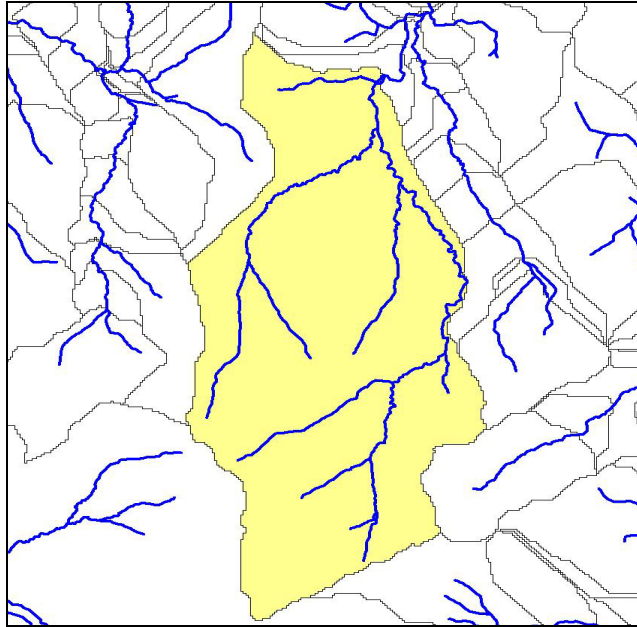


Flood Studies Update: Work Package 5.3 – Preparation of Physical Catchment Descriptors

Category: Flood Risk Management



Automated delineation of sub catchments : Stage III of WorkPackage 5.3

Description:

A number of the FSU Work-Packages involve the estimation of flood peaks and hydrograph shapes at ungauged locations for flood events of varying frequencies and magnitudes. Often, these estimations are based on the characteristics of the catchment that drains to that location.

These characteristics are known as “physical catchment descriptors” (PCDs) and include parameters such as land cover, land use, soils data, meteorological characteristics, etc. Work packages requiring PCDs include WP2.3 (“*Estimation of the index flood at ungauged sites*”) and WP3.1 (“*Hydrograph Width Analysis*”).

This research contract has the objectives of developing physical catchment descriptors for catchments to approximately 230 gauged locations, and thereafter creating catchment boundaries for ungauged locations in Ireland, and developing physical catchment descriptors for catchments to each of these locations, as well as establishing an indicative flood attenuation indicator from elevational data. Work Package 5.3 is one of the most important Work Packages within the FSU and is split into 4 distinct Stages (I to IV) as follows:

- (I) To develop and map a flood attenuation indicator along rivers (and streams) in the Republic of Ireland, based on vectorised datasets of the



river and stream network, and a medium (~10m) resolution digital elevation model of Ireland.

Nodes for ungauged locations were defined at intervals of 500 metres along every river and stream starting from the upstream end, and they were also defined at confluences.

- (II) Based on catchment boundaries, to clip and develop Spatial Catchment Descriptor values/percentages and Hydrological Catchment Descriptors (Rivers and Streams characteristics) to gauged locations.
- (III) To delineate sub-catchment boundaries to ungauged locations (nodes) at fixed intervals (500m), and also at confluences along every river (and stream) in the Republic of Ireland, based on a hydrologically corrected digital elevation model of Ireland.
- (IV) Based on the ungauged sub-catchment boundaries delineated in Stage III, to clip and develop Spatial Catchment Descriptor values / percentages and Hydrological Catchment Descriptors (River and Stream characteristics) at each of the un-gauged locations (nodes).

The outputs from this work package form the basis of the GIS tools that will be used in the FSU website.

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:

Research Contractor: Compass Informatics
www.compass.ie

Dates:

Work Package 5.3 of the flood studies update was completed in November 2008.