

VIII.3.3-SAC-PLOT SACRAMENTO TYPE MEAN DAILY FLOW PLOT OPERATION

Identifier: SAC-PLOT

Operation Number: 5

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	Name of the flow point being plotted
6	Number of daily discharge time series to be plotted (integer)
7	Type of plot scale used: 1 = semi-log 2 = arithmetic 3 = modified arithmetic
8	Drainage area (units of KM2)
9	Maximum plot ordinate
10	Location in PO array in rain plus melt time series information: <u>1</u> / 0 = no rain plus 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	Location in PO array of information on SAC-SMA Operations: <u>3</u> / 0 = no SAC-SMA Operations tabulated
14	Location in PO array of information on SNOW-17 Operations: <u>3</u> / 0 = no SNOW-17 Operations tabulated
15 thru 14+PO(6)*7	Information for each time series plotted (7 positions per time series): 1-2 internal identifier 3 data type code 4-6 name 7 plotting symbol

Notes:

- 1/ The contents of the optional 4 array positions for the rain plus melt time series information are:
  - o internal identifier (2 values)
  - 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
  
- 3/ The contents of the optional 3 array positions for the SAC-SMA and SNOW-17 Operations information are:
  - o Operation name (2 values)
  - o location of the water balance information within the portion of the P array assigned to the Operation

Subroutines Names and Functions: The subroutines associated with this Operation are:

<u>Subroutine</u>	<u>Function</u>
PIN5	Input cards, check values and store information in the PO array
PRP5	Print information in the PO array
TAB5	Make entries into the Operations Table
EX5	Execute the Operation
FPSAC5	Print information on SAC-SMA Operations
FPSNW5	Print information on SNOW-17 Operations
FPM05	Plot and tabulate the daily values

Subroutine PRP5 has the standard argument list for the print parameter subroutine as given in Section VIII.4.3.

SUBROUTINE PIN5 (PO,LEFTP,IUSEP,P,MP)

Function: This is the card input routine for Operation SAC-PLOT.

Argument List:

<u>Variable</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
PO	Output	R*4	Variable	Parameters and other information
LEFTP	Input	I*4	1	Space available for the PO array
IUSEP	Output	I*4	1	Length of the PO array
P	Input	R*4	MP	P array
MP	Input	I*4	1	Dimension of the P array

## SUBROUTINE EX5

( PO,LPLOTQ,LPX,PX,LRO,ROC,LSM,SM,LSAC,LSNW,ORD,ORDI,  
LSYM,PSYM,P,MP,C,MC,D,MD)

Function: This is the execution routine for Operation SAC-PLOT.

Argument List:

<u>Variable</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
PO	Input	R*4	Variable	Parameters and other information
LPLOTQ	Input	I*4	Variable	Location in the D array of each time series to be plotted
LPX	Input	I*4	1	Location of rain and melt data in the D array: 0 = none
PX	Input	R*4	Variable	Rain and melt data
LRO	Input	I*4	1	Location of runoff component 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
LSAC	Input	I*4	Variable	Location in the P array of each SAC-SMA Operation to be tabulated
LSNW	Input	I*4	Variable	Location in the P array of each SNOW-17 Operation to be tabulated
ORD	-	R*4	101	Work space
ORDI	-	R*4	Variable <u>1</u> /	Work space
LSYM	-	I*4	Variable <u>1</u> /	Work space
PSYM	-	R*4	Variable <u>1</u> /	Work space
P	Input	R*4	MP	P array
MP	Input	I*4	1	Dimension of the P array
C	Input	R*4	MC	C array

<u>Variable</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
MC	Input	I*4	1	Dimension of the C array
D	Input	R*4	MD	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 FPMO5 (NPLOT,KD, IDT, 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 plus melt, runoff components and soil moisture storage time series. The routine is typically used to plot one month of daily values.

Argument List:

<u>Variable</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
KD	Input	I*4	1	Initial day to be plotted (external clock)
IDT	Input	I*4	1	Time interval of the rain plus melt time series
CONV	Input	R*4	1	Conversion factor to convert from CMSD to plot units
IS	Input	I*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 <u>1</u> /	Work space
LSYM	-	I*4	Variable <u>1</u> /	Work space
PSYM	-	R*4	Variable <u>1</u> /	Work space
LPLOTQ	Input	I*4	Variable	Location in the D array of each time series to be plotted
LPX	Input	I*4	1	Location of rain plus melt data

<u>Variable</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
				in the D array: 0 = none
PX	Input	R*4	Variable	Rain plus melt data
LRO	Input	I*4	1	Location of runoff component data in the D array: 0 = none
ROC	Input	R*4	Variable	Runoff component 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	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 spaces being plotted.

SUBROUTINE TAB5 (TO,LEFT,IUSET,NXT,LPO,PO,TS,MTS,P,MP,NWORK,LWORK)

Function: This is the Operations Table entry routine for Operation SAC-PLOT.

Argument List: The arguments for this routine are similar to the arguments for the Operations Table entry routines 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	Operation number
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	Computational time interval for this Operation is hours: 0 = 24-hour or no rain plus melt used
5	Location of rain plus melt data in the D array: 0 = none used
6	Location of runoff components data in the D array: 0 = none used
7	Location of soil moisture storage data in the D array: 0 = none used
8	Location of work space in the D array
9	Location in the TO array of SAC-SMA P array locations: 0 = none used
10	Location in the TO array of SNOW-17 P array locations: 0 = none used
11 thru 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)