V.3.3-SUMPOINT TIME SERIES SUMMING POINT OPERATION

Identifier: SUMPOINT

Application: All programs

Description: This Operation accepts one or more input time series and creates a summed begin time increment time series and an end time increment time series or optionally, a mean of the flows at the begin and end of the time increment.

The resultant summed begin and end time increment time series or summed mean time series represents the summed flow from any number of routed upstream flow time series or local area time series. The input time series may be represented by either a single time series, assumed to be the instantaneous end increment flow; or by two time series, the instantaneous begin and end increment flow.

A complete description of this Operation is in Section II.4.

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

Time intervals for all input and output time series must be the same.

Time Series Used: Time series used in this Operation are as follows:

General Type	Dimn	Units	Use	Required	Data Time Interval	Missing Values Allowed
Begin inflow	L3/T	CMS	I	no	variable	no
End inflow	L3/T	CMS	I	no	variable	no
Single inflow	L3/T	CMS	I	no	variable	no
Begin outflow	L3/T	CMS	O	no	variable	no
End outflow	L3/T	CMS	O	yes	variable	no

Input time series to be summed may be specified in 2 ways:

- o by specifying both the begin time increment time series and the end time increment time series
- o by specifying a single time series which is assumed to be the end time increment time series

The summed output may in turn be specified by a single time series or by the begin time increment time series and the end time increment time series. If only a single time series is specified, the summed

output will be stored in the end outflow time series. Note that these values are the mean of the begin and end increment summed flows and take on dimensions of L3 or units of cm.

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

Card	Field	Format	Contents
1	1	A72	Description
2	1	A8	Begin time interval output time series identifier
	2	A4	Begin time interval output time series data type code: 'SQIB' = both begin and end time interval output time series specified 'NONE' = a single mean flow output time series is to be specified
	3	A8	End time interval output time series identifier
	4	A4	End time interval output time series data type code: 'SQIE' = both begin and end time interval output time series specified 'SQME' or 'QME' = a single mean output time series specified
	5	I	Begin time interval output time series time interval (units of HR)
	6	I	End time interval output time series time interval (units of HR)
	7	I	Number of input time series to be summed
Card 3 is entered for each input time series to be summed.			
3+	1	A8	Input time series identifier
	2	A4	Input time series data type code 'SQIB' = begin time increment time series 'SQIE' = end time increment time series 'SQIN' or 'QIN' = a time series that is represented by a single time series

Card	Field	Format	Contents
	3	A4	Carryover flag to set first element of the begin increment time series value: 'CARY' = value from carryover array 'FLAT' = value set equal to second element 'ZERO' = value set to zero 'VALU' = value read in from input
	4	I	Input time series time interval (units of HR)
	5	R	If the carryover flag is 'VALU' this is the value to be read in to set the element of the begin increment time series. Else, set to zero.

Sample Input and Output: Sample input is shown in Figure 1. Sample output from the parameter print routine is shown in Figure 2. There is no execution routine output.

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

A. Messages that can occur during setup:

1. **ERROR** END INTERVAL OUTPUT TIME SERIES UNITS XXXX NOT EQUAL TO BEGIN INTERVAL OUTPUT TIME SERIES UNITS XXXX

   Action: Check input card 2 and output time series specified.

2. **ERROR** UNITS XXXX FOR INPUT TIME SERIES (I.D.= XXXXXXXX, TYPE= XXXX) DOES NOT MATCH UNITS XXXX FOR THE OUTPUT TIME SERIES

   Action: Check input card 3+ and input time series specified.

3. **ERROR** TIME INTERVAL XXX FOR INPUT TIME SERIES (I.D.= XXXXXXXX,TYPE= XXXX) DOES NOT MATCH TIME INTERVAL XXX FOR THE OUTPUT TIME SERIES

   Action: Check input card 3+ and input time series specified.

B. Messages that can occur during execution.

   None

Carryover Transfer Rules: During the carryover transfer process for this Operation, the following rules are applicable:

1. No checks for the validity of the parametric data are made

during the transfer process.

2. Carryover values in the C array are changed only if the carryover flag in the P array have been changed. Else, carryover values remain the same.

Punched Card Rules: No checks are made for the validity of the parametric or carryover data during the punching process.

Figure 1. Sample Card Input For Operation SUMPOINT

```
SUMPOINT    SUMPT1
SUM UP TIME SERIES SELWE/SQIN AND SELWELWR/SQIN
SELWEQI1  SQIB  SELWEQI2  SQIE  6  6  2
SELWEUPR  SQIN  CARY  6  0
SELWELWR  SQIN  CARY  6  0
```

Figure 2. Sample Output From Operation SUMPOINT Print Parameter Routine

```
 ********************

 SUMPOINT OPERATION     NAME=SUMPT1       PREVIOUS NAME=

 ********************


          SSARR SUMMING POINT - VERSION    1
          SUM UP TIME SERIES SELWE/SQIN AND SELWELWR/SQIN

          NUMBER OF INFLOW TIME SERIES TO BE SUMMED =    2
          -----------------------------------------------


                                                    TIME
                                    ID     CODE  INTERVAL
          BEGIN OUTFLOW TIME SERIES SELWEQI1 SQIB      6
          END   OUTFLOW TIME SERIES SELWEQI2 SQIE      6



                                                    TIME    CARRYOVER
                                    ID     CODE  INTERVAL     FLAG
          INPUT TIME SERIES    1
          END   INFLOW  TIME SERIES SELWEUPR SQIN      6        CARY
          INPUT TIME SERIES    2
          END   INFLOW  TIME SERIES SELWELWR SQIN      6        CARY


          CARRYOVER VALUES
           TIME       CARRYOVER
          SERIES        VALUE
             1             .00
             2             .00
```