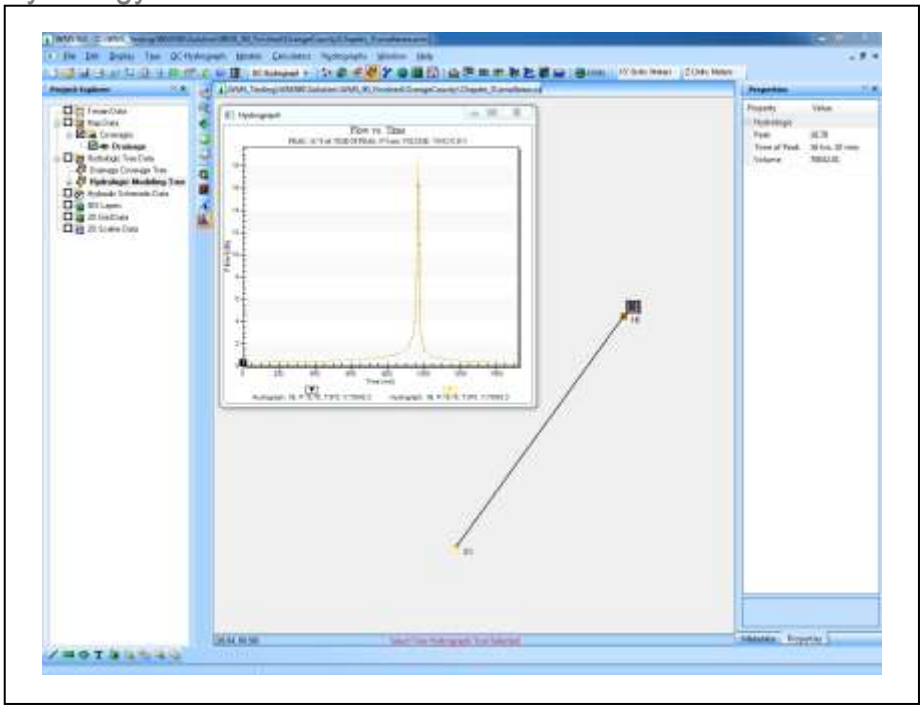
WMS

v. 10.0

WMS 10.0 Tutorial

Watershed Modeling – Orange County Small Area Hydrograph

Compute a small area hydrograph based on methods in the Orange County (California) hydrology manual



Objectives

This tutorial demonstrates the necessary steps to compute a small area hydrograph using the example problem on page J-3 of the Orange County Hydrology Manual.

Prerequisite Tutorials

- None

Required Components

- Hydrologic Models

Time

- 5-10 minutes

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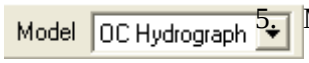
1 Introduction

This exercise will cover the steps necessary to compute a small area hydrograph using the example problem on page J-3 of the Orange County Hydrology Manual.

2 Creating Hydrologic Tree (Schematic) Model

1. Open WMS. If WMS is already open, click *File* | **New** then click **No** if asked to save changes.
2. Switch to the **Hydrologic Modeling** module.
3. Select *Tree* | *Add* | **Outlet** (or press the O key on the keyboard).
4. Select *Tree* | *Add* | **Basin** (or press the B key on the keyboard).

This generates a basic schematic model representing a concentration point with one sub-area.



5. Make sure that the *Model* combo box is set to "OC Hydrograph".

3 Small Area Hydrograph Input Parameters

1. Use the **Select Basin** tool to select the sub-area labeled 1B.
2. Select *OC Hydrograph* | **Edit Parameters…**
3. The Edit *Orange County Unit Hydrograph Parameters* dialog will appear. In the *Small Area Hydrograph* section of the dialog click on the **Define…** button
4. The *Orange County Small Area Hydrograph Wizard* will appear. Enter a *Basin Area* of "8.0" acres.
5. Click on the **Update Frequency** button.
6. The *OC Rational Method – Job Control* dialog will appear. Change the *Frequency* to "10-year".
7. Select **OK**.
8. Set the *Time of concentration* to "10.0" min.
9. Enter a *Fm* value of "0.12".
10. Enter a *Ybar* value of "0.35".
11. Click on the **Next** button to view the computations in a tabular format.
12. Select **Done**.

13. Select **Done** in the *Edit Orange County Unit Hydrograph Parameters* dialog.
14. Double-click on the hydrograph icon.

Users can view a plot of the small area runoff hydrograph including the peak flow, time to peak, and volume of runoff as show in Figure 1.

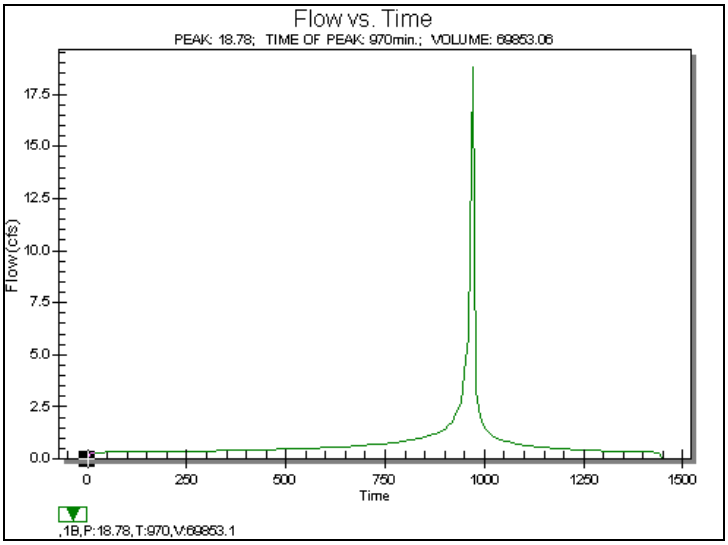


Figure 1 Small runoff hydrograph

4 Conclusion

Users should have learned to compute a small area hydrograph. Users can feel free to continue experimenting with WMS or can exit the program.