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A PROCEDURE FOR THE RETRIEVAL OF WATER QUALITY DATA  
FROM MTS FILES FOR USE WITH IDA

(Interactive Data Analysis)

Robert J. Waid and Paul H. Whitfield

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Vancouver, B.C.**

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## INTRODUCTION

IDA (Interactive Data Analysis) is an interactive statistical package used mainly for exploratory data analysis. It requires the data for its use to be formatted with one record per line, each of which contains one reading for each variable. This document describes a computer procedure for retrieving replicate, monitoring and discharge data from MTS (Michigan Terminal System) files for use with IDA. The program was written in Fortran and was designed for implementation on an MTS facility and it may not be possible to run it directly at non-MTS facilities.

The program will extract data from files having one of three formats, namely replicate, monitoring or discharge. Each of these types of files has a specific format (see relevant section). The first two letters of all data files to be used by this program must be one of the following:

- 1: 'F.' - files containing discharge records
- 2: 'D.' - files containing monitoring data
- 3: 'DD' - files containing replicate data

Although the extracted data is designed for use with IDA, it can just as easily be used for analysis by other statistical programs. The principal advantage of IDA is that it is totally conversational and allows a great deal of flexibility. An understanding of BMDP or SPSS will allow the extracted data to be analyzed by either of these packages.

## MONITORING + NAQUADAT - SPSS FILES

Monitoring files must have a name starting with 'D.' When extracting data from these files you will be prompted as to whether or not it is a monitoring file. If you answer 'YES' then your file must be in the following format:

12A1,512,6X,11,LOG6.0,/,LOG6.0,/,LOG6.0,/,LOG6.0,/,LOG6.0

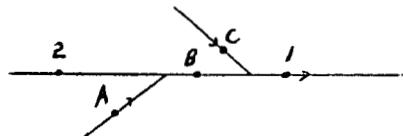
If you answer 'NO' you must then enter the replacement format for the SPSS file. A sample run using a monitoring file is shown in Table 1 and a run using an SPSS file with no station numbers is shown in Table 2. Non SPSS files could also be used using the same method.

## WATER SURVEY DISCHARGE RECORDS

These files have names starting with 'F.'. Since Water Survey stations have different numbers than Water Quality stations their station names must be known ahead of time. Data from up to four discharge stations may be extracted at one time and these may be added or the largest reading can have the others subtracted from it to produce the desired combination of stations for the area of interest.

The following example illustrates the two situations:

In the diagram below the stations for which parameter data is desired are labelled '1' and '2', the flow stations are labelled 'A' through 'C'.



To get the flow for station '1' you would need to add the flows at 'B' and 'C' while at station '2' you would need to subtract flows at 'A' from those at 'B'.

```

#SCU INTERFACE
#&R INT.LOAD+UBCP:LIBRARY
#EXECUTION BEGINS 14:18:28
WHICH FILES DO WISH TO USE?
?D.MONITOR
WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?
?OUT
DO YOU WANT TO REWRITE OVER FILE OUT
ENTER Y OR N
?YES
DO YOU WANT A LIST OF THE PARAMETERS?
?YES
T-AF T-WF PH-F SC-F T-WL PH-L SC-L TURB COLR ALKP
ALKT HARD CA-D MG-D K-D- NA-D CL-D F-D- SIO2 SO4-
NN-D RNFL R-FL RFNF R-FF AS-X SE-X CD-X CU-X ZN-X
FE-X PB-X MN-X HG-X PDIS PTOT NH3- ORGN TDW- TIC-
TDC- NPAR CPAR FHEN CN-- DO-- BOD- NI-X CO-X BA--
BA-X SB-X AG-X
WHAT ARE THE PARAMETERS OF INTEREST?
?T-WL,PTOT,CD-X
PARAMETERS CHOSEN: T-WL PTOT CD-X
WHAT STATION DO YOU WANT?
?00YT09AB0006
DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S
?A
IS THIS A MONITORING FILE? ENTER Y OR N
?Y
#%COPY -OUT1 TO OUT

```

THE FOLLOWING IS A LIST OF THE PARAMETERS CHOSEN IN THE ORDER IN WHICH THEY APPEAR IN OUT  
 JULDAY, DAY, MONTH, YEAR, HOUR MINUTES  
 T-WL CD-X

THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE  
 CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED

```

#%LIST OUT(1,1)
> 1 2566 10 1 1977 1130 21.0 .0
#END OF FILE
#%LIST OUT(LAST, LAST)
7 3714 3 3 1980 1410 19.9 .0
#END OF FILE
#EXECUTION TERMINATED 14:19:28 T=1.238

```

```

#SOU INTERFACE
#R INT,LOAD+UBCP:LIBRARY
#EXECUTION BEGINS 10:04:01
WHICH FILES DO WISH TO USE?
?D,SPSS
WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?
?-TEST
DO YOU WANT A LIST OF THE PARAMETERS?
?N
WHAT ARE THE PARAMETERS OF INTEREST?
?DO--,T-AF,T-WF
PARAMETERS CHOSEN: DO-- T-AF T-WF
WHAT STATION DO YOU WANT?
?
DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S
?A
IS THIS A MONITORING FILE? ENTER Y OR N
?N
ENTER FORMAT ENCLOSED IN BRACKETS
?(2I2,14,1X,2I2,1X,3(F3.1,1X))
ENTER NUMBER OF PARAMETERS IN FILE
?3
ENTER IN THE ORDER THEY APPEAR IN FILE THE PARAMETER NAMES SEPARATED BY COMMAS
?PH-F,T-AF,T-WF
DOES THIS FILE HAVE STATION NUMBERS?
?NO
#COPY -OUT1 TO -TEST

```

THE FOLLOWING IS A LIST OF THE PARAMETERS CHOSEN IN THE ORDER IN WHICH THEY APPEAR IN -TEST  
 JULDAY, DAY, MONTH, YEAR, HOUR, MINUTES  
 T-AF T-WF

THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE  
 CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED

```

#LIST -TEST(1,1)
1 1 2 1 1970 1510 2.10 3.10
END OF FILE
#LIST -TEST(LAST, LAST)
2 2 3 1 1970 1520 2.20 3.20
END OF FILE
#EXECUTION TERMINATED 10:05:35 I=.826

```

TABLE 2

If more than one file is entered at the beginning of the run and one of them is a discharge file then its data will be extracted last. This is because only the flow data corresponding to the dates of the parameters extracted from the other files will be needed. See Table 3 for an example.

#### HEIRACHICAL FILES OF REPLICATE DATA

Files of this type must have names starting with 'DD'. When data is to be extracted from a file of this type you will be asked whether you want total, dissolved or extractable (can enter more than one) for each metal parameter requested. You will also be prompted for the type of data desired (one or more of: mean, S.D,G.M,G.F) and whether the data is Yukon or B.C.

If you answer 'YES' to 'DO YOU WANT DATA FOR ANALYSIS OF VARIANCE' then it is assumed that you have only one file and one parameter of interest. Tables 4 and 5 show two sample runs and the type of output for each. Table 4 is a run which requests data for ANOVA.

#### EXTRACTING DATA FROM MORE THAN ONE FILE

Data from more than one file (up to 5) may be extracted simultaneously if all files are entered at the beginning of the run. Table 6 shows a sample run using all three types of files and the output produced.

#### INTERPRETING OUTPUT

At the end of a run you will receive a list of the columns which are in your output file. The first column is always the Julian day - IJulday, where IJulday is the Julian day of the first data in the date range and Julday is the Julian day of each day extracted.

```
#GOU INTERFACE
#SR INT,LOAD+URCP:LIBRARY
#EXECUTION BEGINS 14:20:28
WHICH FILES DO WISH TO USE?
?F.FIL1
WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?
?OUT
DO YOU WANT TO REWRITE OVER FILE OUT
ENTER Y OR N
?YES
WHAT FLOW STATIONS DO YOU WANT?
?OBMFO05
DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S
?A
##COPY -OUT6 TO OUT
NOW HAVE STATION OBMFO05 DATA IN OUT
VARIABLES ARE: JDAY,DAY,MONTH,YEAR,FLOW
FORMAT IS: I5,1X,I2,1X,I2,1X,I4,1X,F6.0
```

THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE  
CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED

```
##LIST OUT(1,1)
> 1 2557 1 1 1977 46100.
#END OF FILE
##LIST OUT(LAST, LAST)
> 30 2597 10 2 1977 36363.
#END OF FILE
#EXECUTION TERMINATED 14:20:56 T=.803
```

TABLE 3

```
#SQU INTERFACE
#R INT.LOAD+UBCP:LIBRARY
#EXECUTION BEGINS 14:45:30
WHICH FILES DO WISH TO USE?
?DD,SC
WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?
?OUT
DO YOU WANT TO REWRITE OVER FILE OUT
ENTER Y OR N
?Y
DO YOU WANT A LIST OF THE PARAMETERS?
?N
WHAT ARE THE PARAMETERS OF INTEREST?
?PTOT
PARAMETERS CHOSEN: PTOT
WHAT STATION DO YOU WANT?
?00YT09AB0006
DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S
?A
IS THIS YUKON OR BC DATA?
?Y
DO YOU WANT DATA FOR ANALYSIS OF VARIANCE?
?Y
#COPY -OUT1 TO OUT
```

THE FOLLOWING IS A LIST OF THE PARAMETERS CHOSEN IN THE ORDER IN WHICH THEY APPEAR IN OUT  
DAY, POSITION, INDIVIDUAL VALUE

THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE  
CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED

```
##LIST OUT(1,1)
> 1 1 1 0.0230
#END OF FILE
##LIST OUT(LAST, LAST)
> 11 1 2 0.0160
#END OF FILE
#EXECUTION TERMINATED 14:46:29 T=1.098
```

TABLE 4

```

#SOU INTERFACE
#R INT.LOAD#UBCP:LIBRARY
#EXECUTION BEGINS 14:51:04
WHICH FILES DO WISH TO USE?
?DD.SC
WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?
?OUT
DO YOU WANT TO REWRITE OVER FILE OUT
ENTER Y OR N
Y
DO YOU WANT A LIST OF THE PARAMETERS?
N
WHAT ARE THE PARAMETERS OF INTEREST?
PTOT,T-WL,CD-X
PARAMETERS CHOSEN: PTOT T-WL CD-X
WHAT STATION DO YOU WANT?
00YT09AB0006
DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S
A
IS THIS YUKON OR BC DATA?
YUKON
DO YOU WANT DATA FOR ANALYSIS OF VARIANCE?
N
DO YOU WANT MEAN,S,D,G,M,G,F ?
ENTER ONE OR MORE OF MEAN,S,D,G,M,G,F
MEAN,S,D
DO YOU WANT TOTAL,DISSOLVED OR EXTRACTABLE FOR CD-X
ENTER ONE OR MORE OF T,D,E
T
#COPY -OUT1 TO OUT

```

THE FOLLOWING IS A LIST OF THE PARAMETERS CHOSEN IN THE ORDER IN WHICH THEY APPEAR IN OUT  
 JULDAY, DAY, MONTH, YEAR, HOUR MINUTES  
 LEFT, DEPTH  
 PTOT CD-X  
 EACH OF THE PARAMETERS IN THE ABOVE ROW CONTAINS THE FOLLOWING COLUMNS SIDE BY SIDE MEAN S.D  
 OF THEM CD-X HAS COLUMNS OF TOTAL

THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE  
 CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED

```

#LIST OUT(1,1)
1 2563 7 1 1977 14 0 40 1 0.0182 0.0028 0.0 0.0
#END OF FILE
#LIST OUT(LAST, LAST)
2 2563 7 1 1977 1420 80 1 0.0170 0.0018 0.0 0.0
#END OF FILE
#EXECUTION TERMINATED 14:52:08 T=.964

