DRAINAGE DESIGN MANAGEMENT SYSTEM FOR WINDOWS

VERSION 5.3.0

TUTORIAL # 7
DEVELOPING A MODEL WITH CUSTOM STORM EVENT

KVL Consultants, Inc.

DEVELOPING A MODEL WITH CUSTOM STORM EVENTS

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# DEVELOPING A MODEL WITH CUSTOM STORM EVENT

1.0   INTRODUCTION

This tutorial outlines the method for creating a Project with Custom Storm Event. At present, **all Custom Storm Events are limited to using S-Graph for the Unit Hydrograph.** The procedure for creating a Custom Storm Event project is basically the same as developing a HEC-1 project using S-Graph. The only difference is that the rainfall uses a custom distribution.

In this procedure, it is assumed that the base HEC-1 project had been developed using S-Graph as the Unit Hydrograph. If the Clark Unit Hydrograph had been used, then some modifications would have to be made to the Sub-Basin data.

2.0   CREATE A COPY OF AN EXISTING PROJECT

Copy an Existing Project ('File ➜ Project Management') to be used for this tutorial. For this example, create a copy of **KVLEXAMPLE6,** which is a project that used the S-Graph Unit Hydrograph.
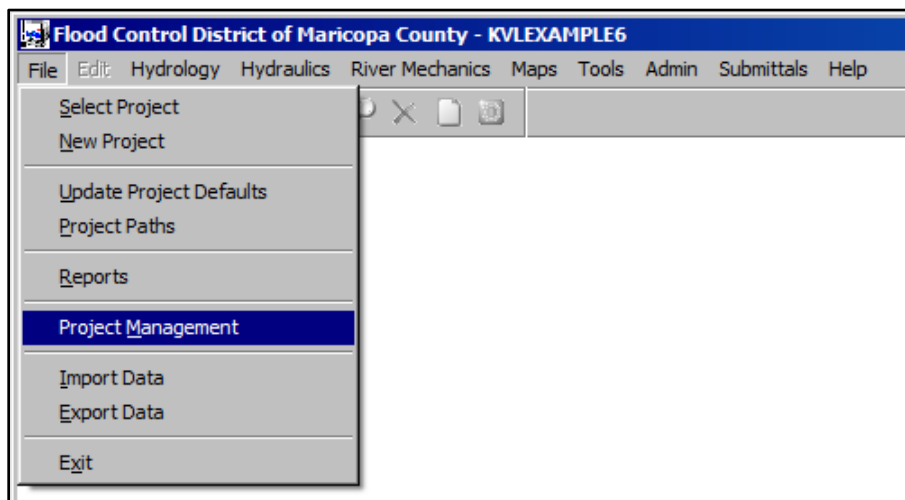

Enter a short alphanumeric name with no spaces to the **"To Project"** textbox field. (For this tutorial, enter **KVLEXAMPLE6A**). The "**To Project**" field can hold as much 20 characters. Press the *'Save'* button to save the data and then press the *'Copy'* button to copy the project. Then press *'OK'* to close the form.
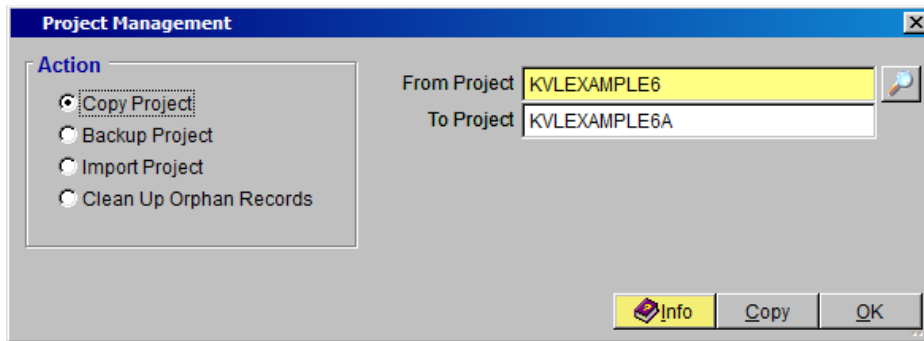
3.0 MODIFY PROJECT DEFAULTS

