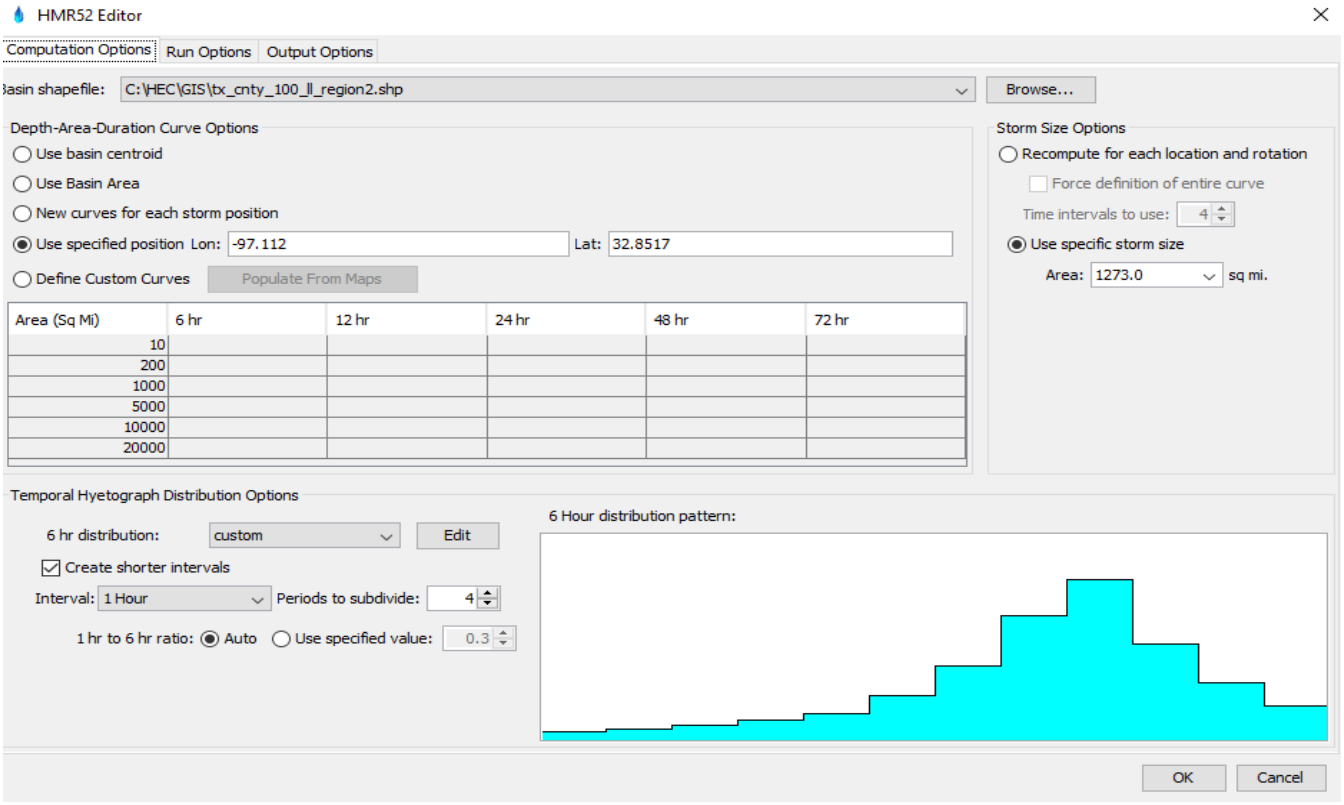
SPF Computation Process (Example-Trinity River below Five Mile Ck)

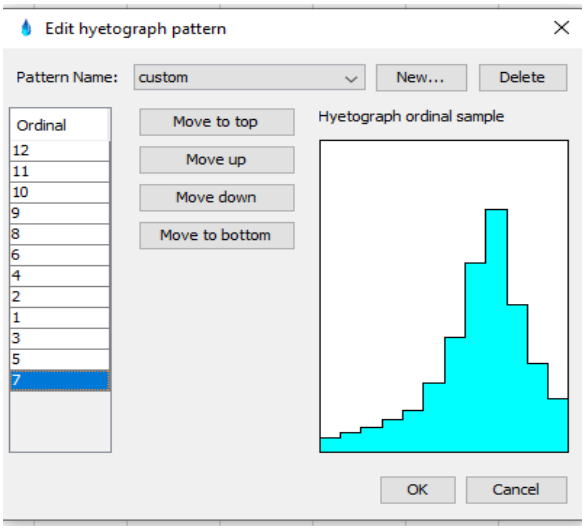
Populate HMR52 Editor in Metvue

Angles in MetVue should be listed clockwise from North. Requires conversion from WHA angles listed counter-clockwise from positive x-axis.

