for 1500 hours). The time-of-observation entered in OBS and ARCH commands will be required to be within 2 hours of this standard observation time. Remember, Standard, not Daylight Savings Time.

FIRE WEATHER FORECAST ZONE    A three-digit number (001-999) assigned and used by the National Weather Service to designate the fire-weather forecast zone. The first digit usually corresponds with the Forest Service Region number (for example 503 is a fire weather zone in California).

STATION NAME    An entry of one to six alphabetic characters. It can be the complete or abbreviated name of the fire weather station. If any doubt exists about the clarity of the abbreviation, use all six letters.

If you refer to an already cataloged station in a CTLG command, the message CATALOG SUBSTITUTION is given. The net effect of such a recataloging is 1) the station's catalog entry is destroyed, 2) any current OBS, SPC, or FCST data for that station is destroyed, 3) the 1000 and x1000HR timelag fuel moistures, herbaceous and woody moistures, and herbaceous stage are destroyed, and 4) the command is processed and a new catalog entry created.

\*\*\*-Note: A station catalog-entry is not completed until the HDEF, OPT, MODL, and LOC commands have also been given for that station. This must be done when initially cataloging a station, or when making a catalog substitution (recataloging).

Example of CTLG command:

```
COMMAND:CTLG 020202 6800 MST KAIB 3 1 13 308 MEADOW
```

This station's ID number is 020202; it is at an elevation of 6800 feet; in Mountain Standard Time Zone, on KAIBAB NF, in Region 3. Regular fire weather observations are taken by the Forest Service at 1300, and this station is part of Fire Weather Zone 308. The name of the station is Meadow.

### 2.1.2 Specifying the Humidity Variable--The HDEF Command

The HDEF command identifies the type of moisture-variable which AFFIRMS is to expect in OBS, SPC, or ARCH weather data from that specific station. Two operands are used with HDEF:

ID;	The six-digit station identifier
HUMIDITY CODE;	A one-digit number indicating the moisture variable to be entered.

- 1 = Wet-bulb temperature (Deg. F)
- 2 = Relative humidity (percent)
- 3 = Dewpoint temperature (Deg. F)
- 4 = Wet bulb (Deg. C) \*
- 5 = Relative humidity (percent) \*
- 6 = Dewpoint (Deg. C) \*

The HDEF command must be given sometime between the time that a station is cataloged (or recataloged) and the first time that OBS, SPC, or FCST commands are used for that station.

The humidity variable specification may be changed at any time, as desired. An example of the HDEF command:

```
COMMAND:HDEF 020202 1
```

We have specified that Station 020202 will enter wet-bulb temperature and use English units for all other weather elements.

---

\* Wind will be reported in meters/minute

2.1.3 Specifying Other Station Data --The OPT Command

The OPT command is used to determine optional station characteristics. The OPT command requires six operands:

ID	The six-digit station identifier
# of Display Classes	Number of manning classes being used by owning agency (3 to 9). See appendix E.
MI	Manning Index used by owning agency (see chart for manning index)
Associated Station	Number of a manual station from which man-observed items will be obtained if station being cataloged is an automatic station. Enter M if this not an automatic station.
Lightning Scaling Factor	Legal values may range from 0.01 through 5.0 with 1.0 as the default value.
Date on which Fuel stick was installed	Use form yymmdd

The MI operand is the abbreviation of the NFDRS component or index on which the manning guides of the suppression organization are based.

Manning Index (MI)

<u>Operand</u>	<u>Manning Index</u>
IC	Ignition component
SC	Spread component
EC	Energy release component
MO	Man-Caused occurrence index
LO	Lightning-Caused occurrence index
BI	Burning index
FL	Fire load index

Example of the OPT command:

```
COMMAND:OPT 020202,3,BI,M,1.05,780703
```

We have specified that station 020202 will use three display classes, derive its manning class from Burning Index, has no associated station, has a lightning scaling factor of 1.05, and installed its fuel sticks on July 3, 1978.

You may enter M (missing) for those OPT command inputs which you want to leave unaltered. For example:

```
COMMAND:OPT 045691,M,M,045603,M,M
```

The above command would change the "associated station" specification while leaving the other items unchanged.



#### 2.1.4 Specifying the Station Location--The LOC Command

The station location is used to calculate changing day length, computer graphics, and for fire behavior interpolation of the standard observation to other locations and times of day. The operands for the command are:

ID	The six-digit identifier						
LATITUDE	Degrees and decimals of degrees, so that 35 degrees 58 minutes is entered as 35.97						
LONGITUDE	Entered in the same form as latitude						
ASPECT	Indicate the direction in which the station slopes with any of the wind systems; eight-point number, 16-point number, 16-point letter, or degrees of the compass. See Note 4 of Section 2.2.3.						
Site	A one-digit indicator for type of site: <table> <tr> <td>Valley bottom or flat</td> <td>1</td> </tr> <tr> <td>Midslope</td> <td>2</td> </tr> <tr> <td>Ridge or peak top</td> <td>3</td> </tr> </table>	Valley bottom or flat	1	Midslope	2	Ridge or peak top	3
Valley bottom or flat	1						
Midslope	2						
Ridge or peak top	3						

A sample of LOC command follows:

```
COMMAND:LOC 020202,35.15,112.12,7,1
```

#### 2.1.5 Specifying the Station Fuel Model(s) --The MODL Command

The MODL command is used to select the fuel models, slopes, and manning levels that are to be used for a given station. Refer to the following table for descriptions of the operands and their order:

ID	The six-digit station identifier
CLIMATE CLASS	A one-digit number, either 1, 2, 3, or 4
FUEL-MODEL-SLOPECLASS-GRASSTYPE	A one-letter code for the fuel model (A to U only), a one-digit number (1,2,3,4,or 5 only) for slope class, and a letter (A or P) A = Annual; P = Perennial, indicating grasstype.
MI90&97	A four-, five-, or six-digit number indicating the 90th and 97th percentile values of manning index. For example, if the MI90 and MI97 were 4 and 12, respectively, you would enter 0412. A separate computer program named FIRDAT must be run against historical fire weather to obtain these values. (Where not known, enter 0000). (See Appendix E for information on how this entry is used.) See Section 4.5 for special instructions if the percentiles in the existing catalog need to be changed. DO NOT enter a new MODL command if the percentiles are the only change to be made.

Note: The Bureau of Land Management is using the 80th and 95th percentiles of the Burning Index, and the Forest Service, the 90th and 97th percentiles. If your agency mans on an index different than the BI, enter the appropriate percentile values for that component or index.

If more than one model is to be specified, repeat the fuel model name-slope class-herbaceous type-MI90&97. This command permits a variable number of operands; for one model, there will be 4 = (2+2), for two models, 6 = (2 +4), etc. The model specifications must always be grouped in pairs following the two header-operands. A maximum of four model-slope-grass type combinations can be specified for each station.

Here is an example of a MODL command specifying two fuel models:

```
COMMAND:MODL 020202 3 C2P 2440 B2A 86106
```

We have specified for station 020202, climate class 3, with two fuel models. The first is model C, slope class 2, with perennial grass, with MI90=24 and MI97 = 40. The second model is B, slope class 2, with annual grass, with MI90=86 and MI97=106.

\*NOTE: When several combinations of Model-Slope-Grass type-MI90&97 are to be entered place the most important combinations first in the MODL command.

ANY TIME THAT A MODEL COMMAND IS ENTERED IT COMPLETELY OBLITERATES ANY PREVIOUS MODEL SPECIFICATIONS AS WELL AS THE CARRIED 1000HR AND X1000HR MOISTURES. THE HERBACEOUS AND WOODY VEGETATION CONDITIONS ARE ALSO ERASED. THEREFORE, IF A HERB AND OR WOOD COMMAND HAS EVER BEEN ENTERED IT MUST BE REENTERED ANEW ANYTIME THAT A MODL COMMAND IS USED. See Section 4.4 for instructions on reentering the 1000hr, x1000 and 100hr moistures after entering a MODL command.

#### 2.1.6     Specifying the Herbaceous Vegetation Stage--The HERB Command

The HERB command permits you to declare the herbaceous-vegetation-stage for each fuel model used at a given station. The specifications can be changed any time as needed. The operands of the command are:

ID:	The six-digit identifier
MODEL-NAME;	A one-letter code for the fuel model which has been previously cataloged for this station
HERBACEOUS- VEGETATION.-STAGE	One of: GREEN, CURED, or FROZEN

To specify values for more than one fuel model, repeat the fuel model name-herbaceous state operands. For example, if a station used fuel models C and H, we could specify herbaceous green-up for the C and H models like this:

```
COMMAND:HERB 020209 C GREEN H GREEN
```

The order of the fuel models is not important. Also, one or more conditions can be specified without affecting those previously specified for the other fuel models.

Note that it is not permissible to specify PREGREEN or TRANSITION. Those stages can only occur when the program's curing computations dictate.

Three HERB commands can be entered by the user, each is used at a particular time. Enter GREEN each time the herbaceous plants react to improved growing conditions. This is usually once a year in the spring. Several times a year are possible in desert climates. The program greens up the model's living fuels at a rate set by the CLIMATE CLASS. One, 2, 3, or 4 weeks will be used. The choice will correspond to climates 1, 2, 3, or 4.

Enter FROZEN when cold temperatures kill herbaceous plants and force woody plants into dormancy.

Enter CURED when the program does not kill the herbaceous plants on a timetable matching phenological curing. It is also used to signal the death of herbaceous plants due to cold temperatures when the temperature is not low enough to effect woody plants. (See FROZEN above.)

The station actually has two Herbaceous stages: 1) the user input with the HERB command and 2) the program determined condition. Your input shows up in the station description with a DESC command (Section 2.1.7). The program determined stage shows as item 46 in the FORM-DSPC commands (Section 1.5.2.2).

2.1.7      Specifying the Woody Moisture Content--The WOOD Command

The WOOD command is a special purpose feature reserved for those locations that actually collect and measure fuel samples of living branch wood and foliage. The purpose of this measurement is to tune up the internal calculation of the woody vegetation moisture content. Therefore, if actual measurements are not made, do not use this command.

The command has two operands, the station number and a moisture content. The maximum moisture content is 200, while the minimum value is determined by climate class, with 50, 60, 70, and 80 percent corresponding to the minimum values for climates 1, 2, 3, and 4. An example of the command follows:

```
COMMAND:WOOD 020202 105
```

The entered value will be used to guide the calculations for the next 30 days. If another measurement is not made within this period, a message is printed for 5 days warning of the stale wood data. After this period the program will compute the moisture internally without considering the old measured value.

2.1.8      Listing The Station Catalog--The DESC Command

The DESC command causes the catalog for a specified station to be printed. The command takes 1 to 20 operands, each of which is a six-digit station identifier. An example of a DESC command:

```
COMMAND:DESC 041095
```

```
STATION 41095 WESTPK CATALOG ENTRY (LAST MOD:0831/ 1330) CONTAIN  
USER-NUM:709, ELEV:2000, AGENCY:FOREST SERV., REG:5, UNIT:NFDR,  
TIME:PST, OBS-TIME:1300, HUM-ENTRY:REL. HUM, FWX-ZN:999  
LAT/LONG:35.9/98.6, LIGHTNING SCALE FACTOR: 1.00  
FORCED WOODY FM: 76.0 DATE MEASURED: 780831  
FUEL-STICK DATE: 7781003  
ASPECT: 45 (DEG.), SITE: VALLEY  
MODELS: A4A2 B3A2  
HERB-STAGE:GREEN GREEN  
GREEN UP: 7805109 780601  
(5) BI  
LEVELS: 50./64. 100./120.
```

### 2.1.9 Removing a Station Catalog--The DEL Command

Do not delete your station catalog at the end of each fire season! It is cheaper to leave the catalogs in the computer. The storage cost of catalogs is paid as part of the AFFIRMS overhead costs.

The DEL command is used to remove a station from the catalog. The command takes just one operand, the six-digit station identifier. An example of the DEL command:

```
COMMAND:DEL 292503
```

We have requested that the catalog for station 292503 be removed from the AFFIRMS data file. Any reference to this station will now be cited as an error.

When the catalog entry is deleted, any current OBS, FCST, or SPC weather-and/or-indexes for that station will also be deleted from the Current Observation File (C.O.F.).

\*\*\*-Note: If a station is deleted and then recataloged with the CTLG command, the OPT, HDEF, MODL, and LOC commands must be reentered.

### 2.1.10 Adding or Changing the Station Name--The NAME Command

The NAME command is used when a station was cataloged without a name or if the station name has changed and a correction to the catalog is desired.

```
COMMAND: NAME 482103 FOXPRK
```

After this command is entered, a DESC of 482103 will show FOXPRK as the station name, and FOXPRK will start the display line for 482103 if the SET NAME ON command precedes a display command. Only the owner of a catalog may change cataloged data.

2.1.11 Changing the Station Fire Weather Zone--The FWXZ Command

Occasionally, the Fire Weather Forecaster will realine the boundaries of a fire weather forecast zone. At his direction, the land manager operating the affected station will use the FWXZ command to make this change. The rest of the catalog is not affected. The command form is:

```
COMMAND:FWXZ 020202 308
```

Following the execution of this command, a DESC of 020202 will show a change in the FWX-ZN value. Also, all forecasts or observations for this station residing in the C.O.F. will be flagged with the new FWX-ZN number.

Note that this command may be given only by the station's owner, not by the Fire Weather Forecaster.

## 2.2 \*\* ENTERING OBSERVED FIRE WEATHER DATA \*\*

The displaying of fire weather and fire danger information, both observed and predicted, was covered in Section 1.5. Before information can be displayed, however, data must be entered into the computer for storage and/or processing. Fire management is normally responsible for putting fire weather observations into AFFIRMS. AFFIRMS then does the calculations necessary to produce the fire danger ratings and makes them ready for display upon request. The fire weather forecaster would normally be responsible for inputting the fire weather forecasts. In this section, we will look at the OBS, SPC, and ARCH, the commands used to enter the fire weather observations.

The weather data entered with OBS and SPC commands are used to compute fire danger indexes. Then the weather and the indexes are stored in a large random-access data file, called a Current Observation File (C.O.F.). This file is accessible to all users through the display commands. The new data replace any earlier data of the same type; that is, a new OBS would override the previous day's OBS data.

OBS and SPC entries are treated identically except that only OBS entries are used to determine yesterday's 100-hour and 1000-hour timelag fuel moisture value. The AFFIRMS program recognizes that these heavy fuels require many days to react to weather conditions. The current heavy fuel moistures are computed using observed weather and yesterday's fuel moistures. If the computer does not find an OBS less than 3 days old, "yesterday's" 10 and 100 hour fuel moistures are defaulted. If the data gap is more than 50 days the 1000-hour fuel moisture is also defaulted. The default values are selected by climate class.

When the entry of observations has been missed, more accurate heavy fuel moisture values result from entering the data using the DATE command to adjust the date, then the OBS command to enter weather data. The oldest data must be entered first. (Note that this will also archive data just as though an ARCH command were also entered.)



