



Open Source assimilation tool for distributed hydrological model

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An advanced GIS data assimilation interface is a requisite to obtain a distributed hydrological model that is both transportable from catchment to catchment and is easily adaptable to data resolution. This tool is achieved for the cartographic data as well as the linked information data. In the case of the Multi-Hydro-Version2 model (A. Giangola-Murzyn et al. 2012), several types of information are distributed on a regular grid. The grid cell size has to be chosen by the user and each cell has to be filled up with information.

In order to be the most realistic as possible, the Multi-Hydro model takes into account several data. For that, the assimilation tool (MH-AssimTool) has to be able to import all these different information. The needed flexibility of the studied area and grid size requires that the GIS interface must be easy to take in hand and also practical. The solution of a main window for the geographical visualisation and hierarchical menus coupled with checkboxes was chosen. For example, the geographical information, like the topography or the land use can be visualized in the main window. For the other data, like the soil conductivity, the geology or the initial moisture, the information is demanded through several pop-up windows. Once the needed information imported, MH-AssimTool prepares automatically the data. For the topography data conversion, if the resolution is too small, an interpolation is done during the processing. As a result, all the converted data is in a good resolution for the modelling.

As Multi-Hydro, MH-AssimTool is open source. It's coded in Visual Basic language coupled with a GIS library. The interface is built in such a way then it can be used by a non specialist. We will illustrate the efficiency of the tool with some case studies of peri-urban catchments of widely different sizes and characteristics. We will also explain some parts of the coding of the interface.