SSAR Channel Routing (SARROUTE) Model

1. Description of Algorithm

https://vlab.ncep.noaa.gov/documents/207461/1893022/24sarroute.pdf

2. Model Parameters

SARROUTE uses the existing NWSRFS operation definition for defining model parameters. The NWSRFS operation definition is enclosed within a single parameter element named "OPERATION_CONENTS". An example is shown below. For further information see:

https://vlab.ncep.noaa.gov/documents/207461/1893022/533sarroute.pdf

```
SARROUTE BELM8 ROUTED TO SRGM8
BELM8    NONE BELM8    QINE BELM8    SQIB BELM8R   SQIE
  8      0.2      14.0    0    6
  3995.36
  4038.80
  3995.96
  3965.65
  3948.73
  3944.96
  3951.23
  3962.21
  3973.40
```

3. Model States

SARROUTE model states are defined in a property file format. An example is shown below. The model state property names are:

Property Name	Description
INITIAL_START_INFLOW	The initial begin increment inflow [cfs]
PHASE_FLOW_VALUE_FOR_REACH#0[1]	Phase flow (cfs). One value per phase flow. Maximum of 99
UNIT	Units for State Variables (always METRIC)

[1] Phase values are represented starting from 0, and incremented by 1 for next phase flow. The number after # represents the reach number.

An example is shown below.

```
UNIT=ENGLISH
INITIAL_START_INFLOW=3995.36
PHASE_FLOW_VALUE_FOR_REACH#0=4038.80
PHASE_FLOW_VALUE_FOR_REACH#1=3995.96
PHASE_FLOW_VALUE_FOR_REACH#2=3965.65
PHASE_FLOW_VALUE_FOR_REACH#3=3948.73
PHASE_FLOW_VALUE_FOR_REACH#4=3944.96
PHASE_FLOW_VALUE_FOR_REACH#5=3951.23
PHASE_FLOW_VALUE_FOR_REACH#6=3962.21
PHASE_FLOW_VALUE_FOR_REACH#7=3973.40
```

4. Model Time Series

SARROUTE requires a minimum of 1 input time series, a maximum of 2 input time series, and 1 output time series.

Time Series Type	Internal Model Units	Time Step	Input or Output	Missing Values Allowed	Required [Yes or No]
Instantaneous Discharge	CMS	any	Input and Output	No	Yes
Potential ET (MAPE)	MM	24	Input	No	No

5. Notes about configuring Model in FEWS workflow

Examples:
Module Configuration File
ModuleConfigFiles\SARROUTE_HLKW1_EASW1R_Forecast.xml

Module Parameter File
ModuleParFiles\SARROUTE_HLKW1_EASW1R_UpdateStates.xml

6. FEWS Adapter Used

The SARROUTE model uses the OHDFewsadapter to communicate. Information about this adapter can be found at OHDFewsadapter.