```

TABLE 5

```

#SOU INTERFACE
#R INT.LOAD#UBCP;LIBRARY
#EXECUTION BEGINS 14:48:10
WHICH FILES DO WISH TO USE?
?F.FIL1,DD,SC,D.MONITOR
WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?
?OUT
DO YOU WANT TO REWRITE OVER FILE OUT
ENTER Y OR N
?Y
DO YOU WANT A LIST OF THE PARAMETERS?
?N
WHAT ARE THE PARAMETERS OF INTEREST?
?CO-X,NI-X,T-WL,PTOT
PARAMETERS CHOSEN: CO-X NI-X T-WL PTOT
WHAT STATION DO YOU WANT?
?00YT09AB0006
DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S
?A
WHICH FILE DO WE SEARCH FIRST
?F.FIL1
WHICH FILE DO WE SEARCH NEXT?
?DD,SC
IS THIS YUKON OR BC DATA?
?Y
DO YOU WANT DATA FOR ANALYSIS OF VARIANCE?
?N
DO YOU WANT MEAN,S,D,G,M,G,F ?
ENTER ONE OR MORE OF MEAN,S,D,G,M,G,F
?MEAN
DO YOU WANT TOTAL,DISOLVED OR EXTRACTABLE FOR CO-X
ENTER ONE OR MORE OF T,D,E
?T
DO YOU WANT TOTAL,DISOLVED OR EXTRACTABLE FOR NI-X
ENTER ONE OR MORE OF T,D,E
?D
WHICH FILE DO WE SEARCH NEXT?
?D.MONITOR
IS THIS A MONITORING FILE? ENTER Y OR N
?Y
WHAT FLOW STATIONS DO YOU WANT?
?08MF005
#COPY -OUT6 TO -OUT1

```

THE FOLLOWING IS A LIST OF THE PARAMETERS CHOSEN IN THE ORDER IN WHICH THEY APPEAR IN OUT  
JULDAY, DAY MONTH YEAR , HOUR MINUTES  
FLOW  
LEFT, DEPTH  
CO-X NI-X PTOT  
EACH OF THE PARAMETERS IN THE ABOVE ROW CONTAINS THE FOLLOWING COLUMNS SIDE BY SIDE MEAN  
OF THEM CO-X HAS COLUMNS OF TOTAL  
OF THEM NI-X HAS COLUMNS OF DIS  
T-WL

THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE  
CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED

```

#LIST OUT(1,1)
> 1 2563 07011977 1400 40800.0000 40.0000 1.0000 0.0 0.0 0.0182 0.0
#END OF FILE
#LIST OUT(LAST, LAST)
> 9 3714 03031980 1410 0.0 0.0 0.0 0.0 0.0 0.0 19.9000
#END OF FILE
#EXECUTION TERMINATED 14:50:18 T=2.849
#

```

TABLE 6

If you look at the output in Table 6 you will see that 'JDAY' and 'DAY' are separated by a comma. This indicates two separate columns while no comma in 'DAY MONTH YEAR' indicates that these are in the same column. All parameters are in separate columns. The following example will help you determine the other columns in your output:

CO-X NI-X PTOT

EACH OF THE PARAMETERS IN THE ABOVE ROW CONTAIN THE FOLLOWING COLUMNS  
SIDE BY SIDE MEAN S.D

OF THEM NI-X HAS COLUMNS OF TOTAL DIS

output file:

CO-X	NI-X TOTAL	NI-X DIS	PTOT
mean s.d	mean s.d	mean s.d	mean s.d
1.0 2.0	1.1 2.2	1.3 2.3	1.3 2.4

You are also given the first and last line of your output file including the line number. It should be noted that IDA can only handle a data matrix of 500 by 19 without redimensioning, so make sure you check your file size before running IDA.

#### LOGICAL UNIT ASSIGNMENTS

All logical unit assignments are done within the program. The following is a list of the assignments:

- 10-14 - data files from which data is to be extracted
- 5 - user specified output file
- 16-20 - temporary data manipulation files
- 6-9 - temporary flow data manipulation files

## TO USE

The program was designed to be simple to use and require little computer knowledge. To start the interface after you have signed on type in the following:

### SOU INTERFACE

You will then be prompted for the names of the files (up to 5) you wish to extract data from, the file you want your output stored in, the parameters of interest (up to 7), dates desired, etc.

It should be noted at this point that this program will not extract data from magnetic tape. If you wish to use a data file which is on magnetic tape you must have it copied to an MTS file before implementing the interface.

Appendix 1 has a listing of the entire program.

## APPENDIX 1

The interface is made up of 18 subroutines and one main program. These are contained in seven files as follows:

<u>file name</u>	<u>subroutines</u>
INT.1.MAIN	MAIN
INT.2.PGFIL	PGFIL CKPAR YTCODE BCCODE PRLST DATECH SVFL CKFIL TDE DATYP CROUT GETDT
INT.3.DDFIL	DDFIL
INT.4.FFIL	FFIL
INT.5.DFIL	SUB DFIL
INT.6.MERGE	MERGE
INT.7.LIST	LIST

The following is a list of the program.

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```
C *****
C
C THIS PROGRAM IS AN INTERACTIVE INTERFACE WHICH EXTRACTS DATA
C FROM WATER QUALITY AND STREAMFLOW FILES FOR USE BY
C IDA(INTERACTIVE DATA ANALYSIS)
C
C THE FOLLOWING LOGICAL UNITS ARE ASSIGNED IN THE PROGRAM
C
C 10-14 : DATA FILES
C 5 : OUTPUT FILE
C 16-20 : TEMPORARY DATA MANIPULATION FILES
C 6-9 : TEMPORARY FLOW DATA MANIPULATION FILES
C
C THE FOLLOWING SYSTEM SUBROUTINES ARE USED IN THE PROGRAM AND MAY
C BE FOUND IN MTS VOL.2
C MOVEC,TRNST,DTB,BTD,EQUC,EQCHP,FREAD,LCOHC,FTN,FTNCMD,CREATE,EMPTYF,RENUME
C
C ALSO JULDAY IS USED WHICH IS LOCATED IN UBCP;LIBRARY
C *****
C
C LOGICAL*1 PAR1(4),PAR2(4),PAR3(4),PAR4(4),PAR5(4),PAR6(4),PAR7(4)
C LOGICAL*1 DATA(3),LABS(156),FIL(10),STAT(12),FIL1(10),FIL2(10),DATE(17),SVFIL(10)
C LOGICAL*1 FIL3(10),FIL4(10),FIL5(10),OTFIL(10),TSS(5),LABEL(212),PARS(28)
C LOGICAL*1 OUTPT1(35),OUTPT2(50),OUTPT4(20)
C LOGICAL*1 STRIN(27)
C INTEGER CHECK,NVALS,INUM,PAR(7),STI(7),FILORD(5),TY(5),TOTL,UNT,OUT,PR(7)
C INTEGER TYPE(14,3),ORDER(14)
C LOGICAL WRONG,EQCHP,EQUC
C EQUIVALENCE (PAR1(1),PAR(1)),(PAR2(1),PAR(2)),(PAR3(1),PAR(3)),(PAR4(1),PAR(4))
C EQUIVALENCE (PAR5(1),PAR(5)),(PAR6(1),PAR(6)),(PAR7(1),PAR(7))
C INTEGER LABELS(53)/'T-AF','T-WF','PH-F','SC-F','T-WL','PH-L',
C 1'SC-L','TURB','COLR','ALKP','ALKT','HARD','CA-D','MG-D','K-D',
C 2'NA-D','CL-D','F-D','SIO2','SO4-','NN-D','RNFL','R-FL','RFNF',
C 3'R-FF','AS-X','SE-X','CD-X','CU-X','ZN-X','FE-X','PB-X','MN-X',
C 4'HG-X','PDIS','PTOT','NH3-','ORGN','TDN-','TIC-','TOC-','NPAR',
C 5'CPAR','PHEN','CN--','DO--','BOD-','NI-X','CO-X','BA--','BA-X',
C 6'SB-X','AG-X'/
C EQUIVALENCE (LABEL(1),LABELS(1)),(PARS(1),PR(1))
C INTEGER LAB(39)/'PDIS','PTOT','NN-D','NH3-','ORGN','TDN-','SIO2','RNFL',
C 1'RFNF','TIC-','TOC-','F-D','NPAR','CPAR','PHEN','CA-D','NA-D',
C 2'SO4-','CL-D','ALKT','K-D','CN--','COLR','DO--','BOD-','CU-X',
C 3'ZN-X','PB-X','FE-X','MN-X','NI-X','CO-X','CD-X','HG-X','AS-X',
C 4'SE-X','BA-X','SB-X','AG-X'/
C EQUIVALENCE (LAB(1),LABS(1))
C
C UNIT 1 AND 2 ARE ASSIGNED AS INPUT AND OUTPUT TO THE TERMINAL
C
C CALL FTNCMD('ASSIGN 3=*MSOURCE*',18)
C CALL FTNCMD('ASSIGN 2=*MSINK*',16)
C WRITE(2,90)
C 90 FORMAT(' WHICH FILES DO WISH TO USE?')
C
C C THE FOLLOWING 5 LINES READ FROM A LINE OF INPUT
C C THE FILE NAMES AND STORES THEM IN FIL1 THRU FIL5
C
C CALL FREAD(3,'S:',FIL1,10)
C CALL FREAD('*','S:',FIL2,10)
C CALL FREAD('*','S:',FIL3,10)
C CALL FREAD('*','S:',FIL4,10)
C CALL FREAD('*','S:',FIL5,10)
C
C NOW NEED DESIRED FILES ASSIGNED TO LOGICAL UNITS.
C ALSO NEED 5 LOGICAL UNITS ASSIGNED TO FILES FOR DATA MANIPULATION
C AND ONE FOR THE USERS OUTPUT
C
C CALL PGFIL(NVALS,FIL1,FIL2,FIL3,FIL4,FIL5)
C IF(NVALS.EQ.0) GO TO 199
C NMAX=NVALS
C CALL MOVEC(10,' ',SVFIL)
C CALL CROUT(OTFIL,TSS)
C
C NEED THE PARAMETERS OF INTEREST
```

```

81 C IF ONLY ONE FILE AND IT IS A FLOW FILE GO RIGHT TO EXTRACTING FROM IT
82 C
83 ICONT=1
84 IF((NMAX.EQ.1).AND.(EQCMP(2,FIL1(1),'F.'))) GO TO 777
85 WRITE(2,60)
86 60 FORMAT(' DO YOU WANT A LIST OF THE PARAMETERS?')
87 CALL FREAD(3,'S',PAR1,1)
88 IF(EDUC('N',PAR1(1))) GO TO 61
89 CALL PRLST(LABELS)
90 61 CONTINUE
91 WRITE(2,91)
92 91 FORMAT(' WHAT ARE THE PARAMETERS OF INTEREST?')
93 C
94 C
95 C THE FOLLOWING 7 LINES READ THE PARAMETERS OF INTEREST FROM A LINE
96 C OF INPUT
97 C
98 CALL FREAD(3,'S',PAR1,4)
99 CALL FREAD('S',PAR2,4)
100 CALL FREAD('S',PAR3,4)
101 CALL FREAD('S',PAR4,4)
102 CALL FREAD('S',PAR5,4)
103 CALL FREAD('S',PAR6,4)
104 CALL FREAD('S',PAR7,4)
105 C
106 C NOW HAVE THE PARAMETERS STORED IN PAR1 THR PAR7
107 C FILES STORED IN FIL1 THRU FIL5
108 C THE FILES ARE ALSO LOADED ON LOGICAL UNITS 10 THRU 14
109 C CHECK THE PARAMETERS FOR LEGALITY,GET DATE RANGE,STATION NUMBER AND START SEARCHING FILES
110 C
111 CALL CKPAR(PAR1,PAR2,PAR3,PAR4,PAR5,PAR6,PAR7,PAR,NPAR,PARS,IK,LABEL,LABELS)
112 CALL GETDT(STAT)
113 ICONT=1
114 777 CONTINUE
115 ICONT=ICONT-1
116 ITEM=0
117 77 CONTINUE
118 ICONT=ICONT+1
119 IF(NMAX.EQ.1) GO TO 751
120 IF(ITEM.EQ.0) GO TO 801
121 WRITE(2,903)
122 903 FORMAT(' WHICH FILE DO WE SEARCH NEXT?')
123 GO TO 802
124 801 CONTINUE
125 WRITE(2,93)
126 93 FORMAT(' WHICH FILE DO WE SEARCH FIRST')
127 802 CONTINUE
128 CALL FREAD(3,'STRING:',FIL,10)
129 C
130 C FIRST FILE TO BE SEARCHED IS NOW STORED IN FIL
131 C
132 C
133 751 CONTINUE
134 IF(NMAX.EQ.1) CALL MOVEC(10,FIL1,FIL)
135 CALL CKFIL(FIL,FIL1,FIL2,FIL3,FIL4,FIL5,WRONG,UNT,OUT)
136 FILORD(ICONT)=OUT
137 IF(WRONG) GO TO 777
138 IK=LCONC(2,FIL(1),'D.')
139 IF(IK.EQ.0) CALL DFIL(UNT,OUT,STAT,PARS,PAR,PR,NPAR,DATE,NPR,OUTPT1)
140 IF(IK.EQ.0) TY(ICONT)=2
141 IK=LCONC(2,FIL(1),'F.')
142 IF((IK.EQ.0).AND.(NVALS.EQ.1)) CALL FFIL(UNT,OUT,STAT,NMAX,DATE,OTFIL)
143 IF((IK.EQ.0).AND.(NVALS.NE.1)) CALL SVFL(UNT,OUT,FIL,SVFIL,SUNT,SOUT)
144 IF(IK.EQ.0) TY(ICONT)=1
145 IK=LCONC(2,FIL(1),'DD')
146 IF(IK.EQ.0) CALL DDFIL(UNT,OUT,STAT,PARS,PAR,PR,NPAR,DATE,TOTL,OUTPT2,OUTPT4,TYPE,ORDER,LAB,LABS,ITEST)
147 IF(IK.EQ.0) TY(ICONT)=3
148 NVALS=NVALS-1
149 ITEM=1
150 IF(NVALS.EQ.0) GO TO 199
151 GO TO 77
152 199 CONTINUE
153 IF(EQCMP(2,SVFIL(1),'F.')) GO TO 100
154 GO TO 101
155 100 CONTINUE
156 CALL FFIL(SUNT,SOUT,STAT,NMAX,DATE,OTFIL)
157 101 CONTINUE
158 IF(NMAX.EQ.1.AND.EQCMP(2,FIL1(1),'F.')) GO TO 102
159 IF(NMAX.EQ.1) GO TO 103
160 C

```