To prevent unauthorized entry of observations for a station, AFFIRMS checks to insure that the user-number under which the station was originally cataloged matches that of the user who is attempting to enter an OBS, SPC, or ARCH command. The entry is ignored unless the user-numbers match.

Shortly before midnight each day, AFFIRMS automatically copies any current OBS data from the C.O.F. into a permanent archive. If archiving of noncurrent data is desired when regular-scheduled observations (OBS) are not entered, the ARCH command must be used. Data entered with this command are sent directly to the permanent archive; no indexes are computed, the fuel moistures are not updated and the data are not stored in the C.O.F. Hence data are not accessible via the display commands. The format of the data in the permanent archive is given in appendix H.

### 2.2.1 The Basic Fire Weather Observations--The OBS Command

#### OPERANDS FOR THE OBS COMMAND

Operand data	Type (see note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-Ok (see note 2)
Station #	Num.	No	6	6	010101	509999	Never
Obs. time	Num.	No.	2	2	01	24	Never
State of Wx (See Note 8)	Num.	No.	1	1	0	9	Never
Dry-bulb temp.	Num.	Optional	1	4	-100	136	Never
Hum. entry (See Note 3)	Num.	Optional	1	3	Varies	Varies	Never
ML (Morning's lgt. act. lvl, Note 9)	Num.	No	1	1	1	6	Never
Man risk	Num.	No	1	3	0	100	Never
Wind direct. (See Note 4)	Mixed	No	1	3	Varies	Varies	Anytime
Windspeed	Num.	No	1	2	0	99	Never
10-Hr-T/L moisture	Num.	Optional	1	4	1	99	Station Dep.
Max. temp.	Num.	No	1	3	Dry-B	136	Station Dep.
Min. temp.	Num.	No	1	4	-100	Dry-B	Station Dep.
Max. RH	Num.	No	1	3	Obs.RH	100	Station Dep.
Min. RH	Num.	No	1	3	1	Obs.RH	Station Dep.
Precip. amt. (See Note 6)	Mixed	Required	1	5	0.00	9.99	Never
YL (Prev. day's lgt.act.lvl., Note 9)	Num.	No	1	1	1	6	Never
Forecasted MC-Risk (See Note 7)	Num.	No	1	3	0	100	Never
UNKO (See Note 10)	Mixed	No	0	8	Varies	Varies	Anytime

Because automatic archiving of OBS data takes place at 2300 MST each night, it is important that AFFIRMS users avoid entering OBS commands between hours indicated below:

Bering Standard	7 p.m.	8 p.m.
Hawaiian Standard	8 p.m.	9 p.m.
Alaskan Standard	8 p.m.	9 p.m.
Yukon Standard	9 p.m.	10 p.m.
Pacific Standard	10 p.m.	11 p.m.
Mountain Standard	11 p.m.	Midnight
Central Standard	Midnight	1 a.m.
Eastern Standard	1 a.m.	2 a.m.
Atlantic Standard	2 a.m.	3 a.m.

2.2.2 The "special" observation and archiving "missed" regular observations--  
the SPC and ARCH commands

OPERANDS FOR THE OBS COMMAND

Operand data	Type (See Note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-Ok (See Note 2)
Station #	Num.	No	6	6	010101	509999	Never
Obs. time	Num.	No.	2	2	01	24	Never
State of Wx	Num.	No.	1	1	0	9	Never
Dry-bulb temp.	Num.	Optional	1	4	-100	136	Never
Hum. entry (See Note 3)	Num.	Optional	1	3	Varies	Varies	Never
ML (Morning's lgt. act. lvl, Note 9)	Num.	No	1	1	1	6	Never
Man risk	Num.	No	1	3	0	100	Never
Wind direct. (See Note 4)	Mixed	No	1	3	Varies	Varies	Anytime
Windspeed	Num.	No	1	2	0	99	Never
10-Hr-T/L moisture	Num.	Optional	1	4	1	99	Station Dep.
Max. temp.	Num.	No	1	3	Dry-B	136	Station Dep.
Min. temp.	Num.	No	1	4	-100	Dry-B	Station Dep.
Max. RH	Num.	No	1	3	Obs.RH	100	Station Dep.
Min. RH	Num.	No	1	3	1	Obs.RH	Station Dep.
Precip.dur. (See Note 5)	Num.	No	1	3	-24	23	Never
Precip. amt. (See Note 6)	Mixed	Required	1	4	0.00	9.99	Never
YL (Prev. day's lgt.act.lvl., Note 9)	Num.	No	1	1	1	6	Never

### 2.2.3 Explanatory Notes for OBS, SPC, and ARCH Commands

- \*\*\*-Note 1: "Type" refers to the kind of character allowed; "Num." indicates numbers only; "Alpha", alphabetical letters only; "Mixed", numerical or alphabetical.
- \*\*\*-Note 2: Under "Missing OK": "Never" means the data are always required; "Anytime" means the data are not required (but may be entered, for the record); if it is not entered, an M must, however, be typed in that location; "Station Dep." means the data should be entered if available to improve the accuracy of fuel moisture computations.
- \*\*\*-Note 3: Humidity may be entered as wet-bulb, relative humidity, or dewpoint temperature. The selection is made using the HDEF command. The selection once made stays in effect for all future entries until another HDEF command is given (see Section 2.1.2).
- \*\*\*-Note 4: Wind direction may be entered in regular 8-point one-digit form, in 16-point two-digit form, in degrees-of-the-compass three-digit form, or in 16-point letter codes. Thus, all of the following would give the same wind direction (the direction is stored and archived as eight-point):  
1,02,045,NE. (If 0 entered for Windspeed then a 0 or M must be entered for Direction.)
- \*\*\*-Note 5: "Fuels Wet" can be indicated by entering the Precip. Dur. as a negative number. For example, if the actual precipitation duration was 3 hours, you would enter -3 if fuels were still wet. If snow or ice still cover the sticks, but no precipitation has fallen that day, enter -0. Any negative number sets all indices to zero.
- \*\*\*-Note 6: For an amount less than 0.005 enter "T" (trace). (If T is entered, you must enter at least 1 in Duration.) A decimal point is not required if the amount is zero.

\*\*\*-Note 7: Forecasted Man-Caused Risk is entered in OBS command only. This value is then automatically used as the Man-Risk in any subsequent FCST display. This feature permits the Man-Risk to be entered at the Forest level (via OBS).

\*\*\*-Note 8: States of the weather 5, 6, or 7 (drizzle, rain, and snow) cause all indexes to be set to zero because generalized precipitation over the protection unit is assumed. States of weather 8 and 9 assume localized precipitation and will not zero out all indexes.

\*\*\*-Note 9: ML is the lightning activity level which best describes the lightning situation from midnight to basic observation time. YL is the lightning activity level for the entire previous day. YL cannot be less than the ML from yesterday's observations. See appendix I for the use of the lightning activity level.

\*\*\*-Note 10: The UNKO field consists of 0 to 6 letters or numbers in any format. (Do not use spaces, commas, semicolons or slashes.) It may be used to send any type of local interest information in codes or format of your choice, for example, cumulus cloud build-up status, altimeter setting, etc. The UNKO field appears in DSPW OBS displays and may also be seen DSPC displays.

#### 2.2.4 Examples of Use of OBS, SPC, ARCH Commands

Here are some examples of OBS, SPC, and ARCH commands:

```
COMMAND:OBS 020202 13 1 95 25 1 37 NE 12 35 100 69 35 21 1 .01 44
COMMAND:SPC 020202 13 1 95 25 1 37 NE 12 35 100 69 35 21 1 .01 1
COMMAND:ARCH 020202 13 1 95 25 1 37 NE 12 35 100 69 35 21 1 .01 1
```

(Note that the SPC and ARCH commands are identical to the OBS command if the predicted Man-Risk, the last OBS operand, is removed. See exhibits I and II in the sample works sheets at the back of this publication.

Here is a typical sequence showing the use of the ARCH command to archive data which was not entered the day the observations were made. First, the system date is set as necessary (See Section 1.4.6). Then one or more ARCH commands follow. The Break-Key is hit after the series to revert the date back to today's. If a second set of ARCH commands follow the first, do not hit the break-key, but rather enter another DATE command and continue with the next ARCH set.

OBS commands could replace the ARCH commands in this example if the DATE commands were in past-to-present order and no OBS had been entered which postdates the DATE commands.

Note: If the herbaceous vegetation stage has changed during the inactive period that the ARCH command covers, a HERB or WOOD command can be given in the same date order.

```
COMMAND:DATE 79/04/15 (first we set the date back as needed)
EXC04I DATE OVERRIDDEN 79/04/15
```

```
COMMAND:ARCH 020202 13 1 85 35 1 45 NW 7 23 90 68 52 25 1 .03 2
      (This archives the stale data for 020202 see worksheets at
      end of publication exhibit III)
```

```
COMMAND:ARCH 020601 13 1 84 37 1 52 N 6 26 89 67 45 31 0 0 1
      (DATE command still in effect, archiving for 020601)
```

```
COMMAND:HERB 020202 C Green (Changing herbaceous vegetative condition
      for succeeding ARCH or OBS commands.)
```

```
COMMAND:DATE 79/04/16 (Continue the archiving session)
```

```
COMMAND:ARCH 020202 13/3/48 90 1 25 NW 4 20 50 35 100 80 -5 .47 1
      (This archives weather data for April 16, 1979 including the
      green-up date of the herbaceous vegetation which was put in catalog
      storage by the HERB command.)
```

For greatest efficiency, you should use a series of ARCH commands (for several days and/or stations) in one session, rather than signing on each day to put in one ARCH command. If several ARCH commands are entered for the same date and station, only the last entry will be permanently saved. This feature allows correction of errors by rearchiving the data.

\*\*\*-Note: Sample worksheets are included at the end of the publication. reproduced and used to assist in the encoding of OBS, SPC, and ARCH commands. Exhibit 2 is for SPC and ARCH commands. The SPC and ARCH commands are identical to the OBS command if the last column, Man-Risk is left off the OBS form.

#### 2.2.5 Entering Stale Observational Data

To avoid the requirement for entering the date for each observation the program assumes that any data entered is for today's date. If an observation is taken and not entered on the same day, special steps must be taken to notify the system of the correct date. The DATE command performs this function. See Section 1.4.6 for details concerning the DATE command.

Two techniques are available for inputting missed observations. An OBS or ARCH command may be used after the DATE command to process the data.

The ARCH command is a direct entry method that insures that the observation is stored for future use at the National Fire Weather Data Library. It does no calculations. Therefore observations entered in this way do not bring the 100, 1000, x1000, herbaceous or woody fuel moistures up to date. Since no calculations are made, the data can be entered for any past date, even years ago. The other consequence of skipping the calculations is that the command has a low cost. These two facts, no calculations and low cost, make the ARCH command the best choice for correcting data entered in error or missed from early in the season or in other years.



The OBS command entered after a DATE command accomplishes the same permanent storage of the observation as the ARCH. In addition, it also does the normal daily computations. Since computations are being done, the sequence of DATE and OBS commands must fill in any gap in the records (from oldest to newest). Computation makes this technique more expensive than the ARCH. As each observation is processed, it replaces a data file for OBS that is available to all users. Therefore, if the user wishes to display the results of a series of DATE and OBS commands, the display commands must also be placed in the series before the next DATE command.

### 2.3      Obtaining the Fire Weather Forecast Narrative

Predicted fire weather usually consists of such forecasted weather elements as temperature and wind and a narrative describing the expected weather. To obtain the narrative, the FILE LIST FWXnnn command is used. The nnn represents the three-letter airport abbreviation used by the National Weather Service. (See Section 1.2.7 for instructions on obtaining the three-letter abbreviations from USRLST\$L). A sample command is:

```
COMMAND:FILE LIST FWXBOI
```

This command would give you the current forecast fire weather narrative issued by the Boise Office of the National Weather Service.



### 3. USING AFFIRMS -- THE FIRE WEATHER FORECASTER

#### 3.1 \*\* ENTERING FIRE WEATHER FORECASTS \*\*

Affirms allows considerable flexibility to the forecaster as regards the entry of forecasted weather information. The FCST command is used to enter forecasts of the absolute values of meteorological variables for a station or series of stations. The ZONE command allows a trend forecast to be supplied to a group of stations within a fire weather forecast zone or to a single station.

##### 3.1.1 The Point Forecast -- The FCST Command

The weather data entered using the FCST command is used to compute predicted fire danger indexes. Then the weather and the indexes are both stored in a large random-access data file, called a Current Observation File (C.O.F.). This data file is accessible to all users via the display commands. The new data replaces any earlier data of the same type; that is, a new FCST would override the previous day's FCST. Data entered with FCST is valid for the current date plus one day (that is, tomorrow's date).

## OPERANDS FOR THE FCST COMMAND

Operand data	Type (See Note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-Ok (See Note 2)
Station #	Num.	No	6	6	010101	509999	Never
Valid time	Num.	No.	2	2	01	24	Never
State of Wx	Num.	No.	1	1	0	9	Never
Dry-bulb temp.	Num.	Optional	1	4	-100	136	Never
Relative hum. (See Note 3)	Num.	Optional	1	3	Varies	Varies	Never
AL (Afternoon's lgt. act. lvl)	Num.	No	1	1	1	6	Never
TL (Tomorrow's lgt. act. lvl, See Note 4)	Num.	No	1	1	1	6	Never
Wind direct.	Mixed	No	1	3	Varies	Varies	Anytime
Windspeed	Num.	No	1	2	0	99	Never
10-Hr-T/L moisture	Num.	Optional	1	4	1	99	Anytime
Max. temp.	Num.	No	1	3	Dry-B	136	Never
Min. temp.	Num.	No	1	4	-100	Dry-B	Never
Max. RH	Num.	No	1	3	Obs.RH	100	Never
Min. RH	Num.	No	1	3	1	Obs.RH	Never
Precip. dur. 1 (See Note 7)	Num.	No	1	2	0	16	Never
Precip. dur. 2 (See Note 7)	Num.	No	1	2	-8	7	Never

3.1.2 The Trend Forecast -- The ZONE Command

The Zone command is designed to simplify the work of the fire weather forecaster. When the forecaster normally issues trend forecasts for a fire-weather zone instead of specific values for individual stations, the ZONE command should be used instead of the FCST command.

When the forecaster enters a ZONE command, the trends are automatically applied to all current observations for stations located in that zone. Then, AFFIRMS generates forecast entries for each station, just as if the forecaster had entered a separate FCST command for those stations.

If one or more stations in the zone require a special forecast (that is, the trend does not apply to them), the FCST command can be used to override the ZONE forecast.

If experience shows that a station's fire weather zone should be changed, use the FWXZ command (Section 2.1.10). This command permits a change of zone number without the expense and effort of recataloging the station.

\*\*\*-Note: If the current day's observation for a station is not entered into AFFIRMS before the ZONE forecast, there will be no forecast made for that station that day. If there are no current OBS commands for any station in a zone, the forecaster will receive a message with that information. A series of FCST commands would then be needed for the missing stations. Since FCST commands contain absolute weather elements rather than trends, the computer can produce a forecast without current weather observations.

