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## COMPARISON OF OPEN SOURCE GIS AND ARC INFO FOR MASSIVE GRID TERRAIN ANALYSIS

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Nowadays most of the distributed hydrological models available are using GIS functionality for handling with pre- and post-processing procedures by using importing and exporting functions. A digital elevation model (DEM) or sometimes referred to as a digital terrain model (DTM) is a quantitative representation of the topography of the Earth (or sometimes other surfaces) in a digital format. The resolution of the DEM, or the distance between adjacent grid points (often the size of the cell or pixel), is a critical parameter in determining the amount of detail that a user should expect to represent in the DEM. The smaller the resolution, the more details or features that will be present. For assessing the more accurate results in the hydrological modeling the high resolution digital elevation models are used. At the same time the size of the data is very high. In order to achieve this, data sets of high resolution to be handled by the open source GIS software. The 25m resolution DEM is used for hydrological function computation. This paper compares the time required for computing hydrological function like flow direction, sink filling and flow accumulation for different size of data sets using Terraflow module in GRASS open sources GIS and Arc Info hydrological extensions. The two GIS software outputs are compared with respect to hydrological model aspects. Also it will explain the Massive data import and export in open source GIS through Geospatial Data Abstraction Library (GDAL).

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