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SYSTEM SOFTWARE DOCUMENTATION MANUAL
FINAL REPORT
SATELLITE FREEZE FORECAST SYSTEM
PHASE VI

SUBMITTED TO

SI-PRO-33/WILLIAM R. HARRIS
CONTRACTING OFFICER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN F. KENNEDY SPACE CENTER FLORIDA 32899

SUBMITTED BY

CLIMATOLOGY LABORATORY, FRUIT CROPS DEPARTMENT
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES (IFAS)
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CONTRACT NO. NAS10-9892
AMENDMENT NO. 3
DATE: APRIL 14, 1983

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TABLE OF CONTENTS

Program Documentation:

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Acknowledgements

This manual has been developed by the Climatology Laboratory, Fruit Crops Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Florida under contract to NASA (Contract NAS10-9892, Amendment 3), and in cooperation with users of the Satellite Freeze Forecast Operational System, i.e. National Weather Service forecasters in Ruskin, Florida. This manual is one of five sections of the final report submitted under the NASA Contact indicated above. The Executive Summary section of the final report contains a section (the Foreword) that lists previous reports to NASA regarding the development of this system.

Three individuals have been responsible for the compilation and arrangement of most of the material contained in this manual and two accompanying manuals:

Mr. Ferris G. Johnson, Jr., Systems Analyst
Mr. Fred D. Stephens, Scientific Programmer
Mr. Robert A. Dillon, Programmer III

Individual authorship is indicated in the table of contents but in most cases the effort described may be viewed as a joint effort of these team members and others who contributed philosophies, feedback, and judgments who are mentioned in the Executive Summary (under separate cover). Ms. Kathleen M. Daniels aided in the text processing and binding of the manual.

Users of this manual are encouraged to call

(904) 392-4963

to ask for any of the authors indicated above if questions arise.

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Introduction

This manual is one of three manuals developed for use in operating the Satellite Freeze Forecast System (S.F.F.S.). The three system manuals are:

1. System Configuration Definition
2. System Software Documentation
3. System Operations and Troubleshooting

This is the S.F.F.S. System Software Documentation Manual. It describes all software written for and used by S.F.F.S.

The following section gives a brief description of each program and its relation to the others.

The third section contains the full documentation for each program. These are not complete program listings, but only the descriptions of title, author, purpose, methodology, and operation of the programs. Complete listings may be printed from the files that are stored on the S.F.F.S. computer at Ruskin, Fla.

Additional introductory information can be found in the introduction to the Operations and Troubleshooting manual.

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Program Descriptions

LOGO - display the S.F.F.S. system logo on the color video monitor.

CLEAR - clears the color monitor to black.

TEXM - local or remote message transmission program for communication with Gainesville personnel.

NFTE - convert from encoded map file names to standard julian date and time format.

ETNF - convert from standard julian date and time format to encoded map file name format.

OFTNF - convert the map names using old format to new map naming conventions.

TABLE - prints a copy of observed temperatures combined with PMODL predictions.

MAPS - prints the satellite maps currently on the system.

KEDIT - edit the AWS observed keystation data files.

TVMAP - display observed and predicted satellite maps.

SFFS - user interface to the automated SFFS system.

TSMDL - forecast future satellite images.

PMODL - forecast keystation temperatures.

GAPX - acquire satellite images from NESS over 1200 baud line.

AWS - acquire data from the automated weather stations.

GETMP - acquire satellite images from the HP computer in Gainesville over the 9600 baud DS-1000 link.

TVQIK - subset of TVMAP that displays the most recent observed map (non-interactive).

TEXS - DS-1000 support program for program TEXM.

SCHED - SFFS system scheduler.

SYSCM - transfer SFFS parameters to programs that cannot support HP system common.

LOGGR - SFFS programs to log file or logical unit utility.

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Program Documentation

```
**********************************************************************
*                                                                    *
*                 AAAAAA      WW      WW      SSSSSSSS               *
*                AA    AA     WW      WW     SSSSSSSSS               *
*               AA      AA    WW  WW  WW    SS                       *
*               AA      AA    WW  WW  WW    SS                       *
*               AAAAAAAAAA    WW  WW  WW    SSSSSSSS                 *
*               AAAAAAAAAA    WW  WW  WW     SSSSSSSSS               *
*               AA      AA    WW  WW  WW            SS               *
*               AA      AA    WW  WW  WW            SS               *
*               AA      AA     WWWWWWWW     SSSSSSSSS                *
*               AA      AA      WWWWWW      SSSSSSSS                 *
*                                                                    *
**********************************************************************
*                                                                    *
*I.     REVISIONS -                                                  *
*------------------                                                  *
*        Last compiled and loaded:      4:09 PM  WED.,  9  FEB., 1983*
*        Last edited by EDIT:         <830408.1448>                  *
*                                                                    *
*        Mike Lucido - 18 December 1981                              *
*        Updatei to work with DVF00 (ENCODE statement)               *
*                                                                    *
*        Robert A. Dillon - 10 January 1982                          *
*        Added fractional part to time in K-file.                    *
*        (ITM(4)+ITM(3)/60.0)                                        *
*                                                                    *
*        Robert A. Dillon - 12 January 1982                          *
*        Changed all WRITE(6... to WRITE(1... so log is              *
*        printed on system console when scheduled by SFFS.           *
*                                                                    *
*        Robert A. Dillon - 28 April 1982                            *
*        Included SFFS common data file.  Most recent K-file         *
*        is updated in system common.                                *
*                                                                    *
*        Robert A. Dillon - 14 June 1982                             *
*        Re-formatted and re-commented program text.                 *
*        Renamed program to AWS.                                     *
*                                                                    *
*        Robert A. Dillon - 22 October 1982                          *
*        Added more documentation.                                   *
*                                                                    *
*        Robert A. Dillon - 25 October 1982                          *
*        Second parameter of RMPAR is the "SAVE" option.             *
*        If 0 then data is put in k-file, otherwise data is simply *
*        printed on the terminal.  The time of day does not effect *
*        whether or not the data is saved.                           *
*                                                                    *
*        Robert A. Dillon - 27 October 1982                          *
*        Changed format of printed output.                           *
*                                                                    *
*        Robert A. Dillon - 15 November 1982                         *
*        Get LU from RMPAR.                                          *
```

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```
*                                                                    *
*         Robert A. Dillon - 09 February 1982                        *
*         Gets cartridge from SFFS system command.                   *
*         Uses LOGGR.                                                *
*                                                                    *
*II.    LANGUAGE -                                                   *
*-----------------                                                   *
*         HP FTN4X (Fortran 4X)                                      *
*         Must use FTN4X to be compatible with Ruskin system.        *
*                                                                    *
*III.   AUTHOR STATISTICS -                                          *
*--------------------------                                          *
*         Fred Stephens and Steve Lasley                             *
*         University of Florida                                      *
*         Institute of Food and Agricultural Sciences                *
*         Fruit Crops Department                                     *
*         Climatology Laboratory                                     *
*         2116 HS-PP Bldg.                                           *
*         Gainesville, FL  32611                                     *
*                                                                    *
*                                                                    *
*IV.    SPECIAL HARDWARE REQUIRED -                                  *
*----------------------------------                                  *
*       HP-12966A Buffered asynchronous data communications interface*
*                                                                    *
*                                                                    *
*V.     OPERATING SYSTEM -                                           *
*-------------------------                                           *
*         Hewlett-Packard  HP RTE-IVB or VI                          *
*         Special MIT supplied driver DVF00                          *
*                                                                    *
*                                                                    *
*VI.    PROGRAM DESCRIPTION -                                        *
*----------------------------                                        *
*                                                                    *
*       SUBROUTINES                                                  *
*       -----------                                                  *
*       ASIST : Call AWS and retrieve data                           *
*                                                                    *
*               LUDIAL - lu of dialer                                *
*               LUMODM - lu of modem                                 *
*               PHONUM - AWS phone number                            *
*               NUMLEN - number of digits in phone number            *
*               GOOF   - error return                                *
*               DIALER - returned dialer status                      *
*               BUF2   - data from AWS                               *
*                                                                    *
*       BUILD : Append data from AWS to keystation file              *
*                                                                    *
*               ARRAY  - converted AWS data                          *
*               NAM1   - keystation file name                        *
*               SAVE   - save/print flag                             *
*               LU     - lu of printer                               *
*               AUTO   - future expansion                            *
*                                                                    *
*       CONVT : Convert AWS readings into instrument readings        *
*                                                                    *
*               BUFR   - AWS unprocessed data                        *
*               BUF    - converted AWS data                          *
```

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```
*                                                                    *
*       LOGIT : Passes status information to program LOGGR           *
*                                                                    *
*               IPGMN  - Program name                                *
*               MSG    - Message to put into log file                *
*               LEN    - Length of message in 16 bit words           *
*                                                                    *
*       ERROR : Handle FMP errors                                    *
*                                                                    *
*               IERR   - error code                                  *
*               NAME   - File name in which error occured            *
*               ICODE  - index into FMP error codes                  *
*                                                                    *
*       FIXIT : Check for bad AWS data and replace it with nearest   *
*               available neighbor + or - some fudge factor          *
*                                                                    *
*               ARRAY  - Converted AWS data                          *
*               LU     - lu of printer                               *
*               AUTO   - Automatic or manual operation               *
*                                                                    *
*                                                                    *
*       PROGRAM FLOW DESCRIPTION                                     *
*       ------------------------                                     *
*                                                                    *
*       - Initialize status table                                    *
*                                                                    *
*       - Initizlize ARRAY so FIXIT can spot "no data" stations      *
*                                                                    *
*       - Open file =PHONE which contains phone numbers              *
*                                                                    *
*       - Loop thru each of the keystations to decode phone numbers  *
*                                                                    *
*       - Call ASIST up to three times to retrieve data from         *
*         keystations                                                *
*                                                                    *
*       - Store data recieved into ARRAY                             *
*                                                                    *
*       - Call CONVT to convert data to instrument readings          *
*         (windspeed, temperatures, net-radiation)                   *
*                                                                    *
*       - Call FIXIT to check for obviously bad data and substitute  *
*                                                                    *
*       - Call Build to append data to most recent keystation file   *
*                                                                    *
*       - Update system variables with most recent k-file name       *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*--------------------------------------                              *
*         Compile, load, and save (SP):  TR,*AWS                     *
*         Load and save only:            TR,*AWS,LO                  *
*                                                                    *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *

*         RU,AWS,m,n                                                 *
*                                                                    *
*              where:  m=-1 for automatic operation.                   *
*                      otherwise, manual operation.                    *
*                                                                      *
*                      n=0  if data is to be saved in kfile (default).*
*                      n=1  if data is to be printed at the terminal. *
*                                                                      *
************************************************************************
```

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```
************************************************************************
*                                                                      *
*    CCCCCCCC    LL           EEEEEEEEEE      AAAAAA     RRRRRRRRR     *
*   CCCCCCCCCC   LL           EEEEEEEEEE     AAAAAAAA    RRRRRRRRRR    *
*   CC           LL           EE            AA      AA   RR      RR    *
*   CC           LL           EE            AA      AA   RRRRRRRRRR    *
*   CC           LL           EEEEEEEEEE    AAAAAAAAAA   RRRRRRRRR     *
*   CC           LL           EEEEEEEEEE    AAAAAAAAAA   RR RRR        *
*   CC           LL           EE            AA      AA   RR  RRR       *
*   CC           LL           EE            AA      AA   RR   RRR      *
*   CCCCCCCCCC   LLLLLLLLLL   EEEEEEEEEE    AA      AA   RR    RRR     *
*    CCCCCCCC    LLLLLLLLLL   EEEEEEEEEE    AA      AA   RR     RRR    *
*                                                                      *
************************************************************************
*                                                                      *
*I.     REVISIONS -                                                    *
*------------------                                                    *
*                                                                      *
*                                                                      *
*                                                                      *
*II.    LANGUAGE -                                                     *
*-----------------                                                     *
*         HP Fortran 4X.                                               *
*                                                                      *
*                                                                      *
*III.   AUTHOR STATISTICS -                                            *
*--------------------------                                            *
*         Ferris G. Johnson, Jr.                                       *
*         University of Florida                                        *
*         Fruit Crops Department                                       *
*         Climatology Laboratory                                       *
*         2116 Horticulture Science - Plant Pathology Bldg.            *
*         Gainesville, Florida 32611                                   *
*                                                                      *
*                                                                      *
*IV.    SPECIAL HARDWARE REQUIRED -                                    *
*----------------------------------                                    *
*        HP 91200B TV Interface Kit.                                   *
*        Direct drive RGB monitor.                                     *
*                                                                      *
*                                                                      *
*V.     OPERATING SYSTEM -                                             *
*-------------------------                                             *
*         Hewlett-Packard RTE-IVB or RTE-6/VM.                         *
*                                                                      *
*                                                                      *
*VI.    PROGRAM DESCRIPTION -                                          *
*----------------------------                                          *
*         CLEAR erases the TV monitor screen (sets it to black).       *
*                                                                      *
*                                                                      *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                                *
*--------------------------------------                                *
*         To compile and load use the file manager transfer file       *
*         *CLEAR:                                                      *
*                                                                      *
*             :TR,*CLEAR                                               *
*                                                                      *
*                                                                      *
```

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```
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *
*         Simply:                                                    *
*                                                                    *
*             :RU,CLEAR                                              *
*                                                                    *
*         The screen will be erased to black.                        *
*                                                                    *
**********************************************************************
```

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```
*************************************************************************
*                                                                       *
*        EEEEEEEEEE  TTTTTTTTTT  NN      NN  FFFFFFFFFF                 *
*        EEEEEEEEEE  TTTTTTTTTT  NNN     NN  FFFFFFFFFF                 *
*        EE              TT      NNNN    NN  FF                         *
*        EE              TT      NNNNN   NN  FF                         *
*        EEEEEEEEEE      TT      NN NNN  NN  FFFFFFFF                   *
*        EEEEEEEEEE      TT      NN  NNN NN  FFFFFFFF                   *
*        EE              TT      NN   NNNNN  FF                         *
*        EE              TT      NN    NNNN  FF                         *
*        EEEEEEEEEE      TT      NN     NNN  FF                         *
*        EEEEEEEEEE      TT      NN      NN  FF                         *
*                                                                       *
*************************************************************************
*                                                                       *
*I.     REVISIONS -                                                     *
*-----------------                                                      *
*                                                                       *
*                                                                       *
*                                                                       *
*II.    LANGUAGE -                                                      *
*----------------                                                       *
*       HP-FTN4X                                                        *
*                                                                       *
*                                                                       *
*III.   AUTHOR STATISTICS -                                             *
*------------------------                                               *
                                                                        