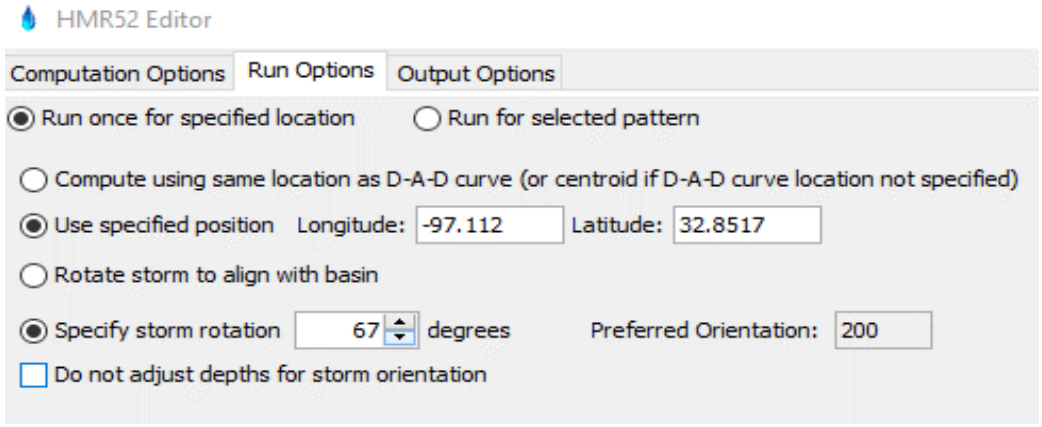
Computation Options Tab - Main



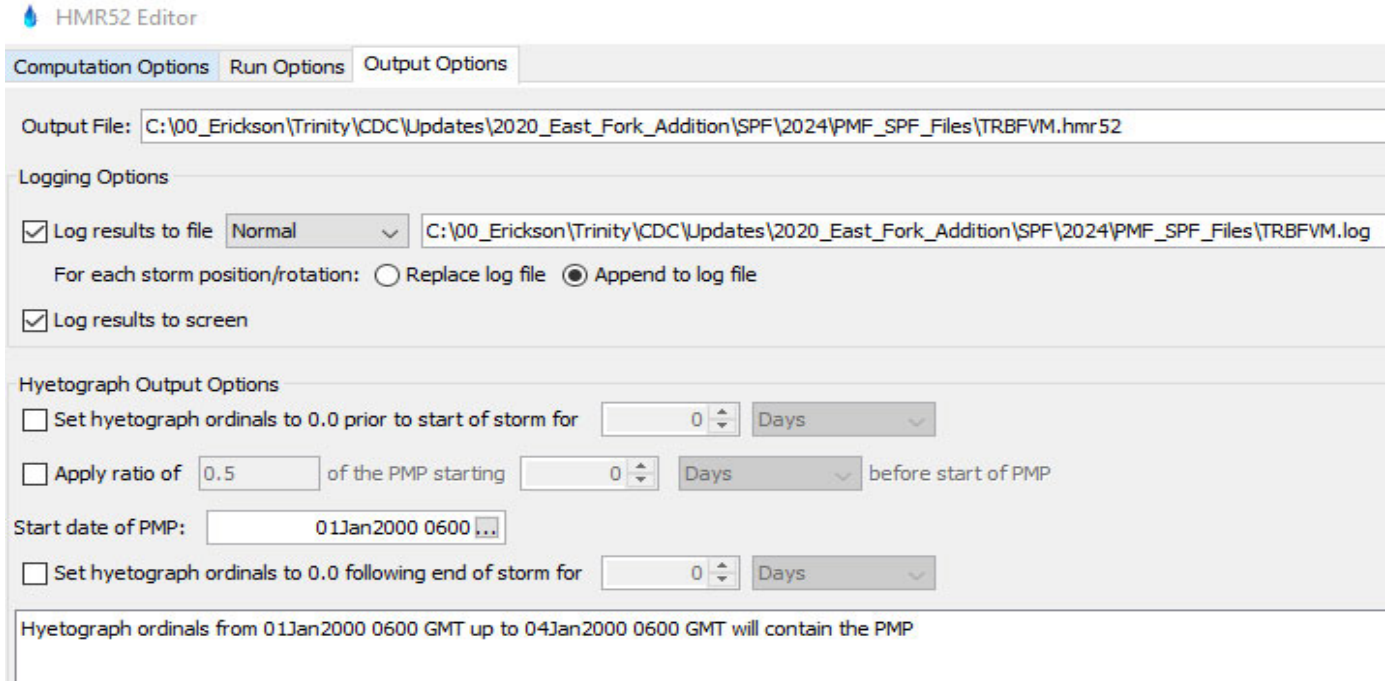
Computation Options Tab - Custom hyetograph pattern