## OPERANDS FOR THE ZONE COMMAND

Operand data	Type (See note 1)	Dec. Pt.	Min. Len.	Max. Len.	Min. Val.	Max. Val.	Missing-Ok (See Note 2)
Zone number (See Note 11)	Num.	No	3	3	001	999	Never
Region number	Num.	No.	1	2	1	10	Never
Valid time	Num.	No.	2	2	01	24	Never
State of Wx (See Note 10)	Num.	No.	1	1	0	9	Never
Dry-B tmp.trend	Num.	Optional	1	3	-40	+40	Anytime
Rel-hum. trend (See Note 3)	Num.	Optional	1	3	-90	+90	Anytime
Windspeed trend	Num.	No	1	3	-40	+40	Anytime
Precip. dur. 1 (See Note 7)	Num.	No	1	2	0	16	Never
Precip. dur. 2 (See Note 7)	Num.	No	1	2	-8	7	Never
Max.-tmp. trend (See Note 8)	Num.	No	1	3	-40	+40	Anytime
Min.-tmp. trend (See Note 8)	Num.	No	1	3	-40	+40	Anytime
Max.-RH trend (See Note 8)	Num.	No	1	3	-90	+90	Anytime
Min.-RH trend (See Note 8)	Num.	No	1	3	-90	+90	Anytime
AL (Afternoon's lgt. act. lvl)	Num.	No	1	1	1	6	Never
TL (Tomorrow's lgt. act. lvl) (See Note 4)	Num.	No	1	1	1	6	Never
10-HR-T/L moisture (see Note 9)	Num.	Optional	1	5	-65	+65	Anytime

### 3.1.3 Explanatory Notes for the FCST and ZONE Commands

- \*\*\*-Note 1: "Type" refers to the kind of character allowed; "Num." indicates numbers only; "Alpha." means letters only; "Mixed" means numeric or alphabetic.
- \*\*\*-Note 2: Under "Missing OK"; "Never" means the data are always required; "Anytime" means the data are not required, but may be entered for the record (if it is not entered, an M must be typed in to fill that location). When an M is permissible and is used with the ZONE command, it will be treated as a zero trend (persistence).
- \*\*\*-Note 3: For FCST commands, the humidity variable is automatically assumed to be relative humidity, regardless of the HDEF in effect for the station. "SET DWPT ON" may be used if you wish to enter dewpoint instead. (See Section 1.4.7.6)
- \*\*\*-Note 4: AL is the predicted lightning activity level (LAL) for this afternoon and evening from basic observation time to midnight. TL is the predicted LAL for tomorrow, midnight to midnight. See appendix I for the use of LAL.
- \*\*\*-Note 5: Wind direction may be entered in regular eight-point one-digit form, in 16-point two-digit form, in degrees of the compass three-digit form, or in 16-point letter-codes. Thus, all of the following would give the same stored wind direction (the direction is stored internally as eight-point):  
1, 02, 045, NE,
- \*\*\*-Note 6: Used if entered in FCST commands. If entered as missing, it is computed from the temperature and humidity forecast for basic observation time. (See Section 3.1.7)

\*\*\*-Note 7: "Fuels Wet" can be indicated by entering the Precip. Dur. as a negative number. For example, if the precipitation duration was forecasted to be 3 hours, and fuels were expected to be wet at the forecast valid time, you would enter -3. "Precip. Dur. 1" is for the first 16 hours; "Precip. Dur. 2" for the last 8 hours of the 24-hour period between basic observations. If you expect the fuels to be covered by ice or snow that fell before this 24-hour period, predict a -Ø (minus zero) for "Precip. Dur. 2". All indexes will be forced to 0 (zero) if a negative duration is forecast.

\*\*\*-Note 8: If it is desirable to forecast the average 24-hour temperature and relative humidity, enter the same trend for both the Max. and Min. forecasted values. This will have the same effect as trending the averages.

\*\*\*-Note 9: If the 10-HR T/L trend is entered as missing, the forecasted 10-HR moisture will be computed as shown in Brugan and others, 1978 (INT-40)\*. If a trend is entered, it will be applied to the 10-HR T/L moisture value taken from the observation on which the forecast is based. Zero trend must be enter as Ø not M.

\*\*\*-Note 10: States of weather 5, 6, or 7 (drizzle, rain, and snow) cause all indexes to be set to 0 (zero).

\*\*\*-Note 11: A single station number may be used instead of a zone number, in which case, the trend is applied to that single station only. This is equivalent to a zone containing just one station.

#### 3.1.4 Temporary Station Groupings--The STOW Command

There are times when fire weather forecasters wish to apply the same station forecast to more than one station, or the same zone forecast to more than one fire weather zone.

---

\*Burgan, Robert E, Jack D. Cohen, and John E. Deeming. 1978. Manually Calculating Fire-Danger Ratings - 1978 National Fire Danger Rating System. USDA Forest Service General Technical Report INT-40. Intermountain Forest & Range Experiment Station, Ogden, Utah.



The STOW command permits this kind of blanket forecast to be made. The STOW command places up to 19 station-numbers or 19 fire-weather zone numbers into a temporary "stow" group within AFFIRMS. This "stow" exists only for the duration of that AFFIRMS session. The command takes two forms:

COMMAND:STOW ID,111111,mmmmmm,nnnnnn (where 111111, etc. are station identifiers)

COMMAND:STOW ZONE,111,mmm,nnn (where 111, etc. are fire weather zone identifiers in the Forest Service Region)

The "stow" is held until another STOW overrides it.

The "stow" is then utilized by using the word STOW in place of either the zone-number (as in a ZONE command) or the station-number (as in a FCST command).

\*\*\*-Note: The "stow" is eliminated at the end of the AFFIRMS session or whenever another STOW command (of the same type, ID or ZONE) is entered.

\*\*\*-Note: No ZONE command may apply to more than 40 stations, whether in a single zone or a "stow" group.

### 3.1.5 Examples of FCST, ZONE, and STOW Commands

Here are examples of the FCST and ZONE forecasts:

```
COMMAND:FCST 020202,13,1,95,25,2,3,NE,12,M,100,71,36,21,1,4
(There is no forecast of the 10-HR T/L fuel moisture.)
```

```
COMMAND:ZONE 311,3,13,1,5,-2,0,1,5,3,-2,-2,1,1,-5
```

In the FCST example, the prediction relates to station 020202 only; in the ZONE example, the trends will be automatically applied to the current observations of all the stations in forecast zone 311 in Forest Service Region 3.

\*\*\*-Note: In the sample worksheets at the end of this publication exhibits 3 and 4 can be reproduced and used to assist in encoding of FCST and ZONE commands.

Here is an example of using the STOW command. First, tell the computer which stations (forecast zones) that the FCST STOW (ZONE STOW) is to be applied to, and then enter the appropriate STOW command.

```
COMAMAND:STOW ID,020202,020203,020204
```

```
COMMAND:FCST STOW,13,1,95,25,2,3,NE,12,M,100,71,36,21,1,3
```

The identical FCST command will be applied to stations 020202, 020203, and 020204.

```
COMMAND:STOW ZONE 301,302,303
```

```
COMMAND:ZONE STOW,3,13,1,5,-2,+2,0,1,+5,+4,-2,1,1,-5
```

The identical trends specified in the ZONE command will be applied to all stations in fire weather zones 301, 302, and 303 in Forest Service Region 3.

\*\*\*-Note: The F.S. Region number is the first operand after ZONE STOW verb. Before a ZONE STOW... command can be used, a STOW ZONE command must precede it sometime during the session. Likewise, a FCST STOW... command must be preceded sometime during the session by a STOW ID... command. Failure to do this will result in an error message and a request for a new command.

### 3.1.6      The Forecast Narrative

It is customary for narrative descriptions of synoptic patterns, trends, outlooks, etc. to be part of the fire weather forecast. AFFIRMS allows such information to be communicated to the fire manager through a text file (see the FILE MAKE command, Section 1.7.1). It is only necessary for the fire manager to know the name of the text file that contains the narrative. He can retrieve the narrative with the FILE LIST command.

File names for these narratives are designated as follows:

FWXwww

Where the www is the alphabetic identifier of the Weather Service Forecast office. For instance, FWXLAX represents Los Angeles. The alphabetic identifiers for all NWS Forecast Offices entering data into AFFIRMS are in the USRLST\$L file. Section 1.2.7 explains how to get a copy of USRLST\$L.

If several narratives are routinely issued from one forecast office, they might be designated by appending a number. For instance: FWXLAX1, FWXLAX2, and FWXLAX3.

An example of a forecast narrative can be found in appendix A.

## 3.2 \*\* AMENDING THE FIRE WEATHER FORECAST \*\*

If a forecast, whether issued as a FCST or ZONE command, requires amending the same day as the original forecast, no special procedures are required. Simply enter the amended forecast the same way as you would enter the original.

If the forecast requires amending the next day (the day the original forecast was valid for), the DATE command must be used first (see Section 1.4.6). It is necessary because the date assigned to the forecast by the computer is the current day plus 1 (Section 3.1.1). If you attempt to enter a ZONE command without resetting the date, you will get an error message because there will be no observations found in the C.O.F. with today's date. If you use the FCST command, the valid date would be tomorrow's (today's date plus 1).

Example of amending a forecast on June 28 which was originally issued on June 27:

```
COMMAND:DATE 78/06/27
```

```
EXC041 DATE OVERRIDDEN 78/06/27
```

```
COMMAND:ZONE 311,3,13,2,7,-1,4,2,1,4,4,-1,-1,2,2,12
```

```
COMMAND:(Operater hits Break-Key to revert date) to June 28)
```

```
EXC091 DATE REVERTED (Computer response)
```

```
COMMAND: (continue business).
```

## 4. USING AFFIRMS -- THE REGIONAL FIRE MANAGER

### 4.1 \*\* SCREENING LARGE STATION GROUPS \*\*

To permit managers with large numbers of stations to selectively display a few stations, the screening SET commands were introduced.

#### 4.1.1 Screening by Manning Class -- The SET MC Command

In the following example a user wished to sort through all 220 California stations and to see only those stations that were in manning plans 4+ and 5:

```
COMMAND:SET MC 4+
```

```
COMMAND:DSPX OBS STAT 04
```

The following values are possible MC minimums:

```
0 1- 1+ 2- 2+ 3- 3+ 4- 4+ 5
```

#### 4.1.2 Screening by Adjective Class -- The SET AC Command

In the following example, the manager would see only those stations in Very High or Extreme Adjective Class:

```
COMMAND:SET AC VH
```

```
COMMAND:DSPX OBS STAT 04
```

The following values are acceptable AC minimums:

```
0 LO MD HI VH EX
```

4.1.3      Double Screening

As was pointed out in Section 1.4.7.6, all SET commands can be mixed on one line. In this example, the user has said, "show me only those stations with MC equal to, or above 4+, AC of EX, and produce these displays with station names."

```
COMMAND:SET MC 4+,AC EX,NAME ON
```

\*\*\*-Note: To return the SET command above to the "normal" state, either sign off or:

```
COMMAND:SET MC 0,AC 0, NAME OFF
```

## 4.2 \*\* MONITORING REGIONAL OBSERVATIONAL ACTIVITY

Each night at 2300 MST, the archiver program searches the current observation file and copies that day's OBS records into permanent storage. This copy process produces an accounting file indicating how many new records originated in each Forest Service Region. This example shows how this accounting file may be listed:

```
COMMAND:FILE LIST ARCSTA$L
```

```
ARC01I START 07/30/78 AT 23:15MDT
ARC026I EXTENT AT OPEN: 5042
ARC02I 368 RECORDS COPIED FROM 'ARCMOD$$'
ARC03I REG: 1, 66 OBS, 31 FCSTS
ARC03I REG: 2 59 OBS, 65 FCSTS
ARC03I REG: 3 49 OBS, 49 FCSTS
ARC03I REG: 4 80 OBS, 83 FCSTS
ARC03I REG: 5 15 OBS, 13 FCSTS
ARC03I REG: 6 224 OBS, 229 FCSTS
ARC03I REG: 8 0 OBS, 0 FCSTS
ARC03I REG: 9 12 OBS, 37 FCSTS
ARC03I REG: 10 48 OBS, 61 FCSTS
ARC08I 'STOP' 07/30/78 AT 23:21MDT (908.7 CRU) EXTENT: 6531
```

The line referring to records copied from ARCMOD\$\$ reports on the total numbers of observations entered with the DATE-ARCH or DATE-OBS command combination.

Please inform the AFFIRMS staff of large changes of use such as many stations coming on the system in the spring and terminating use in the fall. When your region's AFFIRMS activity is reduced at the end of fire season, the staff can reduce community file sizes and save considerably on storage charges.

## 4.3 \*\* LINKING TO ANCILLARY ROUTINES \*\*

Several Ancillary Routines have been provided to organize and display the data base supporting the AFFIRMS system. The objective is to provide the Regional or State level manager with the ability to get an overview of what is being done in his area. These routines can be accessed via the LINK command.

4.3.1 Summarized Station Catalogs for Regional Areas--  
The LINK CTLDMP\$C Command

The routine produces a list of all the stations cataloged within a particular Region. The total station catalog is condensed into one line containing station number, elevation, time zone, Forest or unit abbreviation, operating agency code, basic observations time, Fire Weather Zone, latitude, longitude, station name, and the AFFIRMS user number of the owner.

Example:

COMMAND:LINK CTLDMP\$C

\*\*AFFIRMS ANCILLARY ROUTINES: CATALOG DUMP

DO YOU WANT ALL REGIONS (YES/NO):NO (You type in yes or no)

WHICH REGION NUMBERS:3 (You supply the Region number)

STATIONS STASHED IN CATALOG REGION 3:

STATION	ELEV	ZONE	FOR.	REG	AG	TIME	FWX	LAT	LONG	NAME	USER
20104	6500	MST	ABLM	3	2	13	433	36.30	113.10	TRUMB	407
20202	6800	MST	KAIB	3	1	13	308	36.15	112.12	CLOVER	300
20203	7500	MST	COCO	3	1	13	308	34.40	111.25	HPYJCK	300
20207	6700	MST	KAIB	3	3	13	303	35.20	111.40	TOSAYN	300

TOTAL OF 4 STATIONS IN REGION

-----

COMMAND:



### 4.3.2 Listing S.I.G. Contents -- The LINK SIGDMP\$C Command

This routine displays an accounting of all the S.I.G.'s giving the S.I.G. number, the owner, date of last use, and the station numbers. The example has been cut short to save space, but had it run to completion, it would have returned with the prompter:

COMMAND:

COMMAND:LINK SIGDMP\$C

\*\*AFFIRMS ANCILLARY ROUTINES: SPECIAL-INTEREST GROUP DUMP  
WANT STATION NUMBERS (YES/NO):YES

CURRENTLY ASSIGNED S.I.G.'S  
AS OF 15:46GMT 12/14/78

001	304	7/78	20209	20203			
002	304	7/78	20202	20207	20210		
003	310	7/78	20501	20502	29201	29205	
004	305	7/78	21201	21201	21301	21403	
005	501	7/77	45326	45318	45328	45323	45301
			45325	45305	45313	45321	45324
			45311	45307	45316	45306	
006	508	8/77	41406	41005	41101	41503	41402

\*\*\*-Note: The objective in producing this listing is to help call attention to inefficient operations or SIG numbers no longer in use. The S.I.G. proves to be more expensive than any other display scope (see 1.5.4) except the FOR and UNIT until the group contains five or more stations. On that criteria, S.I.G.'s 0013 through 004 should be emptied and a display with LIST scope used instead.