*       Robert A. Dillon                                                *
*       Computer Programmer III                                         -
*       University of Florida                                           *
*       Institute of Food and Agricultural Sciences                     *
*       Fruit Crops Department                                          *
*       Climatology Research Laboratory                                 *
*       2116 Horticulture Science - Plant Pathology Building            *
*       Gainesville, Florida 32611                                      *
*                                                                       *
*                                                                       *
*IV.    SPECIAL HARDWARE REQUIRED -                                     *
*--------------------------------                                       *
*       none                                                            *
*                                                                       *
*                                                                       *
*V.     OPERATING SYSTEM -                                              *
*-------------------------                                              *
*       RTE-IVB or RTE-6/VM                                             *
*                                                                       *
*                                                                       *
*VI.    PROGRAM DESCRIPTION -                                           *
*--------------------------                                             *
*     Convert the source, date, and time to map name.                   *
*                                                                       *
*     Needs $BDLIB                                                      *
*                                                                       *
*     PROGRAM FLOW DESCRIPTION                                          *
*     ------------------------                                          *
*                                                                       *
*     - Call GETST to get 40 characters from run string                 *
*                                                                       *
```

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```
*     - If run string is less then 10 characters print               *
*       message indicating required information then quit.           *
*                                                                    *
*     - Call CAPS to convert characters to upper case letters.       *
*                                                                    *
*     - Call CDTMN to convert run string to encoded map name.        *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*-------------------------------------                               *
*       Transfer to *ETNF to compile, load and save program          *
*                                                                    *
*                                                                    *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*------------------------------                                      *
*           :RU,ETNF,s  mo/da/yr  hr:mi                              *
*                                                                    *
*             where:  s  = source of map                             *
*                          use M for Maryland, W for GOES West,      *
*                          or E for GOES East [default]              *
*                     mo = the month in CUT (1-12)                   *
*                     da = the day in CUT (1-31)                     *
*                     yr = the year in CUT (70-??)                   *
*                     hr = the hour in CUT (0-23)                    *
*                     mi = the quarter hour in CUT (00,15,30,45)     *
*                                                                    *
*                                                                    *
**********************************************************************
```

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```
***********************************************************************
*                                                                     *
*          GGGGGGGG      AAAAAA     PPPPPPPPP    YY      YY           *
*         GGGGGGGGGG    AAAAAAAA    PPPPPPPPPP    YY    YY            *
*         GG      GG   AA      AA   PP      PP     YY  YY             *
*         GG           AA      AA   PP      PP      YYYY              *
*         GG  GGGGGG   AAAAAAAAAA   PPPPPPPPPP       YY               *
*         GG  GGGGGG   AAAAAAAAAA   PPPPPPPPP        YY               *
*         GG      GG   AA      AA   PP               YY               *
*         GG      GG   AA      AA   PP               YY               *
*         GGGGGGGGGG   AA      AA   PP               YY               *
*          GGGGGGGG    AA      AA   PP               YY               *
*                                                                     *
***********************************************************************
*I.     REVISIONS -                                                   *
*----------------                                                     *
*             NOVEMBER 30,1981                                        *
*             UTILIZING DRIVER DVF00                                  *
*             LAST EDITED: NOVEMBER 30,1981                           *
*                                                                     *
*             Fred Stephens - 1982                                    *
*             Translation disabled to allow for extended scale being *
*             sent from NMC.                                          *
*                                                                     *
*             Fred Stephens - March 1,1983                            *
*             Modified to operate in new SFFS program scheduling      *
*             environment (ie returns map name thru system common).  *
*                                                                     *
*             Modified map naming convention to new standard.         *
*                                                                     *
*             Deleted scheduling of TVMAP by program.                 *
*                                                                     *
*             Changed phone file to =PHONE.                           *
*                                                                     *
*             Set default request code for NMC.                       *
*                                                                     *
*             Set default cartridge list for Ruskin configuration.    *
*                                                                     *
*II.    LANGUAGE -                                                    *
*----------------                                                     *
*             HP 21MX ASSEMBLER                                       *
*                                                                     *
*                                                                     *
*III.   AUTHOR STATISTICS -                                           *
*------------------------                                             *
*            AUTHORS:  FRED STEPHENS, COMPUTER PROGRAMMER II          *
*                      STEVEN LASLEY, COMPUTER PROGRAMMER I           *
*                                                                     *
*                      UNIVERSITY OF FLORIDA                          *
*                      IFAS                                           *
*                      FRUIT CROPS DEPT.                              *
*                      CLIMATOLOGY RESEARCH CENTER                    *
*                      2116 HSPP BUILDING                             *
*                      GAINESVILLE, FLORIDA  32611                    *
*                                                                     *
*                                                                     *
*                                                                     *
*IV.    SPECIAL HARDWARE REQUIRED -                                   *
*-------------------------------                                      *
```

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```
*               A. 12966 ASYNCHRONOUS COMMUNICATION CARD                 *
*               B. 12587 AUTO-DIAL CARD                                  *
*               C. VADIC MODEM                                           *
*               D. 2645A TERMINAL (OPTIONAL)                             *
*                                                                        *
*                                                                        *
*                                                                        *
*V.     OPERATING SYSTEM -                                               *
*-------------------------                                               *
*            RTE-II, RTE-III, RTE-IVB, or RTE-6/VM                       *
*                                                                        *
*                                                                        *
*                                                                        *
*VI.    PROGRAM DESCRIPTION -                                            *
*---------------------------                                             *
*            PROGRAM GAP WAS DESIGNED TO COLLECT PREPROCESSED            *
*            GEOS SATELLITE IR DATA THAT IS ARCHIVED IN WASHINGTON       *
*            D. C.  THE PROGRAM BEGINS BY CHECKING ITS PHONE FILE        *
*            (=PHONE) TO OBTAIN THE NECESSARY PHONE NUMBER.              *
*            IF THE PHONE NUMBER SHOULD CHANGE IT MAY BE CORRECTED       *
*            BY MODIFYING =PHONE WITH THE RTE INTERACTIVE EDITOR.        *
*            UPON CONNECTION WITH WASHINGTON, THE MAP(S) IS COLLECTED*
*            INTO A FILE, &MAP&, AND THE PHONE IS DISCONNECTED WHEN      *
*            THE REQUESTED DATA IS OBTAINED.                             *
*                 FURTHER PROCESSING IS THEN DONE ON &MAP& TO ALTER      *
*            THE MAP(S) RECEIVED INTO A FORM EXPECTED BY THE MAP         *
*            DISPLAY PROGRAMS.  THE FOLLOWING REFORMATTING IS            *
*            ACCOMPLISHED (NOT NECESSARILY IN THIS ORDER):               *
*                                                                        *
*                 1. THE EPHEMERIS FILE, WHICH PRECEDES THE DATA         *
*            LINES FOR EACH MAP AND CONTAINS PERTINENT INFO ABOUT THE*
*            MAP, IS MOVED TO AFTER THE MAP PROPER.                      *
*                 2. CONTROL CHARACTERS IN THE MAP AND EPHEMERIS FILE*
*            ARE REMOVED SO THE REFORMATTED MAP IS PRINTABLE.  THIS      *
*            IS ACCOMPLISHED BY SUBROUTINE STRIP.                        *
*       *         3. A TRANSLATE TABLE IS BUILT SO THAT IF THE           *
*       *    CHARACTER ASSIGNMENT TABLE SHOULD CHANGE W/O NOTICE,        *
*       *    A TRANSLATION WILL TAKE PLACE TO TRANSCRIBE THE MAP         *
*       *    INTO THE CHARACTER ASSIGNMENT EXPECTED BY THE SFFS          *
*       *    DISPLAY PROGRAMS.                                           *
*                 4. EACH MAP IS NAMED AND READ INTO ITS OWN DISC        *
*            FILE FOR ARCHIVAL.                                          *
*                 5. THE MAP YEAR IS RETRIEVED AND PLACED AS THE         *
*            SECOND RECORD IN THE MAP FILE.                              *
*                                                                        *
*                 DURING THE ENTIRE TIME GAP IS EXECUTING, IT REPORTS*
*            THE STATUS OF ITS VARIOUS ACTIVITIES TO THE SCHEDULING      *
*            TERMINAL.  WHEN GAP IS FINISHED CREATING A NEW FILE         *
*            FOR EACH MAP OBTAINED, IT BEGINS SCHEDULING THE             *
*            PROGRAM TVMAP WITH THE MAPS TO DISPLAY THEM                 *
*            SEQUENTIALLY IN THE ORDER THEY WERE RECEIVED.  UPON         *
*            DISPLAYING THE LAST MAP, GAP FINISHES.                      *
*                                                                        *
*                  *==========================*                          *
*                  *== OUTLINE OF EXECUTION ==*                          *
*                  *==========================*                          *
*                                                                        *
*   I.  INITIALIZATION                                                   *
*       A.  QUERY SFFS ANSWER FILE (=PHONE)                              *
```

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```
*           1.  RETRIEVE WASHINGTON PHONE NUMBER                     *
*       B.  INITIALIZE ASYNCHRONOUS COMMUNICATIONS CARD & DIALER     *
*       C.  DIAL & CHECK FOR ERRORS                                  *
*           1.  DIAL WASHINGTON DC                                   *
*           2.  TEST FOR ERRORS; REDIAL IF NECESSARY                 *
*               a.  DIALING ERROR?                                   *
*               b.  REMOTE PHONE BUSY?                               *
*               c.  LOCAL PHONE BUSY?                                *
*       D.  CREATE TEMPORARY STORAGE FOR MAP DATA (&MAP&)            *
*   II. DATA ACQUISITION                                             *
*       A.  TRANSMIT REQUEST FOR DATA                                *
*       B.  ACQUIRE DATA                                             *
*           1.  READ RECORD                                          *
*           2.  CHECK MODEM REPORT IF CONNECTION BROKEN              *
*           3.  WRITE RECORD TO DISC FILE (&MAP&)                    *
*           4.  REPEAT, SCANNING FOR TERMINATION UNTIL COMPLETE      *
*   III.REFORMATION AND ARCHIVAL                                     *
*       A.  COPY EPHEMERIS FILE TO &$JUNK FOR TEMPORARY STORAGE      *
*           1.  HANDLE ONE RECORD AT A TIME                          *
*           2.  REPLACE ANY CONTROL CHARACTERS WITH BLANKS           *
*           3.  SCAN FOR "GREY SCALE"(TEMP ASSIGNMENT TABLE)         *
*       B.  BUILD TRANSLATE TABLE                                    *
*       C.  LOOK FOR HEADER (DATE AND TIME)                          *
*           1.  IF DUPLICATE MAP, TRY TO POSITION TO NEXT MAP        *
*           2.  CREATE MAP FILE                                      *
*           3.  STORE NAME IN QUEUE                                  *
*           4.  POSITION TO START OF MAP                             *
*       D.  BEGIN MAP PROCESSING                                     *
*           1.  HANDLE ONE RECORD AT A TIME                          *
*           2.  REPLACE ANY CONTROL CHARACTERS WITH BLANKS           *
*           3.  CHECK IF RECORD IS BULLETIN NUMBER                   *
*     *     4.  TRANSLATE MAP RECORD TO R*****                       *
*       E.  HANDLE END OF MAP PROCESSING                             *
*           1.  COPY &$JUNK TO R***** AFTER MAP PROPER               *
*   IV. END OF FILE PROCESSING                                       *
*       A.  INSURE THERE IS ENOUGH DATA TO SAVE MAP; PURGE           *
*           R***** FILE IF INSUFFICIENT DATA                         *
*       B.  COPY EPHEMERIS FILE TO R***** FILE                       *
*       C.  DISPLAY MAPS IN QUEUE                                    *
*                                                                    *
*                                                                    *
*                       *=================*                          *
*                       *== ERROR CODES ==*                          *
*                       *=================*                          *
*                                                                    *
*   ERROR                                                            *
*   CODE            EXPLANATION                        ACTION        *
*--------------------------------------------------------------------*
*                                                                    *
*    01     OPEN FILE ERROR FOR =PHONE          INSURE THAT =PHONE   *
*                                               FILE EXISTS          *
*                                                                    *
*    02     POSNT ERROR FOR =PHONE              CORRUPT FILE OR FILE *
*                                               IS NOT COMPLETE      *
*                                                                    *
*    03     READF ERROR FOR =PHONE              CORRUPT FILE OR FILE *
*           ATTEMPTING TO READ NMC              IS NOT COMPLETE      *
*           PHONE NUMBER                                             *
*                                                                    *
```

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```
*    04      WRITF OR READF ERROR FOR            CORRUPT FILE OR FILE *
*            =PHONE                              IS NOT COMPLETE      *
*                                                                     *
*    05      READF ERROR FOR =PHONE              CORRUPT FILE OR FILE *
*            ATTEMPTING TO READ NMC              IS NOT COMLETE       *
*            REQUEST CODE                                             *
*                                                                     *
*    06      CREAT ERROR ATTEMPTING                                   *
*            TO CREATE &MAP& FILE                                     *
*                                                                     *
*    07      AVAILABLE CARTRIDGES                MAKE ROOM FOR MAPS   *
*            EXHAUSTED                           BY BACKING UP FILES  *
*                                                ON TAPE AND PURGE OLD*
*                                                FILES                *
*                                                                     *
*    08      OPEN FILE ERROR FOR &MAP&           POSSIBLY CORRUPT FILE*
*                                                PURGE FILE AND RETRY *
*                                                                     *
*    09      WRITF ERROR FOR &MAP&               EXECESSIVE AMOUNT OF *
*            DURING MAP ACQUISITION              DATA                 *
*                                                                     *
*    10      RWNDF ERROR FOR &MAP&               ?????????????????????*
*                                                                     *
*    11      CREAT ERROR FOR &$JUNK              ?????????????????????*
*                                                                     *
*    12      NO ROOM ON SPECIFIED                PURGE ANY UNNECESSARY*
*            CARTRIDGES                          FILES AND PACK       *
*                                                                     *
*    13      OPEN ERROR FOR &$JUNK               POSSIBLY CORRUPT FILE*
*                                                PURGE AND RESTART    *
*                                                                     *
*    14      READF ERROR FOR &MAP&               ?????????????????????*
*                                                                     *
*    15      REWIND ERROR FOR &$JUNK             ?????????????????????*
*            DURING EOF PROCESSING                                    *
*                                                                     *
*    16      PURGE ERROR FOR R#####              ?????????????????????*
*                                                                     *
*    17      PURGE ERROR FOR &$JUNK              ?????????????????????*
*                                                                     *
*    18      READF ERROR FOR &MAP&               POSSIBLE MODIFICATION*
*            WHILE ATTEMPTING TO                 BY NMC TO MAP FORMAT *
*            ACQUIRE GREY SCALE                                       *
*            PART 1                                                   *
*                                                                     *
*    19      READF ERROR FOR &MAP&               SEE ERROR 18         *
*            WHILE ATTEMPTING TO                                      *
*            ACQUIRE GREY SCALE                                       *
*            PART 2                                                   *
*                                                                     *
*    20      NO Z TIME ON HEADER                 SEE ERROR 18         *
*                                                                     *
*    21      DATE GROUP ERROR                    SEE ERROR 18         *
*                                                                     *
*    22      WRITF ERROR FOR R#####              ?????????????????????*
*            WHILE WRITING HEADER                                     *
*                                                                     *
*    23      WRITF ERROR FOR R#####              ?????????????????????*
*            WHILE WRITING YEAR                                       *
```

