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Use of HEC-HMS rainfall-runoff model in the Subcarpathian Prahova Valley-Romania

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In this study, a hydrological model has been used to simulate the surface runoff response of a river basin to precipitation. The sample area chosen for the research is the Prahova Valley situated in the Subcarpathian Bend area of Romania due to its geological and geomorphological features. It is a landslides prone area, subject to multidisciplinary scientific research and of major economic interest. Information from digital spatial data were used to generate the streamflow hydrographs at desired locations in the river basin with the help of Geospatial Hydrologic Modeling System (GeoHMS) and Hydrologic Modeling System (HMS). Calibration of the HMS model was performed by comparing the generated runoff with the field data. The model was therefore considered able to predict the watershed response to different scenarios of similar hydrological events. This approach represents one of the first attempts in Romania to integrate different type of data (topographic, geologic, pedologic, hydrologic etc.) into a complex model analyzing the sensitivity of morpho-hydrographical system to climate change.