### 4.3.3 Modifying The Current Observation File -- The LINK COFMOD\$C Command

The 1978 version of the National Fire Danger Rating System introduced the 1000-hour timelag fuels. A six-week period of observations is required for the computations of these large fuels to converge with the actual value of the fuels in the field. The MODL command effects the records in which these computed values are stored. As a result, anytime that a MODL command is entered, it destroys the stored values for the 1000, x1000, 100, herbaceous, and woody moistures as well as the herbaceous stage and the green-up date. See Section 4.5 for modifying the manning percentiles.

The LINK COFMOD\$C command connects the user with an ancillary routine that can restore these values if the MODL command must be used during the fire season. If a MODL command is to be entered a form command and DSPC (see Section 13.5.21) must be entered first to find the present 1000, x1000, herbaceous and woody moisture values, and the herb stage. The following sequence of steps should be followed to restore the station.

1. Enter new MODEL command.
2. Enter a DATE command with yesterday's date and follow it with yesterday's OBS.

COMMAND:DATE yymmdd (yesterday's year, month, and day)

COMMAND:OBS ..... (yesterday's OBS)

3. If a HERB command setting the green-up date has been entered at a previous time that season, it must be preceded by a DATE command and reentered.

COMMAND:DATE 78 06 01 (enter the green-up date)

COMMAND:HERB 041095 C GREEN B GREEN

4. If a WOOD command has been entered reporting a measured woody moisture content in the last 30 days, it must also be preceded by a DATE command and reentered.
5. Use the BREAK KEY to return the internal date to today.  
COMMAND:(break key)
6. Link to the COFMOD\$C routine. The routine will ask for the station number. Next it will provide a list of six things that can be modified. Enter the label for the item to be set and the program will then request the value or values needed to satisfy that field. The HERB and WOOD labels are not usually used since the program will compute them if they are not entered. Once all the labels have been entered that you wish to set, enter a WRITE to make the changes permanent. The program will then request the next station number to be modified. If the task is complete, enter a carriage return. This returns the user to AFFIRMS. See the following example:

COMMAND:LINK COFMOD\$C

\*\*AFFIRMS ANCILLARY ROUTINES: CARRY-OVER FUELS MODS  
STATION ID?041095

FIELD (THOU,HUND,STAGE,HERB,X1000,WOOD,WRITE)? X1000

x1000 VALUE FOR MODEL A4A?20.5 (two requests since there are  
x1000 VALUE FOR MODEL B3A?12.5 two models in this catalog)

FIELD (THOU,HUND,STAGE,HERB,x1000,WOOD,WRITE)?WRITE

RECORD 51 UPDATED

STATION ID? (carriage return)

COMMAND:

4.3.4 Modifying Manning Index Percentiles--The LINK MIBKOV\$C Command

The LINK MIBKOV\$C command calls an ancillary routine which can modify the 90th and 97th percentiles for the model-slope-grass type combination that were specified with the MODL command. By avoiding the reentry of the MODL command the operations discussed in Section 4.4. can be avoided.

The routine will request a station number and then give the user three labels to choose as inputs. The first two, (MI90,MI97), select either the 90th or 97th percentile as the target of the change. The last one (WRITE) makes any previous change permanent. After a "WRITE" has been entered the routine requests another station number. If a carriage return is entered without a station number the routine returns control to AFFIRMS. Several agencies use percentiles other than the 90th-97th. If this is the case, interpret the 90th and 97th as the low and the higher one, respectively. See the following example:

```
COMMAND:LINK MIBKOV$C
```

```
**AFFIRMS ANCILLARY ROUTINES: M.C. BREAKPOINT OVERRIDE  
STATION ID?041095
```

```
FIELD (MI90,MI97,WRITE)? MI90
```

```
NEW VALUE OF MI90 FOR MODEL A4A?50
```

```
NEW VALUE OF MI90 FOR MODEL B3A?60
```

```
FIELD (MI90,MI97,WRITE)?WRITE
```

```
RECORD 2133 FOR STATION 41095 UPDATED
```

```
STATION ID? (Carriage return)
```

```
COMMAND:
```

## APPENDIXES

### APPENDIX A

#### Examples of Typical Sessions with AFFIRMS

After you have signed on to AFFIRMS (Section 1.4.1), the program will cause a prompter, the word `COMMAND:` to be printed on your terminal. The program is then ready for your first instruction. Usually, if the command is successful, you will receive no message. If anything is wrong, you will receive a message which briefly describes the problem. If you need further help, the error-codes manual will give a more complete explanation (appendix C).

As soon as AFFIRMS has responded to your command, it will prompt you to enter a new command. This procedure goes on until you are through and wish to end the session. At this point, the `BYE` command will disconnect you from the computer.

Let us look at a typical AFFIRMS session as it might be conducted at a Forest Supervisor's Office. Comments have been placed at the end of some commands to describe their function.

The fire weather observations were entered, then the fire indexes for those observations were displayed. At that time, additional display commands could have been typed to ask for weather and/or indexes for surrounding wildland areas--perhaps from the next Forest.

HH U#=MAN68519,WHIZBANG,SMITH

NFDR '78 AFFIRMS (328/28/8/3) FOR ASSISTANCE, CALL FTS 554-9458 OR COM (208)  
384-9455

COMMAND:OBS 015392 14 0 85 52 1 100 5 14 4 86 43 M M 0 0 1 59  
 COMMAND:OBS 015393 14 0 78 54 1 100 4 6 3 80 45 M M 0 0 1 50  
 COMMAND:OBS 015394 14 0 76 51 1 100 5 9 5 76 47 M M 0 0 1 50  
 COMMAND:OBS 015395 14 0 71 47 1 100 6 12 5 76 53 M M 0 0 1 50  
 COMMAND:OBS 015396 14 0 67 44 1 100 8 8 6 68 36 M M 0 0 1 50  
 COMMAND:OBS 015397 14 0 54 29 1 100 3 12 4 54 36 M M 0 0 1 50  
 COMMAND:OBS 015398 14 0 69 48 1 100 2 7 5 80 35 M M 0 0 1 50

COMMAND: DSPX OBS SIG 028

-----03/27/79--OBS---19:47GMT-----  
 STAT'N MSGC DY HR TH IC LR LO MR MO SC EC BI FL MC R  
 015392 D1P3 27 14 20 92 0 0 99 91 58 60 128 99 5 E  
 015393 01P3 27 14 23 43 0 0 99 43 28 63 94 73 5 V  
 015394 P1P3 27 14 23 57 0 0 99 56 7 33 37 48 5 V  
 015395 N1P3 27 14 23 64 0 0 99 63 99 27 114 92 5 V  
 015396 01P3 27 14 23 51 0 0 99 50 38 57 104 82 5 V  
 015397 N1P4 27 14 28 77 0 0 99 76 99 29 118 99 5 E  
 015398 P1P3 27 14 24 45 0 0 99 45 5 32 32 39 5 V

COMMAND:BYE

(TSP) COST: \$ 3.17

00049.36 CRU 0000.13 TCH 0001.69 KC

OFF AT 12:48 MST 03/27/79

These same observations were displayed by the fire weather forecaster using the DSPW OBS command. The forecaster then prepared two types of forecast: 1) a narrative forecast in plain language, which the forecaster stored using a specific text file name (the letters FWX plus the three-letter airport code, for example, "FWXLAX" for Los Angeles), and 2) a numerical trend forecast for each fire weather zone using the ZONE command.

Late in the afternoon, the Forest Supervisor's office again called the computer and requested a display of the forecasted weather and indices plus a listing of the narrative forecast. Finally the DSPU command was used to get a weighted average forecasted fire danger for the Forest.

HH

U#=MAN68519,WHIZBANG,SMITH

NFDR '78 AFFIRMS (328/28/8/3)

FOR ASSISTANCE, CALL FTS 554-9458 OR COM (208) 384-9455

COMMAND:FILE LIST FWXBHM

ALABAMA FIRE WEATHER "FORECAST...9AM C,ST TUE, MAR 27, 1979  
NAT'L WEATHER SERVICE FORECAST OFFICE...B'HAM, AL

SYNOPSIS...HIGH PRESSURE WAS CENTERED OVER SOUTH ALA AND A WEAK  
LOW PRESSURE AREA WAS OVER EAST OKLA THIS MORNING.  
A GRADUAL INCREASE IN SOUTHEAST TO SOUTH WINDS WILL OCCUR OVER  
ALA THRU WEDNESDAY AS THE HIGH MOVES TO THE ATLANTIC COAST.  
THERE IS A RISK OF SHOWERS OVER NORTHWEST ALA AS WINDS  
INCREASE BUT PROBABILITIES ARE LESS THAN 20 PERCENT."

	TODAY		WEDNESDAY	
	NORTH	SOUTH	NORTH	SOUTH
SSS				
SKY CONDITION	P.CLDY	M.CLEAR	P.CLDY	
PRECIPITATION (TYPE)	NONE		NONE	
HIGH TEMPERATURE	68-73	73-76	73-75	75-77
WIND (MPH)	SE 5-8	SE 4-6	S 6-12	GUSTY
MIN. REL. HUMIDITY	30-35%		40-45%	
MIXING HEIGHT (AFTN)	4,000	5,000	4,500	5,000
3,000 FT. WIND (MPH)	SW 20	S 12	SW 35	SW 25
VISIBILITY (AFTERNOON)	7 MI		7 MI	
ATMOSPHERIC STABILITY	NEUTRAL		NEUTRAL	
STAGNATION INDEX	8-10	9-11	0-2	1-3

TONIGHT...P.CLDY. TEMPS 40S N & 50S SOUTH. WINDS SE 4-8 MPH.  
RH 90-95%. STAG INDEX 3-6. NEUTRAL BECOMING STABLE LATE.

END SENT 8:55AM CST ...JWW

---

COMMAND:SET NAMES ON

COMMAND:DSPI FCST ZONE 802 8

-----03/27/79--FCST--20:02GMT-----

STAT'N MGSC DY WS WDY HRB 1H 10 HU TH IC LR LO MR MO SC EC BI FL MC R

HOLLY	E3P3	27	3	70	10	10	19	16	20	11	0	0	2	0	6	14	22	16	3	M
FANNIN	R2P3	27	2	70	7	7	12	29	48	16	0	0	17	3	1	10	9	7	3	M
BRASS	E3P3	27	4	70	11	11	22	11	17	7	0	0	2	0	6	12	22	16	2	L
TALLAH	E3P3	27	6	70	9	9	13	26	34	15	0	0	2	0	8	15	28	20	3	M
LUFTEE	E2P3	27	3	70	10	10	17	23	25	8	0	0	4	0	4	13	18	13	3	M
COVE	E2P3	27	2	70	12	12	32	25	27	4	0	0	7	0	3	8	13	9	2	L
GATBRG	E2P3	27	2	70	9	9	15	24	29	10	0	0	7	1	3	15	18	13	3	M

COMMAND:BYE

(TSP) COST:\$1.19

00015.35 CRU 0000.06 TCH 0002.82 KC

OFF AT 13:02MST 03/27/79



APPENDIX B  
Common Errors

- |  | <u>Reference</u> |
|--|------------------|
| 1. The exact format must be used in the sign-on procedure. This requires the identification number, comma, password, comma, operator's name or initials, carriage return. Spaces are not permitted.  | 1.4.1            |
| 2. Use the proper error correction method. The back space procedure (commonly a back arrow or a shift underline) to enter corrected data; the "control X" to delete an entire line; and the "break" key to stop the printing and execution of an unwanted operation.   | 1.3.1<br>1.4.4   |
| 3. Station catalogs should not be deleted at the end of each season. It is cheaper to leave the stations cataloged. The cost of storing the catalog is very small and is included as part of the AFFIRMS overhead charges.   | 2.1.8 fire       |
| 4. <u>Error messages should be read and the expanded explanation looked up in appendix C.</u> Remember, the letter at the end of the message number will tell you if the message is for information (I) and if the command has been accepted; for action (A) and the command rejected; or for referral (R) to the AFFIRMS staff for corrective action. | APP. I           |
| 5. A space is not permitted between the prompter (COMMAND:) and your command.  | 1.2              |

6. If an entire entry has been left out of an OBS command, the message up arrow ( ) may not show the exact location of the error. (For example, if the wet-bulb temperature has been left out, the error message might be that a letter entry (for wind direction) was found in a field reserved for numerals and the arrow indicates the man-caused risk field.) 2.2.1 error
7. When entering observations, a minus sign should be entered with the precipitation duration if the fuels were wet or covered with snow or ice at observation time. This causes all indexes to revert to zero. 2.2.1
8. When entering observations, use a "T" for a trace of rain (less than 0.005 inches). 2.2.1
9. The UNIT designation on the display command costs about three times as much as LIST or ID designations. The SIG command is inefficient for less than five stations. 1.5.1
10. Use SET DAYS -1 command before making DSPU FCST commands for tomorrow's forecasted weather. The SET DAYS -1 command is not used if you are making a DSPU FCST command in the morning to cover the rest of the same day. 1.5
11. The break-key terminates the FILE MAKE operation. Be sure to use a carriage return to enter the last line of text into the file before the break-key is depressed. 1.7.1
12. Use a FILE LIST command to view the contents of a file. The FILE LIST is used for fire weather narratives, etc. The FILE READ command tells the computer to execute the commands in the file in the same order they are entered. 1.7

13. The name of a file cannot contain a space, it must begin with a letter and must end with the last three digits of your user-number. 1.7.6
14. Storage costs for most files are \$0.63 per month per file. Purge old files when they are no longer needed. 1.7.6
15. Check to be sure a POST command has been completed before purging the file. 1.8.3
16. Be very careful in using FILE READ commands within files. A loop may result where File A instructs the computer to read File B which tells the machine to read File A. Computer costs (which you pay) can mount very quickly from this error. Use the break-key to stop an undesired action, and a FILE LIST to view the contents of a file to determine the source of errors. 1.7.3
17. A MODL command erases the herbaceous and woody vegetative conditions, as well as deleting the computed 1000HR and x1000 moistures. The COFMOD\$C program (See 4.3.3) might be needed after entering a new MODL command. 2.1.4  
2.1.5,  
2.1.6



A P P E N D I X C

Explanation of AFFIRMS Messages

All AFFIRMS messages consist of two parts: a brief message preceded by a code--three letters, two digits, and a suffix letter. The suffix letter indicates the kind of message:

- A ACTION--The indicated error must be corrected by the terminal operator.
- I INFORMATION--A warning, perhaps nothing is wrong, entry accepted.
- R SERIOUS PROBLEM--Report to system staff immediately!