Run Options Tab

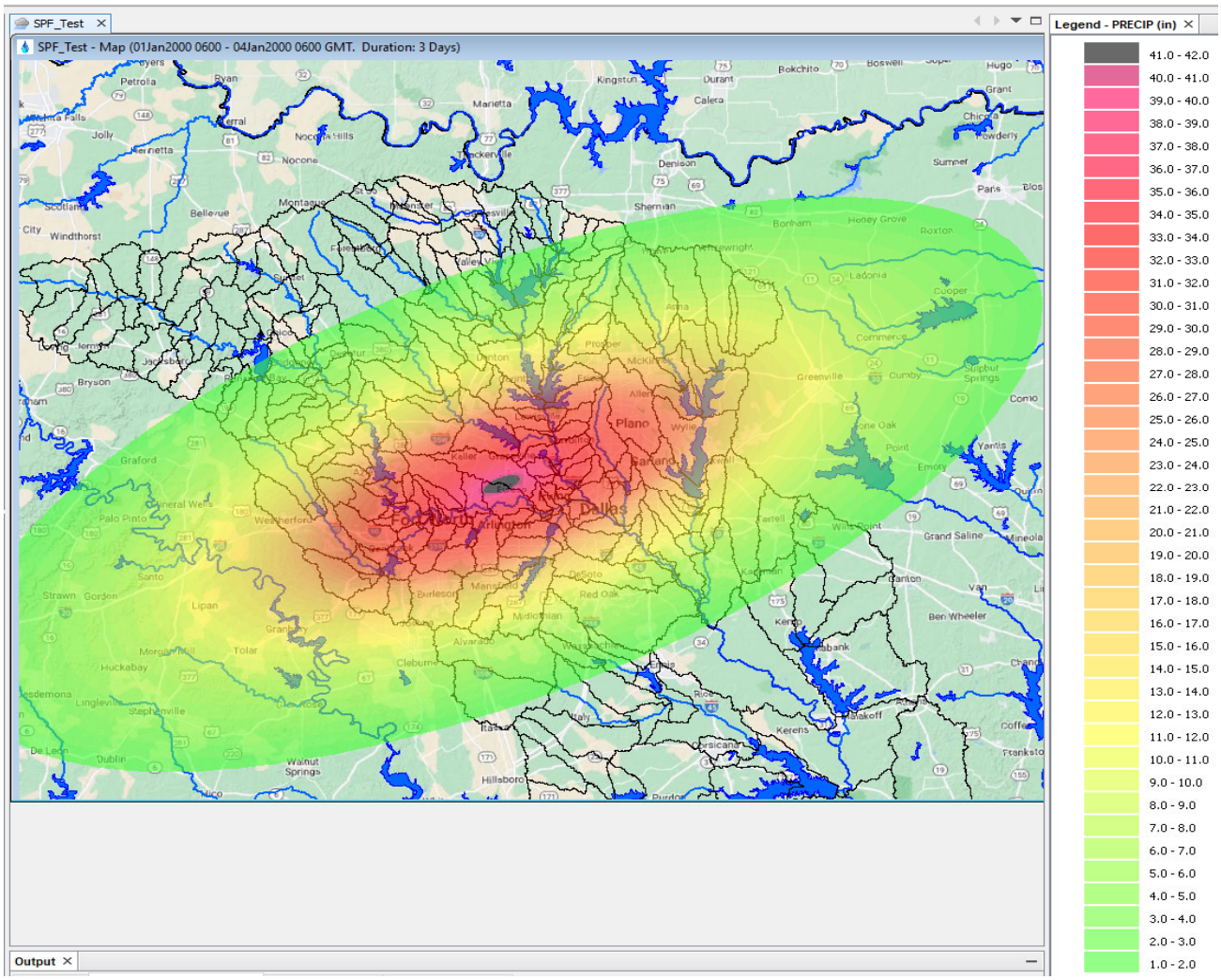


Output Options Tab



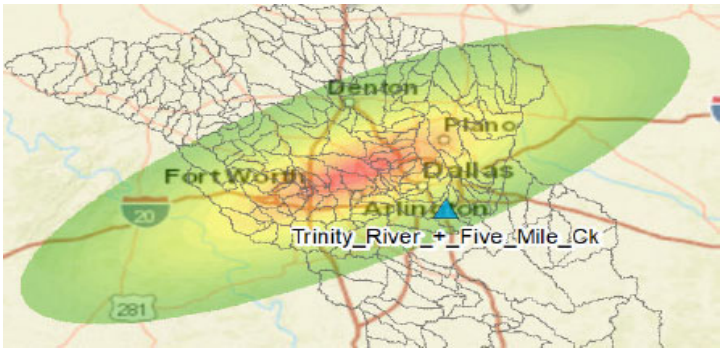
Check .log file after creating PMF storm and check coordinates, storm area and rotation

HMR PMP Storm is visible after selecting "Ok".

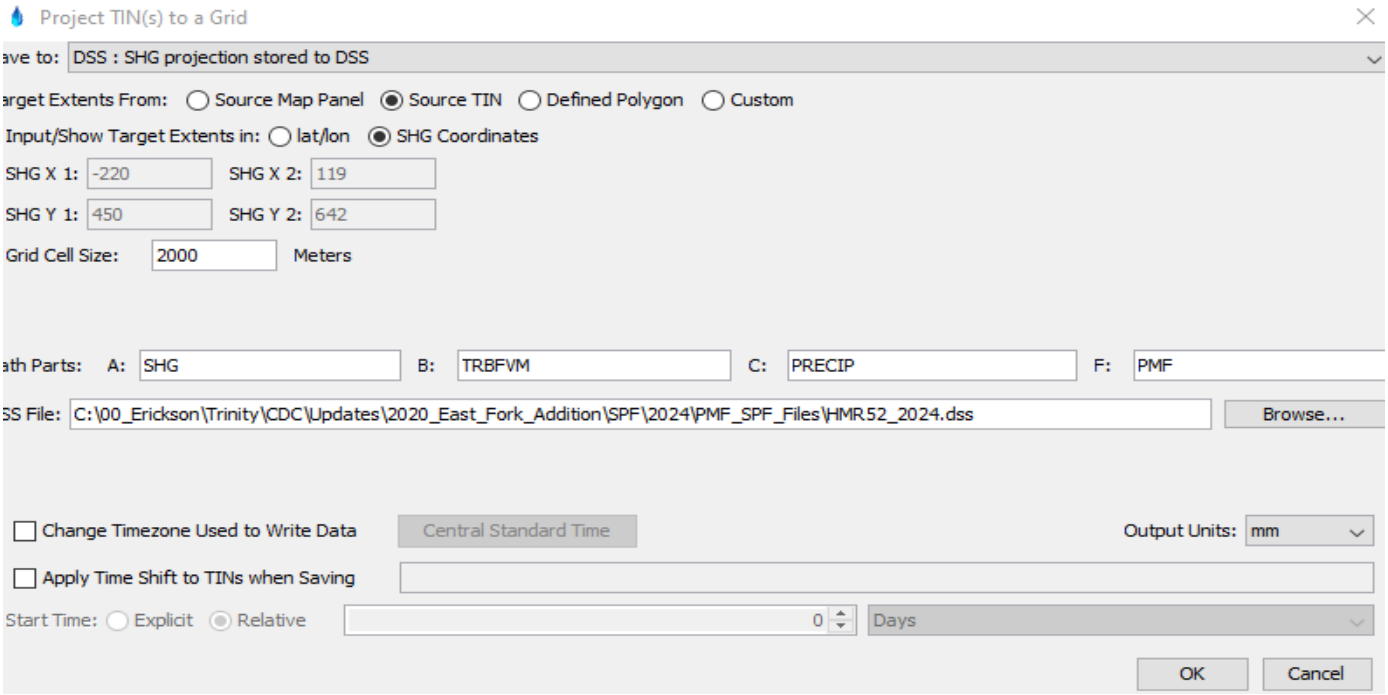


Check to see if storm orientation matches InFRM Trinity WHA Elliptical Storm orientation