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```
*                                                                    *
*    24     READF ERROR WHILE                   SEE ERROR 18         *
*           ATTEMPTING TO POSITION                                   *
*           TO SOM                                                   *
*                                                                    *
*    25     READF ERROR FOR &MAP&               ?????????????????????*
*           WHILE ATTEMPTING TO                                      *
*           LOCATE NEXT MAP                                          *
*                                                                    *
*    26     CREAT ERROR FOR R#####              ?????????????????????*
*                                                                    *
*    27     NO ROOM ON CARTRIDGES               SEE ERROR 12         *
*                                                                    *
*    28     RWNDF ERROR FOR &$JUNK              ?????????????????????*
*           DURING EOM CONDITION                                     *
*                                                                    *
*    29     READF ERROR FOR &$JUNK              ?????????????????????*
*           DURING EOM CONDITION                                     *
*                                                                    *
*    30     WRITF ERROR DURING EOM              UNEXPECTED ADDITIONAL*
*           COPYING EPHEMERIS DATA              EPHEMERIS DATA       *
*           TO R#####                                                *
*                                                                    *
*    31     RWNDF ERROR FOR &$JUNK              ?????????????????????*
*           ON COMPLETION OF EOM                                     *
*                                                                    *
*    32     WRITF ERROR FOR R#####              POSSIBLE TRANSLATION *
*           AFTER RECORD TRANSLATION            ERROR. TRANSLATION   *
*                                               WOULD BE SPECIFIED   *
*                                                                    *
*====================================================================*
*     VII.   EXTERNAL SUBROUTINES -                                  *
*--------------------------------------------------------------------*
*                                                                    *
*               DTIME - OUTPUT TIME & DATE ON LU 6                   *
*               TVMAP - DISPLAY ACQUIRED MAPS                        *
*                                                                    *
*====================================================================*
*     VIII.  SUBROUTINES -                                           *
*--------------------------------------------------------------------*
*                                                                    *
*               STRIP - CONVERT ALL CONTROL CHARACTERS IN A RECORD   *
*                       TO BLANKS                                    *
*               COPY  - COPY EPHEMERIS DATA FROM FILE &$JUNK TO      *
*                       CURRENT MAP. BEING PROCESSED                 *
*               CLEAR - INITIALIZE RECORD TO BLANKS                  *
*               JUMP  - EXECUTED ONLY FOR DUPLICATE FILE NAME,       *
*                       ADVANCES TO THE NEXT MAP IF ONE EXISTS       *
*               SERCH - SEARCHING ROUTINE THAT SCANS FOR FIRST       *
*                       OCCURENCE OF A PHRASE AND RETURNS FLAG IF    *
*                       FOUND                                        *
*               MAPNM - CONVERTS BINARY MONTH, DAY, YEAR AND ASCII   *
*                       HOUR TO SIX LETTER MAP FILE NAME.            *
*               DELAY - DELAY SUBROUTINE WHICH WASTES TIME FLASHING  *
*                       LIGHTS ON COMPUTER.                          *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
```

```
*----------------------------------------                           *
*        Transfer to *GAPY to compile, load and SP GAPY             *
*                                                                   *
*                                                                   *
*VIII.  EXECUTION INSTRUCTIONS -                                    *
*-----------------------------------                                *
*       RU,GAPY                                                     *
*                                                                   *
*********************************************************************
```

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```
**********************************************************************
*                                                                    *
*    GGGGGGGG   EEEEEEEEEE   TTTTTTTTTT   MM        MM   PPPPPPPPP   *
*   GGGGGGGGGG  EEEEEEEEEE   TTTTTTTTTT   MMM      MMM   PPPPPPPPPP  *
*   GG      GG  EE               TT       MMMM    MMMM   PP      PP  *
*   GG          EE               TT       MM MMMMMM MM   PP      PP  *
*   GG   GGGGG  EEEEEEEEEE       TT       MM   MM   MM   PPPPPPPPPP  *
*   GG   GGGGG  EEEEEEEEEE       TT       MM   MM   MM   PPPPPPPPP   *
*   GG      GG  EE               TT       MM        MM   PP          *
*   GG      GG  EE               TT       MM        MM   PP          *
*   GGGGGGGGGG  EEEEEEEEEE       TT       MM        MM   PP          *
*    GGGGGGGG   EEEEEEEEEE       TT       MM        MM   PP          *
*                                                                    *
**********************************************************************
*I.     REVISIONS -                                                  *
*-----------------                                                   *
*     Last edited by EDIT/1000:        <830406.1424>                 *
*                                                                    *
*                                                                    *
*II.    LANGUAGE -                                                   *
*----------------                                                    *
*          Hewlett-Packard Fortran 4X (FTN4X).                       *
*                                                                    *
*III.   AUTHOR STATISTICS -                                          *
*--------------------------                                          *
*          Robert A. Dillon                                          *
*          University of Florida                                     *
*          Fruit Crops Department                                    *
*          Climatology Laboratory                                    *
*          2116 Horticulture Science - Plant Pathology Bldg.         *
*          Gainesville, Florida 32611                                *
*                                                                    *
*                                                                    *
*IV.    SPECIAL HARDWARE REQUIRED -                                  *
*----------------------------------                                  *
*          Modem connection via DS/1000-IV                           *
*                                                                    *
*                                                                    *
*V.     OPERATING SYSTEM -                                           *
*-------------------------                                           *
*     Hewlett-Packard RTE-IVB or RTE-6/VM.                           *
*                                                                    *
*                                                                    *
*VI.    PROGRAM DESCRIPTION -                                        *
*----------------------------                                        *
*     GETMP is used to transfer maps from the Gainesville computer  *
*     system to the Ruskin system.  Executing GETMP in Ruskin        *
*     invokes the execution of GETMS in Gainesville which passes the *
*     latest map to GETMP, which in turn saves the data on the       *
*     Ruskin system.                                                 *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*--------------------------------------                              *
*     To compile and load use the file manager transfer file *GETMP: *
*                                                                    *
*          :TR,*GETMP                                                *
*                                                                    *
*                                                                    *
```

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```
*                                                                     *
*VIII.  EXECUTION INSTRUCTIONS -                                      *
*-------------------------------                                      *
*                                                                     *
*     To tranfer the latest map from Gainesville to Ruskin simply     *
*     run GETMP and the map will be transferred.  The map will be     *
*     stored on cartridge 5 or, if 5 is full, on cartridge 6.         *
*     If both cartridges are full, they will be erased.  For this     *
*     reason, only map data should be stored on cartridges 5 and 6.  *
*                                                                     *
***********************************************************************
```

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```
***********************************************************************
*                                                                     *
*    KK      KK   EEEEEEEEEE  DDDDDDDD    IIIIIIIIII  TTTTTTTTTT      *
*    KK     KK    EEEEEEEEEE  DDDDDDDDDD  IIIIIIIIII  TTTTTTTTTT      *
*    KK    KK     EE          DD      DD      II          TT          *
*    KK   KK      EE          DD      DD      II          TT          *
*    KKKKK        EEEEEEEEEE  DD      DD      II          TT          *
*    KKKK         EEEEEEEEEE  DD      DD      II          TT          *
*    KK KK        EE          DD      DD      II          TT          *
*    KK   KK      EE          DD      DD      II          TT          *
*    KK    KK     EEEEEEEEEE  DDDDDDDDDD  IIIIIIIIII      TT          *
*    KK     KK    EEEEEEEEEE  DDDDDDDD    IIIIIIIIII      TT          *
*                                                                     *
***********************************************************************
*I.      REVISIONS -                                                  *
*------------------                                                   *
*     Last edited by EDIT:      <830409.1100>                         *
*                                                                     *
*                                                                     *
*II.     LANGUAGE -                                                   *
*-----------------                                                    *
*     FORTRAN 4X                                                      *
*                                                                     *
*                                                                     *
*III.    AUTHOR STATISTICS -                                          *
*--------------------------                                           *
*                                                                     *
*       Fred D. Stephens                                              *
*       Scientific Programmer                                         *
*       University of Florida                                         *
*       Institute of Food and Agricultural Sciences                   *
*       Fruit Crops Department                                        *
*       Climatology Research Laboratory                               *
*       2116 Horticulture Science - Plant Pathology Building          *
*       Gainesville, Florida 32611                                    *
*                                                                     *
*                                                                     *
*IV.     SPECIAL HARDWARE REQUIRED -                                  *
*----------------------------------                                   *
*                                                                     *
* Program KEDIT was designed to run on a 264X display station         *
* or any crt terminal that recognizes cursor and display control      *
* commands (I.E. cursor home and clear screen ).                      *
* KEDIT will run on any terminal but the output will be somewhat      *
* degraded due to the methodology of displaying the data.             *
*                                                                     *
*                                                                     *
* Commands must begin in the first column after the prompt            *
* returned by KEDIT.  Valid delimiters between bada items             *
* are all ASCII characters except the period or decimal point,        *
* and the dash or minus sign.                                         *
*                                                                     *
*                                                                     *
*                                                                     *
*V.      OPERATING SYSTEM -                                           *
*-------------------------                                            *
*       RTE-IVB OR RTE-VI/VM                                          *
*                                                                     *
*                                                                     *
```

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```
*VI.    PROGRAM DESCRIPTION -                                            *
*-----------------------------                                           *
*          ============================================                  *
*           Notes:                                                       *
*           - References to SF and DF refer to source file               *
*             and destination files respectively                         *
*           - Pending line refers to the last record in DF               *
*          ============================================                  *
*                                                                        *
*          KEDIT starts by prompting for the keystation file name.       *
*          It will then open or create file SF.  After SF is open        *
*          data from the keystation file is copied into SF.  IF          *
*          no keystation file name was specified then SF is              *
*          filled with keystation header records.  KEDIT then opens      *
*          or creates file DF.                                           *
*                                                                        *
*          The driver section of KEDIT has the following format          *
*                                                                        *
*   ****>                                                                *
*   *        - prompt operator for command                               *
*   *        - call parsing routine                                      *
*   *        - branch to routine to handle command                       *
*   ****<                                                                *
*                                                                        *
*          KEDIT commands broken down                                    *
*          --------------------------                                    *
*                                                                        *
*         Insert line : write input line to DF                           *
*                                                                        *
*         List line(s): read from SF, print to terminal, write to DF     *
*                                                                        *
*         Exchange    : read pending line from DF then search for a      *
*                     : value within +- 0.05 of exchange field.  Write   *
*                     : back to DF.                                      *
*                                                                        *
*         Position to : - copy SF to DF                                  *
*         record      : - close SF                                       *
*                     : - rename SF to TEMP                              *
*                     : - rename DF to SF                                *
*                     : - rename TEMP to SF                              *
*                     : - open SF and DF                                 *
*                     : - read SF into DF until at desired position      *
*                                                                        *
*         Abort       : close SF and DF then stop                        *
*                                                                        *
*         End edit    : - copy SF to DF                                  *
*         replacing   : - close SF and DF                                *
*         old copy    : - purge keystation file                          *
*                     : - rename DF to keystationb file name             *
*                                                                        *
*         End edit    : - copy SF to DF                                  *
*         creating    : - close SF and DF                                *
*         new copy    : - rename DF to specified name                    *
*                                                                        *
*         List pending: - position back 1 record in DF                   *
*         line        : - read record from DF and print to terminal      *
*                                                                        *
*         Replace     : - position to pending line                       *
*         pending line: - write input data to DF                         *
```

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```
*                                                                     *
*      Delete       : read specified number of records from SF        *
*      line(s)      : without writing to DF unless it is a header     *
*                   : record                                          *
*                                                                     *
*      Back up      : backup specified number of records in DF and    *
*      line(s)      : print pending line.                             *
*                                                                     *
*                                                                     *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                               *
*-------------------------------------                                *
*       Transfer to command file *KEDIT to compile, load and SP       *
*       KEDIT.                                                        *
*                                                                     *
*VIII.  EXECUTION INSTRUCTIONS -                                      *
*-----------------------------                                        *
*                                                                     *
*                         KEDIT COMMANDS                              *
*                                                                     *
*                            RU,KEDIT                                 *
*                                                                     *
*     As soon as KEDIT is scheduled it will request the keysite       *
*     file name.                                                      *
*                                                                     *
*                         KEYSITE FILE NAME?                          *
*                         >name                                       *
*                                                                     *
*     If name is a valid keysite file then KEDIT initializes the      *
*     work file areas (DF-destination file  , SF-source file)         *
*     and makes a copy of the keysite data file.                      *
*                                                                     *
*     If name is blank KEDIT will assume that a keysite file is to    *
*     be created and will prompt the user for the julian day and      *
*     year of the data to be entered.                                 *
*                                                                     *
*        >ENTER JULIAN DAY AND YEAR OF KEYSITE DATA [JDAY],[YEAR]     *
*                                                                     *
*     A keysite data file will be created with the parameters         *
*     specified by the user after which normal editing will proceed.  *
*                                                                     *
*     If name is a colon ':', KEDIT will terminate before any         *
*     initialization.                                                 *
*                                                                     *
*---------------------------------------------------------------------*
*     LIST          I                                                 *
*   COMMANDS        I                 DESCRIPTION                     *
*---------------------------------------------------------------------*
*                   I     NOTE: EACH KEYSITE HEADING IS COUNTED AS ONE *
*                   I           LINE.  ATTEMPTS TO ALTER A HEADING ARE *
*                   I           IGNORED.                              *
*                   I                                                 *
*      P            I           DISPLAY PENDING LINE                  *
*                   I     [Position destination file back one record. *
*                   I     Read the record in the destination file and *
*                   I     list to user]                               *
*                   I                                                 *
*      Ln,lu        I       LIST n LINES TO lu (DEFAULT lu IS USER)   *
*                   I     [Copy n records from source file to dest-   *
*                   I     ination file and list to lu]                *
```