```

> 161 C MORE THAN ONE FILE TO MERGE
> 162 C
> 163 CALL MERGE(TY,FILORD,NMAX,NPR,TOTL)
> 164 GO TO 102
> 165 103 CALL RENUMB(10,-99999999,99999999,1000,1000)
> 166 LOGICAL#1 ASS(25)
> 167 CALL MOVEC(25,%COPY -OUT1 TO OUTFILE ',ASS)
> 168 CALL TRNST(ASS,25,'OUTFILE ',OTFIL,10,14,K)
> 169 CALL FTNCMD(ASS,25)
> 170 102 CONTINUE
> 171 C
> 172 C WRITE OUT THE STRUCTURE OF THE OUTPUT FILE
> 173 C
> 174 CALL LIST(OUTPT1,OUTPT2,OUTPT4,TY,OTFIL,LABEL,S11,NMAX,TYPE,ORDER,LAB,ITEST)
> 175 WRITE(2,344)
> 176 344 FORMAT(' ')
> 177 WRITE(2,344)
> 178 WRITE(2,345)
> 179 345 FORMAT(' THE FOLLOWING SHOWS THE FIRST AND LAST LINE OF YOUR OUTPUT FILE')
> 180 WRITE(2,346)
> 181 346 FORMAT(' CHECK THE SIZE TO SEE IF THE IDA MATRIX WILL NEED TO BE REDIMENSIONALIZED')
> 182 CALL MOVEC(27,%LIST OUTFILE ',STRIN)
> 183 CALL TRNST(STRIN,21,'OUTFILE ',OTFIL,10,6,K)
> 184 CALL TRNST(STRIN,27,' ',(1,1)',5,6,K)
> 185 CALL FTNCMD(STRIN,27)
> 186 CALL TRNST(STRIN,27,'(1,1) ',(LAST,LAST)',11,10,K)
> 187 CALL FTNCMD(STRIN,27)
> 188 STOP
> 189 END
#END OF FILE
#

```

```

1 C
2 C *****
3 C
4 C THE FOLLOWING SUBROUTINE ASSIGNS LOGICAL UNITS TO THE FILES OF
5 C INTEREST L.U. 10-14 ARE USED
6 C CALLED BY MAIN
7 C
8 C
9 C *****
10 C
11 C SUBROUTINE PGFIL(NVALS,FIL1,FIL2,FIL3,FIL4,FIL5)
12 C LOGICAL*1 ASS(21),FIL1(10),FIL2(10),FIL3(10),FIL4(10),FIL5(10),BLAN(10)
13 C INTEGER BLK,COUNT,NUMFIL(10)
14 C DATA ASS/'A','S','S','I','G','N',' ',' ','1','0',' ',' ','I','N','T','E','R','F','A','C','E',' ',' '/
15 C DATA BLAN/' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' /
16 C LOGICAL EQUQ
17 C NVALS=0
18 C
19 C ASSIGN L.U. TO ALL FILES DESIRED
20 C
21 C IF(EQUQ(FIL1(1),' ')) GO TO 79
22 C CALL TRNST(ASS,23,'INTERFACE ',FIL1,10,9,K)
23 C CALL FTNCMD(ASS,20)
24 C NVALS=NVALS+1
25 C IF(EQUQ(FIL2(1),' ')) GO TO 79
26 C CALL TRNST(ASS,10,'10','11',2,6,K)
27 C CALL TRNST(ASS,23,FIL1,FIL2,10,9,K)
28 C CALL FTNCMD(ASS,20)
29 C NVALS=NVALS+1
30 C IF(EQUQ(FIL3(1),' ')) GO TO 79
31 C CALL TRNST(ASS,10,'11','12',2,6,K)
32 C CALL TRNST(ASS,23,FIL2,FIL3,10,9,K)
33 C CALL FTNCMD(ASS,20)
34 C NVALS=NVALS+1
35 C IF(EQUQ(FIL4(1),' ')) GO TO 79
36 C CALL TRNST(ASS,10,'12','13',2,6,K)
37 C CALL TRNST(ASS,23,FIL3,FIL4,10,9,K)
38 C CALL FTNCMD(ASS,20)
39 C NVALS=NVALS+1
40 C IF(EQUQ(FIL5(1),' ')) GO TO 79
41 C CALL TRNST(ASS,10,'13','13',2,6,K)
42 C CALL TRNST(ASS,23,FIL4,FIL4,10,9,K)
43 C CALL FTNCMD(ASS,20)
44 C NVALS=NVALS+1
45 C
46 C NOW HAVE FIL1 THRU FIL5 ON LOGICAL UNITS 10-14
47 C NVALS=NUMBER OF FILES INPUTED
48 C
49 C
50 C 79 CONTINUE
51 C RETURN

```

#END OF FILE

```

52      END
53      C
54      C *****
55      C
56      C
57      C THE FOLLOWING SUBROUTINE CHECKS THE PARAMETERS TO SEE IF THEY
58      C ARE LEGAL,IF NOT IT WILL PRINT A LIST OF THE ACCEPTABLE
59      C PARAMETERS AND GET REPLACEMENT ONES
60      C CALLED BY MAIN
61      C
62      C *****
63      C
64      SUBROUTINE CKPAR(PAR1,PAR2,PAR3,PAR4,PAR5,PAR6,PAR7,PAR,NPAR,FARS,FR,LABEL,LABELS)
65      LOGICAL*1 CHAR,LABEL(212),PARS(28),NEW(4)
66      LOGICAL EQUC
67      INTEGER PAR(7),STO(7),PR(7),LABELS(53)
68      LOGICAL*1 PAR1(4),PAR2(4),PAR3(4),PAR4(4),PAR5(4),PAR6(4),PAR7(4)
69      C
70      C
71      C STORE PARAMETERS IN PR
72      C STO USED TO STORE THE LOCATION IN PAR OF ILEGAL PARAMETERS
73      C
74      C
75      C CHECK PARAMETERS FOR LEGALITY
76      C
77      25 CONTINUE
78      DO 916 I=1,7
79      916 PR(I)=PAR(I)
80      DO 4 I=1,7
81      4 STO(I)=0
82      DO 16 I=1,7
83      II=(I-1)*4 +1
84      DO 15 J=1,53
85      JJ=(J-1)*4 +1
86      IDIF=LCOMC(4,PARS(II),' ')
87      IF(IDIF.EQ.0) GO TO 16
88      IDIF=LCOMC(4,LABEL(JJ),PARS(II))
89      IF(IDIF.EQ.0) GO TO 16
90      15 CONTINUE
91      STO(I)=I
92      16 CONTINUE
93      C
94      C GET REPLACEMENTS FOR ILEGAL PARAMETERS
95      C
96      ICK=0
97      DO 17 I=1,7
98      IF(STO(I).EQ.0) GO TO 17
99      WRITE(2,110)PAR(I)
100     110 FORMAT(1A4,' IS NOT A LEGAL PARAMETER')
101      ICK=1
102     17 CONTINUE
103      IF(ICK.EQ.0) GO TO 13
104      WRITE(2,111)
105     111 FORMAT(' DO YOU WANT A LIST OF THE LEGAL PARAMETERS? ENTER Y OR N')
106      CALL FREAD(3,'S',CHAR,1)
107      IF(EQU('Y',CHAR)) CALL PRLST(LABELS)
108      WRITE(2,112)
109     112 FORMAT(' ENTER REPLACEMENT PARAMETERS')
110      DO 12 I=1,7
111      IF(STO(I).EQ.0) GO TO 12
112      CALL FREAD(3,'S',NEW,4)
113      IF(I.EQ.1) CALL MOVEC(4,NEW,PAR1)
114      IF(I.EQ.2) CALL MOVEC(4,NEW,PAR2)
115      IF(I.EQ.3) CALL MOVEC(4,NEW,PAR3)
116      IF(I.EQ.4) CALL MOVEC(4,NEW,PAR4)
117      IF(I.EQ.5) CALL MOVEC(4,NEW,PAR5)
118      IF(I.EQ.6) CALL MOVEC(4,NEW,PAR6)
119      IF(I.EQ.7) CALL MOVEC(4,NEW,PAR7)
120      J=I
121      GO TO 10
122     12 CONTINUE
123     10 CONTINUE

```

#END OF FILE  
#

```

> 124 IF(J.EQ.7) GO TO 21
> 125 J=J+1
> 126 DO 22 I=J,7
> 127 IF(STO(I).EQ.0) GO TO 22
> 128 CALL FREAD('S',NEW,4)
> 129 IF(I.EQ.2) CALL MOVEC(4,NEW,PAR2)
> 130 IF(I.EQ.3) CALL MOVEC(4,NEW,PAR3)
> 131 IF(I.EQ.4) CALL MOVEC(4,NEW,PAR4)
> 132 IF(I.EQ.5) CALL MOVEC(4,NEW,PAR5)
> 133 IF(I.EQ.6) CALL MOVEC(4,NEW,PAR6)
> 134 IF(I.EQ.7) CALL MOVEC(4,NEW,PAR7)
> 135 22 CONTINUE
> 136 21 CONTINUE
> 137 C
> 138 C GO BACK AND RECHECK THE PARAMETERS
> 139 C
> 140 GO TO 25
> 141 13 CONTINUE
> 142 NPAR=0
> 143 C
> 144 C NOW ALL PARAMETERS ARE LEGAL SO PRINT A LIST OF THE CHOSEN ONES
> 145 C
> 146 DO 14 I=1,7
> 147 II=(I-1)*4+1
> 148 IDIF=LCOMC(4,PARS(II),' ')
> 149 IF(IDIF.EQ.0) GO TO 144
> 150 14 NPAR=NPAR+1
> 151 144 CONTINUE
> 152 WRITE(2,699)PAR1,PAR2,PAR3,PAR4,PAR5,PAR6,PAR7
> 153 699 FORMAT('PARAMETERS CHOSEN:',7(' ',4A1))
> 154 RETURN
> 155 END
#END OF FILE
#

