SOUTH EAST EUROPE
Transnational Cooperation Programme

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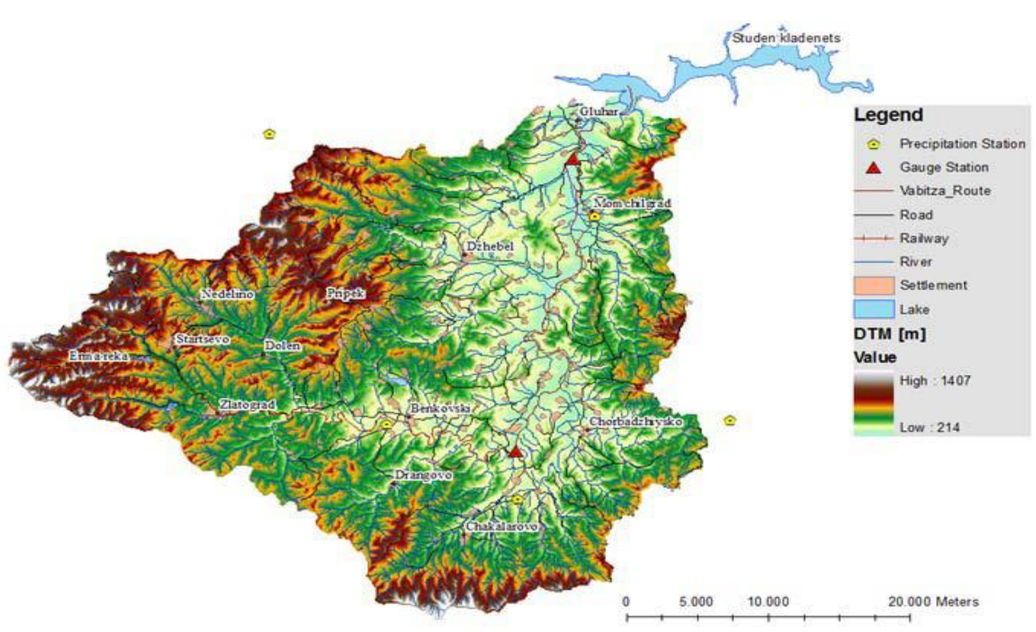
MONITOR II

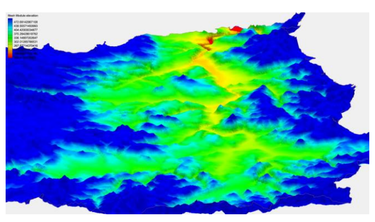
Monitor II

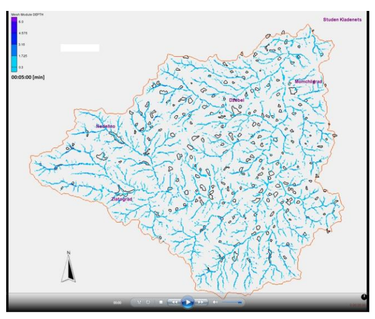
Practical Use of MONITORing in Natural Disaster Management

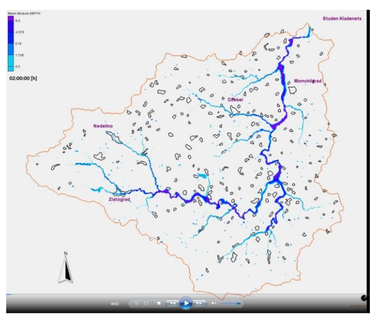


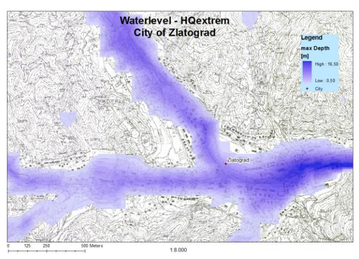
Description of the Varbitsa river watershed

- The total area of the watershed is about 1.200 km
- 65% of the area is covered with forest or bushes and 35% is agricultural land
- The altitude varies from 220 m to 1 440 m with average value of 550 m. The erosion basis is at 1217 m.
- The length of the main river stream, from the mountain spring to the Studen Kladenec Dam, is 98 km.
- Two measurement stations for the river level (Dzebel and Varli dol)
- The relief is strongly intercepted, with steep slopes and intensive hydrographic network, which causes quick collection of water flows and frequent floods.
- The combination of areas with rare vegetation and high intensity of precipitation contributes to the formation of torrential rainfall.
- Deforestation and river bed excavation for construction materials lead to erosion of the earth's surface and transport of sediments. These processes are additionally reinforced by the frequent torrential rainfalls. This increases the risk for obstruction of the drainage facilities and culverts, as well as increase of the sediments content on the bottom of the river and a dam.
- 3 to 7 big floods are registered annually in the watershed area, causing significant material damages and human casualties, which makes Varbitsa river the most torrent river in Bulgaria.









Conception of the HydrodynamicmodelHydro_AS-2Dmodel

- Plain representation of the entire river watershed in 2D-model.
- Unstationary simulation of the river stream with a starting waterlevel,,0" corresponding to the effective height of the sediments on the bottom
- Simultaneously modeling of the water flow distribution on entire watershed and the water discharge into the Varbica river.
- Presentation of results as graphs for the amendment of the water level in control cross-sections
- Affected areas are generated by the data block for the maximum water depth throughout the whole simulation time.

For more information please visit the homepage of the project www. monitor2.org