



Research on a hydro-geomorphological typology of rivers in the Euregio Maas-Rhine (Belgium, the Netherlands and Germany)

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Most river typologies or classifications have been developed since the European Water Framework Directive (DC2000/60). Numerous studies use qualitative and quantitative variables that prove difficult to transpose, export or compare them. In the framework of the Interreg III project centred on the Euregio Maas-Rhine a hydro-geomorphological typology based firstly on only quantitative variables is being developed. Our methodology comprises of three main parts: the first consists of an inductive method. We select sites on the rivers using stratified sampling from the Strahler orders and the sub-watershed area. For each site we measure a set of quantitative variables either directly on site, using maps or using data from DTM. From different statistical applications, we work out a typology and a sectorisation of the hydrographic network. Secondly we confront this typology with the natural geographic regions in order to highlight regional differentiations and take into account the upstream heritage in case of allochton rivers. This results in a second typology following a deductive method based on the natural regions and some qualitative variables. Our aim is to reduce the process of field data acquisition and to define a typology only from existing data. The last part consists of a comparison between the inductive and the deductive methods. One of the steps in carrying out this study is to develop a fast and semi-automatic extraction method of variables and indices from the DTM. We are also developing a simple method that allows indices relating to the portion of the catchment area drained upstream to be calculated at any point on the hydrographic network. This yields varying indices throughout the network according to different zonal data related to landuses or aspects of the watershed such as its geology or pedology. Landuse change during the last two centuries may be also assessed by this method.