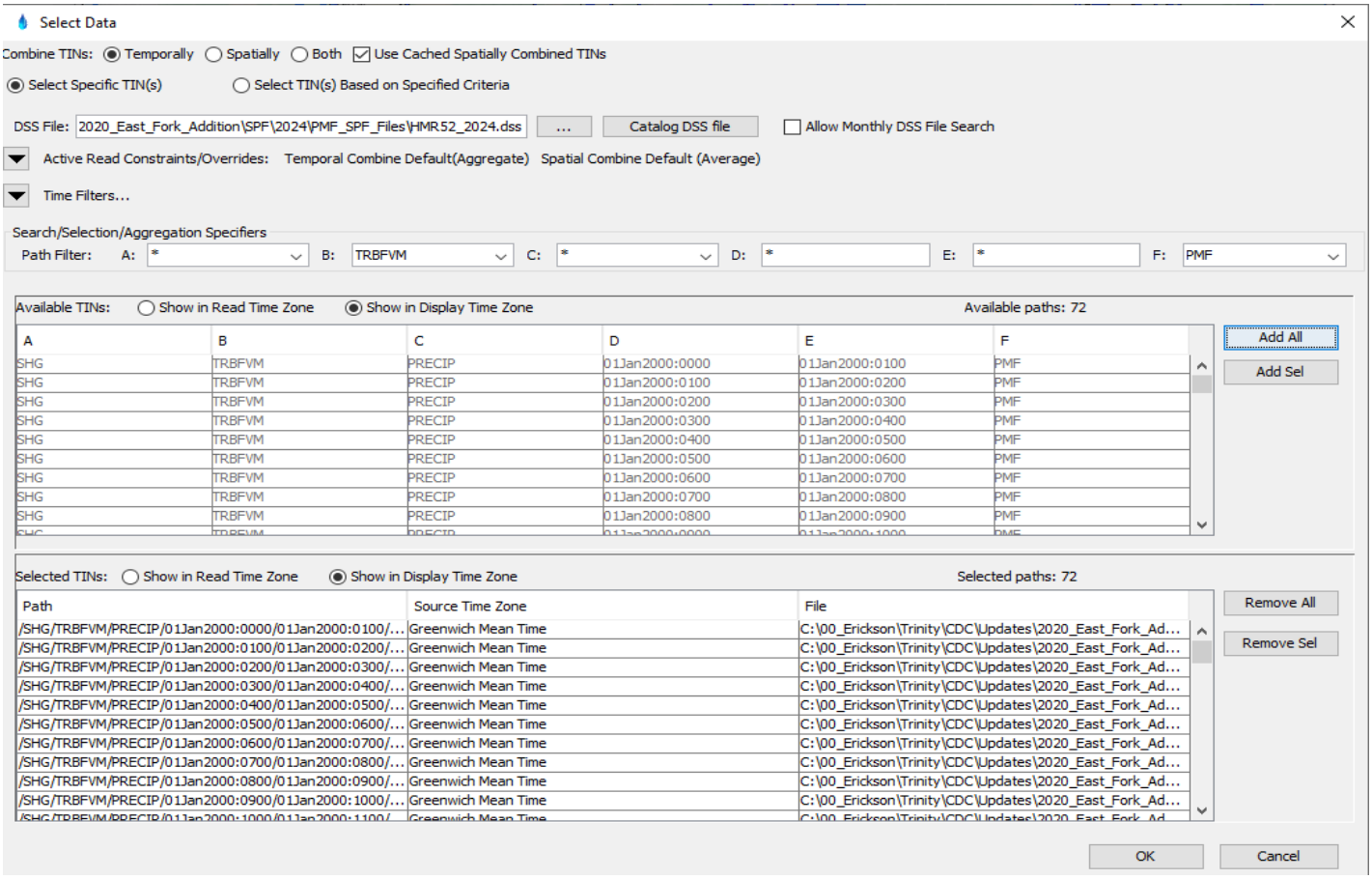
InFRM Trinity WHA Elliptical Storm



Save PMF Storm to Gridded DSS file

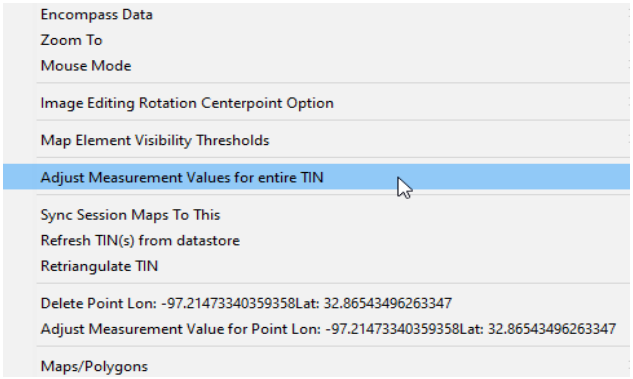


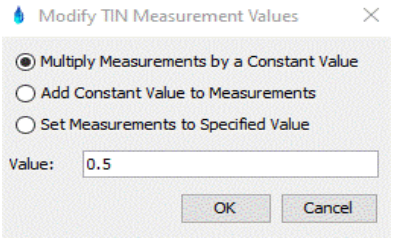
Add PMP gridded DSS file into Metvue (Select DSS Paths)



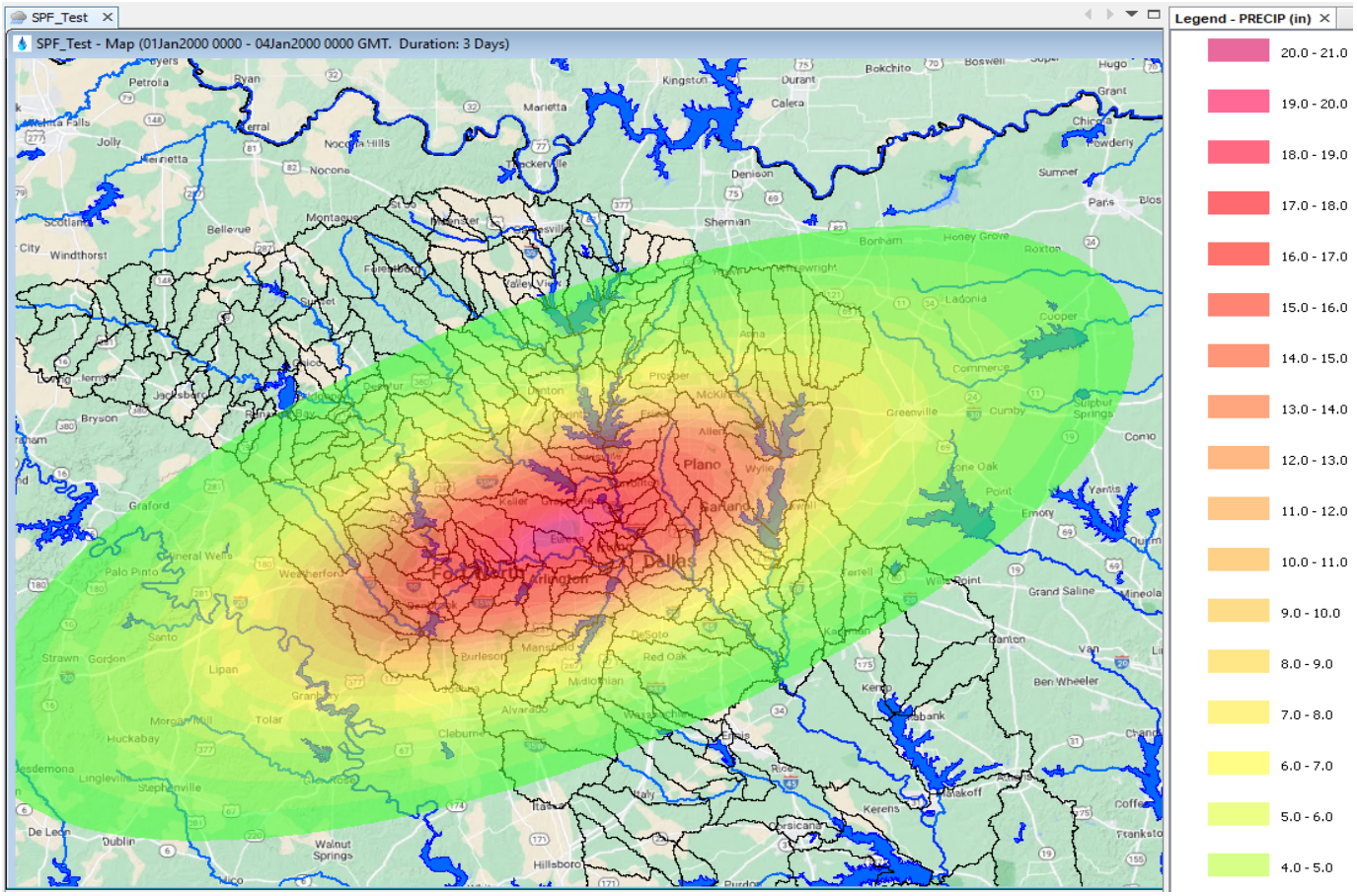
Create SPF storm by reducing PMF storm by 50%.