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/	LIST NEXT LINE [Copy one record from source file to destination file. List new pending line.]
/n	SPACE DOWN n LINES [New pending line will be displayed]
n	GO TO LINE n [Copy source file into destination file and exchange names. Read n lines of source file and write to destination file. List new pending line]
-n	DELETE n LINES [Position source file foward n lines. List new pending line]
^n	GO BACK n LINES IN DESTINATION FILE [Get current position in destination file and compute new n from record one. Execute 'GO TO LINE n' command]
LINE EDITS	DESCRIPTION
R data	REPLACE PENDING LINE WITH data [Position destination file back one record. Write data to destination file]
' ' data	INSERT data AFTER PENDING LINE [Write data to destination file]
G f#/r#/t#	REPLACE FIELD(S) WITHIN LINE [Replace t# occurrences of f# with r#. Default for t# is all occurrences.]
TERMINATION COMMANDS	DESCRIPTION
A	ABORT KEDIT [Close files and stop]
ER	REPLACE OLD FILE WITH NEW FILE RETAINING OLD NAME [Copy remaining source file into destination file. Close source file and destination file. Purge source file and old keysite file. Rename destination file to keysite data file name]
ECname	CREATE name AND STORE EDITED FILE [Close files, rename destination file to name]*

```
*    *IF name DOES NOT CORRESPOND TO THE DAY AND YEAR OF THE          *
*     KEYSITE DATA, A WARNING MESSAGE WILL BE ISSUED TO THE USER.    *
*--------------------------------------------------------------------*
*                                                                    *
**********************************************************************
```

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```
**********************************************************************
*                                                                    *
*  LL            00000000     GGGGGGGG     GGGGGGGG     RRRRRRRRR    *
*  LL           0000000000   GGGGGGGGGG   GGGGGGGGGG   RRRRRRRRRR    *
*  LL           00      00   GG      GG   GG      GG   RR      RR    *
*  LL           00      00   GG           GG           RRRRRRRRRR    *
*  LL           00      00   GG  GGGGGG   GG  GGGGGG   RRRRRRRRR     *
*  LL           00      00   GG  GGGGGG   GG  GGGGGG   RR  RR        *
*  LL           00      00   GG      GG   GG      GG   RR   RR       *
*  LL           00      00   GG      GG   GG      GG   RR    RR      *
*  LLLLLLLLLL   0000000000   GGGGGGGGGG   GGGGGGGGGG   RR     RR     *
*  LLLLLLLLLL    00000000     GGGGGGGG     GGGGGGGG    RR      RR    *
*                                                                    *
**********************************************************************
*                                                                    *
*I.     REVISIONS -                                                  *
*------------------                                                  *
*    Last edited by EDIT/1000:        <830405.1802>                  *
*                                                                    *
*                                                                    *
*                                                                    *
*II.    LANGUAGE -                                                   *
*-----------------                                                   *
*        Hewlett-Packard Fortran-4X (FTN4X)                          *
*                                                                    *
*                                                                    *
*III.   AUTHOR STATISTICS -                                          *
*--------------------------                                          *
*        Robert A. Dillon                                            *
*        University of Florida                                       *
*        Fruit Crops Department                                      *
*        Climatology Laboratory                                      *
*        2116 Horticulture Science - Plant Pathology Bldg.           *
*        Gainesville, Florida 32611                                  *
*                                                                    *
*                                                                    *
*                                                                    *
*IV.    SPECIAL HARDWARE REQUIRED -                                  *
*-----------------------------------                                 *
*        None.                                                       *
*                                                                    *
*                                                                    *
*V.     OPERATING SYSTEM -                                           *
*-------------------------                                           *
*        Hewlett-Packard RTE-IVB or RTE-6/VM.                        *
*                                                                    *
*                                                                    *
*VI.    PROGRAM DESCRIPTION -                                        *
*----------------------------                                        *
*    LOGGR is used to route all S.F.F.S. operation and error         *
*    messages to a common device or file.  LOGGR gets the device     *
*    or file name from S.F.F.S. system common.  Character strings    *
*    are passed to LOGGR via Class I/O calls and LOGGR simply        *
*    prints the string to the device or file.  If the user changes   *
*    the log file, LOGGR will close the old file/device and open     *
*    the new file/device.  If the file already exists then it is     *
*    positioned to the end after opening it.                         *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
```

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```
*--------------------------------------                              *
*     To compile and load use the file manager transfer file *LOGGR: *
*                                                                    *
*         :TR,*LOGGR                                                 *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *
*     LOGGR runs automatically whenever the computer is turned on    *
*     or is re-booted.  It does not interact with the user.          *
*     If necessary it may be run from the system console by first    *
*     running file manager then running LOGGR:                       *
*                                                                    *
*         <press [RETURN]>                                           *
*         *RU,FMGR                                                   *
*         :RU,LOGGR                                                  *
*         :EX                                                        *
*                                                                    *
**********************************************************************
```

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```
*****************************************************************
*                                                               *
*       LL          00000000     GGGGGGGG     00000000          *
*       LL         0000000000   GGGGGGGGGG   0000000000         *
*       LL         00      00   GG      GG   00      00         *
*       LL         00      00   GG      GG   00      00         *
*       LL         00      00   GG           00      00         *
*       LL         00      00   GG  GGGGGG   00      00         *
*       LL         00      00   GG  GGGGGG   00      00         *
*       LL         00      00   GG      GG   00      00         *
*       LLLLLLLLLL 0000000000   GGGGGGGGGG   0000000000         *
*       LLLLLLLLLL  00000000     GGGGGGGG     00000000          *
*                                                               *
*****************************************************************
*                                                               *
*                                                               *
*I.     REVISIONS -                                             *
*-----------------                                              *
*                                                               *
*                                                               *
*II.    LANGUAGE -                                              *
*----------------                                               *
*       HP Fortran 4X.                                          *
*                                                               *
*                                                               *
*III.   AUTHOR STATISTICS -                                     *
*-------------------------                                      *
*                                                               *
*       Robert A. Dillon                                        *
*       University of Florida                                   *
*       Institute of Food and Agricultural Sciences             *
*       Fruit Crops Department                                  *
*       Climatology Research Laboratory                         *
*       2116 Horticulture Science - Plant Pathology Building    *
*       Gainesville, Florida 32611                              *
*                                                               *
*                                                               *
*                                                               *
*IV.    SPECIAL HARDWARE REQUIRED -                             *
*---------------------------------                              *
*       RGB monitor                                             *
*       3 HP-91200B interface cards                             *
*                                                               *
*                                                               *
*                                                               *
*V.     OPERATING SYSTEM -                                      *
*------------------------                                       *
*       All RTE operating systems with HP driver DVA13          *
*                                                               *
*                                                               *
*VI.    PROGRAM DESCRIPTION -                                   *
*-------------------------                                      *
*                                                               *
*       LOGO subroutines and functions                          *
*       ------------------------------                          *
*         FILIN: fill a rectangle with or without a skew        *
*                                                               *
*               IBUFR - point buffer                            *
*               IB    - number of points in rectangle           *
```

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```
*                IX,IY - starting corner                              *
*                ILEN  - length                                       *
*                IWID  - width                                        *
*                ISLNT - slant factor                                 *
*                                                                     *
*         ARC  : draw an arc                                          *
*                                                                     *
*                IX,IY - center location                              *
*                IRAD  - radius                                       *
*                IFRST - starting X coordinate                        *
*                LAST  - ending X coordinate                          *
*                IBUFR - point buffer                                 *
*                IB    - number of points                             *
*                ISIGN - direction of arc                             *
*                                                                     *
*         DRAWS: draw large S                                         *
*                                                                     *
*                IBUFR - point buffer                                 *
*                                                                     *
*         DRAWF: draw large F                                         *
*                                                                     *
*                IBUFR - point buffer                                 *
*                                                                     *
*         VIDLU: establish lu of monitor ( HP TV library )            *
*                                                                     *
*                LU    - logical unit of monitor                      *
*                                                                     *
*         ERASE: clear monitor ( HP TV library )                      *
*                                                                     *
*         POINT: plot points on monitor ( HP TV library )             *
*                                                                     *
*                IBUFR - point buffer                                 *
*                IB    - number of points to be ploted                *
*                ICOLR - color of points                              *
*                                                                     *
*         VECTR: plot a vector on monitor ( HP TV library )           *
*                                                                     *
*                IX,IY - starting point of vector                     *
*                IDIR  - direction of vector                          *
*                LEN   - length of vector                             *
*                ITYPE - type of vector                               *
*                ICOLR - color of vector                              *
*                                                                     *
*         CHAR : write alphanumerics on the monitor                   *
*                                                                     *
*                IX,IY - starting point of the character string       *
*                IBUFR - integer array of packed ASCII characters     *
*                ISIZE - size of characters                           *
*                IDIR  - orientation of characters                    *
*                NUMBR - number of characters in string               *
*                ICOLR - color of characters                          *
*                                                                     *
*                                                                     *
*       PROGRAM FLOW DESCRIPTION                                      *
*       ------------------------                                      *
*                                                                     *
*        - initialize monitor                                         *
*                                                                     *
*        - clear monitor                                              *
*                                                                    *
*        - draw border using calls to VECTR                          *
*                                                                    *
*        - draw Florida outline using coordinates in data statement  *
*          and calls to VECTR                                        *
*                                                                    *
*        - write 'SATELLITE FREEZE FORCAST SYSTEM' on monitor        *
*          using call to CHAR                                        *
*                                                                    *
*        - call DRAWS and DRAWF to draw in large block letters       *
*         'SFFS'                                                     *
*                                                                    *
*        - draw satellite using calls to ARC and VECTR               *
*                                                                    *
*        - write 'NASA/NOAA/IFAS' on monitor using call to CHAR      *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*--------------------------------------                              *
*       Transfer to *LOGO to compile, load and SP                    *
*                                                                    *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *
*        RU,LOGO                                                     *
*                                                                    *
*                                                                    *
**********************************************************************
```

OF POOR QUALITY

```
**********************************************************************
*                                                                    *
*        MM      MM     AAAAAA     PPPPPPPPP     SSSSSSSS            *
*        MMM    MMM    AAAAAAAA    PPPPPPPPPP   SSSSSSSSSS           *
*        MMMM  MMMM   AA      AA   PP      PP   SS                   *
*        MM MMMM MM   AA      AA   PP      PP   SS                   *
*        MM  MM  MM   AAAAAAAAAA   PPPPPPPPPP   SSSSSSSSS            *
*        MM      MM   AAAAAAAAAA   PPPPPPPPP     SSSSSSSSS           *
*        MM      MM   AA      AA   PP                   SS           *
*        MM      MM   AA      AA   PP                   SS           *
*        MM      MM   AA      AA   PP           SSSSSSSSSS           *
*        MM      MM   AA      AA   PP            SSSSSSSS            *
*                                                                    *
**********************************************************************
*I.     REVISIONS -                                                  *
*------------------                                                  *
*                                                                    *
*                                                                    *
*                                                                    *
*II.    LANGUAGE -                                                   *
*-----------------                                                   *
*       HP FTN4X                                                     *
*                                                                    *
*                                                                    *
*III.   AUTHOR STATISTICS -                                          *
*--------------------------                                          *
*       Robert A. Dillon                                             *
*       University of Florida                                        *
*       Institute of Food and Agricultural Sciences                  *
*       Fruit Crops Department                                       *
*       Climatology Research Laboratory                              *
*       2116 Horticulture Science - Plant Pathology Building         *
*       Gainesville, Florida 32611                                   *
*                                                                    *
*                                                                    *
*IV.    SPECIAL HARDWARE REQUIRED -                                  *
*----------------------------------                                  *
*       none                                                         *
*                                                                    *
*                                                                    *
*V.     OPERATING SYSTEM -                                           *
*-------------------------                                           *
*       RTE-IVB or RTE-6/VM                                          *
*                                                                    *
*                                                                    *
*VI.    PROGRAM DESCRIPTION -                                        *
*----------------------------                                        *
*         MAPS lists a catalog of all maps on disc.  The file names  *
*         are printed as well as the date, time, and source of the   *
*         data.  Map files are recognized by their security code     *
*         of 1.  If a file has a security code of 1 and the name     *
*         does not properly decode then it is ignored.               *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*--------------------------------------                              *
*       Transfer to *MAPS to compile, load and save program          *
*                                                                    *
*                                                                    *
```

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```
*VIII.  EXECUTION INSTRUCTIONS -                                      *
*-------------------------------                                      *
*       RU,MAPS                                                       *
*                                                                     *
*                                                                     *
***********************************************************************
```

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```
***********************************************************************
*                                                                     *
*         NN      NN   FFFFFFFFFF   TTTTTTTTTT   EEEEEEEEEE           *
*         NNN     NN   FFFFFFFFFF   TTTTTTTTTT   EEEEEEEEEE           *
*         NNNN    NN   FF               TT       EE                   *
*         NNNNN   NN   FF               TT       EE                   *
*         NN NNN  NN   FFFFFFFF         TT       EEEEEEEEEE           *
*         NN  NNN NN   FFFFFFFF         TT       EEEEEEEEEE           *
*         NN   NNNNN   FF               TT       EE                   *
*         NN    NNNN   FF               TT       EE                   *
*         NN     NNN   FF               TT       EEEEEEEEEE           *
*         NN      NN   FF               TT       EEEEEEEEEE           *
*                                                                     *
***********************************************************************
*                                                                     *
*I.      REVISIONS -                                                  *
*-----------------                                                    *
*                                                                     *
*                                                                     *
*                                                                     *
*II.     LANGUAGE -                                                   *
*----------------                                                     *
*        HP-FTN4X                                                     *
*                                                                     *
*                                                                     *
*III.    AUTHOR STATISTICS -                                          *
*-------------------------                                            *
*        Robert A. Dillion                                            *
*        Computer Programmer III                                      *
*        University of Florida                                        *
*        Institute of Food and Agricultural Sciences                  *
*        Fruit Crops Department                                       *
*        Climatology Research Laboratory                              *
*        2116 Horticulture Science - Plant Pathology Building         *
*        Gainesville, Florida 32611                                   *
*                                                                     *
*                                                                     *
*                                                                     *
*IV.     SPECIAL HARDWARE REQUIRED -                                  *
*---------------------------------                                    *
*        none                                                         *
*                                                                     *
*                                                                     *
*V.      OPERATING SYSTEM -                                           *
*------------------------                                             *
*        RTE-IVB or RTE-6/VM                                          *
*                                                                     *
*                                                                     *
*VI.     PROGRAM DESCRIPTION -                                        *
*--------------------------                                           *
*      Convert a map name in the new format to English.               *
*                                                                     *
*      SUBROUTINES                                                    *
*      -----------                                                    *
*      - GETST : get run time string (system library)                 *
*                IBUFR - destination buffer                           *
*                len   - number of characters to read                 *
*                ILOG  - actual number of characters read             *
*                                                                     *
```

