

VIII.3.3-API-HAR MARFC (MARFC) API-RUNOFF OPERATION

Identifier: API-HAR

Operation Number: 35

Developed by: Middle Atlantic River Forecast Center

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

<u>Position</u>	<u>Type</u>	<u>Contents</u>
1	I*4	Operation version number
2-3	R*4	Runoff zone identifier
4-8	R*4	Runoff zone name
9	I*4	Runoff zone number
10	R*4	Latitude of runoff zone centroid (units of decimal degrees)
11	R*4	Longitude of runoff zone centroid (units of decimal degrees)
12	R*4	Runoff adjustment factor
13	R*4	24 hour API recession factor
14	R*4	New storm rain/melt limit (units of IN)
15	R*4	Upper limit for AEI (winter curve) (units of IN)
16	R*4	Lower limit for AEI (winter curve) (units of IN)
17	R*4	Upper limit for AEI (summer curve) (units of IN)
18	R*4	Lower limit for AEI (summer curve) (units of IN)
19	I*4	API/AEI/FI curve number
20	I*4	Computational time step interval (hours)
21	I*4	New storm window (hours)
22	I*4	Number of periods in the new storm window
23	I*4	Number of positions needed in the CO array
24	I*4	API/AEI/FI time series output indicator

<u>Position</u>	<u>Type</u>	<u>Contents</u>
25	I*4	Initial Carryover input indicator
26-27	R*4	Internal identifier of the rain/melt time series
28	R*4	Data type code of the rain/melt time series
29-30	R*4	Internal identifier of the potential ET time series
31	R*4	Data type code of the potential ET time series
32-33	R*4	Internal identifier of the runoff time series
34	R*4	Data type code of the runoff time series
35-36	R*4	Internal identifier of the storm FI time series
37	R*4	Data type code of the storm FI time series
38-39	R*4	Internal identifier of the storm API time series
40	R*4	Data type code of the storm API time series
41-42	R*4	Internal identifier of the storm AEI time series
43	R*4	Data type code of the storm AEI time series
44-47	I*4	Not used (zeros)

Carryover Array: The FORTRAN identifier used for the carryover array is CO. The contents of the CO array are:

<u>Position</u>	<u>Type</u>	<u>Contents</u>
1	R*4	12Z API value (units of IN)
2	R*4	12Z AEI value (units of IN)
3	R*4	12Z FI value
4	R*4	12Z storm API value (units of IN)
5	R*4	12Z storm AEI value (units of IN)
6	R*4	12Z storm FI value
7	R*4	Storm total rain/melt (units of IN)
8	R*4	Storm total runoff (units of IN)
9	R*4	24 hour rain/melt (units of IN)
10	R*4	24 hour runoff (units of IN)

Position Type Contents

11-PO(23) R*4 Rain/melt for each period in the new storm window
(units of IN)

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

Subroutine Function

PIN35	Input cards and store values in PO and CO arrays
PRP35	Print information stored in the PO array
PRC35	Print information stored in the CO array
EX35	Execute the Operation
FIW3	Contain the data points for the MARFC API/AEI/FI winter curves
FIS35	Contain the data points for the MARFC API/AEI/FI summer curves
FI35	MARFC API/AEI/FI relationships
HR035	MARFC FI/Rainfall/Runoff relationship
COX35	Perform carryover transfer
PUC35	Punch cards with information from the PO and CO arrays which may be used by the PIN routine.
TAB35	Make entry into Operations Table

Subroutines PIN35, PRP35, PRC35, COX35, and PUC35 have the standard
argument lists for these routines as described in Section VIII.4.3.

SUBROUTINE EX35(PO,CO,PX,RO,PE,FIS,APIS,AEIS)

Function: This is the execution subroutine for Operation API-HAR.

Argument List:

<u>Variable</u>	<u>Input/ Output</u>	<u>Type</u>	<u>Dimension</u>	<u>Description</u>
PO	Input	R*4	47	Contains parameters and other information
CO	Both	R*4	Variable	Contains carryover data
PX	Input	R*4	Variable	Rain/melt time series data (units of MM)
RO	Output	R*4	Variable	Runoff time series data (units of MM)
PE	Input	R*4	Variable	Potential ET time series data (units of MM)
FIS	Output	R*4	Variable	Storm FI time series data (units of MM)
APIS	Output	R*4	Variable	Storm API time series data (units of MM)
AEIS	Output	R*4	Variable	Storm AEI time series data (units of MM)

Subroutine TAB35(TO,LEFT,IUSET,NXT,LPO,PO,LCO,TS,MTS,LWORK,IDT)

Function: This is the Operations Table entry subroutine for Operation API-HAR.

Arguments List: The arguments for this subroutine are similar to the arguments for the Operations 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	Operation number
2	Location in the T array of the next Operation to be executed
3	Location of the parameter array for the Operation in the P array
4	Location of the carryover array for the Operation in the C array
5	Location of rain/melt data in the D array
6	Location of potential evaporation data in the D array
7	Location of runoff data in the D array
8	Location of FI data in the D array: 0 = no FI output
9	Location of API data in the D array: 0 = no API output
10	Location of AEI data in the D array: 0 = no AEI output