The following telephone numbers may be used to report SERIOUS PROBLEMS (R) with AFFIRMS. Please use the numbers in the order given:

Regular Hours	Commercial	208-334-9458
Regular Hours	FTS	554-9458
	* * * * *	

ALF01A NON-ALPHABETIC CHARACTER IN ALPHA OPERAND

A character other than A thru Z or (-) was found in an operand which AFFIRMS expects to be alphabetic. The up-arrow points to the defective operand.

ALF02A IMPROPER LENGTH (OVER 4 CHARACTERS)

AFFIRMS has found more than four characters in an operand which was expected to be alphabetic (or mixed).

COMMAND: Normal program prompter. Enter your next request.

CFP02R C.O.F. DIRECTORY FULL, ENTRY NOT STORED

The current observation file was found to be full. Report immediately to AFFIRMS staff since the file for the Region must be expanded or no new data can be recorded.

CTL01R CAT-DIRECTORY I/L FAILURE

The catalog-directory indicates that a given station is cataloged, but the corresponding record in the catalog does not refer to that station. Report to AFFIRMS staff for corrective action.

CTL02A INVALID STATION NUMBER

In a catalog-maintenance command, the station-number given is not six digits long.

CTL03A STATION NOT IN CATALOG

A request to delete, describe, or modify a catalog entry was entered for a station not previously cataloged, or one that has already been deleted.

CTL04A IMPROPER LENGTH

An operand has the wrong number of digits or letters. Refer to manual sections on CTLG, HDEF, OPT, MODL, HERB, NAME, or WOOD commands, as appropriate.

CTL05A INVALID TIME-ZONE

Time-zone must be entered as EST, CST, MST, or PST only in the Continental United States. HST should be used for Hawaii and most of Alaska. Use BST for far western Alaska and YST for the small part of Eastern Alaska not in Hawaiian time.

CTL06A INVALID STANDARD OBS-TIME

Standard-Observation-Time must be entered as a two-digit number between 01 and 24.

CTL07A Not Assigned

CTL08A MODEL OPERANDS NOT IN PAIRS

Following the STATION-I.D. and CLIMATE CLASS in the MODL command, the operands must be entered in sets of two (MODEL-SLOPE-GRASS TYPE, MI97-MI90), one set for each model to be specified. Up to four sets are permitted.

CTL09A INVALID MOISTURE-ENTRY-CODE

In the HDEF command, the moisture-entry-code must be entered as a one-digit number from one to six only.

CTL10R CAT.-DIRECTORY I/L FAILURE

See CTL01R for explanation.

CTL11A INVALID SLOPE-CLASS

SLOPE-CLASS must be entered as a one-digit number, 1 through 5 only.

## CTL12I CATALOG SUBSTITUTION

A station with the same number as the one being cataloged already exists in the catalog. The new entry overrides the old one. Warning: After the CTLG command has caused this substitution the MODL, HDEF, OPT, HERB, and WOOD commands must be entered to make the catalog entry complete. The old values are not retained. Also the 100, 1000, and x1000 moistures have been lost. See Section 2.1.1.

## CTL13A INVALID REGION-NUMBER

REGION-NUMBER must be a one- or two-digit number from 1 to 10 only.

## CTTL16A ELEVATION NEGATIVE, OR IMPOSSIBLE FOR U.S.A.

STATION-ELEVATION must be a positive number from 0 to 20300 feet MSL.

## CTL17A OPERANDS NOT IN MODEL-AND-VALUE PAIRS

In an HERB command, a model identifier was given without a data value after it or vice-versa.

## CTL18A MODEL NOT CATALOGED FOR THIS STATION

In an HERB command, a model identifier was specified that had not previously been cataloged for the station with a MODL command.

## CTL19A INVALID HERBACEOUS STAGE CODE

In an HERB command, a condition value was specified other than GREEN, CURED, or FROZEN.

## CTL20A INVALID WOODY FUEL MOISTURE

In a WOOD command, a value was specified outside the range 50 to 200.

## CTL21A INVALID NUMBER OF DISPLAY CLASSES

In an OPT command, the number of Manning-Classes was not between three and nine.

CTL22R STATION DOES NOT BELONG TO USER

Once a station has been cataloged, only the user who originally cataloged it may make modifications to the catalog entry. If you wish a particular station moved to your jurisdiction, and the original cataloging user agrees, have that user delete the station from the catalog with a DEL command. Then catalog it yourself, under your user-number. This security check is designed to protect your station catalog entries from unauthorized tampering. All stored fuel moistures will be lost. See Section 2.1.

CTL23A INVALID MANNING-INDEX SPECIFICATION

Manning-index must be specified as IC, SC, EC, LO, MO, LR, BI, or FL only. If the operand is entered as missing (M), BI is used by default.

CTL24A Not Assigned

CTL25A INVALID PERENNIAL/ANNUAL CODE

Grass-type must be specified in a MODL command by letter 'A' or 'P' only.

CTL26A INVALID CLIMATE CLASS

Climate class must be a one-digit number from one to four only.

CTL27A INVALID LATITUDE

CTL28A INVALID LONGITUDE

Valid entries in the LOC command are latitude from 18.7 to 75 degrees and longitudes from 65 to 170 degrees. Note that these are decimals of degrees, not minutes, after the decimal point.

CTL29A INVALID OR FUTURE 'NEW-STICK' DATE

Date of new-stick installation should be entered in the form YYMMDD (for example, July 27, 1978 is entered 780728).

CTL30A INVALID LIGHTNING SCALE FACTOR

The valid range is 0.01 to 5.00.

CTL31I 'CURED' INVALID WITHOUT PRIOR GREENUP, SET TO 'PREGREEN'

A declaration of "GREEN" entered with the HERB command, must precede a declaration of "CURED".



CTL33I      WARNING:    STATION CATALOGED OUTSIDE ITS ACTUAL REGION

During cataloging, it is possible to specify a Region-Number (in the 'CTLG' command) that does not normally contain the State in which the station is located. This sometimes needs to be done because a station is operated by a user who is located across a Regional boundary from the station. The Regional specification tells AFFIRMS where to store the data for that station. The only scope that will work in the display commands (see Section 1.5) are Region and Zone.

CTP01R      CATALOG DIRECTORY FULL, ENTRY NOT STORED

A station has been entered for cataloging but the catalog is already full. Report to AFFIRMS staff since the catalog must be expanded before any new stations can be cataloged.

CTP06R      STATION DOES NOT BELONG TO USER

See CTL22R for explanation.

DFC01A      NON-NUMERIC CHARACTER

In an operand expected to contain only a numeric value, a character other than 0 thru 9, +, - and decimal point has been found. The up-arrow indicates the defective character.

DFC02A      IMPROPER SEQUENCE

In a numeric operand, one of the following errors has occurred: + after +, + after -, - after -, - after +, - or + after digit, more than one decimal point, or + or - after decimal point. The up-arrow indicates the defective character.

DFC03A      DEC. PT. IN INTEGER FIELD

In a numeric operand, a decimal point was found that was not legal for the operand in question.

DOP01I      BUSY (SHARED OPEN), STANDBY:xx

DOP02I      BUSY (SHARED LOCK), STANDBY:xx

DOPO3I BUSY (SHARED UNLOCK),STANDBY:xx

While attempting to access a random-access community data file (C.O.F., catalog, etc.) the file was found to be busy (another user of AFFIRMS was writing in it). Your execution is suspended for 3 seconds and another try is made. The message will be repeated every fifth try if necessary. If the message occurs many times, you may escape the loop by hitting break to return to the COMMAND: point.

DSP01A WRONG NUMBER OF OPERANDS

Too few or too many operands were given for a display.

DSP02A INVALID SCOPE

In a display command, the second operand was not recognized. Use only REG, UNIT, ID, STAT, CNTY, SIG, ZONE, or LIST.

DSP03A IMPROPER LENGTH

The operand pointed to by the up-arrow has the wrong number of digits or letters.

DSP05A INVALID REGION-NUMBER

The REGION-NUMBER given was not a one- or two-digit number between one and ten.

DSP06A BOTH STATION NUMBERS ARE MISSING

In a display command with ID scope at least one station number must be given. The other, being missing, may be defaulted. If the first is defaulted, it is treated as 010101. If the second is defaulted, it is treated as 509999.

DSP08A INVALID STATE-CODE

STATE-CODE must be a two-digit number between 01 and 50.

DSP09A INVALID COUNTY-CODE

COUNTY-CODE must be a four-digit number between 0101 and 5099.

DSP10A INVALID FOREST-CODE

UNIT NAME must be given as a four-letter code.

DSP11A IMPROPER STATION I.D.

Station I.D. must be a six-digit number between 010101 and 509999.

DSP12I NO DATA MEET YOUR CRITERIA

In a display command, no data currently in the files meet the specifications given in the command. Your SET DAYS specification may be wrong. If a SET command is not in effect, the stations requested do not have OBS for today or forecasts for tomorrow.

DSP14A S.I.G. NUMBER OUT OF RANGE

In a display command with SIG scope, the number of the special interest group is incorrect. Numbers must be a three-digit number between 001 and 350. Check with AFFIRMS staff.

DSP15A INVALID TYPE-QUALIFIER

In the display command, only OBS, SPC, or FCST are allowed as qualifiers.

DSP16A INVALID WEIGHTING FACTOR

Weighting factor must be a number between 1 and 99 percent.

DSP17A INVALID SLOPE-CLASS SPECIFICATION

See CTL11A.

DSP18A SUM OF WEIGHTING FACTORS IS NOT 100 PERCENT

In a DSPU command, the weighting factors must sum to 100 percent.

DSP19I NO DATA ON SELECTED DATE FOR STATION:xxxxxx

In response to a DSPU command, AFFIRMS could not locate data for the indicated station with the current SET DAYS specification. There may be data available for the station, but not of the specified age!

DSP20I MODEL/SLOPE NOT AVAILABLE IN DATA FOR STATION:xxxxxx

In response to a DSPU command, AFFIRMS found data for the specified station, but the model-slope combination specified in the command could not be found in the data. Check the station catalog entry by using the DESC command.

DSP21A NO DATA AVAILABLE FOR UNIT

AFFIRMS could find no data (given the current SET DAYS specification) for any of the stations in a DSPU command.

## EXC02A IMPROPER OR FUTURE DATE

In a DATE command, the fields must be entered in the order YEAR-MONTH-DAY, and the combination must be legitimate. Fields must be entered as two digits each.

## EXC03A COMMAND NOT LEGAL AFTER 'DATE'

Once a DATE command is in effect, certain commands cannot be entered until the date has been turned back by hitting "BREAK." See Section 1.4.6.

## EXC04I DATE OVERRIDDEN YY/MM/DD

The DATE command just entered will remain in effect until the break-key is hit or another DATE command is entered. This message will be printed after every command, except ARCH, entered from the keyboard to remind the operator that the date has been changed.

## EXC05A OPERANDS NOT IN PAIRS

The number of operands in a SET command must be even.

## EXC06I MSG 'xxxxxx' FROM USER NO. xxx DATED xxxxxx:

Precedes posted message; contains name of file, the user number of the originator, and the date it was posted.

## EXC08I FILE-MODE CANCELLED

The Break-Key was hit when AFFIRMS was reading its commands from a specified text file. The processing of the file ceases, and the terminal goes back to keyboard mode.

## EXC09I DATE REVERTED

The break-key on the terminal was hit while a DATE command was in effect, causing the current date to be reinstated.

## EXC10A INVALID OPERATION

The set command allows 16 operations: ECHO, HEAD, DAYS, MEDIAN, MEAN, NAME, AC, MC, DWPT, BREAK, LINES, WAIT, THOU, and TAPE.

## EXC12A INVALID DISPLAY-RANGE

The SET DAYS command permits range from -1 to 31 days only.

EXC17A    INVALID MANNING-CLASS 'FLOOR', ZERO USED

In a SET MC command, the manning class 'floor' must be specified as:  
0,1-,1+,2-,2+,3-,3+,4-,4+,5.

EXC18A    INVALID ADJECTIVE-CLASS "FLOOR," ZERO USED

In a SET AC command, the adjective class 'floor' must be specified as: 0,  
L, M, H, V, or E only.

EXC21A    'DATE' MUST PRECEDE 'ARCH' (EVEN FOR TODAY)

A DATE command must always be used before ARCH to ensure proper  
archiving.

EXC22R    CONTACT AFFIRMS STAFF! ARCHIVER FAILED, LAST DATE:xxxxxx

The AFFIRMS archiver program has apparently not completed work properly on  
a previous night. Call BOISE or RIVERSIDE at once!

EXC23A    INVALID DISPLAY-LINES SPECIFICATION

The SET LINES command allows from one to four lines to be specified.

EXC25A    INVALID DEFAULT MOISTURE SPECIFICATIONS

The SET THOU command allows entries from 2 to 200 percent.

EXC26A    'ARCH' COMMAND INVALID FOR PSEUDO-STATIONS

The ARCH command provides for direct archiving of data for regular Fire  
Danger Rating stations. Pseudostations for prescribed burning or research  
cannot have their data archived.

EXC331I    REMINDER! NAMES OF CURRENTLY-MADE FILES ARE LISTED BELOW, FOLLOWED BY  
LAST-DATE-ACCESSED.

This message precedes the listing of saved file names produced on Mondays  
by the command BYE.

FIL01A    INVALID OPERATION

The FILE command permits only the READ, MAKE, LIST, NAMES, COPY, and PRGE  
operations.

FILO2I NOW EXECUTING FILE 'XXXXXX'

A FILE READ command preceded, and AFFIRMS is taking its commands from the specified file. The keyboard is not connected to AFFIRMS and commands should not be entered until the END-OF-FILE ENCOUNTERED message is received. (This does not preclude use of the break-key to escape back to terminal-mode). If AFFIRMS takes an inordinate amount of time to respond to the commands in the file, you can check on your status by typing STATUS followed by carriage-return. The computer system will type RUN if you are still connected to the computer and AFFIRMS is still running.

FILO3R SEQUENTIAL FILE READ-ERROR, CODE: xx

After a FILE LIST command was entered, a machine failure occurred, retry the command; if the problem persists, contact the AFFIRMS staff.

FILO4R 'CREATE' FAILED (PROBABLY IMPROPER FILE-NAME), CODE: xx

A machine failure occurred when setting up a new file. Contact AFFIRMS staff if the errors persist after using another file name and verifying that the file name meets the requirements in 1.7.1.

FILO5I EXISTING FILE. DO YOU WANT TO OVERWRITE (YES/NO)?

A FILE MAKE command specified the name of a file that has been previously created and is still stored. If you answer NO, the command is bypassed. If you answer YES, the file is re-created, empty, and ready for new text.

FILO7A PURGE FAILED (MAYBE NOT YOUR FILE), CODE: xx

A FILE PRGE (or FILE MAKE for an existing file) was unsuccessful, either because of a system error, or because the named file belonged to another user, or because another user was doing a FILE LIST or FILE READ on your file. Check with AFFIRMS staff.