Right click on map and select "Adjust Measurement Values for entire TIN"

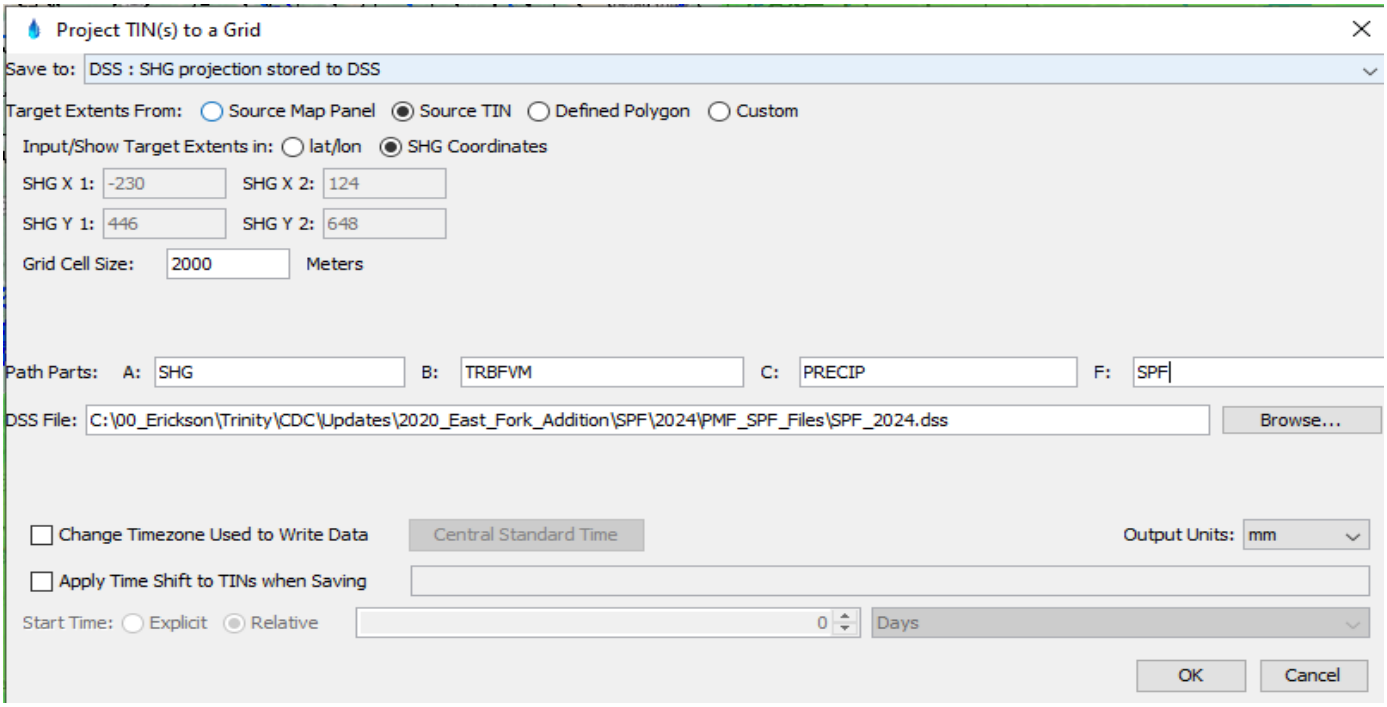




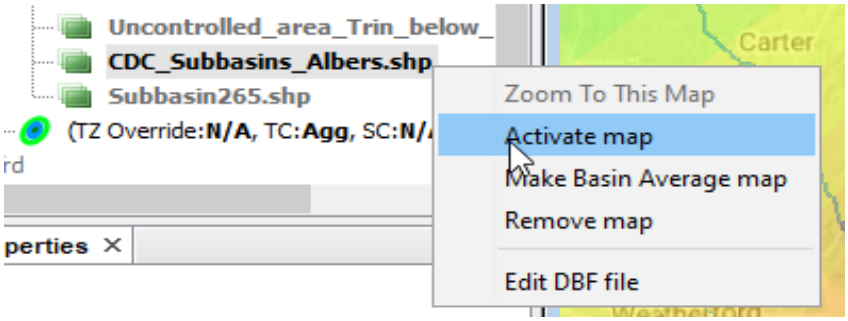
Notice the resulting storm totals have been reduced by 50% from the PMF storm.