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```

> 156 C
> 157 C *****
> 158 C CALLED BY DDFIL
> 159 C SUBROUTINE DECODES NAQUADAT NUMBER FROM WQB-INTERNAL CODE
> 160 C
> 161 C *****
> 162 C
> 163 SUBROUTINE YTCODE(ISTA, ISTAT)
> 164 DIMENSION ISTA(3)
> 165 REAL*4 ALPHA(7) / 'ABCD', 'EFGH', 'IJKL', 'MNOP', 'QRST', 'UVWX', 'YZ' /
> 166 LOGICAL*1 BET(28), HOLD(2), ISTAT(12)
> 167 EQUIVALENCE (BET, ALPHA)
> 168 C
> 169 C
> 170 IF(ISTA(1).EQ.5.AND.ISTA(2).EQ.4.AND.ISTA(3).EQ.1) GO TO 350
> 171 IF(ISTA(3)-9)100,100,200
> 172 200 CONTINUE
> 173 CALL MOVEC(6, '00YT09', ISTAT(1))
> 174 CALL MOVEC(2, '00', ISTAT(9))
> 175 CALL MOVEC(1, BET(ISTA(1)), ISTAT(7))
> 176 CALL MOVEC(1, BET(ISTA(2)), ISTAT(8))
> 177 CALL BTD(ISTA(3), HOLD(1), 2, K, '0')
> 178 CALL MOVEC(2, HOLD(1), ISTAT(12))
> 179 GO TO 300
> 180 100 CONTINUE
> 181 CALL MOVEC(6, '00YT09', ISTAT(1))
> 182 CALL MOVEC(3, '000', ISTAT(9))
> 183 CALL MOVEC(1, BET(ISTA(1)), ISTAT(7))
> 184 CALL MOVEC(1, BET(ISTA(2)), ISTAT(8))
> 185 CALL BTD(ISTA(3), HOLD(1), 1, K, '0')
> 186 CALL MOVEC(1, HOLD(1), ISTAT(12))
> 187 GO TO 300
> 188 350 CALL MOVEC(12, '00AK09ED0001', ISTAT(1))
> 189 300 CONTINUE
> 190 RETURN
> 191 END
> 192 C
> 193 C *****
> 194 C
> 195 C DECODES STATION NUMBER FOR BC CODES
> 196 C CALLED BY DDFIL
> 197 C
> 198 C *****
> 199 C
> 200 SUBROUTINE BCCODE(ISTA, ISTAT)
> 201 DIMENSION ISTA(3)
> 202 REAL*4 ALPHA(7) / 'ABCD', 'EFGH', 'IJKL', 'MNOP', 'QRST', 'UVWX', 'YZ' /
> 203 LOGICAL*1 BET(28), ISTAT(12), HOLD(2)
> 204 EQUIVALENCE (BET, ALPHA)
> 205 C
> 206 C
> 207 CALL MOVEC(6, '00BC08', ISTAT(1))
> 208 CALL MOVEC(1, BET(ISTA(1)), ISTAT(7))
> 209 CALL MOVEC(1, BET(ISTA(2)), ISTAT(8))
> 210 IF(ISTA(3)-9)100,100,200
> 211 200 CALL BTD(ISTA(3), HOLD(1), 2, K, '0')
> 212 CALL MOVEC(2, HOLD(1), ISTAT(11))
> 213 CALL MOVEC(2, '00', ISTAT(9))
> 214 GO TO 300
> 215 100 CALL BTD(ISTA(3), HOLD(1), 1, K, '0')
> 216 CALL MOVEC(1, HOLD(1), ISTAT(12))
> 217 CALL MOVEC(3, '000', ISTAT(9))
> 218 300 CONTINUE
> 219 RETURN
> 220 END

```

END OF FILE

```

> 221 C
> 222 C *****
> 223 C
> 224 C
> 225 C
> 226 C THIS SUBROUTINE PRINTS A LIST OF THE LEGAL PARAMETERS
> 227 C
> 228 C
> 229 C
> 230 C *****
> 231 C
> 232 C
> 233 C SUBROUTINE PRLST(LABELS)
> 234 C INTEGER LABELS(53)
> 235 C WRITE(2,17)LABELS
> 236 C 17 FORMAT(' ',10(1A4,2X))
> 237 C RETURN
> 238 C END
> 239 C
> 240 C *****
> 241 C
> 242 C THIS SUBROUTINE CHANGES DATE INTO INTEGERS
> 243 C CALLED BY DDFIL,DFIL
> 244 C
> 245 C *****
> 246 C
> 247 C SUBROUTINE DATECH(DATE,ID1,IM1,IY1,ID2,IM2,IY2)
> 248 C LOGICAL*1 DATE(17)
> 249 C K=2
> 250 C CALL DTB(DATE(1),ID1,K,L,',')
> 251 C CALL DTB(DATE(3),IM1,K,L,',')
> 252 C CALL DTB(DATE(10),ID2,K,L,',')
> 253 C CALL DTB(DATE(12),IM2,K,L,',')
> 254 C K=4
> 255 C CALL DTB(DATE(5),IY1,K,L,',')
> 256 C CALL DTB(DATE(14),IY2,K,L,',')
> 257 C RETURN
> 258 C END
> 259 C
> 260 C *****
> 261 C
> 262 C IF F.FIL IS THE ONLY FILE TO BE SEARCHED ITS L.U. MUST BE SAVED ALONG WITH
> 263 C IT'S OUTPUT FILE
> 264 C
> 265 C
> 266 C
> 267 C *****
> 268 C
> 269 C SUBROUTINE SVFL(UNT,OUT,FIL,SVFIL,SUNT,SOUT)
> 270 C LOGICAL*1 FIL(10),SVFIL(10)
> 271 C INTEGER UNT,OUT,SUNT,SOUT
> 272 C SOUT=OUT
> 273 C SUNT=UNT
> 274 C CALL MOVEC(10,FIL,SVFIL)
> 275 C RETURN
> 276 C END
#END OF FILE
#

```

```

277 C
278 C *****
279 C
280 C THIS SUBROUTINE FINDS OUT WHAT TYPE OF FILE IS TO BE READ
281 C IT RETURNS WRONG=TRUE IF THE FILE NAME WAS NOT SPECIFIED AT THE
282 C BEGINNING OF THE PROGRAM AND WRONG=FALSE IF IT WAS
283 C CALLED BY MAIN
284 C
285 C *****
286 C
287 C SUBROUTINE CKFIL(FIL,FIL1,FIL2,FIL3,FIL4,FIL5,WRONG,UNT,OUT)
288 C LOGICAL*1 FIL(10),FIL1(10),FIL2(10),FIL3(10),FIL4(10),FIL5(10)
289 C INTEGER UNT,OUT
290 C LOGICAL WRONG
291 C
292 C FIND THE L.U. AND -OUTFILE ASSOCIATED WITH THE FIL TO BE SEARCHED WHICH IS
293 C STORED IN FIL
294 C
295 C WRONG=.FALSE.
296 C IK=LCOMC(10,FIL,FIL1)
297 C IF(IK.NE.0) GO TO 21
298 C UNT=10
299 C OUT=16
300 C GO TO 26
301 C 21 IK=LCOMC(10,FIL,FIL2)
302 C IF(IK.NE.0) GO TO 22
303 C UNT=11
304 C OUT=17
305 C GO TO 26
306 C 22 IK=LCOMC(10,FIL,FIL3)
307 C IF(IK.NE.0) GO TO 23
308 C UNT=12
309 C OUT=18
310 C GO TO 26
311 C 23 IK=LCOMC(10,FIL,FIL4)
312 C IF(IK.NE.0) GO TO 24
313 C UNT=13
314 C OUT=19
315 C GO TO 26
316 C 24 IK=LCOMC(10,FIL,FIL5)
317 C IF(IK.NE.0) GO TO 25
318 C UNT=14
319 C OUT=20
320 C GO TO 26
321 C 25 CONTINUE
322 C WRITE(2,990)FIL
323 C 990 FORMAT('FILE ',10A1,' WAS NOT SPECIFIED EARLIER')
324 C WRONG=.TRUE.
325 C 26 CONTINUE
326 C RETURN
327 C END.
328 C
329 C *****
330 C
331 C CALLED BY DDFIL
332 C FINDS THE TYPE OF DATA DISIRED(TOTAL,DISOLVED,EXTRACTABLE)
333 C FOR A GIVEN PARAMETER
334 C
335 C *****
336 C
337 C SUBROUTINE TDE(I,TYPE,TOT)
338 C INTEGER TYPE(14,3),TOT
339 C LOGICAL*1 CH(3)
340 C LOGICAL EQUC
341 C
342 C
343 C CALL FREAD(3,'S',CH(1),1)
344 C CALL FREAD(3,'S',CH(2),1)
345 C CALL FREAD(3,'S',CH(3),1)
346 C DO 1 J=1,3
347 C IF(EQUC(CH(J),'T')) TYPE(I,1)=1
348 C IF(EQUC(CH(J),'E')) TYPE(I,2)=1
349 C IF(EQUC(CH(J),'D')) TYPE(I,3)=1
350 C IF(EQUC(CH(J),' ')) GO TO 2
351 C TOT=TOT+1
352 C 1 CONTINUE
353 C 2 CONTINUE
354 C RETURN
355 C END

```

```

356 C
357 C *****
358 C
359 C CALLED BY DDFIL
360 C FINDS THE TYPE OF DATA DESIRED FROM DD FILE
361 C
362 C *****
363 C
364 C SUBROUTINE DATYP(HD)
365 C INTEGER HD(4)
366 C LOGICAL*1 CH1(3),CH2(3),CH3(3),CH4(3)
367 C LOGICAL EQCMP
368 C
369 C STORES THE TYPE OF DATA DESIRED FOR PARAMETERS
370 C IF HD(1)=1 THEN MEAN
371 C IF HD(2)=1 THEN S,D
372 C IF HD(3)=1 THEN G,M
373 C IF HD(4)=1 THEN G,F
374 C
375 C MAY BE MORE THEN ONE TYPE ENTERED
376 C
377 C WRITE(2,950)
378 C 950 FORMAT(' DO YOU WANT MEAN,S,D,G,M,G,F ?')
379 C WRITE(2,951)
380 C 951 FORMAT(' ENTER ONE OR MORE OF MEAN,S,D,G,M,G,F')
381 C CALL FREAD(3,'S:',CH1,3)
382 C CALL FREAD(3,'S:',CH2,3)
383 C CALL FREAD(3,'S:',CH3,3)
384 C CALL FREAD(3,'S:',CH4,3)
385 C IF((EQCMP(3,CH1,'MEA')).OR.(EQCMP(3,CH2,'MEA'))).HD(1)=1
386 C IF(EQCMP(3,CH3,'MEA').OR.EQCMP(3,CH4,'MEA')).HD(1)=1
387 C IF(EQCMP(3,CH1,'S,D').OR.EQCMP(3,CH2,'S,D').OR.EQCMP(3,CH3,'S,D')).HD(2)=1
388 C IF(EQCMP(3,CH4,'S,D')).HD(2)=1
389 C IF(EQCMP(3,CH1,'G,M').OR.EQCMP(3,CH2,'G,M')).HD(3)=1
390 C IF(EQCMP(3,CH3,'G,M').OR.EQCMP(3,CH4,'G,M')).HD(3)=1
391 C IF(EQCMP(3,CH1,'G,F').OR.EQCMP(3,CH2,'G,F')).HD(4)=1
392 C IF(EQCMP(3,CH3,'G,F').OR.EQCMP(3,CH4,'G,F')).HD(4)=1
393 C RETURN
394 C END
395 C
396 C *****
397 C
398 C THIS SUBROUTINE ASSIGNS LOGICAL UNITS TO 5 DATA MANIPULATION FILES(L.U. 16-20)
399 C AND A USERS OUTPUT FILE(L.U. 5)
400 C
401 C *****
402 C
403 C SUBROUTINE CROUT(OTFIL,TSS)
404 C LOGICAL*1 OTFIL(10),TSS(5),YN(1),STR1(20),STR2(18),FIL(10)
405 C DATA STR1/'A','S','S','I','G','N',' ','O','S',' ','O','U','T','F','I','L','E',' ',' ',' ' /
406 C LOGICAL EQUC
407 C
408 C NEED A FILE TO STORE THE OUTPUT IN
409 C
410 C 70 CONTINUE
411 C WRITE(2,94)
412 C 94 FORMAT(' WHAT FILE WOULD YOU LIKE YOUR OUTPUT STORED IN?')
413 C CALL FREAD(3,'S:',OTFIL,10)
414 C
415 C CREATE CREATES A FILE AND IF IT ALREADY EXISTS GOES TO 78
416 C OTHERWISE IT GOES TO 77
417 C
418 C CALL CREATE(OTFIL,1,0,256,878)
419 C GO TO 77
420 C 78 CONTINUE
421 C WRITE(2,95)OTFIL
422 C 95 FORMAT('DO YOU WANT TO REWRITE OVER FILE ',10A1)
423 C WRITE(2,96)
424 C 96 FORMAT(' ENTER Y OR N')
425 C CALL FREAD(3,'S:',YN,1)
426 C IF(EQUC(YN,'N')) GO TO 70
427 C
428 C EMPTYF EMPTIES A FILE
429 C
430 C 77 CONTINUE
431 C CALL TRNST(STR1,20,'OUTFILE ',OTFIL,10,10,K)
432 C CALL FTNCHD(STR1,20)
433 C CALL EMPTYF(5)
434 C
435 C NOW HAVE THE OUTPUT FILE ASSIGNED TO LOGICAL UNIT 05.
436 C THE NEXT 5 LINES ASSIGN TEMPORARY DATA MANIPULATION
437 C FILES TO LOGICAL UNITS 16-20.
438 C
439 C

```