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```
*     - CAPS :  Convert lowercase letters to uppercase (BDLIB)      *
*               IBUFR - source and destination buffer               *
*               len   - number of words in IBUFR                    *
*                                                                   *
*     PROGRAM FLOW DESCRIPTION                                      *
*     ------------------------                                      *
*     - Call GETST to retrieve run string                           *
*                                                                   *
*     - If a map name was not specified write message then stop     *
*                                                                   *
*     - Call CAPS to capitalize all letters.                        *
*                                                                   *
*     - Determine data origin of satellite data from first letter   *
*                                                                   *
*     - check if second letter is within valid range. If invalid flag*
*       error and print message.  If valid decode year using the    *
*       algorithm:                                                  *
*                                                                   *
*            IYEAR=1970+secondletter-64                            *
*                                                                   *
*     - check if third letter is within valid range. If invalid flag *
*       error and print message.  If valid decode month using the   *
*       algorithm:                                                  *
*                                                                   *
*            IMON=thirdletter-64                                   *
*                                                                   *
*     - check if forth letter is within valid range. If invalid flag *
*       error and print message.  If valid decode day using the     *
*       algorithm:                                                  *
*                                                                   *
*            IDAY=forthletter-64                                   *
*                                                                   *
*     - check if fifth letter is within range.  If invalid flag     *
*       error and print message.  If valid decode hour using the    *
*       algorithm:                                                  *
*                                                                   *
*            IHOUR=(fifthletter-64)*100                            *
*                                                                   *
*     - check if sixth letter is within range.  If invalid flag     *
*       error and print message.  If valid decode minute using      *
*       algorithm:                                                  *
*                                                                   *
*            IHOUR=IHOUR+(sixthletter-64)*15                       *
*                                                                   *
*     - stop if error flag set                                      *
*                                                                   *
*     - print date and time of specified map name                   *
*                                                                   *
*     - check for invalid day and print error message if incorrect  *
*                                                                   *
*                                                                   *
*                                                                   *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                             *
*------------------------------------                               *
*       Transfer to *NFTE to compile, load and save program         *
*                                                                   *
*                                                                   *
*VIII.  EXECUTION INSTRUCTIONS -                                    *
*-------------------------------                                    *
```

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```
*       RU,NFTE,mapname                                               *
*                                                                     *
*          where mapname is the 6 character map name                  *
*          to be converted                                            *
*                                                                     *
*                                                                     *
***********************************************************************
```

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```
****************************************************************************
*                                                                          *
*   00000000   FFFFFFFFFF  TTTTTTTTTT  NN      NN  FFFFFFFFFF              *
*  0000000000  FFFFFFFFFF  TTTTTTTTTT  NNN     NN  FFFFFFFFFF              *
*  00      00  FF              TT      NNNN    NN  FF                      *
*  00      00  FF              TT      NN NN   NN  FF                      *
*  00      00  FFFFFFF         TT      NN  NN  NN  FFFFFFF                 *
*  00      00  FFFFFFF         TT      NN   NN NN  FFFFFFF                 *
*  00      00  FF              TT      NN    NNNN  FF                      *
*  00      00  FF              TT      NN     NNN  FF                      *
*  0000000000  FF              TT      NN      NN  FF                      *
*   00000000   FF              TT      NN      NN  FF                      *
*                                                                          *
****************************************************************************
*                                                                          *
*I.     REVISIONS -                                                        *
*------------------                                                        *
*    19 JULY 1982 - BOB DILLON                                             *
*    Added use of run string and call to CAPS                              *
*    to convert input to upper case.                                       *
*    Must be loaded with $BDLIB                                            *
*                                                                          *
*                                                                          *
*II.    LANGUAGE -                                                         *
*-----------------                                                         *
*    Fortran 4X                                                            *
*                                                                          *
*                                                                          *
*III.   AUTHOR STATISTICS -                                                *
*--------------------------                                                *
*    Programmer: David V. Williams                                         *
*    Fruit Crops Department                                                *
*    University of Florida                                                 *
*    Gainesville, Florida  32601                                           *
*                                                                          *
*                                                                          *
*                                                                          *
*IV.    SPECIAL HARDWARE REQUIRED -                                        *
*----------------------------------                                        *
*         None.                                                            *
*                                                                          *
*                                                                          *
*V.     OPERATING SYSTEM -                                                 *
*-------------------------                                                 *
*        RTE-IVB or RTE-VI/VM                                              *
*                                                                          *
*                                                                          *
*VI.    PROGRAM DESCRIPTION -                                              *
*---------------------------                                               *
*    This program is designed to be an interactive tool to                 *
*    obtain a map name in the new format (SYMDHm) given either the         *
*    data necesary by a single query or by calling the program up and*
*    entering map names in the old format (MDDDHH) to be converted to*
*    the new format.  The former is best for single calls and              *
*    the latter is best for multiple calls.  The changes in the            *
*    map naming format will allow six items of interest to be              *
*    encoded instead of just three by the old conventions. The             *

*    program is virtually secretary-proof and error messages are           *
*    sent to the user if he/she enters bad data.If the program is          *
```

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```
*    used for multiple calls, exit is obtained by entering a colon.  *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*------------------------------------                                *
*       Transfer to *OFTNF to compile, load and save program.        *
*                                                                    *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *
*       RU,OFTNF                                                     *
*                                                                    *
*       Enter map file name and year upon request.                   *
*                                                                    *
**********************************************************************
```

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```
*************************************************************************
*                                                                       *
*   PPPPPPPPP    MM        MM    00000000     DDDDDDDD      LL          *
*   PPPPPPPPPP   MMM      MMM   0000000000    DDDDDDDDD     LL          *
*   PP      PP   MMMM    MMMM   00      00    DD      DD    LL          *
*   PP      PP   MM MMMM MM     00      00    DD      DD    LL          *
*   PPPPPPPPPP   MM   MM   MM   00      00    DD      DD    LL          *
*   PPPPPPPPP    MM        MM   00      00    DD      DD    LL          *
*   PP           MM        MM   00      00    DD      DD    LL          *
*   PP           MM        MM   00      00    DD      DD    LL          *
*   PP           MM        MM   0000000000    DDDDDDDDD     LLLLLLLLLL  *
*   PP           MM        MM    00000000     DDDDDDDD      LLLLLLLLLL  *
*                                                                       *
*************************************************************************
*                                                                       *
*I.      REVISIONS -                                                    *
*-----------------                                                      *
*                - Robert A. Dillon - 16 February 1983                  *
*                  Modified operational output.                         *
*                  Send messages and output to LOGGR.                   *
*                                                                       *
*                - Robert A. Dillon - 28 April 1982                     *
*                  Get most recent k-file from SFFS system common       *
*                  instead of SFFSAF.                                   *
*                  Don't run if number of consecutive runs of DARCM     *
*                  is less than 3 (NUMCR in SFFS common).               *
*                                                                       *
*                - Robert A. Dillon - 12 January 1982                   *
*                  Changed LUPR to 1 when scheduled by SFFS.            *
*                  (F/LUPR=1)                                           *
*                                                                       *
*                - Robert A. Dillon - 15 October 1981                   *
*                  Added feature to analysis mode.  If input            *
*                  for NE is zero then the current station              *
*                  is skipped and the program continues with            *
*                  the next station.                                    *
*                                                                       *
*                - Robert A. Dillon - 06 October 1981                   *
*                  Corrected conversion to Kelvin: was 273.12           *
*                  in DAFIX, changed to 273.16.                         *
*                                                                       *
*                - Robert A. Dillon - ?? September 1981                 *
*                  Error correcting routine added (F/BDERR).            *
*                                                                       *
*                                                                       *
*II.     LANGUAGE -                                                     *
*-----------------                                                      *
*                  FORTRAN IV (COMPATABLE WITH ANSI X3.9-1966)          *
*                                                                       *
*III.    AUTHOR STATISTICS -                                            *
*-------------------------                                              *
*                                                                       *
*               ORIGINAL AUTHOR: DR. R. SUTHERLAND                      *
*                                                                       *
*               CURRENT REVISION BY: STEVEN E. LASLEY                   *
*                                    COMPUTER SYSTEMS ANALYST II        *
*                                    UNIVERSITY OF FLORIDA              *
*                                    IFAS BLDG 175                      *
*                                    GAINESVILLE, FLORIDA 32611         *
```

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INSTALLATION: UNIVERSITY OF FLORIDA
FRUIT CROPS DEPARTMENT
CLIMATOLOGY RESEARCH CENTER
2116 HORT.-SCI./PLANT PATH. BLDG.
GAINESVILLE, FLORIDA 32611

IV. SPECIAL HARDWARE REQUIRED -

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NONE

V. OPERATING SYSTEM -

ANY OPERATING SYSTEM CAPABLE OF UTILIZING STANDARD FORTRAN IV (AS DESCRIBED UNDER CATAGORY II. ABOVE).

VI. PROGRAM DESCRIPTION -

PMODL was designed to accept the following inputs

1. Surface temperature
2. 10cm and 50cm soil temperatures
3. 1.5M, 3.0M, and 9.0M air temperatures
4. 9.0M wind speed
5. Net radiation
6. Dew point

The inputs are expected in the form of a keystation file. These files are named Kjndyr where jnd is the julian day and yr is the two digit year. The files are type 2 and consist of hourly data from each of 12 keystations (two stations being missing or "ghost" stations). PMODL was designed to run beginning at 8:00 pm EST after data has been collected for three consecutive hours beginning at 6:00 pm EST. After this time, PMODL may be run every hour during the night as long as the most recent 3 hours of consecutive data exist in the keystation file. PMODL outputs hourly forecasted nocturnal temperatures for each of the keystations from the time the model is run, up to 8:00 am EST in the morning. This information is output to a single "KEYDAT" file which is updated each time the model is run. The information is not archived, as PMODL can reproduce it given the proper keystation file name. As to how the model works, that is not understood. There is, however, reason to believe that the program does not function as the model was designed.

EXTERNAL SUBROUTINES -

DAFIX,XLFIT,MODLX,STRT,SOILP,EVAL,IERR

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```
*                                                                    *
*         SUBROUTINE EXECUTION -                                     *
*         --------------------                                       *
*         CALL DAFIX(NCODE,KEY)                                      *
*              Where NCODE= a parameter to control whether           *
*                         subroutine XLFIT's output is               *
*                         used (see comment in XLFIT call)           *
*                    KEY= the station number (1-10)                  *
*         CALL XLFIT(ICODE,IDATA,NS,NE,YINT,SLP)                     *
*              Where ICODE= determines whether a linear              *
*                         or log regression is performed             *
*                    IDATA= a parameter that determines              *
*                         which input the regression is on           *
*                         (9=wind, 11=radiation)                     *
*                    NS= a number corresponding to which             *
*                        hour is the first of the three              *
*                        used as the predictive base for             *
*                        the numerical procedures.                   *
*                        3 = 2000est, 4 = 2100 est, etc.             *
*                    NE= this refers to the last of the              *
*                        three hour predictive base.                 *
*                    YINT= the Y-intercept of the regression         *
*                    SLP= the slope of the regression                *
*         CALL MODLX(NMOD,MODE,NS,NE,NRUN)                           *
*              Where NMOD= an option (maybe not used)                *
*                          which is currently 1                      *
*                    MODE= another option which controls             *
*                          flow in MODLX.  Should be 4.              *
*                    NS= a number corresponding to which             *
*                        hour is the first of the three              *

*                        used as the predictive base for             *
*                        the numerical procedures.                   *
*                        3 = 2000est, 4 = 2100 est, ect.             *
*                    NE= this refers to the last of the              *
*                        three hour predictive base.                 *
*                    NRUN= the length of the model run.              *
*                          i.e. 15 since the model predicts          *
*                          from 6pm to 8am (15 hours)                *
*         CALL STRT(MODE,NS,NE,Y,P)                                  *
*              Where MODE= flow control option                       *
*                          (should be a 4)                           *
*                    NS= a number corresponding to which             *
*                        hour is the first of the three              *
*                        used as the predictive base for             *
*                        the numerical procedures.                   *
*                        3 = 2000est, 4 = 2100 est, ect.             *
*                    NE= this refers to the last of the              *
*                        three hour predictive base.                 *
*                    Y= relates to the soil temperature              *
*                       profile (either 1 or .5 cm steps)            *
*                    P= calculated model constants                   *
*                       (see comments in STRT)                       *
*         CALL SOILP(MODE,NS,NE,Y)                                   *
*              Where MODE= flow control option                       *
*                          (should be 4)                             *
*                    NS= a number corresponding to which             *
*                        hour is the first of the three              *
*                        used as the predictive base for             *
*                        the numerical procedures.                   *
*                         3 = 2000est, 4 = 2100 est, ect.             *
*                     NE= this refers to the last of the              *
*                         three hour predictive base.                 *
*                     Y= relates to soil temperature profile          *
*                        (either 1 or .5 cm steps)                    *
*          CALL EVAL(NE+1,NHRS,KEY,KDAT,IHC)                          *
*               Where NE+1= refers to the hour after                  *
*                           the three hours in the predictive         *
*                           base for the numerical procedures.        *
*                     NHRS= the # of hours of data available          *
*                     KEY= keysite # (1-10)                           *
*                     KDAT= day and year of kfile being used          *
*                     IHC= "YE" if a hardcopy is desired,             *
*                           or "NO" if no hardcopy is desired         *
*          CALL IERR(IER,2HXX,LOCATION#)                              *
*               Where IER= FMGR error code                            *
*                     2HXX= 2 letters relating to                     *
*                           the call where error occurred             *
*                     LOCATION#= an arbitrary # which                 *
*                           pin-points the error location             *

*                                                                     *
*                                                                     *
*                                                                     *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                               *
*--------------------------------------                               *
*       Transfer to *PMODL to compile, load and save program.         *
*                                                                     *
*                                                                     *
*VIII.  EXECUTION INSTRUCTIONS -                                      *
*-------------------------------                                      *
*       Manual execution                                              *
*       ----------------                                              *
*       RU,PMODL                                                      *
*                                                                     *
*       Answer the following questions on demand                      *
*       - Keystation file name      (AWS keystation file name)        *
*       - Operational run or Analysis run    (O or A)                 *
*       - If you want a printout of the results   (Y or N)            *
*                                                                     *
*       Automatic execution                                           *
*       -------------------                                           *
*       RU,PMODL,-1                                                   *
*                                                                     *
*                                                                     *
***********************************************************************
```