FILO8R 'PERMIT' FAILED (TRY A DIFFERENT FILE-NAME), CODE: xx

A FILE MAKE command specified the name of a file already stored by another AFFIRMS user.

FIL10R 'DSM' FAILED, CODES: XX/XX

A system failure prevented your entered text from being stored in the named file. Contact AFFIRMS staff.

FIL11I HIT "RETURN" THEN "BREAK" AFTER LAST LINE OF TEXT READY FOR INPUT

AFFIRMS is storing your text directly in a file. It will not respond to any typed entry until after the break is hit to indicate that the file creation is complete.

FIL12R PRELIM. PURGE FAILED, (PROBABLY NOT YOUR FILE), CODE:xx

See FILO7A for explanation.

FIL13A LAST 3 CHARACTERS OF FILE NAME AND USER NUMBER DON'T MATCH.

All user file names must end with the last three digits of the user number under which the current session is being conducted. This will prevent identical file names being created by different users. It also makes it easier for AFFIRMS staff to trace files to the originator. The one exception to this rule is the names assigned to text files containing the weather forecast narrative--those must begin with FWX.

INT01A WRONG NUMBER OF OPERANDS

The number of operands given is either too few or too many for the kind of special interest group operation being performed.

SIG nnn,ADD; Requires at least three  
 SIG nnn,DEL; Requires at least three  
 SIG nnn,LIST; Requires only two  
 SIG nnn,CLR; Requires only two

INT02A IMPROPER STATION I.D.

See DSP11A.

INT03A INVALID OPERATION

The SIG command allows only the ADD, DEL, LIST, and CLR operations.

INT04I GROUP EMPTY

The special interest group specified contains no station-numbers. Either none have been added or all have been deleted previously.

INT05A GROUP FULL

The specified special interest group already has 20 station-numbers and no more can be added. If the group became full during an ADD operation. The up-arrow will point to the first station \*\*\*not\*\*\* added to the group. Those appearing to the left of the arrow were successfully added.

INT06A S.I.G. NUMBER INVALID

The I.D. of a special interest group must be a three-digit number.

INT07A S.I.G. BELONGS TO ANOTHER USER

Another AFFIRMS user has already placed station numbers in the special interest group which you have tried to modify. Use SIG 999,LIST to locate a free group.

INT08A I/O ERROR IN S.I.G. FILE, RE-TRY COMMAND

During processing of a SIG command, the interest-definition file could not be accessed because of a machine failure. Try the command again. Report to AFFIRMS staff if the problem persists.

INT09I GROUP UNASSIGNED

The cited S.I.G. is not currently assigned to any user.

INT10R ALL GROUPS ASSIGNED, NONE AVAILABLE

Contact AFFIRMS staff immediately!

INT11I AVAILABLE GROUP:XXX

In response to SIG 999,LIST AFFIRMS supplies the number of a special interest group currently 'free' and available for your use.

INT12I USER NUM:xxx LAST MOD:xx/xx GROUP CONTAINS STATION(S):

This message is the response to a SIG nnn LIST command. AFFIRMS indicates the 'owning' user's number, the month-and-year when last used (that is, the last time a display command with SIG scope referenced this group), and the station numbers currently in the group.

LST01A IMPROPER QUALIFIER

A STOW command was entered which specified neither ZONE or ID.

LST02I LIST NOW STOWED

A STOW command was successfully processed.

LST03A IMPROPER STATION I.D.

Similar to DSP11A.



LST04A IMPROPER FIRE WEATHER ZONE NUMBER

Similar to ZON11A.

MDS01A MODEL (X) NOT RECOGNIZED

The specified MODEL-NAME is not legal. The MODEL-NAME must be a single alphabetic character between A and U only.

OBPO1A STATION NOT IN CATALOG

The specified station has not been previously cataloged, nor has it been deleted.

OBPO2A INVALID OBS-TIME

OBSERVATION-TIME must be a two-digit number between 01 and 24.

OBPO3A INVALID STATE-OF-WEATHER CODE

STATE-OF-WEATHER must be entered as a one-digit number between 0 and 9 only.

OBPO4A INVALID TEMPERATURE

DRY-BULB-TEMPERATURE must lie within the limits -100 to +136. A decimal point may be included.

OBPO5A STATION HAS UNDEFINED -HDEF-

A HDEF command has never been used for this station, or was not given after the station was recataloged. Since no specification has been given, AFFIRMS has no way of knowing whether the humidity data in OBS or SPC commands is relative humidity, wet-bulb temperature, or dewpoint. Use the HDEF command to make the proper specification, and to reenter the observation.

OBPO6A IMPROPER WET-BULB, DEWPOINT, OR REL.-HUM. ENTRY

The relative humidity, either observed or computed by using the DEWPOINT or WET-BULB, has been found to exceed 100 percent or is less than 1 percent.

OBPO7A NOT ASSIGNED

OBP08A INVALID MAN-RISK OR LIGHTNING ACTIVITY LEVEL

RISK-LEVEL must be entered as a one- to three-digit number between 0 and 100 only; lightning-activity must be entered as a one-digit number between 1 and 6.

OBP09A INVALID WIND DIR.

WIND DIRECTION can be entered in any of the four systems in common use--16-point-letter code (NE,S,SE,SSW,etc.), 16-point-number code (01 for NNE, 08 for South, 16 for North, etc.) eight-point-number code (1 for NW, 8 for N, etc.), or degrees-of-the-compass (023,180, 270,etc.). The data are self-identifying if properly entered. Remember that degrees-of-the-compass must always be 3 digits (use zeros as needed). Sixteen-point number code must always be two digits (use a leading zero for values between 1 and 9).

OBP10A INVALID WINDSPEED

WINDSPEED must be entered as a one- or two-digit number from 0 to 99 only.

ORP11A NOT ASSIGNED

OBP12A INVALID 10-HR-T/L FUEL MOISTURE

The fuel stick moisture content must be a number between 0 and 99. A decimal point is allowed (example 12.5).

OBP13I INCONSISTENT MAX. TEMP. OBSERVED TEMP. USED: xxx

The MAXIMUM TEMPERATURE entered must be equal to or greater than the OBSERVED TEMPERATURE, and must lie between -100 and +136. If the entered value violates these limits, the observation time temperature is used to replace the maximum temperature.

OBP14I INCONSISTENT MIN. TEMP., OBSERVED TEMP. USED: xxx

The MINIMUM TEMPERATURE entered must be equal to or less than the OBSERVED TEMPERATURE, and must lie between -100 and +136. If the entered value violates these limits, the observation time temperature is used to replace the minimum temperature.

OBP15I INCONSISTENT MAX. HUMIDITY, OBSERVED HUM. USED: xxx

Similar to OBP13I except limits are 1 and 100 percent.

- OBP16I      INCONSISTENT MIN. HUMIDITY, OBSERVED HUM. USED: xxx  
Similar to OBP14I except limits are 1 and 100 percent.
- OBP17A      INVALID PRECIP. DURATION(S)  
PRECIP. DURATIONS are limited to 16 and 8 hours, respectively, and their sum must be 24 or less.
- OBP18A      'MAKE THEE AN ARK, GATHER THE ANIMALS 2 BY 2 ...'  
24-hour PRECIPITATION AMOUNT must be between 0 and 9.99 inches. A decimal point is required; for example, .12 for twelve-hundredths.
- OBP19A      INVALID LIGHTNING REPORT  
LIGHTNING ACTIVITY LEVEL must be reported as a one-digit number from one to six only.
- OBP22A      MISSING MOISTURE VARIABLE  
RELATIVE-HUMIDITY, DEWPOINT, or WET-BULB-TEMPERATURE (depending on the HDEF specifications for the station) is required data and must not be entered as missing.
- OBP27I      WRONG NUMBER OF OPERANDS  
OBS commands must have 18 or 19 operands, FCST commands must have 16, and SPC commands must have 17.
- OBP31R      STATION DOES NOT BELONG TO USER  
An OBS command has been entered by a user other than the one who originally cataloged the station involved. If you wish to enter data for this station, and the user who owns the station agrees, have him delete the station; then catalog it under your user number, also check for a typographical error in the station number.
- OBP33A      "OBS" TIME MUST BE WITHIN 2 HOURS OF XXXX  
For OBS or ARCH commands, the time of observation must be within 2 hours of the STANDARD OBS TIME specified in the station catalog.
- OBP34A      STOW CONTAINS NO STATION-NUMBERS  
Similar to ZON08A, but issued for FCST command.

OBP35I UNUSUALLY LOW STICK MOISTURE (UNDER 2.0) ACCEPTED, BUT PLEASE CHECK CALIBRATION OF SCALES AND STICKS

Stick moistures under 2 percent are very uncommon. Although AFFIRMS will accept such values, it is wise to recheck the calibration of your system for possible defects.

OBP36I NO RECENT OBS, "OLD" 10/100-HR F.M. TAKEN AS: XX/XX

Whenever an OBS command is entered, AFFIRMS fetches the last observation for the station and obtains the 10-HR and 100-HR moistures. These are used in computing "today's" values. If no 'last' OBS could be found less than 4 days old, AFFIRMS assumes default values for each.

OBP37A NEW OBS NOT PROCESSED, PRE-DATES LAST OBS (DATED:xxxxxx)

An OBS command may be used with DATE to enter several days of stale data, usually to properly trend the 100-HR and 1000-HR fuel moistures. Such stale OBS must be entered IN ORDER, beginning with the oldest first.

OBP38A NON-ZERO PRECIP. AMOUNT MUST HAVE DECIMAL POINT

To reduce entry errors AFFIRMS requires that the decimal point be included unless the precipitation amount is zero. For example 32 hundredths must be entered as 0.32 or as .32.

OBP39A PRECIP. DURATION INCONSISTENT WITH PRECIP. AMOUNT

If precipitation duration is entered as zero then logically precipitation amount must be zero as well. On the other hand, if either is entered as a real value then both must be greater than zero.

OBP40I NO FCST LAL AVAILABLE, USED OBS. MORNING LAL: X

Today's lightning risk is computed using yesterday's LAL and the highest of today's observed LAL (ML) or the LAL forecasted for today. When a forecasted LAL is not available for today, the morning LAL is used.

OBP43I FREEZE DETECTED. "HERB" COMMAND SPECIFYING FREEZE-UP MAY BE NEEDED FOR THE FOLLOWING FUEL MODEL(S):

MODEL: A, SLOPECLASS: 4 MODEL: B, SLOPECLASS: 3

A minimum temperature below 32°F has been noted in the OBS. If this temperature killed the herbaceous vegetation at your station and forced the woody vegetation into dormancy, then enter a HERB command of "FROZEN". If only the herbaceous vegetation was effected, enter a HERB command of "CURED". If there were no effects, then ignore this message.

OBP44A MAX/MIN TEMP/HUM CANNOT BE MISSING IN THE 'FCST'

These items must be specified in the FCST; they are optional in OBS.

OBP49R OLD OBS 'STALE' (BAD DATE or ALTERED CAT.); DATES: xxxxxx  
and  
OBP50R COF/DIR I/L FAILURE, TREATED AS "STALE"; ID/REC:

Both of these messages arise from severe program problems. The station is run through season initialization to recover. Report to the Staff at once!

OBP51I SEASON INITIALIZATION; X1000 & 1000-HR SET TO: XXX

The station has no old OBS within the preceding 50 days; so processing proceeds as if the station were starting the season from scratch.

OBP52I WOOD FM COMPUTED (LAST MEASURE STALE, DATED: XXX )

A WOOD command was entered previously but the measurement is between 30 and 35 days old. A new measurement should be made. Until a new WOOD command is entered, the program will compute the woody moisture content. The message is suppressed after 35 days.

OK MORE: Normal prompter in response to an "&" in the previous line. Continue to enter the command begun on the preceding line.

OPN01I SEQUENTIAL FILE BUSY, STANDBY

A text file was in use by another user when AFFIRMS tried to access it for you. AFFIRMS keeps trying every 3 seconds; the message is printed every 15 seconds (every fifth try). If you wish to abandon the task, you can hit break. The work specified in your last command, however, will not be performed.

OPN02R SEQUENTIAL FILE OPEN-FAILURE, CODE: xx

A machine failure prevented access to a text-file. Please report the code number to AFFIRMS staff.

OPN03I SEQUENTIAL FILE 'xxxxxx' NOT SAVED

A FILE command was entered, specifying an "existing" file which could not be found in the library.

OPR01R UNEXPECTED END OF BUFFER

This is a theoretically impossible condition. Report to AFFIRMS staff, along with the command which produced it.

PST01I FILE NOT CURRENTLY POSTED

A POST command with only a file name (treated as a DEPOST) specified a file not currently cited in the route-file.

PST02R I/O ERROR IN ROUTE FILE, RE-TRY COMMAND

A machine failure prevented a POST command from being entered into the route-file. Try the command again; if the error persists, contact AFFIRMS staff.

PST03I REQUEST SERVICED

Processing of a POST command terminated normally.

PST04A INVALID USER-NUMBER

USER-NUMBERS must be three digits long, from 001 to 997 only.

PST05R ROUTE FILE FULL

All records in the route-file are currently in use. Until one of the POST entries self-destructs (that is, when delivered to all cited users), no further POST commands can be accepted. Contact AFFIRMS staff.

READY This is a system level message as opposed to a program message. You have fallen out of the program. Enter "RUN" to access AFFIRMS or "BYE" to leave.

SSM02R C.O.F. NOT IMPLEMENTED, REGION: XX

The Current-Observation-File for the specified Region has not been constructed. Contact AFFIRMS staff.

SYN01A NOT ASSIGNED

SYN02A INVALID SYNTAX OR LINE GARBLE

This message can arise from any number of defects in command syntax or from telephone line noise which altered your input. See that the statement is entered correctly with a legitimate command VERB and that the command VERB is followed by a blank (if there are operands).

SYN03I NOT ASSIGNED

SYN03I NOT ASSIGNED

## SYN04A TOO MANY OPERANDS

The command has more operands than are legal with the particular type of command.

## SYN05A UNRECOGNIZED COMMAND (OR LINE GARBLE)

The command VERB is unrecognizable. The most likely cause is failure to place the single blank between the VERB and the first operand (for those commands with operands). A noisy telephone connection may also be responsible.

## SYN06I END OF FILE ENCOUNTERED

AFFIRMS was in file-mode and finished processing the last command in the file. The terminal awaits a new command to be entered from the keyboard.

## SYN07A CONSECUTIVE DELIMITERS

Two operand separators were found without any operand data between them. This could arise from comma-after-comma, comma-after-blank, or any other such combination. This message usually arises from placing more than one blank between two operands.

## \*\*\*UNASSIGNED, SEQ:XXX

This message probably indicates an AFFIRMS program bug. Report to AFFIRMS staff.

WHAT? A system level message indicating that you have fallen out of AFFIRMS. Enter RUN to access AFFIRMS or BYE to leave.

## ZON01A WRONG NUMBER OF OPERANDS

Too many or too few operands were specified for a ZONE command.

## ZON03A IMPROPER REGION NUMBER

REGION-NUMBER must be between one and 10.