```
> 440 CALL FTNCMD('ASSIGN 16=-OUT1',15)
> 441 CALL FTNCMD('ASSIGN 17=-OUT2',15)
> 442 CALL FTNCMD('ASSIGN 18=-OUT3',15)
> 443 CALL FTNCMD('ASSIGN 19=-OUT4',15)
> 444 CALL FTNCMD('ASSIGN 20=-OUT5',15)
> 445 RETURN
> 446 END
```

END OF FILE

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*****  
THIS SUBROUTINE ASSIGNS A DATE RANGE OR TAKES A USER  
SPECIFIED DATA RANGE AND STORES IT IN DATE  
IT ALSO GETS THE STATION NUMBER AND STORES IT IN STAT  
*****
```

```
          SUBROUTINE GETDT( DATE, STAT )  
          LOGICAL*1 STAT(12), AS(1), DATE(17)  
          LOGICAL EDUC  
          WRITE(2,98)  
98         FORMAT(' WHAT STATION DO YOU WANT?')  
          CALL FREAD(3, 'S:', STAT, 12)  
          WRITE(2,97)  
97         FORMAT(' DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S')  
          CALL FREAD(3, 'S:', AS, 1)  
          IF( EDUC( AS, 'A' ) ) GO TO 20  
          WRITE(2,99)  
99         FORMAT(' ENTER DATE RANGE AS DDMYYYY_DDMYYYY ')  
          CALL FREAD(3, 'S:', DATE, 17)  
          GO TO 21  
20        CONTINUE  
          CALL MOVEC(17, '01011960 01011990', DATE(1))  
21        CONTINUE  
          RETURN  
          END
```

#END OF FILE

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C  
C *****  
C  
C THIS SUBROUTINE EXTRACTS THE DESIRED DATA FROM DD FILES  
C AND STORES IN IN A TEMPORARY FILE  
C *****  
C  
C SUBROUTINE DDFIL(UNT,OUT,STAT,PARS,PAR,PR,NPAR,DATE,TOTL,OUTPT2,OUTPT4,TYPE,ORDER,LAB,LABS,ITEST)  
C DIMENSION X(6)  
C LOGICAL*1 STAT(12),PARS(28),DATE(17),ISTAT(12),FORM(21),LABS(156)  
C LOGICAL*1 CHAR,CH1(3),CH2(3),CH3(3),CH4(3),CH5(3)  
C LOGICAL*1 PARCOD(156),OUTPT2(50),OUTPT4(20),PARAM(4)  
C LOGICAL EQCMP,EQUC  
C INTEGER TYPE(14,3),TYNUM(14),TOT,ORDER(14),PFAR(14),TOR(14),HJ(4),TOTL  
C REAL STORE(14),DAT(4)  
C INTEGER UNT,OUT,ORD(14),ISTA(3),CARDS,YTBC,PAR(7),PR(7),HOL(7),HOLD(14)  
C INTEGER FM,FRM,DY,ST  
C INTEGER LAB(39)  
C INTEGER PARCD(39)/'0020','0020','0021','0022','0023','0024','0025',  
C 1'0026','0027','0028','0029','0030','0031','0032','0033','0034',  
C 2'0035','0036','0037','0038','0039','0040','0041','0042','0043',  
C 3'0100','0101','0102','0103','0104','0105','0106','0107','0108',  
C 4'0109','0110','0111','0112','0113'/  
C EQUIVALENCE (PARCD(1),PARCOD(1))  
C CALL MOVEC(25,'',OUTPT2(1))  
C CALL MOVEC(25,'',OUTPT2(26))  
C  
C GET DATE RANGE INTO INTEGER  
C ZERO PARAMETERS AND COUNTERS  
C  
C CALL DATECH(DATE,ID1,IM1,IY1,ID2,IM2,IY2)  
C IDAY=JULDAY(01,01,1970)  
C IDAY1=JULDAY(IM1,ID1,IY1)  
C IDAY2=JULDAY(IM2,ID2,IY2)  
C IMST=0  
C IDST=0  
C IDAST=0  
C ILST=0  
C DY=0  
C ST=0  
C  
C  
C WRITE(2,90)  
C 90 FORMAT(' IS THIS YUKON OR BC DATA?')  
C CALL FREAD(3,'S:',CHAR,1)  
C YTBC=0  
C IF(EQUC(CHAR,'Y')) YTBC=1  
C DO 91 I=1,7  
C 91 PR(I)=PAR(I)  
C WRITE(2,92)  
C 92 FORMAT(' DO YOU WANT DATA FOR ANALYSIS OF VARIANCE?')  
C CALL FREAD(3,'S:',CHAR,1)  
C ITEST=0  
C IF(EQUC(CHAR,'N')) ITEST=1  
C IF(EQUC(CHAR,'N')) GO TO 79  
C  
C EXTRACT DATA FOR ANOVA  
C ASSUME THERE IS ONLY ONE PARAMETER  
C  
C DO 17 I=1,39  
C II=(I-1)*4+1  
C IF(EQCMP(4,LABS(II),PARS(1))) GO TO 81  
C 17 CONTINUE  
C WRITE(2,623)  
C 623 FORMAT(' PARAMETER NOT IN FILE')  
C GO TO 300  
C 81 NUMPAR=I  
C 82 CONTINUE  
C KEEP=(I-1)*4+1  
C  
C FIND TYPE OF DATA DESIRED  
C  
C CALL MOVEC(4,PARCOD(KEEP),PARAM)  
C IF(I.LE.2)GO TO 117  
C GO TO 118  
C 117 CONTINUE  
C IF(EQCMP(4,'PDIS',PARS(1))) FM=4  
C IF(EQCMP(4,'PTOT',PARS(1))) FM=1  
C GO TO 120
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81 118 CONTINUE
82 WRITE(2,121)
83 121 FORMAT(' DO YOU WANT TOTAL,DISOLVED OR EXTRACTABLE? ENTER T,D OR E')
84 CALL FREAD(3,'S',CHAR,1)
85 IF(EQUC(CHAR,'T')) FM=1
86 IF(EQUC(CHAR,'D')) FM=4
87 IF(EQUC(CHAR,'E')) FM=2
88 120 CONTINUE
89 CALL DTB(PARCOD(KEEP),IPAR,4,K,'0')
90 C
91 C READ A HEADER CARD
92 C
93 11 READ(UNT,5,END=300)ISTA(1),ISTA(2),ISTA(3),ILEFT,IDEPTH,ID,IM,IY,CARDS
94 5 FORMAT(3I2,1X,I2,1X,I1,2X,2I2,I4,5X,I2)
95 C
96 C TRANSLATE STATION
97 C
98 IF(YTBC.EQ.1) CALL YTCODE(ISTA,ISTAT)
99 IF(YTBC.EQ.0) CALL RCCODE(ISTA,ISTAT)
100 IF(EQCMP(12,ISTAT,STAT)) GO TO 124
101 126 DO 125 I=1,IX
102 IX=CARDS-1
103 125 CALL FREAD(UNT,':',CHAR)
104 GO TO 11
105 124 CONTINUE
106 JDAY=JULDAY(IM,ID,IY)
107 C
108 C CHECK TO SEE IF WE ARE IN DATE RANGE. IF NOT SKIP DATA CARDS AND READ NEXT HEADER CARD
109 C
110 IF((JDAY.LT.IDAY1).OR.(JDAY.GT.IDAY2)) GO TO 126
111 CARDS=CARDS-1
112 IF((ID.EQ.IDAST).AND.(IM.EQ.IMST)) GO TO 12
113 IDAST=ID
114 IMST=IM
115 101 DY=DY+1
116 ST=1
117 IDST=IDEPTH
118 ILST=ILEFT
119 GO TO 13
120 12 CONTINUE
121 IF(ILEFT-ILST)101,13,104
122 104 ST=ST+1
123 ILST=ILEFT
124 13 CONTINUE
125 C
126 C EXTRACT DATA FROM DATA CARDS
127 C CHECK PARAMETER AND IF IT IS WHAT WE WANT STORE APROPRIATE DATA
128 C
129 DO 4 I=1,CARDS
130 READ(UNT,6,END=300)FRM,IPN,(X(J),J=1,6),N
131 6 FORMAT(2X,I2,2X,I3,6F10.4,I5)
132 IF(IPAR.NE.IPN) GO TO 4
133 IF(FRM.NE.1) FRM=FRM-1
134 IF(FRM.NE.FM) GO TO 4
135 IF(N.GT.6) N=6
136 DO 75 J=1,N
137 WRITE(OUT,76)DY,ST,X(J)
138 76 FORMAT(I3,1X,I2,1X,F10.4)
139 75 CONTINUE
140 4 CONTINUE
141 GO TO 11
142 C
143 C
144 88 CONTINUE
145 79 CONTINUE
146 C
147 C EXTRACT DATA WHICH IS NOT FOR ANOVA
148 C
149 L=1
150 DO 700 I=1,14
151 ORD(I)=0
152 700 ORDER(I)=0
153 DO 701 I=1,NPAR
154 II=(I-1)*4+1
155 DO 702 J=1,39
156 JJ=(J-1)*4+1
157 IF(EQCMP(4,LABS(JJ),PARS(II))) GO TO 767
158 702 CONTINUE
159 GO TO 701
160 767 CONTINUE

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> 161 ORDER(I)=J
> 162 CALL MOVEC(4,PARS(II),OUTPT2(L))
> 163 L=L+5
> 164 701 CONTINUE
> 165 C
> 166 C NOW HAVE THE PARAMETERS DESIRED WHICH ARE IN A DD FILE STORED IN ORDER.
> 167 C NEED THESE GROUPED TOGETHER AT BEGINNING OF ARRAY ORDER
> 168 C
> 169 J=0
> 170 DO 733 I=1,NPAR
> 171 IF(ORDER(I).EQ.0) GO TO 733
> 172 J=J+1
> 173 ORD(J)=ORDER(I)
> 174 733 CONTINUE
> 175 C
> 176 C NPR=NUMBER OF PARAMETERS TO EXTRACT FROM DD FILE
> 177 C
> 178 DO 778 I=1,14
> 179 778 ORDER(I)=0
> 180 NPR=NPR+1
> 181 DO 722 J=1,NPR
> 182 722 ORDER(J)=ORD(J)
> 183 NNPR=NNPR+1
> 184 DO 723 J=NNPR,14
> 185 723 ORDER(J)=0
> 186 C
> 187 C STORE THE INTEGER VALUES OF THE PARAMETERS IN PPAR
> 188 C
> 189 DO 631 I=1,14
> 190 631 PPAR(I)=0
> 191 DO 600 I=1,NPR
> 192 M=4
> 193 CALL DTB(PARCD(ORDER(I)),IHOLD,M,K,'0')
> 194 600 PPAR(I)=IHOLD
> 195 C
> 196 C NEED TO FIND OUT THE TYPE OF DATA DESIRED
> 197 C
> 198 DO 949 I=1,4
> 199 949 HD(I)=0
> 200 CALL DATYP(HD)
> 201 CALL MOVEC(20,' ',OUTPT4)
> 202 IF(HD(1).EQ.1) CALL MOVEC(4,'MEAN',OUTPT4(1))
> 203 IF(HD(2).EQ.1) CALL MOVEC(4,'S.D',OUTPT4(5))
> 204 IF(HD(3).EQ.1) CALL MOVEC(4,'G.M',OUTPT4(9))
> 205 IF(HD(4).EQ.1) CALL MOVEC(4,'G.F',OUTPT4(13))
> 206 ITYP=0
> 207 DO 952 I=1,4
> 208 IF(HD(I).EQ.1) ITYP=ITYP+1
> 209 952 CONTINUE
> 210 C
> 211 C NEED TO FIND TYPES OF EACH PARAMETER DESIRED
> 212 C (TOTAL,DISOLVED,EXTRACTABLE) FOR METAL PARAMETERS AND PHOSPHORUS
> 213 C
> 214 DO 363 J=1,3
> 215 DO 363 I=1,14
> 216 363 TYPE(I,J)=0
> 217 TOT=1
> 218 LL=1
> 219 DO 719 I=1,NPR
> 220 IF(ORDER(I).EQ.1) GO TO 729
> 221 GO TO 730
> 222 729 TYPE(I,3)=1
> 223 TYNUM(I)=TOT
> 224 TOT=TOT+1
> 225 GO TO 719
> 226 730 CONTINUE
> 227 IF(ORDER(I).EQ.2)GO TO 731
> 228 GO TO 732
> 229 731 TYPE(I,1)=1
> 230 TYNUM(I)=TOT
> 231 TOT=TOT+1
> 232 GO TO 719
> 233 732 CONTINUE
> 234 IF(ORDER(I).LT.26) GO TO 718
> 235 TYNUM(I)=TOT
> 236 WRITE(2,901)LAB(ORDER(I))
> 237 901 FORMAT(' DO YOU WANT TOTAL,DISOLVED OR EXTRACTABLE FOR ',1A4)
> 238 WRITE(2,902)
> 239 902 FORMAT(' ENTER ONE OR MORE OF T,D,E')
> 240 CALL TDE(I,TYPE,TOT)

