Works 2013

Flood Flow Calculation

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WHITEPAPER

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1 About the whitepaper

1.1 Purpose

The purpose of this example is to calculate the flood flow of a catchment basin for the construction of a water drainage collector.

The basin is located near the Elassona area and has low hills and permeable groung with dense vegetation.

The basin data are as follows:

Basin data	Value
Area of the basin	155 ha
Length of main basin river	2.17 km
Average surface slope	3.5%
Average basin elevation	450 m
Elevation of basin outlet	56 m
Runoff coefficient	0.30
Mean annual accumulated rainfall	1.2 m
Impervious ground percentage	35%
SCS curve number	86

The flood flow will be calculated using the rational method and the concentration time using the Giandotti formula.
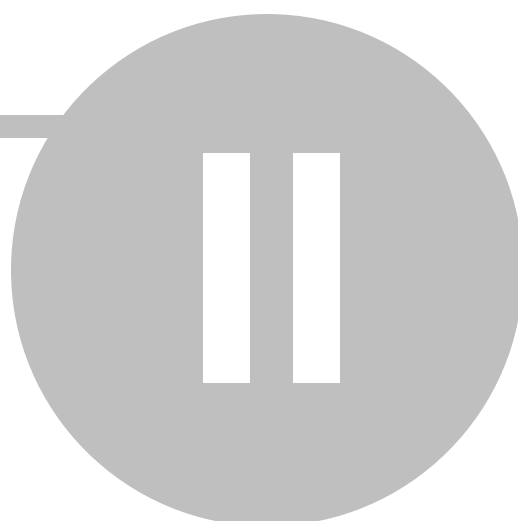
1.2 Software

In order to complete the example successfully, the following software is required:

- Flood Flows v11.0.

Later versions of the aforementioned software may be incompatible with the structure of the example as it is presented herein.
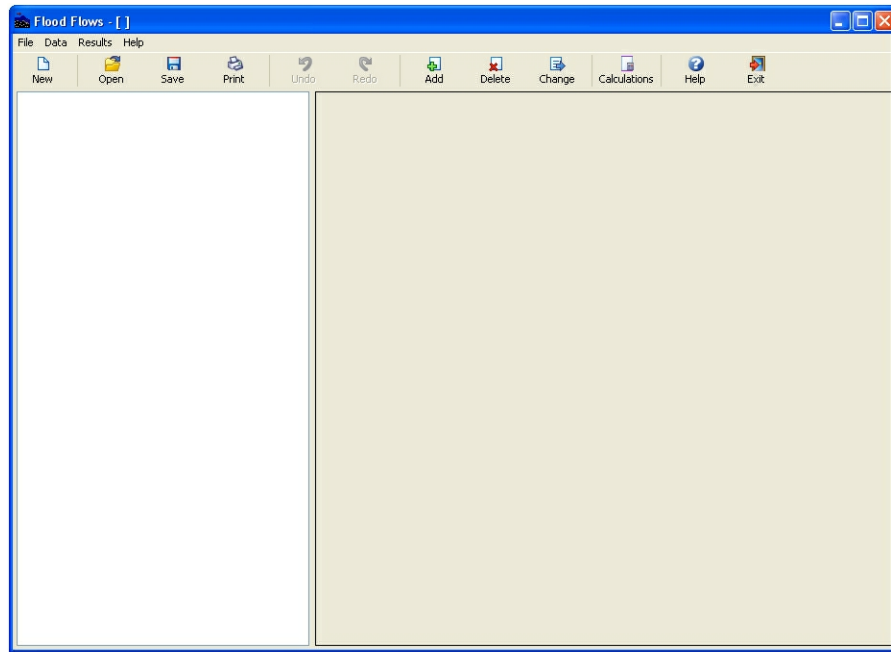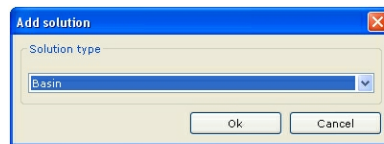
Chapter

II

2 Steps

2.1 Step 01: New Project

Select **New Project** from the **File** menu. The program will remove any data from memory and prepare to start a new project:

2.2 Step 02: Data Input

Select **Data > Add Solution**:

Select **Basin** from the **Solution type** drop-down list and hit **Ok**.