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```
**********************************************************************
*                                                                    *
*   SSSSSSSSSS   CCCCCCCCCC   HH      HH   EEEEEEEEEE   DDDDDDDD     *
*   SSSSSSSSSS   CCCCCCCCCC   HH      HH   EEEEEEEEEE   DDDDDDDDDD   *
*   SS           CC           HH      HH   EE           DD      DD   *
*   SS           CC           HH      HH   EE           DD      DD   *
*   SSSSSSSSSS   CC           HHHHHHHHHH   EEEEEEEEEE   DD      DD   *
*   SSSSSSSSSS   CC           HHHHHHHHHH   EEEEEEEEEE   DD      DD   *
*           SS   CC           HH      HH   EE           DD      DD   *
*           SS   CC           HH      HH   EE           DD      DD   *
*   SSSSSSSSSS   CCCCCCCCCC   HH      HH   EEEEEEEEEE   DDDDDDDDDD   *
*   SSSSSSSSSS   CCCCCCCCCC   HH      HH   EEEEEEEEEE   DDDDDDDD     *
*                                                                    *
**********************************************************************
*                                                                    *
*I.      REVISIONS -                                                 *
*-------------------                                                 *
*                                                                    *
*     This revision calls LOGIT to log messages.                     *
*     This revision uses and "OR" operation for the AFTER parameter. *
*     This revision uses temporary file to RP and OF programs.       *
*                                                                    *
*     Last edited by EDIT/1000:          <830405.1802>               *
*                                                                    *
*                                                                    *
*                                                                    *
*II.     LANGUAGE -                                                  *
*------------------                                                  *
*            Hewlett-Packard Fortran-4X (FTN4X)                      *
*                                                                    *
*                                                                    *
*III.    AUTHOR STATISTICS -                                         *
*---------------------------                                         *
*            Robert A. Dillon                                        *
*            University of Florida                                   *
*            Fruit Crops Department                                  *
*            Climatology Laboratory                                  *
*            2116 Horticulture Science - Plant Pathology Bldg.       *
*            Gainesville, Florida 32611                              *
*                                                                    *
*                                                                    *
*                                                                    *
*IV.     SPECIAL HARDWARE REQUIRED -                                 *
*-----------------------------------                                 *
*            None.                                                   *
*                                                                    *
*                                                                    *
*V.      OPERATING SYSTEM -                                          *
*--------------------------                                          *
*            Hewlett-Packard RTE-IVB or RTE-6/VM.                    *
*                                                                    *
*                                                                    *
*VI.     PROGRAM DESCRIPTION -                                       *
*-----------------------------                                       *
*     S.F.F.S. Scheduler                                             *
*                                                                    *
*     This program controls and monitors the automatic aspect of     *
*     S.F.F.S.                                                       *
*                                                                    *
```

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By interpreting the values in system common, SCHED schedules programs for execution at the proper times and aborts them if necessary.

User access and control of SCHED is accomplished through program SFFS. The user define which programs run, what time they run, in what order they run, and how long they run. When these values are set, SCHED performs the desired tasks.

SCHED does not interact with the user. It first runs when the computer is turned on or re-booted and runs again every 5 seconds. An outline of SCHED´s operation follows:

```
1.  Wait 5 seconds.
2.  If the ON/OFF variable is set to OFF then go to 1.
3.  Check the status of each program that is supposed to be
    running.
    A.  If a program is active and has overrun its time limit
        then abort it [CALL EXEC(6...)].
    B.  If a program has completed on its own then set bit
        flags for other programs that it is supposed to cue.
4.  Check each program´s start time against the system clock
    and the bit flags, and schedule those that should be run
    [CALL EXEC(10...)].
5.  Go to 1.
```

VII. COMPILE AND LOAD INSTRUCTIONS -

To compile and load use the file manager transfer file *SCHED:

```
:TR,*SCHED
```

VIII. EXECUTION INSTRUCTIONS -

SCHED is not executed be the user. It is run automatically

from the WELCOM file at boot-up. If necessary, it can be run from the system console by first running file manager then running SCHED:

```
*RU,FMGR
:RU,SCHED
:EX
```

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```
***********************************************************************
*                                                                     *
*        SSSSSSSSSS   FFFFFFFFFF   FFFFFFFFFF   SSSSSSSSSS            *
*        SSSSSSSSSS   FFFFFFFFFF   FFFFFFFFFF   SSSSSSSSSS            *
*        SS           FF           FF           SS                    *
*        SS           FF           FF           SS                    *
*        SSSSSSSSSS   FFFFFFF      FFFFFFF      SSSSSSSSSS            *
*        SSSSSSSSSS   FFFFFFF      FFFFFFF      SSSSSSSSSS            *
*                SS   FF           FF                   SS            *
*                SS   FF           FF                   SS            *
*        SSSSSSSSSS   FF           FF           SSSSSSSSSS            *
*        SSSSSSSSSS   FF           FF           SSSSSSSSSS            *
*                                                                     *
***********************************************************************
*I.     REVISIONS -                                                   *
*------------------                                                   *
*         25 October 1982 - Robert A. Dillon                          *
*         Fixed bug.  TIME function was picking up TLIMIT as REAL     *
*         instead of INTEGER.  Added IMPLICIT INTEGER*2 (A-Z) to all *
*         modules.                                                    *
*                                                                     *
*         26 October 1982 - Robert A. Dillon                          *
*         Added documentation.                                        *
*                                                                     *
*                                                                     *
*II.    LANGUAGE -                                                    *
*-----------------                                                    *
*         Hewlett-Packard Fortran 4X (HP FTN4X).                      *
*                                                                     *
*                                                                     *
*III.   AUTHOR STATISTICS -                                           *
*--------------------------                                           *
*         Robert A. Dillon                                            *
*         University of Florida                                       *
*         Fruit Crops Department                                      *
*         Climatology Laboratory                                      *
*         2116 Horticulture Science - Plant Pathology Bldg.           *
*         Gainesville, Florida 32611                                  *
*                                                                     *
*                                                                     *
*IV.    SPECIAL HARDWARE REQUIRED -                                   *
*----------------------------------                                   *
*         None.                                                       *
*                                                                     *
*                                                                     *
*V.     OPERATING SYSTEM -                                            *
*-------------------------                                            *
*         HP RTE-IVB or RTE-6/VM                                      *
*                                                                     *
*                                                                     *
*VI.    PROGRAM DESCRIPTION -                                         *
*----------------------------                                         *
*         Program SFFS is part of the Satellite Freeze Forecast       *
*         System developed by the University of Florida/Inst.         *
*         of Food and Agricultural Sciences/Fruit Crops               *
*         Department/Climatology Laboratory with NASA and NOAA.       *
*                                                                     *
*         SFFS is the user's primary interface to the system.         *
*         With it, the user controls the functions performed in the   *
```

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```
*         automated mode.  These functions include scheduling        *
*         programs and setting key system variables.                 *
*                                                                    *
*         SFFS is an editor.  It does not start, stop, or monitor    *
*         any programs itself.  The values set by the user with SFFS *
*         are stored in system common and SCHED reads uses these     *
*         to                                                         *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*--------------------------------------                              *
*         To compile, load, and save (SP):    TR,*SFFS               *
*         To load and save only:              TR,*SFFS,LO            *
*                                                                    *
*         Relevant Files:                                            *
*         ---------------                                            *
*         &SFFS  - Program source file.                              *
*         &SFFSD - System common INCLUDE file.                       *
*         ?SFFS  - SFFS help file.                                   *
*         *SFFS  - FMGR transfer file used to compile, load,         *
*                  and save SFFS.                                    *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *
*         For operating instructions refer to the S.F.F.S.           *
*         Operations Manual.                                         *
*                                                                    *
**********************************************************************
```

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```
**********************************************************************
*                                                                    *
*    SSSSSSSSS   YY      YY    SSSSSSSSS    CCCCCCCCC   MM      MM   *
*   SSSSSSSSSS    YY    YY    SSSSSSSSSS   CCCCCCCCCC   MMM    MMM   *
*   SS             YY  YY     SS           CC           MMMM  MMMM   *
*   SS              YYYY      SS           CC           MM MMMM MM   *
*   SSSSSSSSS        YY       SSSSSSSSS    CC           MM  MM  MM   *
*    SSSSSSSSS       YY        SSSSSSSSS   CC           MM      MM   *
*           SS       YY               SS   CC           MM      MM   *
*           SS       YY               SS   CC           MM      MM   *
*   SSSSSSSSSS       YY       SSSSSSSSSS   CCCCCCCCCC   MM      MM   *
*   SSSSSSSSS        YY       SSSSSSSSS     CCCCCCCCC   MM      MM   *
*                                                                    *
**********************************************************************
*I.     REVISIONS -                                                  *
*-----------------                                                   *
*         Last edited by EDIT:        <830406.1406>                  *
*                                                                    *
*                                                                    *
*II.    LANGUAGE -                                                   *
*-----------------                                                   *
*         HP Fortran 4X (FTN4X)                                      *
*                                                                    *
*                                                                    *
*III.   AUTHOR STATISTICS -                                          *
*--------------------------                                          *
*         Robert A. Dillon                                           *
*         University of Florida                                      *
*         Institute of Food and Agricultural Sciences                *
*         Fruit Crops Department                                     *
*         Climatology Laboratory                                     *
*         2116 HS-PP Bldg.                                           *
*         Gainesville, FL  32611                                     *
*                                                                    *
*                                                                    *
*                                                                    *
*IV.    SPECIAL HARDWARE REQUIRED -                                  *
*----------------------------------                                  *
*         None.                                                      *
*                                                                    *
*                                                                    *
*V.     OPERATING SYSTEM -                                           *
-------------------------                                            *
*         Hewlett-Packard RTE-IVB or RTE-6/VM                        *
*                                                                    *
*                                                                    *
*                                                                    *
*VI.    PROGRAM DESCRIPTION -                                        *
*----------------------------                                        *
*         SYSCM is part of the Satellite Freeze Forecast System.     *
*         It can be scheduled by a program to retrieve data from     *
*         system common.  In this way, the calling program doesn't   *
*         have to INCLUDE &SFFSD (the SFFS system common file).      *
*                                                                    *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *

*--------------------------------------                              *
*         SYSCM should be loaded permanently.                        *
```

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```
*          To compile, load, and save (SP):  TR,SYSCM                      *
*          To load and save only:            TR,SYSCM,LO                   *
*                                                                          *
*                                                                          *
*                                                                          *
*VIII.  EXECUTION INSTRUCTIONS -                                           *
*-------------------------------                                           *
*                                                                          *
*        SYSCM can be scheduled with queue and wait by another             *
*        program to retrieve values from SFFS system common.               *
*                                                                          *
*        Example:                                                          *
*                                                                          *
*        CALL EXEC(23,5HSYSCM,ioffset,len)    ! to schedule SYSCM          *
*        CALL EXEC(14,1,ibufr,len)            ! to retrieve the data       *
*                                                                          *
*        where                                                             *
*            ioffset = offset (in words) of the first word of data to      *
*                      be returned (ioffset for the first word = 1);       *
*            len     = number of words to be returned; and                 *
*            ibufr   = buffer into which the data will be returned.        *
*                                                                          *
****************************************************************************
```

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```
***********************************************************************
*                                                                     *
*   TTTTTTTTTT     AAAAAA     BBBBBBBBB    LL           EEEEEEEEEE    *
*   TTTTTTTTTT    AAAAAAAA    BBBBBBBBBB   LL           EEEEEEEEEE    *
*       TT       AA      AA   BB      BB   LL           EE            *
*       TT       AA      AA   BB      BB   LL           EE            *
*       TT       AAAAAAAAAA   BBBBBBBBB    LL           EEEEEEEEEE    *
*       TT       AAAAAAAAAA   BBBBBBBBB    LL           EEEEEEEEEE    *
*       TT       AA      AA   BB      BB   LL           EE            *
*       TT       AA      AA   BB      BB   LL           EE            *
*       TT       AA      AA   BBBBBBBBBB   LLLLLLLLLL   EEEEEEEEEE    *
*       TT       AA      AA   BBBBBBBBB    LLLLLLLLLL   EEEEEEEEEE    *
*                                                                     *
***********************************************************************
*I.     REVISIONS -                                                   *
*------------------                                                   *
*                                                                     *
*                                                                     *
*II.    LANGUAGE -                                                    *
*------------------                                                   *
*       HP FTN4X or FTN7X                                             *
*                                                                     *
*                                                                     *
*III.   AUTHOR STATISTICS -                                           *
*--------------------------                                           *
*                                                                     *
*       Fred D. Stephens                                              *
*       Scientific Programmer                                         *
*       University of Florida                                         *
*       Institute of Food and Agricultural Sciences                   *
*       Fruit Crops Department                                        *
*       Climatology Research Laboratory                               *
*       2116 Horticulture Science - Plant Pathology Building          *
*       Gainesville, Florida 32611                                    *
*                                                                     *
*                                                                     *
*IV.    SPECIAL HARDWARE REQUIRED -                                   *
*----------------------------------                                   *
*       none                                                          *
*                                                                     *
*                                                                     *
*V.     OPERATING SYSTEM -                                            *
*-------------------------                                            *
*       RTE-4B or RTE-6/VM                                            *
*                                                                     *
*                                                                     *
*VI.    PROGRAM DESCRIPTION -                                         *
*----------------------------                                         *
*   Read PMODL predicted temperature file 'KEYDAY', combine with past*
*   observed temperatures and output in tabular form.                 *
* Description of program parameters                                   *
*                                                                     *
*   FSYSU - FTN4X routine to direct implied read and print statements*
*           to specified logical unit.                                *
*   OPEN  - FTN4X builtin function to open file for access.           *
*   CLOSE - FTN4X builtin function to terminate file access.          *
*   ANINT - FTN4X library rounding function.                          *
*   LGBUF - Library routine to declare secondary storage area for    *
*           large transfers of data using the formatter.              *
```