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> 241 GO TO 719
> 242 718 CONTINUE
> 243 TYNUM(I)=TOT
> 244 TOT=TOT+1
> 245 TYPE(I,1)=1
> 246 TYPE(I,2)=1
> 247 TYPE(I,3)=1
> 248 719 CONTINUE
> 249 TOT=TOT-1
> 250 TOTL=TOT*ITYP
> 251 C
> 252 C
> 253 C NOW HAVE AN ARRAY TYNUM WHICH GIVES THE POSITION IN STORE
> 254 C TO STORE EACH PARAMETER'S VALUE
> 255 C
> 256 C NOW EXTRACT DATA
> 257 C
> 258 C
> 259 711 READ(UNT,760,END=300)ISTA(1),ISTA(2),ISTA(3),ILEFT,IDEPTH,ID,IM,IY,IH,IMIN,CARDS
> 260 760 FORMAT(3I2,1X,I2,1X,I1,2X,2I2,14,1X,3I2)
> 261 C
> 262 C TRANSLATE STATION
> 263 C
> 264 IF(YTBC.EQ.1) CALL YTCODE(ISTA,ISTAT)
> 265 IF(YTBC.EQ.0) CALL BCCODE(ISTA,ISTAT)
> 266 IF(EQCMP(12,STAT,ISTAT)) GO TO 724
> 267 C
> 268 C
> 269 IX=CARDS-1
> 270 726 DO 725 I=1,IX
> 271 725 CALL FREAD(UNT,':',CHAR)
> 272 GO TO 711
> 273 724 CONTINUE
> 274 DO 55 I=1,14
> 275 55 TOR(I)=0
> 276 JDAY=JULDAY(IM,ID,IY)
> 277 IF((JDAY.LT.IDAY1).OR.(JDAY.GT.IDAY2)) GO TO 726
> 278 CARDS=CARDS-1
> 279 DO 704 I=1,CARDS
> 280 C
> 281 C READ DATA CARDS
> 282 C
> 283 READ(UNT,706,END=300)FRM,IPN,DAT(1),DAT(2),DAT(3),DAT(4)
> 284 706 FORMAT(2X,I2,2X,I3,70X,4F10,4)
> 285 DO 601 J=1,NPR
> 286 IF(PPAR(J).NE.IPN) GO TO 601
> 287 IF(FRM.NE.1) FRM=FRM-1
> 288 IF(FRM.EQ.1) K=1
> 289 IF(FRM.EQ.2) K=2
> 290 IF(FRM.EQ.4) K=3
> 291 IF(FRM.EQ.3) GO TO 704
> 292 IF(FRM.GT.4) GO TO 704
> 293 IF(TYPE(J,K).NE.1) GO TO 704
> 294 GO TO 611
> 295 601 CONTINUE
> 296 IF(PPAR(NPR).NE.IPN) GO TO 704
> 297 C
> 298 C NOW HAVE PARAMETER VALUES TO SAVE IN STORE
> 299 C N=POSITION IN STORE TO START STORING VALUES
> 300 C
> 301 611 CONTINUE
> 302 N=(TYNUM(J)-1)*ITYP+1
> 303 DO 500 L=1,4
> 304 IF(HD(L).NE.1) GO TO 500
> 305 IF(N.GT.14) GO TO 704
> 306 STORE(N)=DAT(L)
> 307 TOR(N)=1
> 308 N=N+1
> 309 500 CONTINUE
> 310 704 CONTINUE
> 311 DO 56 I=1,TOTL
> 312 IF(TOR(I).EQ.0) STORE(I)=0.0
> 313 56 CONTINUE
> 314 C
> 315 C WRITE LINE TO OUT FILE
> 316 C
> 317 JDAY=(JDAY-IDAY)
> 318 RR=0.0
> 319 JSAV=JDAY
> 320 RR=(JDAY+IMIN/1440.+IH/24.)*1000.