Select **Data > Basins > IDF Curve**:

The IDF coefficients are unknown so press the **Database...** button:

The basin is near Elassona so select the Elassona curve for a return period (**T**) of 50 years (which is an adequate period for a water drainage collector). Press **Ok** twice to close the open forms.
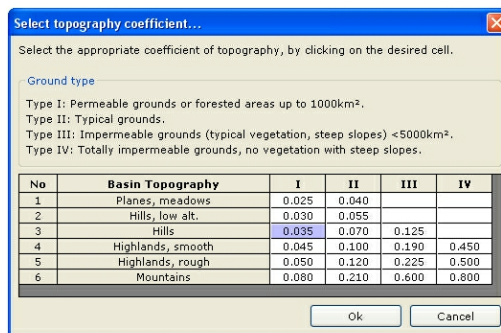
Select **Data > Basins > Basin Properties**:

Enter the following properties:

- Type "**Basin 1**" in the **Name** cell.
- Click on the **Solver** cell and select **Rational method** from the drop-down list.
- Click on the **Calculation formula** cell and select **Giandotti** from the drop-down list.
- Double click on the **Area of the basin (km²)** and click on the unit converter button (**U**). On the unit converter form select **hectare (ha)** from the drop-down list, type "**155**" in the field next to it and press **Ok**.


- Type "**2.17**" in the **Length of the main basin river** cell.
- Type "**0.035**" in the **Average surface slope** cell.
- Type "**450**" in the **Average basin elevation** cell.
- Type "**56**" in the **Elevation of basin outlet** cell.
- Type "**0.30**" in the **Runnoff coefficient** cell.
- Type "**35**" in the **Impervious ground (%)** cell.
- Type "**86**" in the **SCS curve number (CN)** cell.
- Type "**50**" in the **Return period T** cell.
- Type "**1.2**" in the **Mean annual accumulated rainfall H** cell.
- Click on the **Topography coefficient** cell, press the ellipses button (**...**) and in the following form select the value **0.035**, which corresponds to Hills and permeable ground or forrested areas, and click **Ok**.
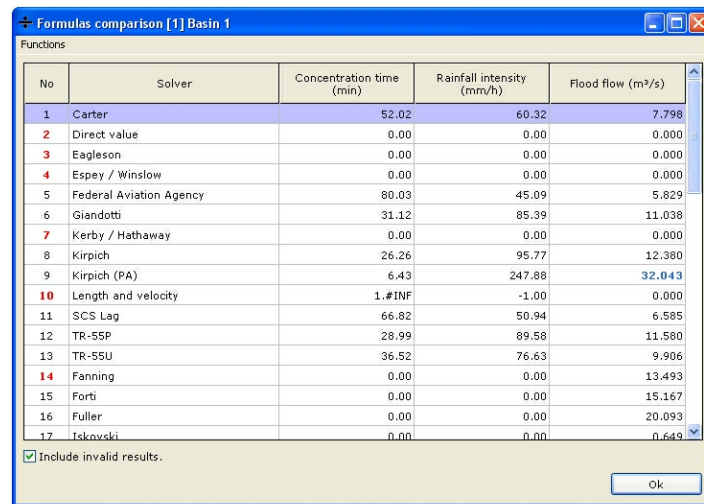
Press the **Ok** button on the basin properties form to close it.

