

WATER YEAR MEAN DAILY FLOW PLOT OPERATION

Identifier: WY-PLOT

Operation Number: 17

Parameter Array: The FORTRAN identifier used for the parameter array for this Operation is PO. The contents of the PO array are:

<u>Position</u>	<u>Contents</u>
1-5	Flow point name
6	Number of daily discharge time series to be plotted (integer value)
7	Type of plot scale used: 1 = semi-log 2 = arithmetic 3 = modified arithmetic
8	Drainage area (KM2)
9	Maximum plot ordinate
10	Location in PO array of the rain and melt time series information: <u>1</u> / 0 = no rain and melt time series
11	Location in PO array of runoff components time series information: <u>2</u> / 0 = no runoff components time series
12	Location in PO array of soil moisture storage time series information: <u>2</u> / 0 = no soil moisture storage time series
13	Record number of the first record used by this Operation on the water year scratch file
14	Number of scratch file records used per month
15 through 14+PO(6)	Information for each time series plotted: o internal identifier (2 values) o data type code o name (3 values) o plotting symbol

Notes:

1/ The contents of the optional 4 array positions for the rain and melt time series information are:  
o internal identifier (2 values)

Position      Contents

- o data type code
- o data time interval

- 2/ The contents of the optional 3 array positions for the runoff component and soil-moisture storage time series information are:
- o internal identifier (2 values)
  - o data type code

Carryover Array: The FORTRAN identifier used for the carryover array for this Operation is CO. The CO array contains 12 values for each discharge time series plotted. This is the total monthly runoff volume for each month of the water year.

Subroutine Names and Functions:

Subroutine    Function

PIN17	Input cards, checks values, stores information in the PO array and initializes the CO array
PRP17	Print information in the PO array
TAB17	Make entries into the Operations Table
EX17	Execute the Operation
WTWY17	Write data to the scratch file each month
RDWY17	Read data from the scratch for a month
VSUM17	Print the streamflow volume summary for the water year
SCAL17	Print plot scales and headings
PLM017	Plot and tabulates the daily values

Subroutines PIN17 and PRP17 have the standard argument lists for these subroutines as given in Section VIII.4.3.

SUBROUTINE EX17 (PO,CO,LPLOTQ,LPX,PX,LRO,ROC,LSM,SM,ORD,ORDI,  
LSYM,PSYM,DPX,D,MD)

Function: This is the execution subroutine for the WY-PLOT  
Operation.

Argument List:

<u>Argument</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
PO	Input	R*4	Variable	Contains parameters and other information
CO	Both	R*4	Variable	Contains carryover values
LPLOTQ	Input	I*4	Variable	Contains location in the D array of each time series to be plotted
LPX	Input	R*4	1	Location of rain plus melt data in the D array: 0 = none
PX	Input	R*4	Variable	Rain plus melt data
LRO	Input	I*4	1	Location of runoff components data in the D array: 0 = none
ROC	Input	R*4	Variable	Runoff components data
LSM	Input	I*4	1	Location of soil moisture storage data in the D array: 0 = none
SM	Input	R*4	Variable	Soil moisture storage data
ORD	-	R*4	101	Work space
ORDI	-	R*4	Variable	Work space <u>1</u> /
LSYM	-	I*4	Variable	Work space <u>1</u> /
PSYM	-	R*4	Variable	Work space <u>1</u> /
DPX	-	R*4	31	Work space for daily precipitation values
D	Input	R*4	MD	The entire D array
MD	Input	I*4	1	Dimension of the D array

Notes:

<u>Argument</u>	<u>Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
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1/ The amount of work space needed is equal to the number of time series being plotted.

SUBROUTINE PLMO17 (NPLOT,IDA,LDA,CONV,IS,CYCLE,BASE,PMAX,LIMIT,LMD,  
ORD,ORDI,LSYM,PSYM,LPLOTQ,LPX,PX,LRO,ROC,LSM,SM,  
D,MD)

Function: This routine plots mean daily flow time series and tabulates daily flow, rain and melt, runoff components and soil moisture storage time series. The routine is typically used to plot one month of daily values.

Argument List:

<u>Argument</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
NPLOT	Input	I*4	1	Number of daily discharge time series to be plotted
IDA	Input	I*4	1	Initial day to be plotted
LDA	Input	I*4	1	Last day to be plotted
CONV	Input	R*4	1	Conversion factor to convert from CMSD to plot units
IS	Input	R*4	1	Plot scale indicator: 1 = semi log scale 2 = arithmetic scale 3 = modified arithmetic scale
CYCLE	Input	R*4	1	Mid-point on the modified arithmetic scale (PMAX/6.0)
BASE	Input	R*4	1	Minimum plot ordinate
PMAX	Input	R*4	1	Maximum plot ordinate
LIMIT	Input	I*4	1	Maximum number of columns to be printed
LMD	Input	I*4	1	Plot control variable
ORD	-	R*4	101	Work space
ORDI	-	R*4	Variable	Work space <u>1</u> /
LSYM	-	I*4	Variable	Work space <u>1</u> /
PSYM	-	R*4	Variable	Work space <u>1</u> /
LPLOTQ	Input	I*4	Variable	Contains location in the D array of each time series to be plotted
LPX	Input	I*4	1	Location of rain plus melt data in the D array:

<u>Argument</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
				0 = none
PX	Input	R*4	Variable	Daily rain plus melt data
LRO	Input	I*4	1	Location of runoff components data in the D array: 0 = none
ROC	Input	R*4	Variable	Runoff components data
LSM	Input	I*4	1	Location of soil moisture storage data in the D array: 0 = none
SM	Input	R*4	Variable	Soil moisture storage data
D	Input	R*4	MD	The entire D array
MD	Input	I*4	1	Dimension of the D array

Notes:

1/ The amount of work space needed is equal to the number of time series being plotted.

SUBROUTINE TAB17  
(TO,LEFT,IUSET,NXT,LPO,PO,LCO,TS,MTS,NWORK,LWORK,IDT)

Function: This is the Operations Table entry subroutine for Operation WY-PLOT.

Argument List: The arguments for this subroutine are similar to the arguments for the Operation Table entry subroutines for other Operations. A description of the arguments is contained in Section VIII.4.2-TAB.

Operation Table Array: The contents of the TO array are:

<u>Position</u>	<u>Contents</u>
1	Number of this Operation
2	Location in the T array of the next Operation to be executed
3	Location of the parameter array for this Operation in the P array
4	Location of the carryover array for this Operation in the C array
6	Location of rain plus melt data in the D array: 0 = none used
7	Location of runoff components data in the D array: 0 = none used
8 array:	Location of soil moisture storage data in the D array: 0 = none used
9	Location of work space in the D array for plotting
10	Location of work space in the D array for daily precipitation
11 through N PLOT+10	Location of each time series to be plotted in the D array (N PLOT is the number of time series to be plotted)