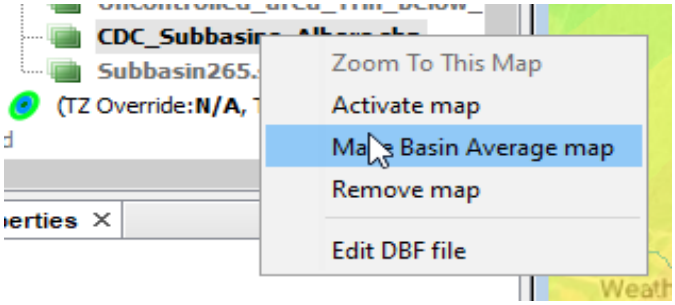


Save SPF Storm to Gridded DSS file

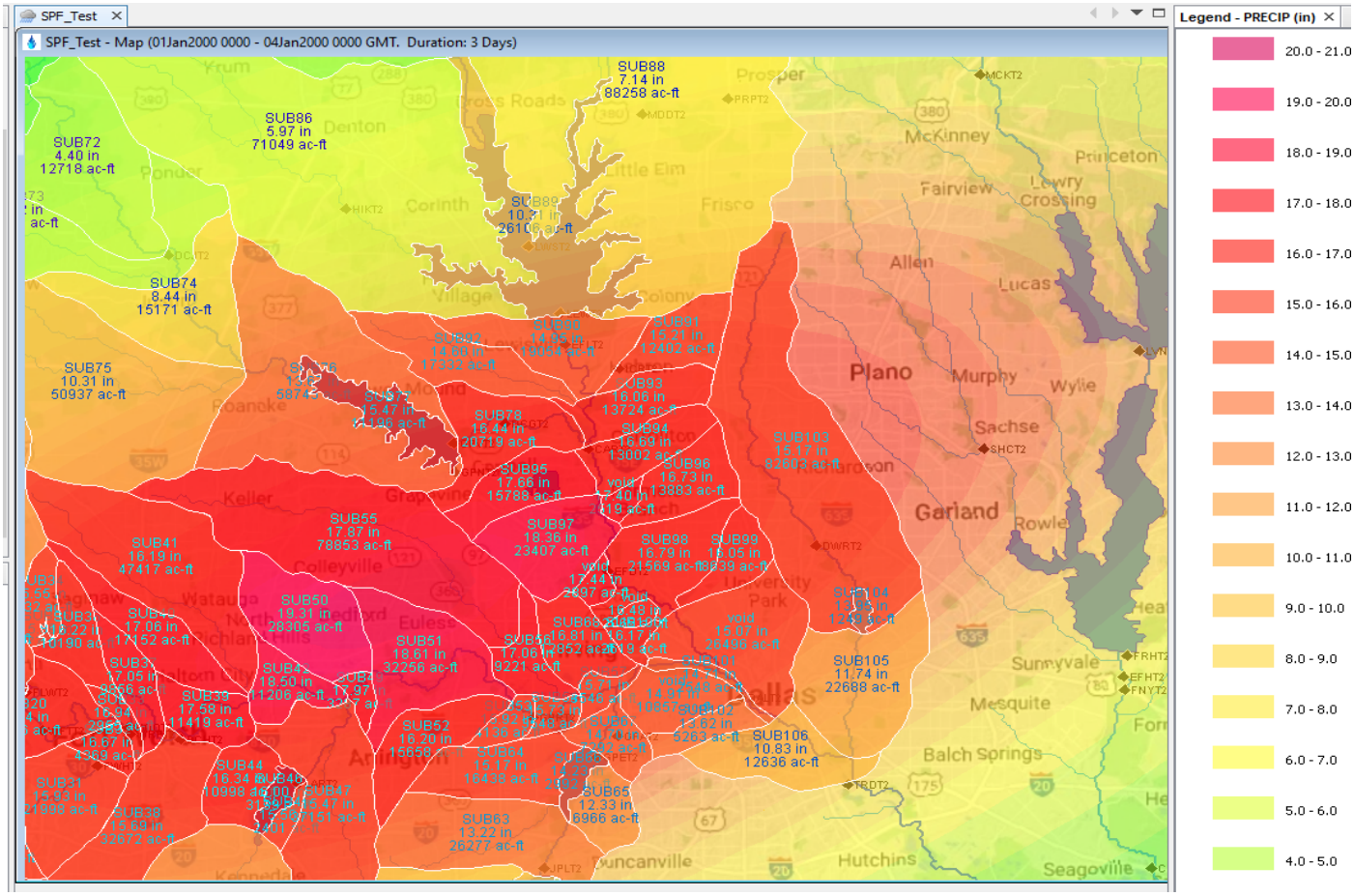


Activate CDC Subbasins Shapefile by right clicking the map layer and selecting "Activate"

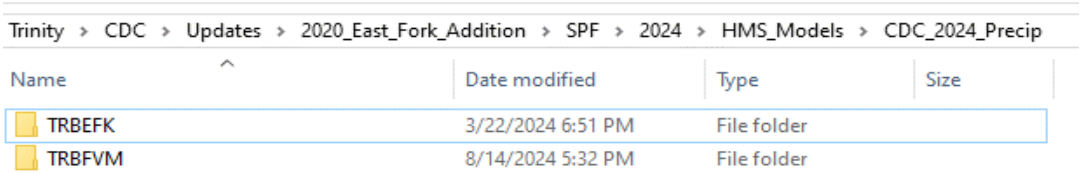




SPS subbasin averages will be visible

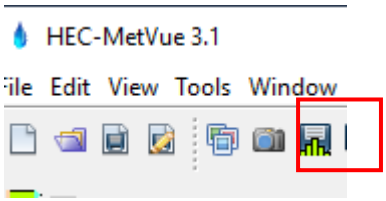


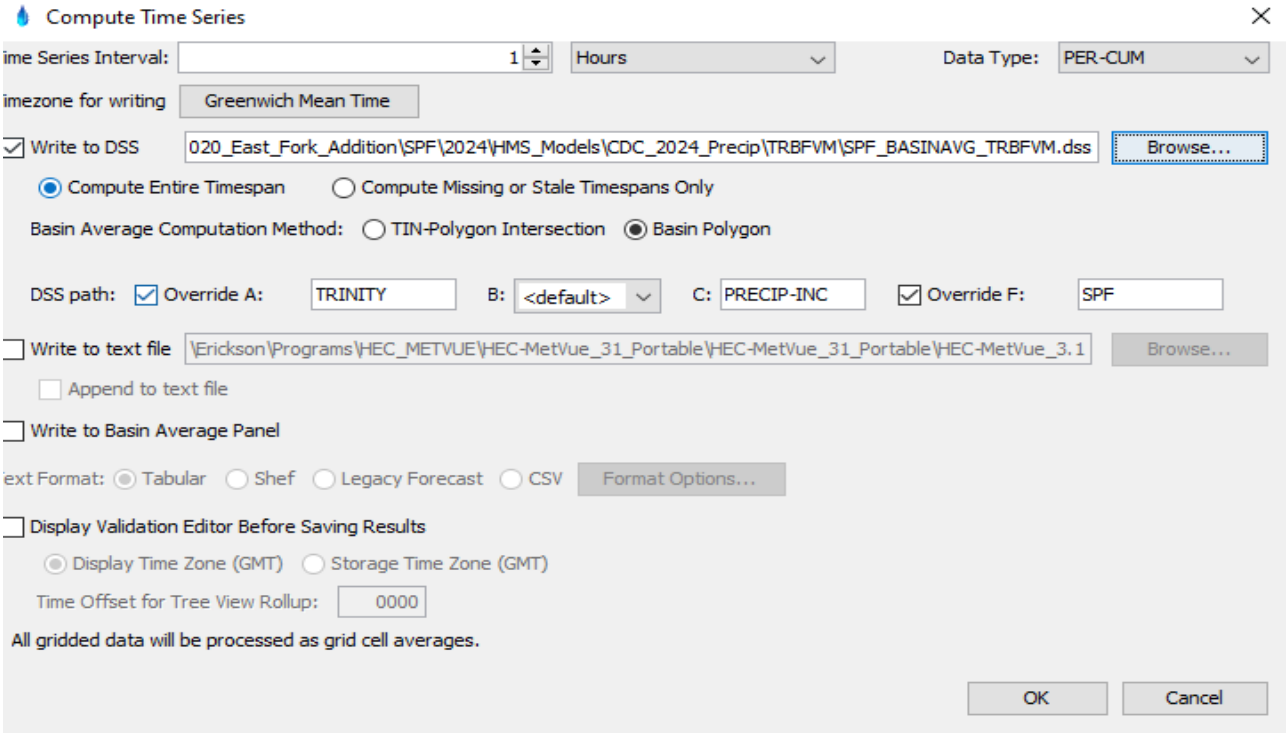
Copy the 2013 CDC HMS model to a new folder named after the junction of interest (i.e TRBFVM for Trinity below five mile creek)