On the **SELECT PROJECT** form (**'File ➔ Select Project'**), select the new project (**KVLEXAMPLE6A**). Click the **Details** tab to make changes on the **Title**, **Location**, and **Agency** information. Check the **'Custom Storm Event'** checkbox. You will notice that when **'Custom Storm Event'** is checked, the **Rainfall** textbox field changes to *CUSTOM* and cannot be edited. In addition, the **Unit Hydrograph** is set to *S-Graph* and **Storms** are set to *Single*. Neither of these fields can be edited. Finally the **Return Periods** to model disappeared from the form as they are not relevant for this project. When complete, press **'Save'** and **'OK'** to close the **SELECT PROJECT** form.
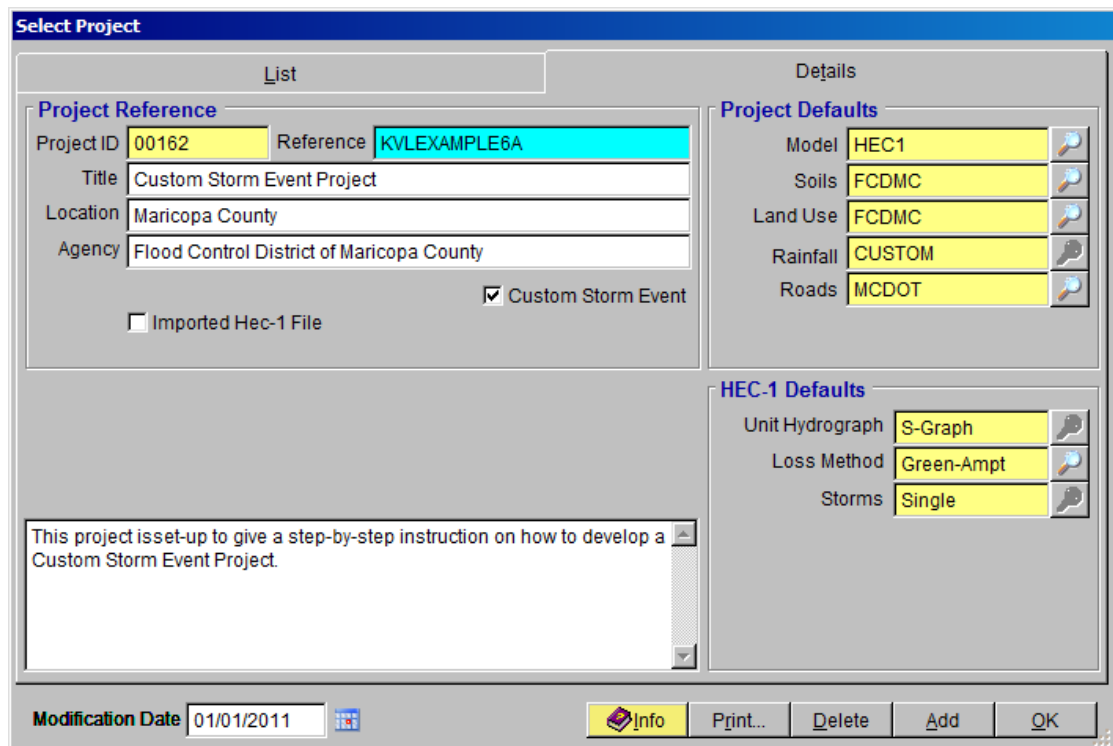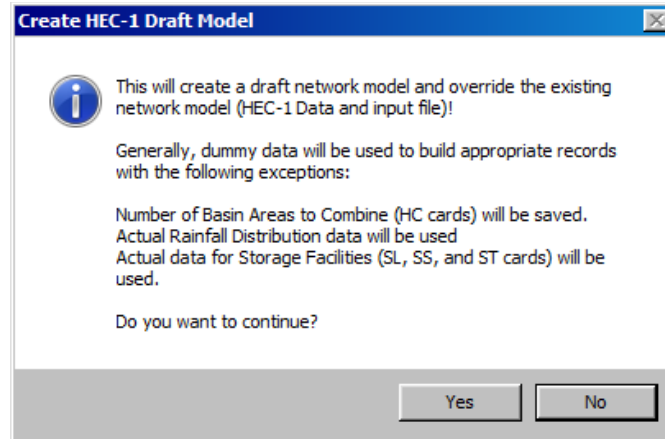
4.0   DEFINE / ESTABLISH RAINFALL DISTRIBUTION IDS

