HYDROLOGICAL MODELING USING REMOTE SENSING AND GIS; A CASE STUDY OF BATA RIVER BASIN

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A Hydrological model was developed for the Bata River basin, which is one of the tributaries of the Yamuna River, Infiltration and losses, unit hydrograph and river routing are the main model components. ILWIS and Auto CAD software were used to hydrological modeling. Satellite Remote Sensing and GIS techniques were used to estimate the relevant spatial parameters, which are used as input to the hydrological model. SOI topomap, data collected from the field work, IRS LISS-111 temporal satellite data for rabi and kharif seasons and IRS PAN data are used as input for the model. SCS curve number method is used for the infiltration losses and synthesis of unit hydrographs. Complete watershed is divided to 10 subareas. Ten hydrographs were developed as one for each subareas. Characteristics of the watershed were evaluated by modeling the watershed as a whole as well as subarea basis by routing the unit hydrographs along the river reach. Muskingum hydrologica routing method is used for river routing. The constructed model is capable of forecasting the runoff for the particular event of rainfall and derives hydrographs for required time duration

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