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> 321 JDAY=IFIX(RR)
> 322 WRITE(OUT,JDAY,848)JSAV,ID,IM,IY,IH,IMIN,ILEFT,IDEPTH,(STORE(M),M=1,TOTL)
> 323 848 FORMAT(15,1X,12,1X,12,1X,14,1X,2I2,1X,12,1X,11,1X,14(F8.4,1X))
> 324 DO 612 MM=1,14
> 325 612 STORE(MM)=0.0
> 326 GO TO 711
> 327 300 CONTINUE
> 328 RETURN
> 329 END
```

#END OF FILE

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```

1 C *****
2 C
3 C
4 C
5 C THIS SUBROUTINE EXTRACTS DATA FROM F. FILES
6 C USES L.U. 6-9 FOR TEMPORARY DATA MANIPULATION FILES
7 C
8 C *****
9 C SUBROUTINE FFIL(UNT,OUT,STAT,NMAX,DATE,OTFIL)
10 C LOGICAL*1 STAT(12),STAT1(7),STAT2(7),STAT3(7),STAT4(7),DATE(17),ISTAT(7)
11 C LOGICAL*1 AS(1),YN,STR1(20),OTFIL(10)
12 C LOGICAL*1 ASS(25)
13 C INTEGER UNT,OUT,ADD,JD(4),IYR(4),IMO(4),IDY(4),FLNH(5)
14 C REAL DATA(11),DAT(4)
15 C LOGICAL EQCMP,EQUC
16 C IOUT=OUT
17 C
18 C
19 C EXTRACT DATA FROM FLOW FILE ONLY.MAY BE UP TO 4 STATIONS EXTRACTED AND ALL DAYS WITHIN DATE RANGE
20 C WILL BE EXTRACTED
21 C
22 C 87 CONTINUE
23 C WRITE(2,90)
24 C
25 C
26 C 90 FORMAT(' WHAT FLOW STATIONS DO YOU WANT?')
27 C CALL FREAD(3,'S:',STAT1,7)
28 C CALL FREAD(3,'S:',STAT2,7)
29 C CALL FREAD(3,'S:',STAT3,7)
30 C CALL FREAD(3,'S:',STAT4,7)
31 C IF(NMAX.GT.1) GO TO 21
32 C WRITE(2,91)
33 C 91 FORMAT(' DO YOU WANT ALL OR SELECTED DATA? ENTER A OR S')
34 C CALL FREAD(3,'S:',AS,1)
35 C IF(EQUC(AS,'A')) GO TO 20
36 C WRITE(2,99)
37 C 99 FORMAT(' ENTER DATE RANGE AS DDMYYYY DDMYYYY')
38 C CALL FREAD(3,'S:',DATE,17)
39 C GO TO 21
40 C 20 CONTINUE
41 C CALL MOVEC(17,'01011960 01011990',DATE(1))
42 C 21 CONTINUE
43 C
44 C GET DATE RANGE INTO INTEGER FORM
45 C
46 C CALL DATECH(DATE,ID1,IM1,IY1,ID2,IM2,IY2)
47 C IDAY=JULDAY(01,01,1970)
48 C IDAY1=JULDAY(IM1,ID1,IY1)
49 C IDAY2=JULDAY(IM2,ID2,IY2)
50 C
51 C ASSIGN TEMPORY FILES FOR EACH STATIONS DATA
52 C
53 C NUM=0
54 C IF(EQCMP(7,STAT1,' ') GO TO 30
55 C CALL FTNCMD('ASSIGN 6=-OUT6',14)
56 C NUM=1
57 C IF(EQCMP(7,' ',STAT2)) GO TO 30
58 C CALL FTNCMD('ASSIGN 7=-OUT7',14)
59 C NUM=2
60 C IF(EQCMP(7,' ',STAT3)) GO TO 30
61 C CALL FTNCMD('ASSIGN 8=-OUT8',14)
62 C NUM=3
63 C IF(EQCMP(7,' ',STAT4)) GO TO 30
64 C CALL FTNCMD('ASSIGN 9=-OUT9',14)
65 C NUM=4
66 C 30 CONTINUE
67 C
68 C NOW EXTRACT DATA FROM UNT
69 C
70 C 10 READ(UNT,3,END=300)ISTAT,IY,IM,ID,(DATA(NM),NM=1,11)
71 C 3 FORMAT(7A1,I3,I2,I1,11F6.0)
72 C OUT=0
73 C IF(EQCMP(7,ISTAT,STAT1)) OUT=6
74 C IF(EQCMP(7,ISTAT,STAT2)) OUT=7
75 C IF(EQCMP(7,ISTAT,STAT3)) OUT=8
76 C IF(EQCMP(7,ISTAT,STAT4)) OUT=9
77 C IF(OUT.EQ.0) GO TO 10
78 C IYEAR=IY+1000
79 C ID=(ID-1)*10+1
80 C M=11

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81      IF((ID.EQ.1).OR.(ID.EQ.11)) M=10
82      JDAY=JULDAY(IM, ID, IYEAR)
83      ID=ID-1
84      IF((JDAY.LT.IDAY1).OR.(JDAY.GT.IDAY2)) GO TO 10
85      DO 31 I=1, M
86      ID=ID+1
87      IF((DATA(I).EQ.0.0).OR.(DATA(I).EQ.-11111.0)) GO TO 10
88      JDAY=JULDAY(IM, ID, IYEAR)
89      JDAY=JDAY-IDAY
90      JSAV=JDAY
91      JDAY=JDAY*1000
92      WRITE(OUT, 80) JSAV, ID, IM, IYEAR, DATA(I)
93      80  FORMAT(15, 1X, I2, 1X, I2, 1X, I4, 1X, F6.0)
94      31  CONTINUE
95      GO TO 10
96      300 CONTINUE
97      C
98      C NOW HAVE UP TO 4 TEMPORARY FILES WITH FLOW DATA IN THEM.
99      C NEED TO MERGE THEM TO ONE FILE
100     C
101     IF(NUM.EQ.1) GO TO 34
102     WRITE(2, 93)
103     93  FORMAT(' DO YOU WANT TO ADD OR SUBTRACT THE STATIONS?')
104     CALL FREAD(3, 'S', AS, 1)
105     ADD=1
106     IF(EQCMP(1, 'S', AS)) ADD=0
107     C
108     C MERGE FILES
109     C
110     OUT=I
111     IF(NMAX.GT.1) OUT=IOUT
112     DO 68 I=1, NUM
113     L=I+5
114     REWIND L
115     68  CONTINUE
116     44  CONTINUE
117     READ(6, 80, END=500) JD(1), IDY(1), IMO(1), IYR(1), DAT(1)
118     READ(7, 80, END=500) JD(2), IDY(2), IMO(2), IYR(2), DAT(2)
119     IF(NUM.LE.2) GO TO 40
120     READ(8, 80, END=500) JD(3), IDY(3), IMO(3), IYR(3), DAT(3)
121     IF(NUM.LE.3) GO TO 40
122     READ(9, 80, END=500) JD(4), IDY(4), IMO(4), IYR(4), DAT(4)
123     40  CONTINUE
124     DO 50 I=2, NUM
125     L=I-1
126     IF(JD(L).NE.JD(I)) GO TO 43
127     50  CONTINUE
128     GO TO 41
129     43  CONTINUE
130     DO 51 I=1, NUM
131     L=I+5
132     IF(JD(I).LT.JD(1).OR.JD(I).LT.JD(2).OR.JD(I).LT.JD(3).OR.JD(I).LT.JD(4))
133     1 READ(L, 80, END=500) JD(I), IDY(I), IMO(I), IYR(I), DAT(I)
134     51  CONTINUE
135     GO TO 40
136     41  CONTINUE
137     IF(ADD.EQ.1) GO TO 32
138     CALL SUB(DAT, NUM, JD)
139     GO TO 35
140     32  CONTINUE
141     DO 7 I=2, NUM
142     7   DAT(1)=DAT(1)+DAT(I)
143     35  CONTINUE
144     WRITE(OUT, 80) JD(1), IDY(1), IMO(1), IYR(1), DAT(1)
145     GO TO 44
146     500 CONTINUE
147     IF(NMAX.GT.1) GO TO 77
148     IF(ADD.EQ.0) GO TO 37
149     WRITE(2, 97) STAT1, STAT2, STAT3, STAT4, OTFIL
150     97  FORMAT('NOW HAVE STATIONS ', 4(7A1, 1X), ' ADDED AND IN ', 10A1)
151     GO TO 36
152     37  CONTINUE
153     WRITE(2, 98) STAT1, STAT2, STAT3, STAT4, OTFIL
154     98  FORMAT('NOW HAVE STATIONS ', 4(7A1, 1X), ' SUBTRACTED AND IN ', 10A1)
155     36  CONTINUE
156     WRITE(2, 95)
157     WRITE(2, 96)
158     GO TO 400
159     34  CONTINUE
160     IF(NMAX.GT.1) GO TO 77

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> 161 C
> 162 C ONLY ONE FILE SO COPY TO OTFIL
> 163 C
> 164 CALL RENUMB(6,-99999999,99999999,1000,1000)
> 165 CALL MOVEC(25,'$COPY -OUT6 TO .OUTFILE ',ASS)
> 166 CALL TRNST(ASS,25,'OUTFILE ',OTFIL,10,14,K)
> 167 CALL FTNCMD(ASS,25)
> 168 WRITE(2,94)STAT1,OTFIL
> 169 94 FORMAT('NOW HAVE STATION ',7A1,' DATA IN ',10A1)
> 170 WRITE(2,95)
> 171 95 FORMAT('VARIABLES ARE: JDAY,DAY,MONTH,YEAR,FLOW')
> 172 WRITE(2,96)
> 173 96 FORMAT('FORMAT IS: I5,I1X,I2,I1X,I2,I1X,I4,I1X,F6.0')
> 174 GO TO 400
> 175 77 CONTINUE
> 176 CALL RENUMB(6,-99999999,99999999,1000,1000)
> 177 CALL MOVEC(25,'$COPY -OUT6 TO -OUTX ',ASS)
> 178 IJ=IOUT-15
> 179 CALL BTD(IJ,ASS(20),1,K,'0')
> 180 CALL FTNCMD(ASS,25)
> 181 400 CONTINUE
> 182 RETURN
> 183 END
#END OF FILE
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C *****  
C  
C CALLED BY DFIL  
C  
C *****  
C  
C SUBROUTINE SUB(DAT,NUM)  
C REAL DAT(4)  
C LARG=DAT(1)  
C DO 1 I=1,NUM  
C IF(DAT(I).GT,LARG) J=I  
C IF(DAT(I).GT,LARG) LARG=DAT(I)  
C 1 CONTINUE  
C DO 2 I=1,NUM  
C IF(DAT(I).EQ,DAT(J)) GO TO 2  
C DAT(J)=DAT(J)-DAT(I)  
C 2 CONTINUE  
C DAT(1)=DAT(J)  
C RETURN  
C END  
C *****  
C  
C THIS SUBROUTINE EXTRACTS THE DESIRED DATA FROM MONITORING FILES  
C AND STORES IT IN A TEMPORARY FILE  
C *****  
C  
C SUBROUTINE DFIL(UNT,OUT,STAT,PARS,PAR,PR,NPAR,DATE,NPR,OUTPT1)  
C LOGICAL*1 STAT(12),PR1(20),OUTPT1(35),PARS(28),DATE(17),CHAR  
C LOGICAL*1 FORM(43),SELECT(12),DA(2),DAT(4),FMT(58)  
C INTEGER PAR(7),PR(7)  
C DIMENSION A(50),AA(7)  
C INTEGER UNT,OUT,ORDER(7),ORD(7)  
C LOGICAL EQU  
C INTEGER LABS(50)/'T-AF','T-WF','PH-F','SC-F','T-WL','PH-L',  
C 1'SC-L','TURB','COLR','ALKP','ALKT','HARD','CA-D','MG-D','K-D',  
C 2'NA-D','CL-D','F-D','SIO2','SO4','NN-D','RNFL','R-FL','RFNL',  
C 3'R-FF','AS-X','SE-X','CD-X','CU-X','ZN-X','FE-X','PB-X','MN-X',  
C 4'HG-X','AA35','AA36','AA37','AA38','AA39','AA40','AA41','AA42',  
C 5'AA43','AA44','AA45','AA46','AA47','AA48','AA49','AA50'/  
C LOGICAL*1 LAB(200)  
C EQUIVALENCE (LAB(1),LABS(1))  
C  
C STORE PARAMETERS IN PR AND FIND THE ONES WHICH ARE IN A 'D.' FILE  
C CALL MOVEC(35,'',OUTPT1)  
C  
C DO 916 I=1,7  
C 916 PR(I)=PAR(I)  
C NF=0  
C DO 6 I=1,7  
C 6 ORDER(I)=0  
C L=1  
C DO 1 I=1,NPAR  
C II=(I-1)*4+1  
C DO 2 J=1,50  
C JJ=(J-1)*4+1  
C IDIF=LCOHC(4,LAB(JJ),PARS(II))  
C IF(IDIF.EQ.0) GO TO 167  
C 2 CONTINUE  
C GO TO 1  
C 167 CONTINUE  
C ORDER(I)=J  
C CALL MOVEC(4,PARS(II),OUTPT1(L))  
C L=L+5  
C 1 CONTINUE  
C J=0  
C DO 33 I=1,NPAR  
C IF(ORDER(I).EQ.0) GO TO 33  
C J=J+1  
C ORD(J)=ORDER(I)  
C 33 CONTINUE  
C IF(J.EQ.0) GO TO 300  
C NPR=J  
C DO 22 I=1,NPR
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81 22 ORDER(I)=ORD(I)
82 C
83 C GET DATE RANGE INTO INTEGER FORM
84 C
85 CALL DATECH(DATE, ID1, IM1, IY1, ID2, IM2, IY2)
86 IDAY=JULDAY(01,01,1970)
87 ISTA=0
88 ISTN=0
89 ICOUNT=0
90 ISTA=ISTA+1
91 IDAY1=JULDAY(IM1, ID1, IY1)
92 IDAY2=JULDAY(IM2, ID2, IY2)
93 C
94 C SEE IF CORRECT TYPE OF FILE
95 C
96 CALL MOVEC(43, '(15,1X,I2,1X,I2,1X,I4,1X,2I2,2X,7(68,3,1X))', FORM(1))
97 CALL BTD(NPAR, CHAR, 1, K, '0')
98 CALL MOVEC(1, CHAR, FORM(33))
99 CALL MOVEC(58, '(12A1,5I2,6X,I1,1066.0,/,1066.0,/,1066.0,/,1066.0,/,1066.0)', FMT(1))
100 WRITE(2,77)
101 77 FORMAT(' IS THIS A MONITORING FILE? ENTER Y OR N')
102 CALL FREAD(3, 'S:', CHAR, 1)
103 IF(EQU('Y', CHAR)) GO TO 100
104 C
105 C EXTRACT DATA FROM IDA FILE OR SPSS FILE
106 C
107 C
108 WRITE(2,78)
109 78 FORMAT('ENTER FORMAT ENCLOSED IN BRACKETS ')
110 CALL FREAD(-2, 'DELIMITERS', '/ /;/')
111 CALL FREAD(3, 'S:', FMT, 58)
112 CALL FREAD(-1, 'DELI')
113 WRITE(2,781)
114 781 FORMAT(' ENTER NUMBER OF PARAMETERS IN FILE')
115 CALL FREAD(3, 'I:', NUM)
116 WRITE(2,782)
117 782 FORMAT('ENTER IN THE ORDER THEY APPEAR IN FILE THE PARAMETER NAMES SEPARATED BY COMMAS')
118 CALL FREAD(3, 'S:', PR1(1), 4)
119 CALL FREAD('*', 'S:', PR1(5), 4)
120 CALL FREAD('*', 'S:', PR1(9), 4)
121 CALL FREAD('*', 'S:', PR1(13), 4)
122 CALL FREAD('*', 'S:', PR1(17), 4)