Create a subbasin average dss file

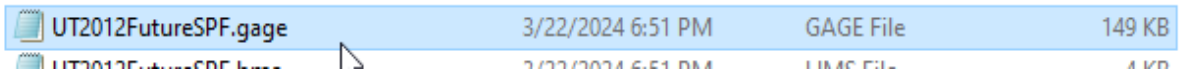
Select the Create Subbasin Time Series from TIN tool



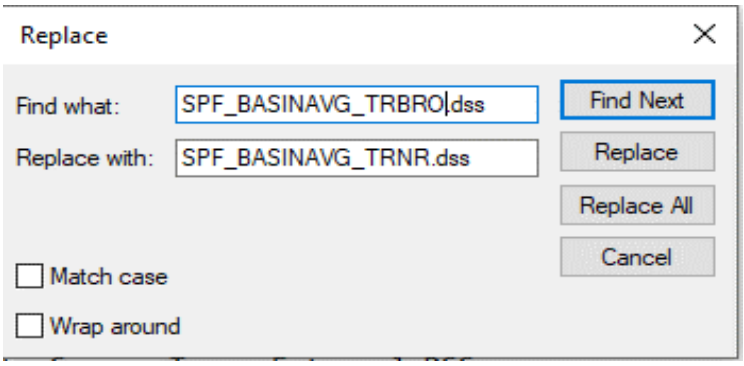


Change the DSS file and Pathnames for the Walker Branch gages to link to the SPS basin average dss file recently created.

Make sure HMS is closed when revising the .gage file or the changes will not be saved.



Open the file in notepad and use the Find and Replace tool

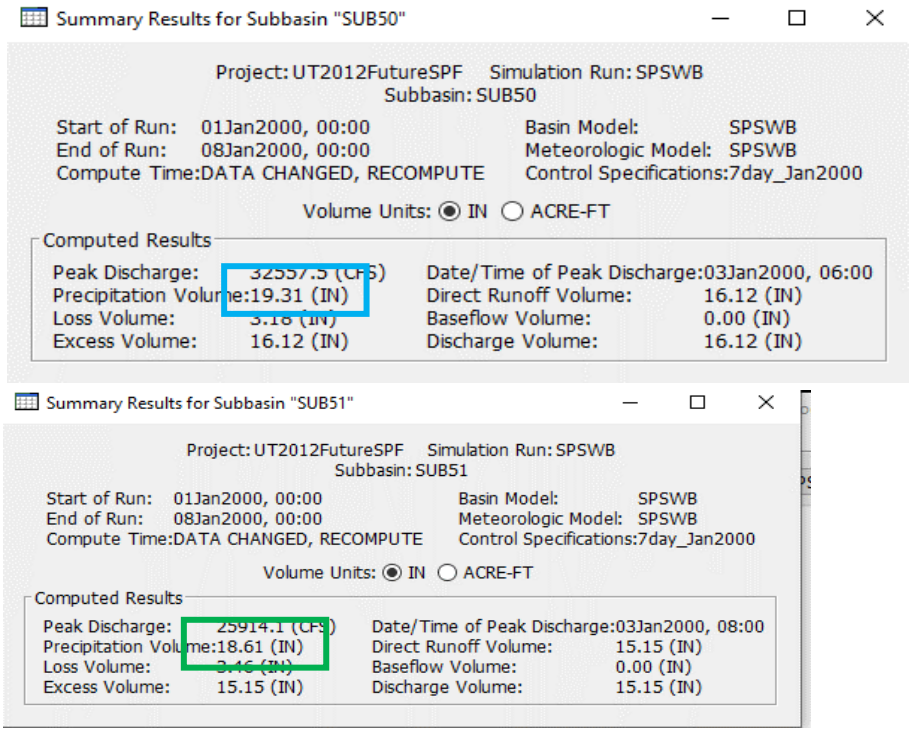


The revised file should look like the example below.

```
Gage: SUB101WB
      Last Modified Date: 10 November 2012
      Last Modified Time: 18:05:25
      Reference Height Units: Feet
      Reference Height: 32.808
      Gage Type: Precipitation
      Precipitation Type: Incremental
      Units: IN
      Data Type: PER-CUM
      Data Source Type: External DSS
      Variant: Variant-1
        Last Variant Modified Date: 22 March 2024
        Last Variant Modified Time: 23:14:09
        Default Variant: Yes
        DSS File Name: SPF_BASINAVG_TRBFVM.dss
        DSS Pathname: /TRINITY/SUB101/PRECIP-INC/01JAN2000/1HOUR/SPF/
        Start Time: 1 January 2000, 00:00
        End Time: 4 January 2000, 00:00
      End Variant: Variant-1
End:
```

Run the SPSWB Simulation Run

Verify the subbasin average precipitation volume totals match between Metvue (see previous screnshot of SPF storm in Metvue) and HMS



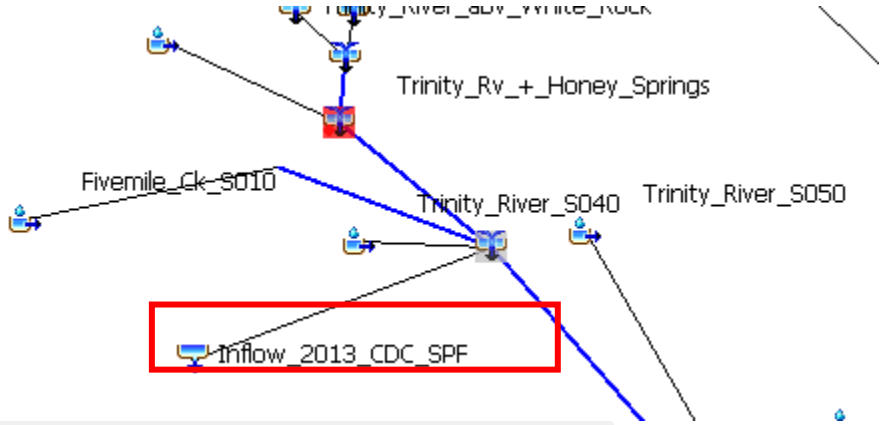
Open the Future Condition (20255) Elliptical Design Storm Model (Updated from Trinity WHA)

Copy 500yr Future Condition Basin model. This is required for each location in the Summary of Discharges table because the basin model will link to the 2013 CDC HMS model where the 2024 SPF simulation was made.