On the **CUSTOM STORM EVENT DISTRIBUTION IDS** form (*'Hydrology ➔ Custom Storm Event ➔ Distribution Ids'*), define the Rainfall **Distribution ID.** Up to 6 distributions can be set up at any one time. Enter *'15'* as input to the **Time Interval (min)** textbox field. For **Type**, select '*PC*' from the drop down list. Enter *'10'* for the **Number of Distribution Records**. These values will be the same for all the distributions. Modeling more than one rainfall using the Default distribution can be done by entering a precipitation depth value on the **Rainfall** column and checking the corresponding **Use Default Distribution** checkbox. For this tutorial, enter the other data as presented below. Press *'Save'* and *'OK'* to close the form.
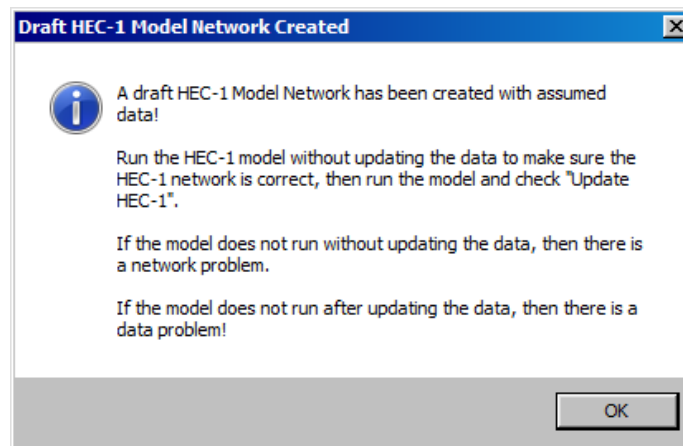
	Custom Storm Event Distribution Ids				
	Custom Storm Event Distribution IDs				
		Time Interval (min)	15		
		Type	PC		
		Number of Distribution Records	10		
	Distribution ID	Use Default Distribution	Rainfall (in)	Description	
1.	DEFAULT		4.00	Default Custom Storm Distribution ID	
2.	DISTID2	☑	12.00	Default Distribution No. 2	
3.	DISTID3	☐			
4.	DISTID4	☐			
5.	DISTID5	☐			
6.	DISTID6	☐			
				Info Print... OK	

5.0   DEFINE / ESTABLISH RAINFALL DISTRIBUTION DATA

On the **CUSTOM STORM EVENT DISTRIBUTION** form (*'Hydrology ➔ Custom Storm Event ➔ Distribution Data'*), the *DEFAULT* distribution data must be entered. The number of PC or PI records must be the same as established on the **CUSTOM STORM EVENT DISTRIBUTION ID** form. If more than one rainfall has been entered on the **CUSTOM STORM EVENT DISTRIBUTION ID** form, and the **Use Default Distribution** check box is NOT checked, then it is necessary to enter additional distribution data for the ID. The **Distribution ID** can be selected by clicking the '*Distribution'* button and selecting the **ID.** Press *"OK"* to close the form.

6.0 CREATE A DRAFT MODEL

Before running the model, it is necessary to create a Draft Model (*'Hydrology ➔ Custom Storm Event ➔ Network'*). Click **"Create Draft"** to create the draft model with the new PC/PI records.

Click *'Yes'* to continue.

Click *'OK'* to close the **DRAFT HEC-1 MODEL NETWORK CREATED** form.

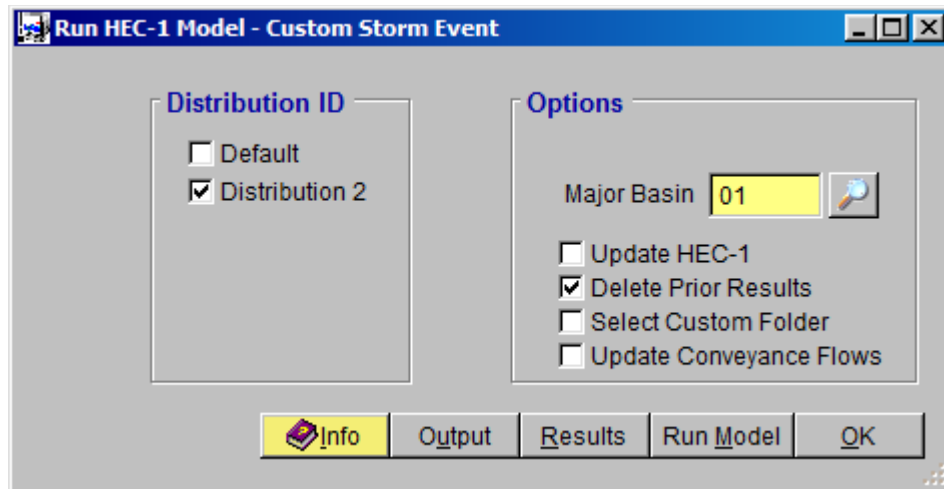After viewing the Draft Model file, exit or close the Editor.

7.0 RUN THE MODEL

On the **RUN HEC-1 MODEL – CUSTOM STORM EVENT** form (*'Hydrology ➜ Custom Storm Event ➜ Model'*), check the **Distribution 2** and **Delete Prior Results** check boxes. Click the *'Run Model'* button to execute the program.

Distributions will be available to model for all IDs that have a rainfall in the **CUSTOM STORM EVENT DISTRIBUTION ID** form. The process is exactly the same as modeling a HEC-1 model.

This ends the tutorial.