2.3   Step 03: Calculations

The calculations are performed automatically. The results are displayed in the right grid of the main form:
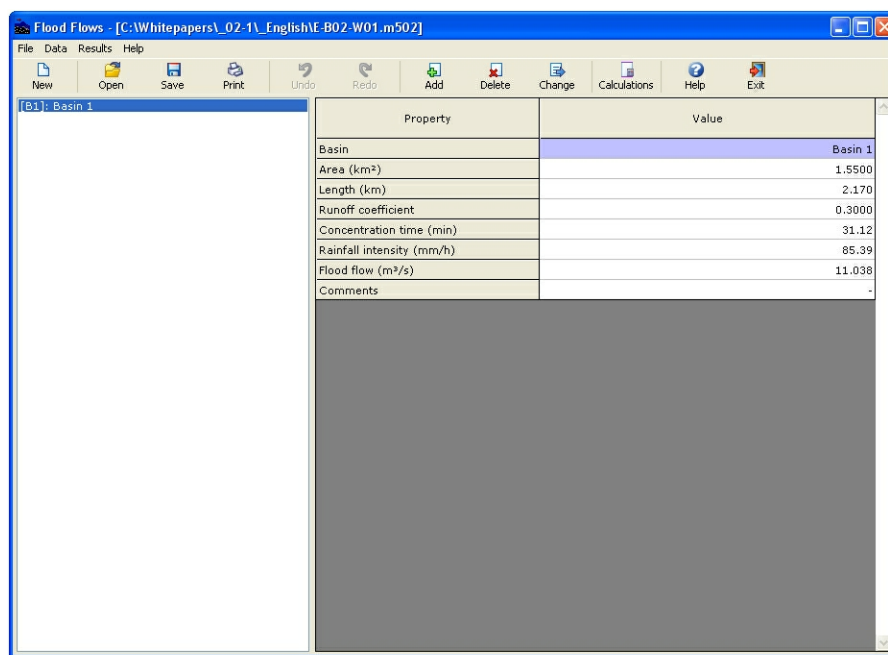
In order to compare the results of the selected calculation method with the results of all the other methods for calculating concentration times and flood flows, select **Results > Basins > Comparative Analysis** or hit **F3**:
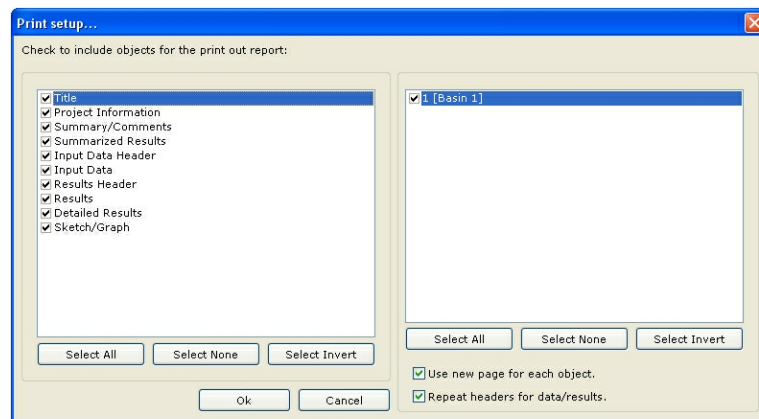
The methods that could not be solver due to insufficient data are marked with red. The highest value for the flood flow, regardless of the calculation method used, is marked with blue.

2.4   Step 04: Printing

Optionally, you may want to print the results to a printer, to Microsoft Word or Microsoft Excel. From the **File** menu select **Print setup:**

Select the solution "EXAMPLE" from the list on the right and select **Ok**.

From the **File** menu select **Print** or **Print To > Word** or **Print To > Excel** to invoke the corresponding print engine.

Chapter

III

3 Help

3.1 Technical support

Technical Support

TechnoLogismiki offers technical support 24 hours per day, 365 days per year, through the Web site where you can get information on the latest programs and services.

Support by e-mail

Please use the dedicated e-mail addresses for better customer service:

- for questions regarding sales: sales@technologismiki.com
- for questions regarding the usage of programs: support@technologismiki.com
- for any other question or comment: info@technologismiki.com

The normal response time is within two business days. If your inquiry cannot be answered via e-mail, a customer service representative will contact you via telephone.

Interactive Support

Business days, 09:00 - 17:00 Eastern European Time:

- Telephone [3 lines]: ++30-210-656-4147
- FAX: ++30-210-654-8461
- Address: 5, Imitou str, Cholargos, 15561, Athens, Greece.