## ZON04A ILLEGAL FORECAST TIME

FORECAST-VALID-TIME must be two digits between 01 and 24.

## ZON05A EXCESSIVE TREND

One or more data trends exceeded the limits imposed in the User's Guide. A zero-trend may be entered as "M" instead of "0" (zero).

ZON06A INVALID PRECIP. DURATION(S)

PRECIPITATION DURATIONS are limited to 16 and 8 hours, respectively, and their sum must not exceed 24.

ZON07A INVALID LIGHTNING-ACTIVITY LEVEL

LIGHTNING ACTIVITY is limited to the range one to six.

ZON08A STOW CONTAINS NO ZONE NUMBERS

A ZONE command specifying STOW rather than a single zone number has not been preceded by a STOW ZONE command.

ZON10I NO CURRENT OBS IN ZONE(S)

A ZONE command was entered but AFFIRMS could find no current (today's) OBS for any of the stations in the zone. No forecasts were generated.

ZON11A IMPROPER ZONE NUMBER

Forecast zone numbers must be entered as a three-digit number between 001 and 999.

ZON12R ELIGIBILITY TABLE OVERFLOW, LAST STATION TRENDED:xxxxxx

A ZONE command may not trend more than 40 stations, either in a single zone or in a group of zones cited by STOW.



APPENDIX D

How AFFIRMS Determines the  
Displayed Adjective Class (AC)

In March 1974, Forest Service, BLM, and State Forestry representatives agreed on a standard for specifying the level of fire danger for public information. Most organizations are using the adjective class only for public information. Manning Class (appendix E) is used for in-house fire preparedness information. Note that MC-3 can have an AC of Moderate, High or Very High.

The adjective class is expressed as one of five levels; Low (L), Moderate (M), High (H), Very High (V), and Extreme (E). It is derived from a combination of Manning Class and Ignition Component as follows:

Ignition Component	0-20	21-45	46-65	66-80	81-100
*****					
Manning Class (MC)	Adjective Class				
*****					
0 <sup>1/</sup>	0	0	0	0	0
1-,1,1+	L	L	L	M	M
2-,2,2+	L	M	M	M	H
3-,3,3+	M	M	H	H	V
4-,4,4+	M	H	V	V	E
5	H	V	V	E	E
*****					

<sup>1/</sup>The "zero" is included for those cases where AFFIRMS is not determining the station MC.

NOTE--THE ADJECTIVE CLASS IS FOR PUBLIC INFORMATION, IT HAS NO DIRECT CONNECTION TO FIRE BEHAVIOR!!!!



## APPENDIX E

### How AFFIRMS Determines The Displayed Manning Class (MC)

The National Fire Danger Rating System provides seven ratings for the use of the fire manager. Any one of the seven may be used as the basis for determining the manning class or readiness level of the suppression organization. The OPT command permits you to specify which of those seven components or indexes are to be used as the Manning Index (MI). (See Section 2.1.3.)

For the Forest Service at the time of this writing, the 90th and 97th percentile Burning Index values for each station's fuel models are used to determine manning classes.\*\* These percentile values are determined from a statistical analysis of historical fire weather observations. These values provide the criteria for ranking the relative severity of the burning conditions on a given day.

The MI90 and MI97 values are employed by AFFIRMS to generate a table of test values against which the Manning Index for each model can be compared. There are always 10 such test values, corresponding to a nine-class system (nine classes plus zero).

The actual number of manning classes in use by a given administrative unit, however, may be any value from 3 to 9. For this reason, AFFIRMS always computes manning class based on a nine-class system, but what is displayed as manning class depends on a selection made when the OPT command for that station was entered. This operand, referred to in the User's Guide as "Number-of-Display-Classes" (Section 2.1.3), is used to specify whether displays for that station will show nine classes, three classes, or some other number of classes.

---

\*\*The Bureau of Land Management is using the 80th and 95th percentiles of the BI.

The break-points used to determine the manning class in the nine-class system are as follows:

<u>Computed Class Level</u>	<u>Upper Value For Class</u>
0	MI=0
1	(MI90)/8
2	(MI90)/4
3	(MI90)(3/8)
4	(MI90)/2
5	(MI90)(3/4)
6	MI90
7	(MI90 + MI97)/2
8	MI97
9	More than MI97

The table that follows shows which of the nine-class manning class designators will appear for any number of selected manning classes. To use the table, use the row which shows the number of manning classes which your administrative unit employs. Across the row will be the displayed manning classes for each corresponding nine-class value.

Computed 9-Class Level	0	1	2	3	4	5	6	7	8	9	
Desired # of Manning Classes	*	*	Displayed Manning Class							*	*
3	0	1	1	1	1	1	1	4	4	5	
4	0	1	1	1	1	3	3	4	4	5	
5	0	1	1	2	2	3	3	4	4	5	
6	0	1	1	2	2	3-	3+	4	4	5	
7	0	1	1	2	2	3-	3+	4-	4+	5	
8	0	1	1	2-	2+	3-	3+	4-	4+	5	
9	0	1-	1+	2-	2+	3-	3+	4-	4+	5	

## APPENDIX F

### How AFFIRMS Weights the Inputs to the DSPU Command

The DSPU command combines data from up to nine fire weather stations and produces an integrated fire danger rating. The manager must select the stations to represent the area and determine the influence that each station is to have on the weighted area fire danger--that is, the station weighting factor. The only requirement of AFFIRMS is that the weighting factors of the stations within the area add up to 100 percent.

The station weighting factor is based on the manager's local experience considering such things as: percent of the total area represented by this station; resource values; historic fire occurrence; and public use patterns. For a complete discussion of weighting factor selection see Deeming 1972.\*\*

In the case of a missing station, its weighting factor will be distributed proportionally to the reporting stations. Consider a unit with three stations as follows:

<u>Station</u>	<u>Weighting Factor (w)</u>
A	22
B	44
C	<u>34</u>
	100

If Station C fails to report, the weighting factors will be reset as follows:

$$\begin{array}{l} A \qquad 100 \frac{22}{22 + 44} = 33 \\ B \qquad 100 \frac{44}{22 + 44} = \frac{67}{100} \end{array}$$

---

\*\* Deeming, John E. 1972. Fire Danger and Fire Weather Seminar, Interpretation and Application.

The Weighted IC

Using the above example, a weighted average IC for the Stations A, B, and C would be obtained as follows:

<u>Station</u>	<u>Weighting Factor(w)</u>	<u>IC(i)</u>	<u>(w) (i)/100</u>	<u>AVG IC</u>
A	22	38	8.36	
B	44	47	20.68	
C	<u>34</u>	58	<u>19.72</u>	
	100		48.76	round 49

The Weighted Manning Class

The manning classes must first be determined for each station using the nine-class system. (See appendix E.) Each is then assigned a factor according to the following schedule:

<u>Manning Class</u>	<u>x</u>	<u>Class Factor (m)*</u>
0	0	0
1-	1.25	1.19
1+	1.75	1.68
2-	2.25	2.37
2+	2.75	3.36
3-	3.25	4.76
3+	3.75	6.73
4-	4.25	9.51
4+	4.75	13.45
5	5.25	19.03

\* $\ln m = x \ln 2 - \ln 2$  where  $x = 1.25, 1.75, 2.25, 2.75, 3.25, 3.75, 4.25, 4.75, \text{ and } 5.25$

The weighted manning class would be determined as follows:

<u>Station</u>	<u>Wt. Factor(w)</u>	<u>Man. Cl.</u>	<u>Class Factor (m)</u>	<u>(m)(w)/100</u>
A	22	2-	2.37	.52
B	44	3+	6.73	2.96
C	<u>34</u>	4-	9.51	<u>3.23</u>
	100			= 6.71

The 6.71 is translated to a weighted manning class by use of the following table:

<u>Weighted Manning Class</u>	<u>[(m)(w)/100]</u>
0	0-0.99
1-	1.00-1.40
1+	1.41-1.99
2-	2.00-2.82
2+	2.83-3.99
3-	4.00-5.65
3+	5.66-7.99
4-	8.00-11.30
4+	11.31-15.99
5	16.00

In the example  $([m] [w]/100) = 6.71$ . Therefore, the weighted manning class is 3+ or a High 3.

#### The Unit Adjective Rating (AC)

The unit adjective rating would be derived similarly to the station AC (appendix D) except that the unit weighted IC and MC would be used.

<u>Wt. IC</u>	<u>Wt. MC</u>	<u>Unit AC</u>
49	3+	H





## APPENDIX G

### Use Of AFFIRMS in Prescribed Burning Operations

AFFIRMS is designed primarily for the day-to-day processing of fire-weather observations. The system can also be used for prescribed fires by setting up "pseudostations."

By convention, the ARCHIVER program considers any station number whose last two digits are between 90 and 99 as a "pseudostation." Data entered for such a station are understood to be for field operational use, training, or for research. These observations are not archived. This permits you to assign a station number, enter observations for that station, and display indexes, but the data will not go into the permanent records.

Several weeks before your prescribed burn, you would enter the proper cataloging commands for your pseudostation (see Section 2.1), enter the first OBS, and set the 1000HR, X1000, and herb stage (see Sec. 4.3.3 COFMOD). When the catalog is completed, entry of the special observations can begin. Typically, personnel will visit the burn site and install a set of 10-hour fuel moisture sticks, a hygrothermograph, and a rain gauge. They will then return periodically to take weather measurements and weigh the sticks. In a few weeks the drying trend and daily fire danger fluctuations can be examined by running the observations through AFFIRMS standard procedures.

You should coordinate with your local fire weather forecaster during the period observations are being taken. He can obtain prescribed burn weather readings as well as routine weather observations.

If multiple weather readings are made each day in preparation for prescribed burn (for example, 0900, 1300, and 1800), special procedures are needed. The recommended method is to enter 1300 readings as regular OBS commands at the same time routine

weather is entered. SPC commands should be used to enter additional readings and DSPX SPC commands used to display computed indexes. Three points should be remembered when using SPC commands:

- a. It is cheaper to enter data only once daily;
- b. Only one SPC observation is held for each station. If you want to send two or more SPC observations for each station to the fire weather forecaster, you must construct a special file (see Section 1.7) which the weather forecaster can execute with a FILE READ command:
- c. SPC commands cause no change in fuel moisture contents of heavier fuels (1000HR and 10000HR T/L fuels). The OBS command is necessary daily to correctly compute the heavy fuel moistures.

A P P E N D I X H

The Format of AFFIRMS Archived Fire Weather Data  
Punch Card Format (Modified) for NWS-9a

<u>Field Descriptions</u>	<u>Begin Col. #</u>	<u>End Col. #</u>
Station Number	1	6
Date (yymmdd)	7	12
State of Weather		13
Dry-Bulb Temperature (Deg. F)	14	16
Relative Humidity, Percent	17	19
Not Used	20	22
Digit '9' If Fuels Wet		23
Herb-Veg-Code (Model 1)		24
1 = Pregreen		
2 = Green		
3 = Transition		
4 = Cured		
5 = Frozen		
Man-Caused-Risk	25	27
Wind Direction (8 points)		28
Windspeed (miles per hour)	29	31
Not Used		32
10-Hr-T/L Moist. (Only if measured)	33	35
Not Used	36	38
Max. Temp. (Deg. F)	39	41
Min. Temp. (Deg. F)	42	44
Max. R.H. (Percent)	45	47
Min. R.H. (Percent)	48	50
Not Used		51
Precip. Duration (Hours)	52	53
Precip. Amount (Inches-100)	54	57

<u>Field Descriptions</u>	<u>Begin</u> <u>Col. #</u>	<u>End</u> <u>Col. #</u>
Lightning Act. Level	58	60
Digit "2"		61
Model 1 I.D.		62
Secondary Models:		
Model 2 I.D.		63
Not Used	64	65
Model 2 Herb-Veg-Code		66
Model 3 I.D.		67
Not Used	68	69
Model 3 Herb-Veg-Code		70
Model 4 I.D.		71
Not Used	72	73
Model 4 Herb-Veg-Code		74
Not Used	75	78
Forecast Flag		79
0 or blank = OBS		
1 = FCST		
Region Number		80

Explanatory Notes for Modified NWS-9a  
Card Format

The card images in the format described on the preceding page are generally generated by the archiving processor of the AFFIRMS program.

Some variations from the normal Weather Service WS D-9b form have been introduced. They are described below:

- 1) Because all humidity entries are converted by AFFIRMS to relative humidity (even though the input may have been wet-bulb, dewpoint, or R.H.) only the relative humidity is available for archiving. The presence of the digit "2" in card column 61 indicates that the data in columns 17-19 is relative humidity and not wet-bulb (which is standard for the WS-D9b).
  
- 2) The AFFIRMS system permits up to four fuel models to be associated with any given station. A separate herbaceous stage can be specified for each model. Because later use of this data may require these conditions ( if live-fuels are involved, for example), the card format has been modified to include the first model's values in the normal position on the card (24) for herbaceous. The model identifier (a letter from A through U) for the first model is then placed in column 62. The other four models have their identification and herbaceous condition placed in columns 63 through 74.
  
- 3) In the Max/Min temperature and humidity fields, a value of 100 in both Max and Min indicates that both values were missing. Subsequent processing should make this check.
  
- 4) The Forest Service Region number (column 80) is included for convenience in sorting by the National Fire Danger Rating Library.
  
- 5) The wind direction eight-point code in the card images has been derived from the stored degrees-of-the-compass value. Some stations may enter wind direction in systems other than eight-point which offer more resolutions, such as 16 point or degrees-of-the-compass. Such additional resolution is, of course, lost when this conversion to eight-point is made. Missing direction is recorded in the card images as "0".
  
- 6) The 1-, 10-, and 100-hour timelag fuel moistures are only archived if actually entered (nonmissing) in an observation. In all cases where these items are computed from ambient conditions, they appear in the archived records as zero or blank.

7) For the period January 1973 through March 1975 AFFIRMS made only one consistency check on the precip. amount: values were required to be between 0 and 10.00 inches. Occasionally, field personnel would enter nine when they should have entered 0.90 or 0.09. These three values are all valid as far as the AFFIRMS program is concerned, so large precipitation amounts should be viewed with suspicion for this period.

## APPENDIX I

### How AFFIRMS Uses The Reported LALs

As explained in Deeming and others 1978<sup>1</sup> lightning occurrence is meant to account for fires set by lightning on the day being rated and for fires set the previous day not yet discovered that will have to be considered in the rated day's fire business (holdover fires). Three LOIs are calculated each day: yesterday's using the LOI from 2 days ago, yesterday's IC, and the LAL reported today that characterizes the lightning situation that occurred yesterday (midnight to midnight); today's LOI using yesterday's "recomputed" LOI and today's predicted LAL and observed IC; and tomorrow's LOI using today's preliminary LOI and tomorrow's predicted LAL and IC.

