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Watershed Modeling Using GIS Technology: A Critical Review

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Abstract

Understanding and managing water resource problems involves complex processes and interactions within the watershed surface and subsurface. The imposition of total maximum daily load (TMDL) regulations on the pollutant influx to a watershed has created a strong demand for new assessment tools. The spatial scales relevant to transport of the pollutants may span many orders of magnitude, ranging from field plots to regional hydrological systems. As the demand for and development of watershed modeling capabilities have evolved, geographic information systems (GIS) in tandem with remote

sensing technologies have played an essential role supporting both data collection and analysis. This paper reviews the current and future trends of GIS and remote sensing technologies in watershed modeling. The primary focus of this discussion is on spatial data availability and management, and further opportunities for model development.

Keywords

Geographic Information System; GIS; hydrologic processes; modeling; watershed; sensing

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