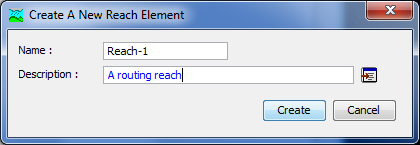
**Adding Reservoirs and Reaches to the HEC-HMS Model**

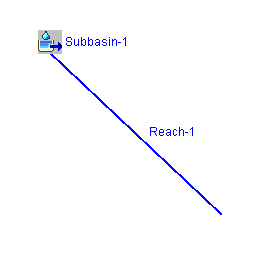
By David R. Maidment  
CE 374K Hydrology  
University of Texas at Austin  
March 2012

Starting with the Subbasin element from the previous exercise, lets continue our construction of an HEC-HMS model.

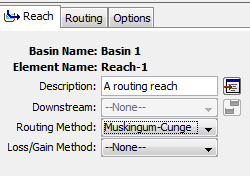
**Adding a Reach Element**

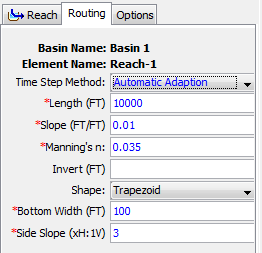
Click on the Reach Creation Tool  and on the basin model screen, drag a line between two points and create a new Reach element.



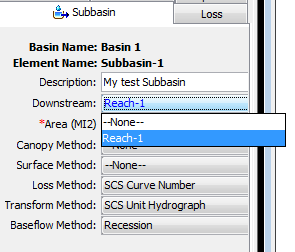


Now, let’s give the reach some parameters using the Muskingum-Cunge method:



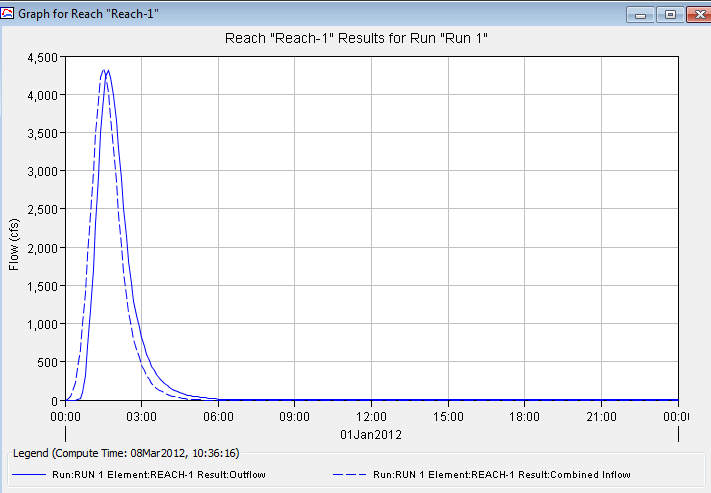


Let’s connect the Subbasin element to the Reach element downstream of it:



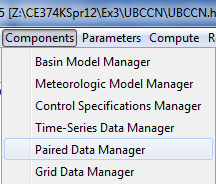
And let’s repeat the run we made before with the routing reach included.

And here is the computed result

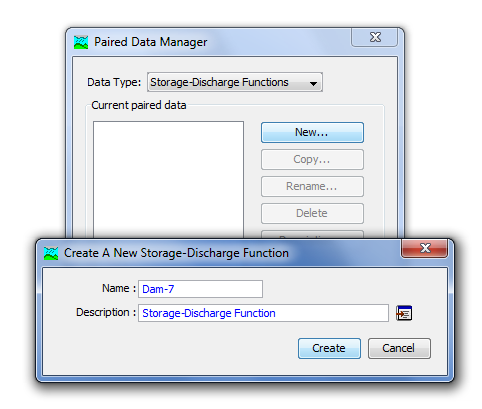


**Adding a Reservoir Element**

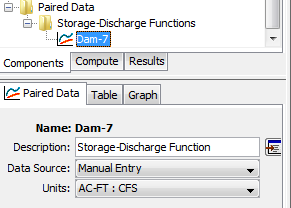
create a new Paired Data table



And I’ll call this the Dam-7, Storage-Discharge Function table



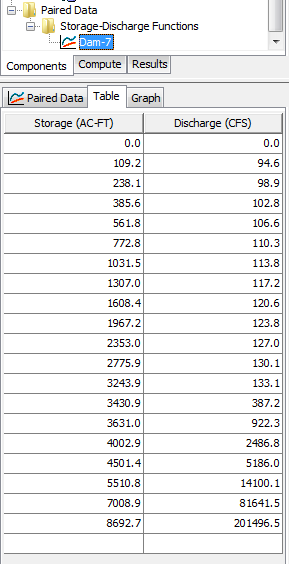
I will enter the data manually as the only other option is HEC-DSS and we don’t have the data stored there yet.



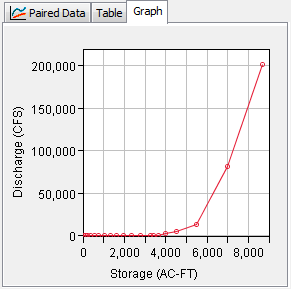
The data to be entered for Dam 7 were obtained from the Upper Brushy Creek Water Control and Improvement District, as follows:

|  |  |  |
| --- | --- | --- |
| Elevation | Storage | Total Discharge |
| 805.00 | 0.0 | 0.0 |
| 807.00 | 109.2 | 94.6 |
| 809.00 | 238.1 | 98.9 |
| 811.00 | 385.6 | 102.8 |
| 813.00 | 561.8 | 106.6 |
| 815.00 | 772.8 | 110.3 |
| 817.00 | 1031.5 | 113.8 |
| 819.00 | 1307.0 | 117.2 |
| 821.00 | 1608.4 | 120.6 |
| 823.00 | 1967.2 | 123.8 |
| 825.00 | 2353.0 | 127.0 |
| 827.00 | 2775.9 | 130.1 |
| 829.00 | 3243.9 | 133.1 |
| 829.75 | 3430.9 | 387.2 |
| 830.50 | 3631.0 | 922.3 |
| 831.85 | 4002.9 | 2486.8 |
| 833.50 | 4501.4 | 5186.0 |
| 836.50 | 5510.8 | 14100.1 |
| 840.25 | 7008.9 | 81641.5 |
| 844.00 | 8692.7 | 201496.5 |

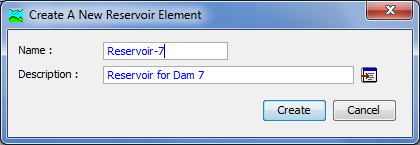
The resulting table appears as:

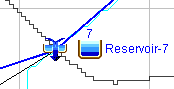


and the graph of the storage-discharge function is:



Now, we’ll create a new Reservoir element 





The options for Reservoir-7 are edited as shown below. The “Outflow Curve” method means that the relationship between storage and outflow is defined by a function, in this case, the Paired Data table just defined for Dam 7.

