

V.3.3-INSQPLOT INSTANTANEOUS DISCHARGE PLOT OPERATION

Identifier: INSQPLOT

Application: All programs

Description: This Operation plots an unlimited number of instantaneous discharge time series and tabulates the first two input.

The following options are available:

- o tabulate a precipitation time series
- o tabulate a runoff (channel inflow) time series
- o plot all time series only on days when one of the time series has at least one non-missing value
- o include a stage scale as well as a discharge scale if a rating curve is available for the flow-point

Allowable Time Intervals: 1, 2, 3, 4, 6, 8, 12 and 24 hours

Time Series Used:

<u>General Type</u>	<u>Dimn</u>	<u>Unit</u>	<u>Use</u>	<u>Required</u>	<u>Form of Output T.S.</u>	<u>Data Time Interval</u>	<u>Missing Values Allowed</u>
Precipitation	L	MM	I	no	n/a	any <u>1</u> /	yes
Runoff - inflow to channel	L	MM	I	no	n/a	any <u>1</u> /	yes
Instantaneous	L3/T	CMS	I	yes <u>2</u> /	n/a	any <u>1</u> /	yes

1/ Any data time interval is allowed for all time series. However all time series must be an even multiple of the smallest data time interval.

2/ At least one instantaneous discharge time series must be input. There is no limit to the number of instantaneous discharge time series that can be plotted.

Input Summary: The card input for this Operation is as follows:

<u>Card</u>	<u>Format</u>	<u>Columns</u>	<u>Contents</u>
1	5A4	1-20	General user supplied information for this Operation
	3X,I2	24-25	Number of instantaneous discharges to be

<u>Card</u>	<u>Format</u>	<u>Columns</u>	<u>Contents</u>
			plotted
	4X,I1	30	Tabulation option: 0 = precipitation and runoff time series are not tabulated 1 = only precipitation time series is tabulated 2 = only runoff time series is tabulated 3 = both precipitation and runoff time series are tabulated
	3X,I2	34-35	Plot option: 0 = all time series are plotted for every day (use this option carefully during a calibration run since a lot of output can be generated) >0 = order number (based on card 4 sequence) of the discharge time series that must have at least one non-missing value for a day before the other discharge time series will be plotted
	2X,2A4	38-45	Rating curve identifier (blank if rating curve is not used)

Card 2 only needed if a precipitation (rain+melt) time series is to be tabulated.

2	2X,2A4	3-10	Internal identifier for the precipitation time series
	1X,A4	12-15	Data type code for the precipitation time series
	3X,I2	19-20	Data time interval for precipitation time series
	8X,3A4	29-40	General title for time series

Card 3 only needed if a runoff (channel inflow) time series is to be tabulated.

3	2X,2A4	3-10	Internal identifier for the runoff time series
	1X,A4	12-15	Data type code for runoff time series
	3X,I2	19-20	Data time interval for runoff time series

<u>Card</u>	<u>Format</u>	<u>Columns</u>	<u>Contents</u>
	8X,3A4	29-40	General title of time series
4	2X,2A4	3-10	Internal identifier for the instantaneous discharge time series
	1X,A4	12-15	Data type code for the discharge time series
	3X,I2	19-20	Data time interval for the discharge time series
	8X,3A4	29-40	General title for the discharge time series
	4X,A1	45	Plot symbol for the discharge time series (a blank or a dot can not be used)

Repeat Card 4 for each discharge time series to be plotted.

Card 5 is needed only if a rating curve identifier was entered on Card 1.

5	4X,A1	5	Plot symbol for flood stage (blank for none)
	4X,A1	10	Plot symbol for rating curve lower limit (blank for none)
	4X,A1	15	Plot symbol for rating curve upper limit (blank for none)

Sample Input and Output: Sample input is shown in Figure 1. Sample output from the parameter print routine is shown in Figure 2. Sample output from the execution routine is shown in Figure 3.

Error and Warning Message: The error and warning messages generated by this Operation and the corrective measures to take when they occur are:

A. Messages that can occur during setup:

1. ****ERROR**** OPTION TO TABULATE THE PCPN AND RUNOFF TIME SERIES IS NOT IN THE PROPER RANGE.

Action: Check input data and make sure the tabulation option is 0,1,2, or 3.

2. ****ERROR**** NUMBER OF TIME SERIES TO PLOT IS ZERO.

Action: Check input data.

3. **ERROR** PLOT OPTION PARAMETER IS GREATER THAN THE TOTAL NUMBER OF TIME SERIES TO BE PLOTTED.

Action: Check input cards to insure that the plot option parameter (indicating which time series, if any, must have at least one non-missing value for a day before other time series are plotted) is input correctly.

4. **ERROR** INVALID PLOTTING SYMBOL OF ' ' OR '.'.

Action: Use a different plotting symbol or check input cards for errors in inputting plotting symbols.

5. **ERROR** ALL TIME INTERVALS MUST BE AN EVEN MULTIPLE OF THE SMALLEST TIME INTERVAL.

Action: Only input time series with time intervals that are an even multiple of the smallest time interval used.

Carryover Transfer Rules: There is no carryover for this Operation.

Punched Card Limitations: There are no punched card limitations.

Figure 1. Sample card input for Operation INSQPLOT

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-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      10      20      30      40      50      60      70      80
INSQPLOT      ROSSE
BLUERIDGE @ ROSMAN      4      3      0 ROSSE
  ROSSE      MAP      6      RAIN+MELT
  ROSSE      INFW      6      RUNOFF
  ROSSEB     SQIN      3      BASEFLOW      B
  ROSSE      SQIN      3      SIM FLOW      S
  ROSSE      QINE      3      ADJ FLOW      A
  ROSSE      QIN      6      OBS FLOW      O
      F      U

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Figure 2. Sample output from Operation INSQPLOT print parameter routine

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INSTANTANEOUS FLOW PLOT DISCHARGE FOR BLUERIDGE @ ROSMAN
PLOT TIME INTERVAL = 3 HOURS      NUMBER OF DISCHARGE TIME SERIES TO BE PLOTTED = 4
      TIME SERIES USED BY THIS OPERATION
CONTENTS      I.D.      TYPE      TIME INTERVAL      PLOTTING SYMBOL
RAIN+MELT     ROSSE      MAP      6 HOURS      N/A
RUNOFF        ROSSE      INFW     6 HOURS     N/A
BASEFLOW      ROSSEB     SQIN     3 HOURS     B
SIM FLOW      ROSSE      SQIN     3 HOURS     S
ADJ FLOW      ROSSE      QINE     3 HOURS     A
OBS FLOW      ROSSE      QIN     6 HOURS     O
THE FIRST 4 TIME SERIES WILL BE TABULATED
A STAGE SCALE WILL BE COMPUTED USING RATING CURVE ROSSE .
FLOOD STAGE WILL BE INDICATED BY THE SYMBOL F
THE RATING CURVE UPPER LIMIT WILL BE INDICATED BY THE SYMBOL U

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