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```
*    $FILES- FTN4X directive to specify the number of files open for *
*            access at same time.                                    *
*                                                                    *
*    IDATA - Array containing combined observed and predicted data.  *
*    DATA2 - 1.5 meter observed keystation data.                     *
*    DATA3 - Vector equivalenced to array data.                      *
*    IBUF  - Secondary storage for large formatted transfers.        *
*    RBUFR - Buffer used to contain one record of observed data read *
*            from disk.                                              *
*    KFILE - Observed keystation file name                           *
*    KS    - Keysite number including ghost stations.                *
*    KSN   - Keysite number excluding ghost stations.                *
*    KEYSIT- Keystation number read from keystation file.            *
*    NH    - Number of hours of observed data.                       *
*    IFMT  - Encoded format storage area.                            *
*    IFMT2 - Encoded format storage area.                            *
*    IOS   - I/O error code.                                         *
*    STA   - ASCII array of station names.                           *
*    ITIME - ASCII array of operational hours                        *
*    I,J,K - Do loop indexes.                                        *
*                                                                    *
*  Remarks                                                           *
*    Observed keystation data should be contiguous in time.          *
*                                                                    *
*  Subroutines and function subprograms required                     *
*    Fortran 4X library                                              *
*                                                                    *
*  Method                                                            *
*    Observed keystation data is read from disk and stored in        *
*    IDATA.  Predicted data is read from the 'KEYDAT' and stored     *
*    in remaining elements of array.  Ghost stations are ignored.    *
*    Format statements are encoded to reflect various amounts        *
*    of observed and predicted data.                                 *
*                                                                    *
*                                                                    *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                              *
*--------------------------------------                              *
*        Transfer to *TABLE to compile, load and SP                  *
*                                                                    *
*                                                                    *
*VIII.  EXECUTION INSTRUCTIONS -                                     *
*-------------------------------                                     *
*    RU,TABLE                                                        *
*    On prompting enter observed keystation file name.               *
*                                                                    *
**********************************************************************
```

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```
**********************************************************************
*                                                                    *
*    TTTTTTTTTT    EEEEEEEEEE    XX       XX    MM       MM          *
*    TTTTTTTTTT    EEEEEEEEEE     XX     XX     MM       MM          *
*        TT        EE              XX   XX      MMM     MMM          *
*        TT        EE               XXXX        MMMM   MMMM          *
*        TT        EEEEEEEEEE        XX         MM MMMM MM           *
*        TT        EEEEEEEEEE        XX         MM  MM  MM           *
*        TT        EE               XXXX        MM       MM          *
*        TT        EE              XX   XX      MM       MM          *
*        TT        EEEEEEEEEE     XX     XX     MM       MM          *
*        TT        EEEEEEEEEE    XX       XX    MM       MM          *
*                                                                    *
**********************************************************************
*                                                                    *
*                                                                    *
*I.     REVISIONS -                                                  *
*------------------                                                  *
*                                                                    *
*                                                                    *
*                                                                    *
*II.    LANGUAGE -                                                   *
*-----------------                                                   *
*       HP-FTN4X or HP-FTN7X                                         *
*                                                                    *
*                                                                    *
*III.   AUTHOR STATISTICS -                                          *
*-------------------------                                           *
*       Fred Stephens                                                *
*       Scientific Programmer                                        *
*       University of Florida                                        *
*       Institute of Food and Agricultural Sciences                  *
*       Fruit Crops Department                                       *
*       Climatology Laboratory                                       *
*       2116 Horticultural Science - Plant Pathology Building        *
*       Gainesville, Florida 32611                                   *
*                                                                    *
*                                                                    *
*                                                                    *
*IV.    SPECIAL HARDWARE REQUIRED -                                  *
*----------------------------------                                  *
*       3 HP-91200B color interface cards                            *
*       1 HP-12773 modem interface using driver DVA65                *
*       1 HP-12620A privlegded interrupt fence                       *
*                                                                    *
*V.     OPERATING SYSTEM -                                           *
*-------------------------                                           *
*       RTE-IVB or RTE-6/VM                                          *
*                                                                    *
*                                                                    *
*VI.    PROGRAM DESCRIPTION -                                        *
*----------------------------                                        *
*                                                                    *
*       SUBROUTINES                                                  *
*       -----------                                                  *
*       - POPEN : Schedule the named PTOP program at the specified   *
*                 node                                               *
*                                                                    *
*                 IPCB  - PTOP control block                         *
```

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```
*                  IERR  - Error return                                  *
*                  NAME  - Slave program name                            *
*                  NODE  - The number of the node where the slave        *
*                          program resides and where it is to be         *
*                          scheduled for execution.                      *
*                  ITAG  - Tag field; 20 word array                      *
*                  ICLON - Slave cloning parameter                       *
*                                                                        *
*        - PWRIT : Transfer data from master program to slave program    *
*                                                                        *
*                  IPCB  - PTOP control block                            *
*                  IERR  - Error return                                  *
*                  IBUFR - Data buffer                                   *
*                  LEN   - Data length in words                          *
*                  ITAG  - Tag field                                     *
*                                                                        *
*        - PCONT : Exchange tag field between the master and slave       *
*                                                                        *
*                  IPCB  - PTOP control block                            *
*                  IERR  - Error return                                  *
*                  ITAG  - Tag field                                     *
*                                                                        *
*                                                                        *
*                                                                        *
*        PROGRAM FLOW DESCRIPTION                                        *
*        ------------------------                                        *
*                                                                        *
*        - Call RMPAR to get node for message to be sent.                *
*                                                                        *
*        - Call POPEN to schedule slave program TEXS to receive          *
*          messages transmitted from master.                             *
*                                                                        *
*        - Input who message is for and transmit to TEXS                 *
*                                                                        *
*        - Input your name and transmit to TEXS                          *
*                                                                        *
*   ***> - Output prompt                                                 *
*   *                                                                    *
*   *    - Input response from user                                      *
*   *                                                                    *
*   *    - Check if response is an escape character,and if it is         *
*   *      then call PCONT to stop TEXS then quit.                       *
*   *                                                                    *
*   *    - Transmit response to TEXS                                     *
*   *                                                                    *
*   *    - Clear response buffer                                         *
*   *                                                                    *
*   **** - loop                                                          *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*VII.    COMPILE AND LOAD INSTRUCTIONS -                                 *
*--------------------------------------                                  *
*        Transfer to *TEXM to compile, load and save program             *
*                                                                        *
*                                                                        *
*VIII.   EXECUTION INSTRUCTIONS -                                        *
```

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```
*------------------------------                                            *
*                                                                          *
* Program TEXM is a master program that simulates a terminal on the        *
* color monitor using the 91200 tv interface cards.  It allows a user      *
* to interactively enter information on his terminal and have it           *
* displayed on the monitor in a 20 row, 40 column format.  The             *
* information is entered one line at a time, up to 80 characters           *
* per line, and scrolled onto the tv screen. To exit the program the       *
* user need only press the escape (esc) key followed by a return.          *
* When TEXM is run in default mode in G'ville the default monitor          *
* is ths G'ville monitor.  When TEXM is run in default mode in Ruskin      *
* the default monitor is the G'vill monitor.  The first parameter          *
* specified in the runstring is the node number of the monitor.            *
* The node number for Gainesville is 1, the Ruskin node number is 2.       *
*                                                                          *
*  examples:                                                               *
*                          from         to                                 *
*                                                                          *
*          RU,TEXM       G'ville --> G'ville                               *
*          RU,TEXM       Ruskin  --> G'ville                               *
*          RU,TEXM,1     G'ville --> G'ville                               *
*          RU,TEXM,2     G'ville --> Ruskin                                *
*          RU,TEXM,1     Ruskin  --> G'ville                               *
*          RU,TEXM,2     Ruskin  --> Ruskin                                *
*                                                                          *
*  TEXM functions by scheduling a program called TEXS and passing          *
*  TEXS the information entered from the user keyboard.  TEXS is           *
*  responsible for only the display of the text information.  TEXM is     *
*  only responsible for getting data from the keyboard and passing it      *
*  to TEXS. The TEX programs support all printable ASCII characters.       *
*                                                                          *
****************************************************************************
```

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```
****************************************************************
*                                                              *
*    TTTTTTTTTT    SSSSSSSS    MM      MM   DDDDDDDD     LL     *
*    TTTTTTTTTT   SSSSSSSSSS   MMM    MMM   DDDDDDDDD    LL     *
*        TT       SS           MMMM  MMMM   DD      DD   LL     *
*        TT       SS           MM MMMM MM   DD      DD   LL     *
*        TT       SSSSSSSSS    MM  MM  MM   DD      DD   LL     *
*        TT        SSSSSSSSS   MM      MM   DD      DD   LL     *
*        TT               SS   MM      MM   DD      DD   LL     *
*        TT               SS   MM      MM   DD      DD   LL     *
*        TT       SSSSSSSSSS   MM      MM   DDDDDDDDD    LLLLLLLLLL *
*        TT        SSSSSSSS    MM      MM   DDDDDDDD     LLLLLLLLLL *
*                                                              *
****************************************************************
*                                                              *
*I.      REVISIONS -                                           *
*------------------                                            *
*                                                              *
*                                                              *
*                                                              *
*II.     LANGUAGE -                                            *
*-----------------                                             *
*                                                              *
*        HP Fortran 4X                                         *
*                                                              *
*                                                              *
*III.    AUTHOR STATISTICS -                                   *
*-------------------------                                     *
*                                                              *
*        Fred Stephens                                         *
*        Scientific Programmer                                 *
*        University of Florida                                 *
*        Institute of Food and Agricultural Sciencies          *
*        Climatology Reaearch Laboratory                       *
*        2116 Horticulture Science - Plant Pathology Bld.      *
*        Gainesville, Florida 32611                            *
*                                                              *
*                                                              *
*IV.     SPECIAL HARDWARE REQUIRED -                           *
*---------------------------------                             *
*                                                              *
*        None.                                                 *
*                                                              *
*                                                              *
*V.      OPERATING SYSTEM -                                    *
*------------------------                                      *
*                                                              *
*        HP RTE-IVB or RTE-IV/VM.                              *
*                                                              *
*                                                              *
*                                                              *
*VI.     PROGRAM DESCRIPTION -                                 *
*---------------------------                                   *
*                                                              *
*        TSMDL subroutines and functions                       *
*        -------------------------------                       *
*                                                              *
*        PRDCT: create forecast map                            *
*                                                              *
```

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```
*       Parameters:                                                     *
*              DATA  - reformatted PMODL forecast data                  *
*              SHOUR - starting hour                                    *
*              EHOUR - ending hour                                      *
*              IOS   - I/O status return                                *
*                                                                       *
*       FXKST: refomat PMODL data                                       *
*                                                                       *
*       Parameters:                                                     *
*              DATA  - PMODL forecast data                              *
*              IOS   - I/O status return                                *
*                                                                       *
*       CPMN:  create predicted map name                                *
*                                                                       *
*       Parameters:                                                     *
*              OMAP  - observed map file name                           *
*              PMAP  - predicted map file name                          *
*              NHRS  - prediction length                                *
*              SHOUR - starting hour                                    *
*              EHOUR - ending hour                                      *
*                                                                       *
*       SECTR: sectorizes the latest map and places it in a file        *
*       called TSMMAP.                                                  *
*                                                                       *
*       Parameters:                                                     *
*              DSS  - Starting scan number desired.                     *
*              DNS  - Number of scans desired.                          *
*              DSW  - Starting word (pixels) number desired.            *
*              DNW  - Number of words (pixels) desired.                 *
*              SDEN - Scan density.  1 means take every scan line,      *
*                     2 means take every other scan line, 3 means       *
*                     take every 3rd scan line, etc.                    *
*              WDEN - Word density.  Like SD but for words (pixels).    *
*              SDFM - Source map file namr.                             *
*              DDFN - Destination file name (not namr).  It is          *
*                     created with security code UF on M2.              *
*              ERR  - Error return code.  0 if ok.                      *
*                                                                       *
*       PROGRAM FLOW DESCRIPTION                                        *
*       ------------------------                                        *
*         - get observed map file name from system common               *
*                                                                       *
*         - get prediction length(s) from system common                 *
*                                                                       *
*         - call SECTR to get Florida sector                            *

*                                                                       *
*         - open observed map file                                      *
*                                                                       *
*         - read predicted keystation data and correct for              *
*           ghost stations (FXKDT)                                      *
*                                                                       *
*         - call CPMN to create predicted map file name                 *
*                                                                       *
*         - open predicted map file                                     *
*                                                                       *
*         - call PREDICT to create forecast map                         *
*                                                                       *
*                                                                       *
*       SUBROUTINE PRDCT                                                *
```

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- get index of starting and ending hours
- sum up keystation effect on a pixel
- compute predicted pixels for a scan line
- write predicted scan line to predicted map file

SUBROUTINE FXKST

- read in predicted keystation temperatures
- zero "GHOST" stations and move to rear of matrix

SUBROUTINE CPMN

- extract day, month and year from observed map file name
- calculate julian day
- increment starting hour by prediction length
- increment julian day if prediction extends beyond current day
- convert to standard date
- create predicted file name

SUBROUTINE SECTR

- create destination data file
- open source data file
- read SS,NS,SW,NW for source file
- write SS,NS,SW,NW,SD,WD for destination file´s sector
- determine records and bytes within records to be used
- write offset into record 2 of destination file
- sectorize the map
- create destination grid file
- open source grid file
- position grid bit file to first record of desired sector

```
*        - sectorize the grid bits                                    *
*                                                                     *
*                                                                     *
*                                                                     *
*VII.   COMPILE AND LOAD INSTRUCTIONS -                               *
*--------------------------------------                               *
*                                                                     *
*       Transfer to *TSMDL to compile, load and save program          *
*                                                                     *
*                                                                     *
*VIII.  EXECUTION INSTRUCTIONS -                                      *
*-------------------------------                                      *
*                                                                     *
*       RU,TSMDL                                                      *
*                                                                     *
***********************************************************************
```

