

Flood Studies Update: Work Package 3.5 – Interactive Bridge Invoking the Design Event Method (IBIDEM)

Category: Flood Risk Management

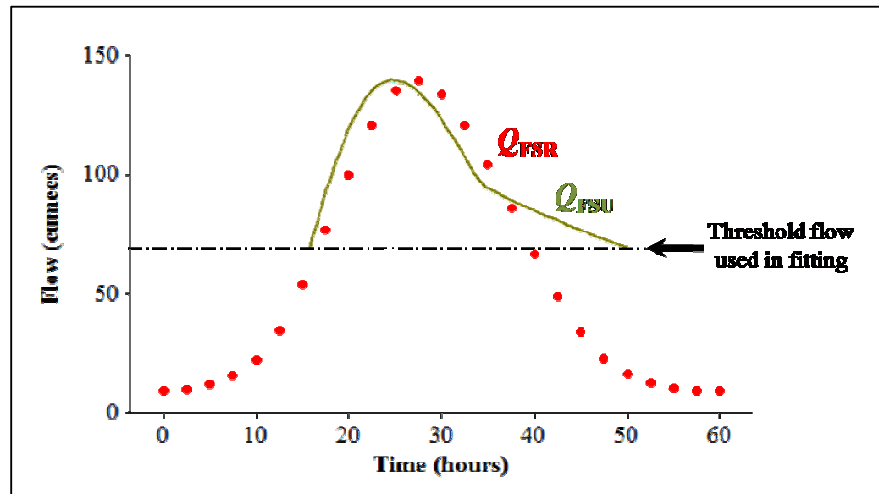


Illustration of fitting the FSR design hydrograph to the FSU design hydrograph

Description:

The FSU strategy is to estimate the design flood hydrograph by combining the (broadly statistical) outputs of WP2.2, WP2.3 and WP3.1. Consultation evenings held in June 2007 revealed that some practitioners regretted the FSU’s “diversion” from the FSR rainfall-runoff method of estimating flood hydrographs and the consequent loss of the conceptual link to the flood-producing rainfall. Some users noted the flexibility that a rainfall-runoff model allows, and wished to retain this (e.g. the ability to test the sensitivity of designs to storms of different durations).

In reviewing this feedback, the Technical Steering Group of the FSU Programme came up with the idea of building a bridge to the FSR rainfall-runoff method. The approach is to choose the T_p and SPR parameters of the FSR rainfall-runoff model so that the design hydrograph synthesised by the FSR design event method matches that produced by the FSU procedures, though the user will also be free to adjust the baseflow component (BF). The default will be to invoke the FSU generalisation of rainfall depth-duration-frequency developed in WP1.2.

Under this approach:

- The desired link with rainfall is maintained;



- The whole hydrograph is synthesised. Thus, the user will be able to examine runoff volumes, and route hydrographs, as they are used to doing with the FSR rainfall-runoff method;
- Those with experience of the FSR design event method can interpret the design storm duration (*D*) and percentage runoff (*PR*) values to which the FSU design hydrograph is said to be equivalent.

The objective of Work Package 3.5 is to develop a software tool linking FSU design hydrographs to the FSR design event (rainfall-runoff) method. IBIDEM stands for Interactive Bridge Invoking the Design Event Method. It will be a simple software tool: (most probably a spreadsheet-type application) and will play an auxiliary role in the FSU.

For further information about this work, please contact: oliver.nicholson@opw.ie

Design Team:

The OPW is responsible for the specification, procurement and direct management of the Flood Studies Update Programme, with technical direction provided by a Technical Steering Group, comprising representatives of the primary state / semi-state organisations involved with hydrology, hydrometric monitoring and associated research in Ireland, viz. OPW, Met Éireann, Environmental Protection Agency, Electricity Supply Board, IHP / ICID National Committee, and has two technical experts.

Construction Team:

JBA Consulting

Dates:

Work Package 3.5 of the Flood Studies Update programme was completed in July 2009.