123 DO 783 I=1, NPR
124 II=(ORDER(I)-1)*4+1
125 DO 793 J=1, NUM
126 JJ=(J-1)*4+1
127 IDIF=LCOMC(4, LAB(II), PR1(JJ))
128 IF(IDIF.EQ.0) GO TO 177
129 793 CONTINUE
130 GO TO 783
131 177 CONTINUE
132 AA(I)=J
133 783 CONTINUE
134 WRITE(2,780)
135 780 FORMAT(' DOES THIS FILE HAVE STATION NUMBERS?')
136 CALL FREAD(3, 'S:', CHAR, 1)
137 IF(EQU('Y', CHAR)) GO TO 102
138 11 READ(UNT, FMT, END=300) ID, IH, IY, IH, IMIN, (A(I), I=1, NUM)
139 JDAY=JULDAY(IM, ID, IY)
140 IF(JDAY.LT.IDAY1.OR.JDAY.GT.IDAY2) GO TO 11
141 JDAY=(JDAY-IDAY)
142 JSAV=JDAY
143 RR=(JDAY+IMIN/1440.+IH/24.)*1000.
144 JDAY=INT(RR)
145 WRITE(OUT, JDAY, FORM) JSAV, ID, IM, IY, IH, IMIN, (A(AA(I))), I=1, NFR)
146 GO TO 11
147 102 CONTINUE
148 12 READ(UNT, FMT, END=200) SELECT, ID, IM, IY, IH, IMIN, LB, (A(I), I=1, NUM)
149 IDIF=LCOMC(12, SELECT, STAT)
150 IF(IDIF.EQ.0) GO TO 12
151 ICOUNT=ICOUNT+1
152 IYEAR=IY
153 JDAY=JULDAY(IM, ID, IYEAR)
154 IF(JDAY.LT.IDAY1.OR.JDAY.GT.IDAY2) GO TO 12
155 JDAY=JDAY-IDAY
156 JSAV=JDAY
157 RR=(JDAY+IMIN/1440.+IH/24.)*1000.
158 JDAY=INT(RR)
159 WRITE(OUT, JDAY, FORM) JSAV, ID, IM, IY, IH, IMIN, (A(AA(I))), I=1, NFR)
160 GO TO 12

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161 100 CONTINUE
162 101 CONTINUE
163 C
164 C NOW HAVE FORMAT STORED IN FORM
165 C
166 C EXTRACT DATA
167 C
168 10 READ(UNT,3,END=200)SELECT,ID,IM,IY,IH,IMIN,LB,(A(I),I=1,50)
169 3 FORMAT(12A1,5I2,6X,I1,10G6.0,/,10G6.0,/,10G6.0,/,10G6.0,/,10G6.0)
170 IDIF=LCOMC(12,SELECT,STAT)
171 IF(IDIF.NE.0) GO TO 10
172 ICOUNT=ICOUNT+1
173 IYEAR=IY+1900
174 JDAY=JULDAY(IM,ID,IYEAR)
175 IF((JDAY.LT.IDAY1).OR.(JDAY.GT.IDAY2)) GO TO 10
176 JDAY=(JDAY-IDAY)
177 JSAV=JDAY
178 RR=(JDAY+IMIN/1440.+IH/24.)*1000.
179 JDAY=INT(RR)
180 DO 44 I=1,NPR
181 44 AA(I)=A(ORDER(I))
182 WRITE(OUT,JDAY,FORM)JSAV,ID,IM,IYEAR,IH,IMIN,(AA(I),I=1,NPR)
183 GO TO 10
184 200 IF(ICOUNT.NE.0) GO TO 300
185 WRITE(2,717)STAT
186 717 FORMAT('NO STATION #',12A1,' IN FILE')
187 300 CONTINUE
188 C
189 C NOW HAVE OUTPUT FROM UNT STORED IN OUT
190 C
191 RETURN
192 END

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#END OF FILE

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C *****
C
C THIS SUBROUTINE MERGES THE TEMPORARY FILES INTO THE OUTPUT FILE
C CALLED BY MAIN
C
C TY= TYPE OF FILE
C TY(I)=1 'F.' FILE
C TY(I)=2 'D.' FILE
C TY(I)=3 'DD' FILE
C
C FILORD(I) -L.U. ASSIGNMENT FOR FILE(I)
C
C NMAX= #FILES
C NPR = #PARAMETERS CHOSEN FROM 'D.' FILE
C TOTL= #PARAMETERS CHOSEN FROM 'DD' FILE
C
C *****
C
C SUBROUTINE MERGE(TY,FILORD,NMAX,NPR,TOTL)
C LOGICAL*1 LIN(18)
C INTEGER FILORD(5),TOTL,JSAB(5),DAY(5),MON(5),YR(5),HR(5),MIN(5),TY(5)
C REAL DAT(5,14),HLD(20)
C INTEGER STOR(5),UNT,IWT(5)
C LOGICAL EQUC,EQCMP
C DO 557 I=1,NMAX
C II=I+15
C REWIND II
C 557 CONTINUE
C IF(NMAX.EQ.5) GO TO 949
C IL=NMAX+1
C DO 948 I=IL,5
C 948 JSAB(I)=999999
C 949 CONTINUE
C
C STORE IN IWT(I) THE POSITION IN 'HLD' TO WRITE DATA FROM FILE I
C
C L=1
C DO 78 I=1,NMAX
C IWT(I)=L
C IF(TY(I).EQ.1) NUM=1
C IF(TY(I).EQ.2) NUM=NPR
C IF(TY(I).EQ.3) NUM=TOTL
C IF(TY(I).NE.3) GO TO 79
C L=L+2
C 79 CONTINUE
C DO 40 J=1,NUM
C L=L+1
C 40 CONTINUE
C 78 CONTINUE
C
C INUM=#DATA POINTS TO BE OUTPUTED TO OTFIL
C
C INUM=L-1
C DO 900 I=1,NMAX
C IF(TY(I).EQ.1) JSAB(I)=0
C 900 CONTINUE
C
C LIN WILL HOLD AN OUTPUT LINE OF MERGED FILES
C
C FILORD(I)=TEMPORARY FILE L.U. NUMBER
C
C TY=TYPE OF FILE CORRESPONDING TO THE FILORD
C TY
C TY(I)=1 F. FILE
C 2 D. FILE
C 3 DD FILE
C
C
C 90 CONTINUE
C CALL MOVEC(18,' ,LIN(1))
C IREM=0
C DO 70 I=1,NMAX
C UNT=FILORD(I)
C IF(TY(I).EQ.1) GO TO 69
C IF(TY(I).EQ.2) N=NPR
C IF(TY(I).EQ.3) N=TOTL
C IF(TY(I).NE.3) GO TO 74
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81 READ(UNT,80,END=300)JSAV(I),DAY(I),MON(I),YR(I),HR(I),MIN(I),ILEFT,IDEPTH,(DAT(I,J),J=1,N)
82 80 FORMAT(I5,1X,I2,1X,I2,1X,I4,1X,2I2,1X,I2,1X,I1,1X,14(F8.4,1X))
83 GO TO 70
84 74 CONTINUE
85 READ(UNT,81,END=300)JSAV(I),DAY(I),MON(I),YR(I),HR(I),MIN(I),(DAT(I,J),J=1,N)
86 81 FORMAT(I5,1X,I2,1X,I2,1X,I4,1X,2I2,1X,7(G8.3,1X))
87 GO TO 70
88 69 IREM=I
89 70 CONTINUE
90 IF(IREM.EQ.0) GO TO 51
91 LL=0
92 DO 50 I=1,NMAX
93 IF(IREM.EQ.I) GO TO 50
94 IF(JSAV(I).GT.JSAV(IREM)) LL=LL+1
95 50 CONTINUE
96 C
97 C IF LL=NMAX-1 THEN READ FROM F.FILE
98 UNT=FIORD(IREM)
99 C
100 N=NMAX-1
101 IF(LL.EQ.N) READ(UNT,88,END=600)JSAV(IREM),DAT(IREM,1)
102 88 FORMAT(I5,11X,F6.0)
103 51 CONTINUE
104 C
105 C NOW HAVE DATA FROM EACH TEMPORARY FILE
106 C
107 II=1
108 ISMAL=JSAV(1)
109 IF(JSAV(1).EQ.999999.AND.JSAV(2).EQ.999999.AND.JSAV(3).EQ.999999.AND.JSAV(4).EQ.999999) GO TO 500
110 DO 71 I=2,NMAX
111 IF(JSAV(I).EQ.ISMAL) GO TO 71
112 IF(JSAV(I).GT.ISMAL) GO TO 71
113 ISMAL=JSAV(I)
114 II=I
115 71 CONTINUE
116 IF(II.GT.1) GO TO 72
117 DO 540 I=2,NMAX
118 IF(JSAV(1).NE.JSAV(I)) GO TO 72
119 540 CONTINUE
120 C
121 C ALL JSAV'S ARE EQUAL SO WRITE THEM TO OUTPUT FILE
122 C
123 DO 56 JJ=1,20
124 56 HLD(JJ)=0.0
125 DO 760 I=1,NMAX
126 IF(TY(I).NE.1) GO TO 761
127 760 CONTINUE
128 761 CONTINUE
129 CALL BTD(JSAV(I),LIN(1),4,IX,' ')
130 CALL BTD(DAY(I),LIN(6),2,IX,'0')
131 CALL BTD(MON(I),LIN(8),2,IX,'0')
132 CALL BTD(YR(I),LIN(10),4,IX,'0')
133 CALL BTD(HR(I),LIN(15),2,IX,'0')
134 CALL BTD(MIN(I),LIN(17),2,IX,'0')
135 IWRT=0
136 DO 73 I=1,NMAX
137 IF(TY(I).EQ.1) NUM=1
138 IF(TY(I).EQ.2) NUM=NPR
139 IF(TY(I).EQ.3) NUM=TOTL
140 IF(TY(I).NE.3) GO TO 30
141 IWRT=IWRT+1
142 HLD(IWRT)=ILEFT*1.0
143 IWRT=IWRT+1
144 HLD(IWRT)=IDEPTH*1.0
145 30 CONTINUE
146 DO 31 J=1,NUM
147 IWRT=IWRT+1
148 HLD(IWRT)=DAT(I,J)
149 31 CONTINUE
150 73 CONTINUE
151 WRITE(5,91)LIN,(HLD(JJ),JJ=1,INUM)
152 91 FORMAT(18A1,1X,20(F11.4,1X))
153 GO TO 90
154 72 CONTINUE
155 C
156 C ONE OF THE JSAV'S IS LESS THAN THE OTHERS
157 C SO WRITE THEM TO OUTPUT FILE AND READ NEW VALUES FOR THOSE WRITTEN
158 C
159 CALL MOVEC(18,' ',LIN(1))
160 DO 57 JJ=1,20

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> 161 57 HLD(JJ)=0.0
> 162 DO 75 I=1,NMAX
> 163 75 STOR(I)=0
> 164 DO 76 I=1,NMAX
> 165 IF (ISHAL.EQ.JSAV(I)) STOR(I)=1
> 166 76 CONTINUE
> 167 ICNT=0
> 168 IREM=0
> 169 DO 762 I=1,NMAX
> 170 IF (STOR(I).EQ.0) GO TO 762
> 171 IF (TY(I).NE.1) GO TO 763
> 172 IREM=I
> 173 762 CONTINUE
> 174 GO TO 70
> 175 763 CONTINUE
> 176 CALL BTD(JSAV(I),LIN(1),4,IX,' ')
> 177 CALL BTD(DAY(I),LIN(6),2,IX,'0')
> 178 CALL BTD(MON(I),LIN(8),2,IX,'0')
> 179 CALL BTD(YR(I),LIN(10),4,IX,'0')
> 180 CALL BTD(HR(I),LIN(15),2,IX,'0')
> 181 CALL BTD(MIN(I),LIN(17),2,IX,'0')
> 182 DO 41 I=1,NMAX
> 183 IF (STOR(I).EQ.0) GO TO 41
> 184 IF (TY(I).EQ.1) NUM=1
> 185 IF (TY(I).EQ.2) NUM=NPR
> 186 IF (TY(I).EQ.3) NUM=TOTL
> 187 L=IWT(I)
> 188 IF (TY(I).NE.3) GO TO 42
> 189 HLD(IWT(I))=ILEFT*1.0
> 190 L=IWT(I)+1
> 191 HLD(L)=IDEPHT*1.0
> 192 L=L+1
> 193 42 CONTINUE
> 194 ICNT=ICNT+1
> 195 DO 43 J=1,NUM
> 196 HLD(L)=DAT(I,J)
> 197 L=L+1
> 198 43 CONTINUE
> 199 UNT=FIORD(I)
> 200 IF (TY(I).NE.3) GO TO 44
> 201 READ(UNT,81,END=400)JSAV(I),DAY(I),MON(I),YR(I),HR(I),MIN(I),ILEFT,IDEPTH,(DAT(I,J),J=1,NUM)
> 202 GO TO 46
> 203 44 CONTINUE
> 204 IF (TY(I).EQ.1) GO TO 45
> 205 READ(UNT,81,END=400)JSAV(I),DAY(I),MON(I),YR(I),HR(I),MIN(I),(DAT(I,J),J=1,NUM)
> 206 GO TO 46
> 207 45 CONTINUE
> 208 IREM=I
> 209 46 CONTINUE
> 210 41 CONTINUE
> 211 IF (ICNT.EQ.0.AND.IREM.NE.0) GO TO 70
> 212 WRITE(5,91)LIN,(HLD(JJ),JJ=1,INUM)
> 213 GO TO 51
> 214 300 CONTINUE
> 215 JSAV(I)=999999
> 216 GO TO 70
> 217 400 CONTINUE
> 218 JSAV(I)=999999
> 219 GO TO 46
> 220 600 CONTINUE
> 221 JSAV(IREM)=999999
> 222 GO TO 51
> 223 500 CONTINUE
> 224 RETURN
> 225 END
#END OF FILE

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1 C *****
2 C
3 C
4 C CALLED BY MAIN
5 C LISTS THE COLUMNS OF THE OUTPUT FILE
6 C
7 C
8 C *****
9 C
10 SUBROUTINE LIST(OUTPT1,OUTPT2,OUTPT4,TY,OTFIL,LABEL,ST1,NMAX,TYPE,ORDER,LAB,ITEST)
11 LOGICAL*1 OUTPT1(35),HOLD(13),OTFIL(10),OUTPT2(50),OUTPT4(20),HOL(26),LABEL(212)
12 INTEGER TY(5),TYPE(14,3),ORDER(14),LAB(39),ST1(7)
13 IF(TY(1),EQ.1.AND.NMAX,EQ.1) GO TO 110
14 WRITE(2,25)
15 25 FORMAT(' ')
16 WRITE(2,25)
17 WRITE(2,25)
18 WRITE(2,1)OTFIL
19 1 FORMAT(' THE FOLLOWING IS A LIST OF THE PARAMETERS CHOSEN IN THE ORDER IN WHICH THEY APPEAR IN ',10A1)
20 IF(NMAX,EQ.1.AND.TY(1),EQ.3.AND.ITEST,EQ.0) GO TO 109
21 IF(NMAX,GT.1) WRITE(2,6)
22 IF(TY(1),EQ.2.AND.NMAX,EQ.1) WRITE(2,2)
23 DO 99 I=1,NMAX
24 IF(TY(I),EQ.1) WRITE(2,3)
25 IF(TY(I),EQ.2) WRITE(2,4)OUTPT1
26 IF(TY(I),NE.3) GO TO 99
27 WRITE(2,9)
28 WRITE(2,5)OUTPT2
29 WRITE(2,7)OUTPT4
30 ISAV=0
31 DO 40 J=1,7
32 IF(ORDER(J),LT.26) GO TO 40
33 IF(ORDER(J),GT.39) GO TO 99
34 CALL MOVEC(13,' ',HOLD)
35 IF(TYPE(J,1),EQ.1) CALL MOVEC(6,'TOTAL ',HOLD(1))
36 IF(TYPE(J,2),EQ.1) CALL MOVEC(4,'EXT ',HOLD(7))
37 IF(TYPE(J,3),EQ.1) CALL MOVEC(3,'DIS',HOLD(11))
38 WRITE(2,10)LAB(ORDER(J)),HOLD
39 40 CONTINUE
40 99 CONTINUE
41 3 FORMAT(' FLOW ')
42 4 FORMAT(35A1)
43 6 FORMAT(' JULDAY, DAY MONTH YEAR , HOUR MINUTES ')
44 5 FORMAT(50A1)
45 7 FORMAT('EACH OF THE PARAMETERS IN THE ABOVE ROW CONTAINS THE FOLLOWING COLUMNS SIDE BY SIDE ',20A1)
46 9 FORMAT('LEFT,DEPTH')
47 10 FORMAT('OF THEM ',1A4,' HAS COLUMNS OF ',13A1)
48 2 FORMAT(' JULDAY, DAY, MONTH, YEAR, HOUR MINUTES')
49 GO TO 110
50 109 CONTINUE
51 WRITE(2,15)
52 15 FORMAT(' DAY, POSITION, INDIVIDUAL VALUE')
53 110 CONTINUE
54 RETURN
55 END

```

#END OF FILE