Several LALs are either reported via the OBS command or are included by the fire weather forecaster in the FCST or ZONE commands. How these are used is explained in the following paragraphs:

#### Obtaining Yesterday's Lightning Risk

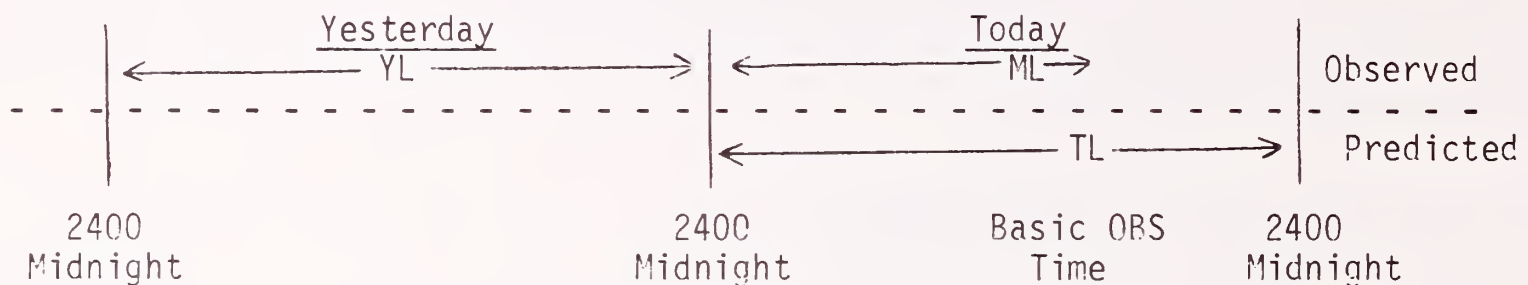
An LAL that best described the lightning occurrence from midnight to midnight the previous day is reported in the OBS command. It is abbreviated "YL" for Yesterday's Lightning. YL actually replaces the LAL used to calculate yesterday's preliminary LOI in yesterday's fire weather record. It is YL that eventually is made part of the archived weather of the National Fire Weather Library and used by FIRDAT. So it is very important that careful consideration be given to the assignment of that value.

---

<sup>1</sup>Deeming, John E., Robert E. Burgan, and Jack D. Cohen. 1978. The National Fire-Danger Rating System - 1978. USDA Forest Service General Technical Report INT-39. Intermountain Forest & Range Experiment Station, Ogden.

### Obtaining Today's Lightning Risk for the Current Day's Observed Fire Danger Rating

The LAL used to determine the current day's LR in the processing of this afternoon's fire weather observation is an estimate of what today's LAL will be. As of basic observation time, two LALs are available for the computer to choose from; the LAL predicted on yesterday's fire weather forecast for today, TL (for Tomorrow's Lightning), and the LAL reported as item 6 of the OBS command that describes the lightning occurrence experienced between midnight last night and basic observation time. ML (for this Morning's Lightning). AFFIRMS chooses the higher of these two LALs. Remember that this value will be replaced in the fire weather record by the YL reported tomorrow.



Where:

- "YL" is the observed LAL for yesterday;
- "ML" is the observed LAL today since midnight;
- "TL" is the LAL predicted yesterday for all of today.

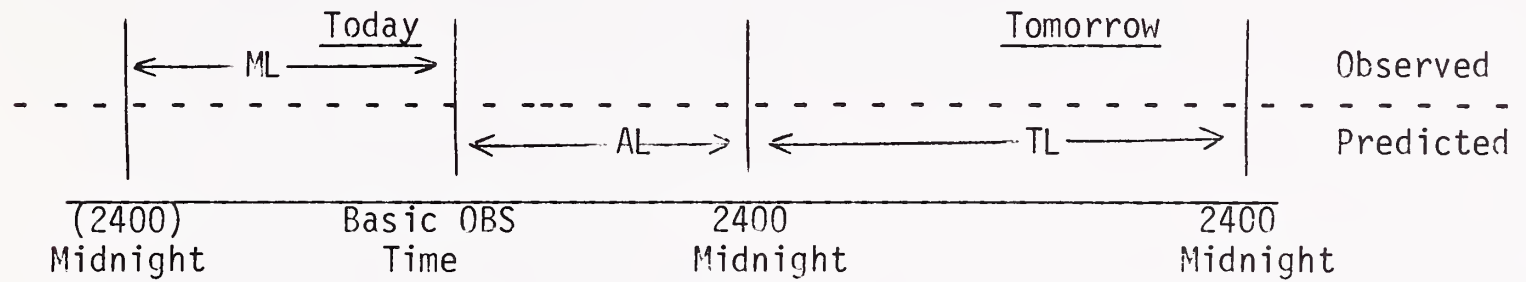
### Obtaining Today's Lightning Risk for Predicting Tomorrow's Fire Danger Rating

Keep in mind that this determination takes place after the current day's fire weather observation is available. AFFIRMS makes a second estimate of an LAL for the current day choosing the highest of the ML (reported in the fire weather observation) and the LAL predicted for the period from basic observation time to midnight of the current day. This LAL is the AL, an abbreviation for Afternoon Lightning. AFFIPMS uses this LAL, the IC from the observation and the LOI from yesterday to recalculate a LOI for today. This updated LOI will be used in the prediction of tomorrow's LOI.



Obtaining Tomorrow's Lightning Risk for Predicting Tomorrow's Fire Danger Rating

This one is simple and straight forward: the TL included on the FCST or ZONE for tomorrow is used.



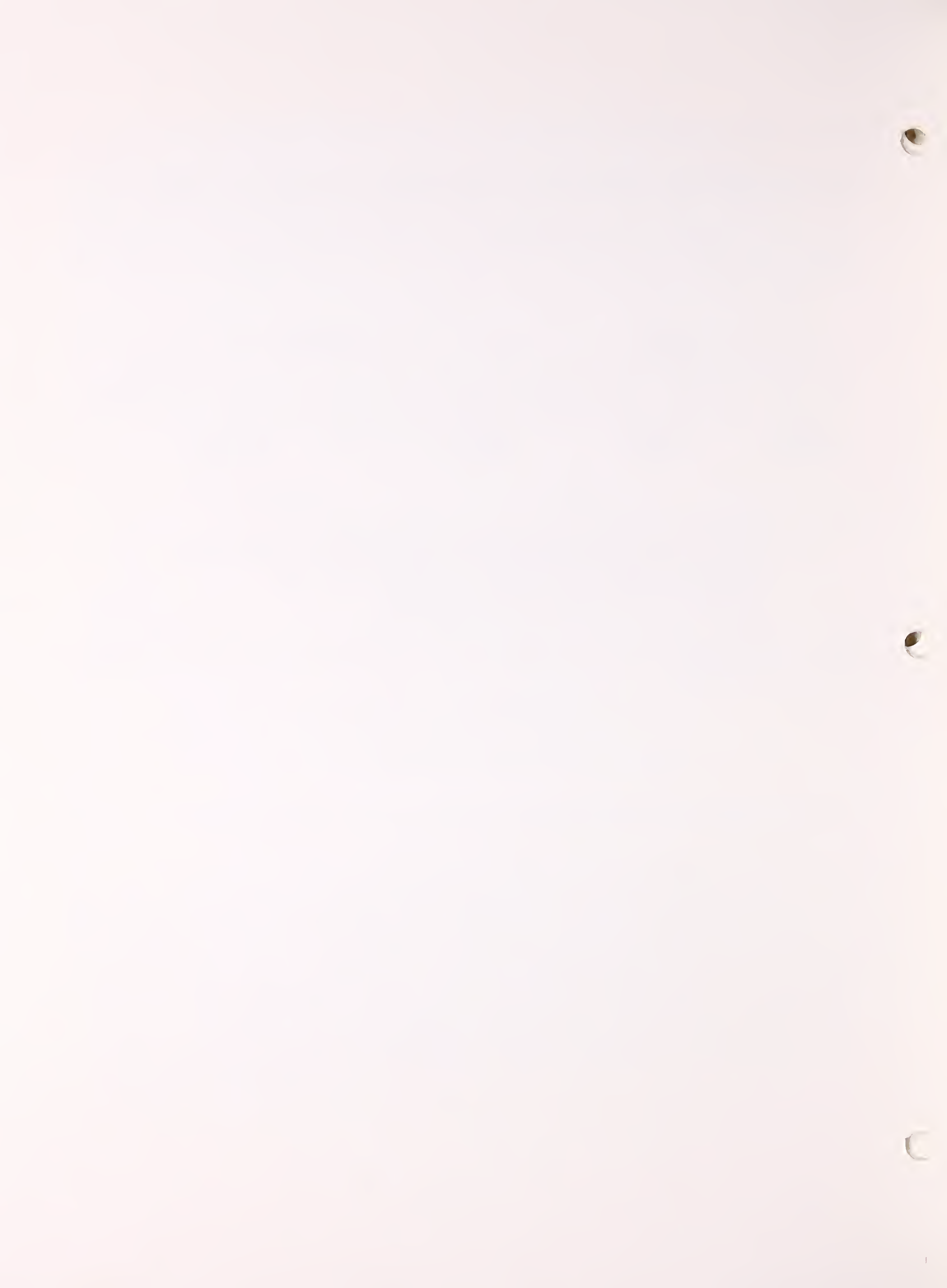
Where:

"ML" is the LAL observed today since midnight.

"AL" is the LAL predicted for the remainder of today (basic observation time to midnight) on today's forecast.

"TL" is the LAL predicted for tomorrow.

NOTE: Lightning Risk is calculated from the appropriate LAL and the Lightning Risk Scaling Factor.



Coding Forms and Worksheets

- Exhibit I 'OBS' Coding Sheet
- II 'SPC' and 'ARCH' Coding Sheet
- III 'FCST' Coding Sheet
- IV 'ZONE' Coding Sheet
- V Station Catalog Worksheet

'OBS'

AFFIRMS CODING SHEET

COM- MAND	STATION NUMBER **(6)	OBS TIME (2)	1. W (1)	DRY TEMP. (1)	HUM* ENTRY (1)	ML (1)	MR (1)	DIR. (1)	WIND SPD. (1)	10hr T/L (1)	TEMP. MAX. (1)	MIN. (1)	% RH MAX. (1)	MIN. (1)	DUR. (1)	PRECIP. AMOUNT (1)	3. YL (1)	4. MR (1)	5 UNKO (0)
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----
OBS	-----	--	-	----	---	-	---	---	--	----	---	---	---	---	---	---	-	---	----

- 1. State of Weather
- 2. LAL for period since midnight to basic obs. time (ML).
- 3. Yesterday's 24-hour (0001-2400) lightning activity (YL).
- 4. Tomorrow's Forecasted Man-Caused Risk
- 5. Miscellaneous information listed only on DSPW command. Data not archived.

\*\*Minimum Number of Digits. "Dashes" indicate maximum length.



'FCST'

AFFIRMS CODING SHEET

COM-MAND	STATION NUMBER **(6)	VALID TIME (2)	1. W (1)	DRY TEMP. (1)	RH (1)	LTG ACT AL TL (1) (1)	WIND DIR. (1)	SPD. (1)	10hr T/L (1)	MAX. (1)	TEMP. MIN. (1)	% RH MAX. (1)	PRECIP D1 (1)	DUR. D2 (1)	*** DATE
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---
FCST	-----	--	-	----	---	-	---	--	----	---	----	---	--	---	---

1. State of Weather  
 \*\*Minimum Number of Digits-  
 "Dashes" indicate maximum  
 length.  
 \*\*\*Not entered-  
 for documentation  
 only.

'ZONE'

AFFIRMS CODING SHEET

COM- MAND	ZONE NUM. **(3)	REG. NUM. (1)	VALID TIME (2)	1. W (1)	TEMP. TREND (1)	RH TREND (1)	WD TREND (1)	SPD TREND (1)	PRECIP D1 (1)	DUR D2 (1)	TEMP MAX. (1)	TRENDS MIN. (1)	RH MAX. (1)	TRENDS MIN. (1)	LTG AL (1)	ACT TL (1)	10hr TREND (1)	T/L	*** DATE
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1. Forecasted State of Weather      \*\*Minimum Number of Digits      \*\*\*Not entered--  
for documentation only.

STATION NAME \_\_\_\_\_ STATION NUMBER \_\_\_\_\_ DATE \_\_\_\_\_ PREPARED BY \_\_\_\_\_

USER'S GUIDE  
PAGE REFERENCE

AFFIRMS COMMAND

OPERANDS

Local  
Standard

Station Number, Elevation, Time Zone, Unit Abbr., Region #, Agency, OBS Time, Weather Zone, Abrev. Station

2.1.1

-----,(1,5),----, ----, --(1,2), --, --, ----, -----(1,6)

Station

Number, Humidity code: English Metric (temperatures and wind speed)

2.1.2

1 = wet bulb temp  
2 = RH  
3 = dewpoint temp  
4 = wet bulb temp  
5 = RH  
6 = dewpoint temp

Number of

Lightning

Station Display Manning Associated Scaling Date of Fuel  
Number, Classes, Index, Station, Factor, Exposure (yymmdd) Stick

2.1.3

Station

Number Latitude Longitude Aspect Site

2.1.4

Fuel model

Station Climate Slope Fuel model  
Number, Class Grass type, 90-97%, (as many as three additional sets of model-  
slope-grass, and percentiles may be entered)

2.1.5

Station

Number, Model, Stage = Green Cured Frozen  
(as many as three additional sets of model and  
herbaceous stages can be entered)

2.1.6

Station Measured Woody  
Number, Moisture Content

2.1.7

----- (enter a station number to receive a station description)

2.1.8



Helfman, R. S., R. J. Straub, and J. E. Deeming.

1980. User's Guide to AFFIRMS: Time-share computerized processing for fire danger rating. USDA For. Serv. Gen. Tech. Rep. INT-82, n.p. (150 p.). Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

This User's Guide is a comprehensive manual for persons accessing the 1978 version of the National Fire Danger Rating System through AFFIRMS. This document supercedes the August 1975 User's Guide to AFFIRMS published as General Technical Report RM-15. AFFIRMS is a user-oriented, interactive computer program which processes weather observations and fuels data to produce indexes of probable forest fire danger. The Guide is written in nontechnical language for persons without a computer background.

KEYWORDS: fire danger rating; computerized systems

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The Intermountain Station, headquartered in Ogden, Utah, is one of eight regional experiment stations charged with providing scientific knowledge to help resource managers meet human needs and protect forest and range ecosystems.

The Intermountain Station includes the States of Montana, Idaho, Utah, Nevada, and western Wyoming. About 231 million acres, or 85 percent, of the land area in the Station territory are classified as forest and rangeland. These lands include grasslands, deserts, shrublands, alpine areas, and well-stocked forests. They supply fiber for forest industries; minerals for energy and industrial development; and water for domestic and industrial consumption. They also provide recreation opportunities for millions of visitors each year.

Field programs and research work units of the Station are maintained in:

Boise, Idaho

Bozeman, Montana (in cooperation with Montana State University)

Logan, Utah (in cooperation with Utah State University)

Missoula, Montana (in cooperation with the University of Montana)

Moscow, Idaho (in cooperation with the University of Idaho)

Provo, Utah (in cooperation with Brigham Young University)

Reno, Nevada (in cooperation with the University of Nevada)