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```
**********************************************************************
*                                                                    *
*  TTTTTTTTTT   VV      VV   MMM       MMM       AA       PPPPPPPP   *
*  TTTTTTTTTT   VV      VV   MMMM     MMMM      AAAA      PPPPPPPPP  *
*      TT       VV      VV   MM MM   MM MM     AA  AA     PP    PP   *
*      TT       VV      VV   MM  MM MM  MM    AA    AA    PP    PP   *
*      TT       VV      VV   MM   MMM   MM   AAAAAAAAAA   PPPPPPPPP  *
*      TT        VV    VV    MM    M    MM   AAAAAAAAAA   PPPPPPPP   *
*      TT         VV  VV     MM         MM   AA      AA   PP         *
*      TT          VVVV      MM         MM   AA      AA   PP         *
*      TT           VV       MM         MM   AA      AA   PP         *
*                                                                    *
**********************************************************************
*                                                                    *
*     Last edited by EDIT:  <830409.1108>                            *
*                                                                    *
*                                                                    *
*I.      REVISIONS - Please indicate all revisions below.            *
*------------------                                                  *
*                                                                    *
*                                                                    *
*II.     LANGUAGE -                                                  *
*-----------------                                                   *
*                                                                    *
*         HP Fortran 4X (FTN4X).                                     *
*                                                                    *
*                                                                    *
*III.    AUTHOR STATISTICS -                                         *
*--------------------------                                          *
*                                                                    *
*         Robert A. Dillon                                           *
*         University of Florida                                      *
*         Institute of Food and Agricultural Sciences                *
*         Fruit Crops Department                                     *
*         Climatology Research Laboratory                            *
*         2116 Horticulture Science - Plant Pathology Bld.           *
*         Gainesville, Florida 32611                                 *
*                                                                    *
*                                                                    *
*IV.     SPECIAL HARDWARE REQUIRED -                                 *
*----------------------------------                                  *
*                                                                    *
*             HP 91200B TV Interface Kit.                            *
*             Direct drive RGB monitor.                              *
*                                                                    *
*                                                                    *
*V.      OPERATING SYSTEM -                                          *
*-------------------------                                           *
*                                                                    *
*             Hewlett Packard RTE-IVB                                *
*                                                                    *
*                                                                    *
*VI.     PROGRAM DESCRIPTION -                                       *
*----------------------------                                        *
*                                                                    *
*             TVMAP is a product of the Satellite Freeze Forecast    *
*             System developed by the University of Florida/Insti-   *
*             tute of Food and Agricultural Sciences/Fruit Crops     *
*             Department/Climatology Lab. with NASA and NOAA.        *
```

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TVMAP is a segmented HP FTN4X program used to display false colored thermal images of infrared satellite data. It displays an eight color picture of a given sector of the earth's suface where each color indicates a certain variable temperature range. A table is displayed showing the ranges in effect. A second table is also displayed giving the map file name and the time at which the data were collected. At the top is displayed a title giving credit to the agencies involved in SFFS.

TVMAP replaces several older programs [TVDIS, TVDI3, TVMAP(old), etc.]. It was written to be as flexible as possible to provide the user with many display capabilities. Revisions will be made as new features are needed and should be indicated in section I above.

Standard features:

UNINTERPOLATED MAPS -
The most basic form of map display is the uninterpolated map. Each ASCII character of data in the map files is translated into a color block on the monitor screen. The image is stretched to correct for the non-square shape of the data pixels, so the blocks of color may vary in size by 1 screen pixel.

INTERPOLATED MAPS -
The most commonly used form of map display is probably the interpolated map. A simple linear interpolation is performed first in the y-direction (north-south) then in the x-direction (east-west). Generally, no screen pixels can be mapped directly back to the real data, e.g. if a map is three characters wide (real data) and it is to be displayed as a 10 pixel wide map on the screen, 10 evenly spaced pixels will be calculated among the real data by interpolating linearly between the nearest real data points.

Two sizes of interpolated maps are available:

SINGLE SCREEN -
One map is displayed centered on the screen as large as possible.

DOUBLE SCREEN -
Two maps can be displayed side by side (Left and Right) or one map can be displayed with room on the opposite side of the screen for enlargements.

ENLARGEMENTS -
The user has the option of magnifying an area of the map with or without interpolation. If the map was displayed interpolated, any enlargements will be interpolated. Similarly, uninterpolated maps have uninterpolated enlargements. By moving a

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```
*                 window-like cursor around the screen any area can  *
*                 be "marked" and enlarged on another area of the    *
*                 screen.                                            *
*                                                                    *
*             HELP -                                                 *
*                 By entering a question mark in answer to an input  *
*                 request by TVMAP, the user can display a set of    *
*                 instructions for that request.  These instruc-     *
*                 tions are stored in file ?TVMAP and are INCLUDEd   *
*                 (FTN4X statement) below.                           *
*                                                                    *
*             TEMPERATURE SCALES -                                   *
*                 TVMAP has the capability to display maps having    *
*                 different temperature scales.  Currently, there    *
*                 are three scales in use:                           *
*                                                                    *
*                 WASHINGTON'S SCALE -                               *
*                     13.7 to 96.5 deg.F                             *
*                     TVMAP uses this scale when the map name begins *
*                     with an "R".  Program GAPX acquires R-maps.    *
*                                                                    *
*                 SATELLITE'S SCALE -                                *
*                     -165.3 to 134.3 deg.F                          *
*                     This scale is use when the map name begins     *
*                     with an "E".  It is a convention to            *
*                     name maps coming directly from the satellite   *
*                     with an "E".                                   *
*                                                                    *
*                 GAP'S TRANSLATED SCALE -                           *
*                     13.7 to 60.5 deg.F                             *
*                     This is the scale used by program GAP when     *
*                     acquiring maps.  If the map name begins with   *
*                     a character other than "E" or "R", this scale  *
*                     is used.                                       *
*                                                                    *
*                                                                    *
*VII.    PROGRAM LOAD INSTRUCTIONS -                                 *
*-----------------------------------                                 *
*                                                                    *
*             TVMAP is a segmented program and requires a ~150 page  *
*             mother partition in which to run.  The first partition *
*             of the mother must be 28 pages.                        *
*                                                                    *
*             All files have the security code 'TV'.                 *
*                                                                    *
*             The components of the TVMAP system follow:             *
*                                                                    *
*             *TVMAP - File manager transfer file used to compile,   *
*                      load, and SP all segments onto cartridge 3.   *
*                      It will attempt to OF all old segments before *
*                      loading, PUrge all previously SP'ed segments, *
*                      OF all the new segments after SP'ing them,    *
*                      and PUrge the relocatable file %TVMAP.  Just  *
*                      :TR,*TVMAP and go for coffee...about 7 min.   *
*                                                                    *
*             #TVMAP - Loader command file.  *TVMAP supplies this    *
*                      name to the loader.                           *
*                                                                    *
*             &TVMAP - Main source file.  Contains main program      *
```

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```
*                  (TVMAP) and ten segments (INITL, INPUT,       *
*                  GLOBL, SETUP, UNTRP, MAPID, SCALE, ENLRG,     *
*                  RUSKN and SQNCE).                             *
*                                                                *
*         ^TVMAP - COMMON and DIMENSION statements used in       *
*                  many of the segments.  The FTN4X INCLUDE      *
*                  statement is used to merge this file into     *
*                  &TVMAP as needed during compilation.          *
*                                                                *
*         ?TVMAP - TVMAP help file.  This is a file of instruc-  *
*                  tions for each TVMAP question.  The user may  *
*                  enter a question mark (?) at any time to ask  *
*                  for help in answering a question.             *
*                                                                *
*         $LIBHS - MIT Haystack Library.  Specifically:          *
*                                                                *
*                  IRP     - Replaces segments (RP) programatic- *
*                            ally as needed.                     *
*                                                                *
*                  IOF     - Removes segments (OF) programatic-  *
*                            ally at the end of the program.     *
*                                                                *
*                  NARG    - Retrieves the number of arguments   *
*                            passed to IRP and IOF.              *
*                                                                *
*                  RP      - Type 6 file used by IRP.  Must be   *
*                            hard loaded in the system (or man-  *
*                            ually SP'ed before running TVMAP).  *
*                                                                *
*                  OF      - Type 6 file used by IOF.  Must be   *
*                            hard loaded in the system (or man-  *
*                            ually SP'ed before running TVMAP).  *
*                                                                *
*         $DSTVL - DS/1000 TV interface routines.  In the RUSKN  *
*                  segment these are used in place of the normal *
*                  TV interface routines to display a screen imag*
*                  on the remote DS node monitor.  Specifically: *
*                                                                *
*                  DSVDL   - DS version of subroutine VIDLU with *
*                            a parameter for the DS node number. *
*                                                                *
*                  DSERS   - DS version of subroutine ERASE.     *
*                                                                *
*                  DSPNT   - DS version of subroutine POINT.     *
*                                                                *
*                                                                *
*VIII.  PROGRAM EXECUTION INSTRUCTIONS -                         *
*---------------------------------------                         *
*                                                                *
*      TVMAP may be run in two modes.  In the normal interactive *
*      mode, the user types:                                     *
*                                                                *
*           RU,TVMAP  or simply  TVMAP                           *
*                                                                *
*      This will start up TVMAP and clear the screen.            *
*                                                                *
*      To suppress clearing the screen, enter:                   *
*                                                                *
*           TVMAP,0                                              *
*                                                                    *
*         By passing the map name and temperature range through      *
*         RMPAR, TVMAP may be scheduled by another program.          *
*                                                                    *
*             CALL EXEC(9,5HTVMAP,2HM0,2H13,2H11,14,32)              *
*                                                                    *
*         will run TVMAP with map M01311 at 14-32 deg.F.             *
*         TVMAP will request no input and will stop execution        *
*         after displaying the map.                                  *
*                                                                    *
******************************************************************************
```

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```
**********************************************************************
*                                                                    *
*  TTTTTTTTTT   VV      VV    QQQQQQQQ    IIIIIIIII    KK   KKK      *
*  TTTTTTTTTT   VV      VV   QQQQQQQQQQ   IIIIIIIII    KK  KKK       *
*      TT       VV      VV   QQ      QQ       II       KK KKK        *
*      TT       VV      VV   QQ      QQ       II       KKKKK         *
*      TT       VV      VV   QQ      QQ       II       KKKKK         *
*      TT        VV    VV    QQ   QQ QQ       II       KK KKK        *
*      TT         VV  VV     QQ    QQQQ       II       KK  KKK       *
*      TT          VVVV      QQQQQQQQQ    IIIIIIIII    KK   KKK      *
*      TT           VV         QQQQQ QQ   IIIIIIIII    KK    KKK     *
*                                                                    *
**********************************************************************
*                                                                    *
*  Last edited by EDIT:  <830406.1458>                               *
*                                                                    *
*                                                                    *
*I.      REVISIONS - Please indicate all revisions below.            *
*-------------------                                                 *
*                                                                    *
*                                                                    *
*II.     LANGUAGE -                                                  *
*-----------------                                                   *
*                                                                    *
*        HP Fortran 4X (FTN4X).                                      *
*                                                                    *
*                                                                    *
*III.    AUTHOR STATISTICS -                                         *
*---------------------------                                         *
*                                                                    *
*            Robert A. Dillon                                        *
*            University of Florida                                   *
*            Institute of Food and Agricultural Sciences             *
*            Fruit Crops Department                                  *
*            Climatology Research Laboratory                         *
*            2116 Horticulture Science - Plant Pathology Building    *
*            Gainesville, Florida 32611                              *
*                                                                    *
*                                                                    *
*IV.     SPECIAL HARDWARE REQUIRED -                                 *
*-------------------------------------                               *
*                                                                    *
*        HP 91200B TV Interface Kit.                                 *
*        Direct drive RGB monitor.                                   *
*                                                                    *
*                                                                    *
*V.      OPERATING SYSTEM -                                          *
*--------------------------                                          *
*                                                                    *
*        Hewlett Packard RTE-IVB or RTE-6/VM.                        *
*                                                                    *
*                                                                    *
*VI.     PROGRAM DESCRIPTION -                                       *
*-----------------------------                                       *
*                                                                    *
*        TVQIK is a product of the Satellite Freeze Forecast         *
*        System developed by the University of Florida/Insti-        *
*        tute of Food and Agricultural Sciences/Fruit Crops          *
*        Department/Climatology Lab. with NASA and NOAA.             *
```

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TVQIK is a segmented HP FTN4X program used to display false colored thermal images of infrared satellite data. It displays an eight color picture of a given sector of the earth's suface where each color indicates a certain variable temperature range. A legend is displayed showing the ranges in effect. A second legend is also displayed giving the map file name and the time at which the data were collected. At the top is displayed a title giving credit to the agencies involved in SFFS.

TVQIK is a scaled-down version of TVMAP. It is intended to be used as the program for automatic display of newly received satellite data. TVQIK automatically displays the latest map in the interpolated mode at the default temperature range. All unnecessary segments have been removed. TVQIK does not need a mother partition since it does not do enlargements. For a complete description of map display possibilities see program TVMAP.

VII. PROGRAM LOAD INSTRUCTIONS -

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All files have the security code 'TV'.

The components of the TVQIK system follow:

*TVQIK - File manager transfer file used to compile, load, and SP all segments onto cartridge 3. It will attempt to OF all old segments before loading, PUrge all previously SP'ed segments, OF all the new segments after SP'ing them, and PUrge the relocatable file %TVQIK. Just :TR,*TVQIK and go for coffee...about 15 min.

#TVQIK - Loader command file. *TVQIK supplies this name to the loader.

&TVQIK - Main source file. Contains main program (TVQIK) and ten segments (INITL, INPUT, GLOBL, SETUP, UNTRP, MAPID, SCALE, ENLRG, RUSKN and SQNCE).

^TVQIK - COMMON and DIMENSION statements used in many of the segments. The FTN4X INCLUDE statement is used to merge this file into &TVQIK as needed during compilation.

?TVQIK - TVQIK help file. This is a file of instructions for each TVQIK question. The user may enter a question mark (?) at any time to ask for help in answering a question.

$LIBHS - MIT Haystack Library. Specifically:

IRP - Replaces segments (RP) programatically as needed.

```
*                                                                    *
*                  IOF    - Removes segments (OF) programatic-       *
*                             ally at the end of the program.        *
*                                                                    *
*                  NARG   - Retrieves the number of arguments        *
*                             passed to IRP and IOF.                 *
*                                                                    *
*                  RP     - Type 6 file used by IRP.  Must be        *
*                             hard loaded in the system (or man-     *
*                             ually SP'ed before running TVQIK).     *
*                                                                    *
*                  OF     - Type 6 file used by IOF.  Must be        *
*                             hard loaded in the system (or man-     *
*                             ually SP'ed before running TVQIK).     *
*                                                                    *
*                                                                    *
*VIII.  PROGRAM EXECUTION INSTRUCTIONS -                             *
*---------------------------------------                             *
*                                                                    *
*    TVQIK may be run from file manager by entering:                 *
*                                                                    *
*       :RU,TVQIK                                                    *
*                                                                    *
*    This will display the latest map at default temperatures.       *
*                                                                    *
**********************************************************************
```

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