Note the HMS model elements upstream of the "Trinity_River_+Five_Mile_Ck" junction are disconnected so that the inflow to this junction is coming from the 2013 CDC model (with 2024 SPF Storm)

Basin Name: 500yr_Fut_SPF_CDC_TRNR
Element Name: Trinity_River_R050

Description:	ROUTE FROM TRINITY RIVER AT BELOW DALLAS GAGE(RM491.83) TO FIVE MILE CR. (RM486.55)
Downstream:	--None--
Routing Method:	Modified Puls
Loss/Gain Method:	--None--



Basin Name: 500yr_Fut_SPF_CDC_TRNR
Element Name: Inflow_2013_CDC_SPF

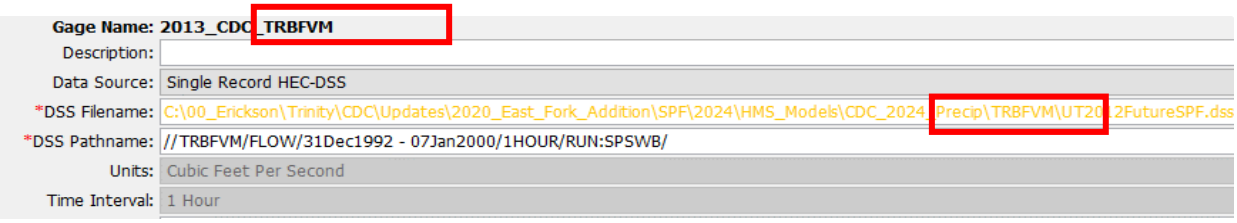
Description:	
Downstream:	Trinity_River_+_Five_Mile_Ck
Area (MI2)	0.01
Flow Method:	Discharge Gage

Basin Name: 500yr_Fut_SPF_CDC_TRBFVM
Element Name: Inflow_2013_CDC_SPF

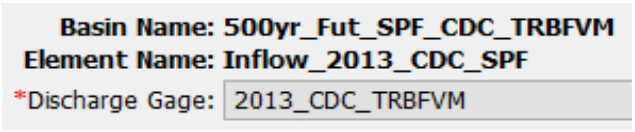
Discharge Gage:	2013_CDC_TRBFVM

Create discharge gage for junction of interest by copying an existing discharge gage

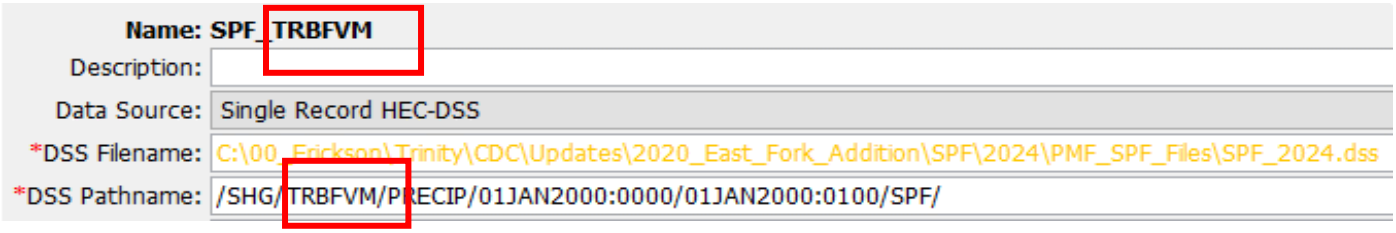
The DSS Pathname will be the same for all the simulations but the DSS Filename will need to be updated to point to the specific folder containing the specific storm and HMS model for the junction of interest. Notice below how the Gage Name and the folder are for the same junction.



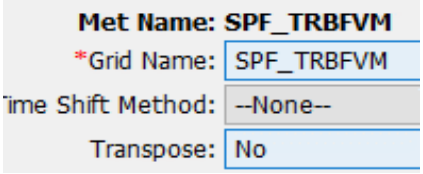
Go back into the basin model and make sure that the "Inflow_2013_CDC_SPF" element is pointing to the new Time-Series Gage that was just created.



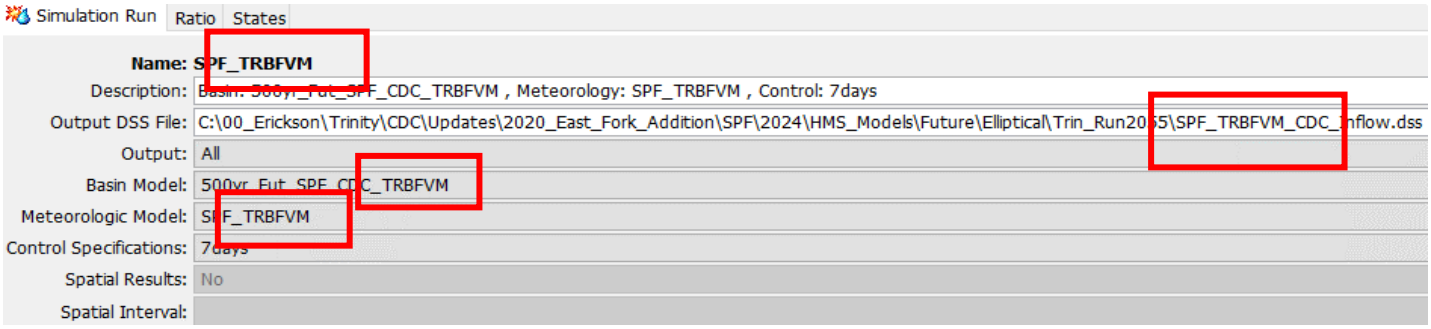
Create a new Precipitation Gridset that will point to the 2024 SPF Storm that was created for the location of interest. This can be done by copying an existing gridset and updating the DSS Pathname. The DSS filename does not need updating since it will be the same for all runs.



Create a new Meterologic Model that will point to the Precipitation Gridset just created.



Create a Simulation Run using the Basin Model and Meteorologic Model that were recently created.



Run Simulation and record results from the Global Summary Results Table