



Assessment of impact of change in DEM resolution on sediment yield in Beas river basin, India

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Reliable estimation of sediment yield from catchment of a river basin is of utmost importance for effective planning and operation of dams/reservoirs situated within the basin. Availability of reliable global hydro-climatic and environmental data has enabled hydrologists to perform systematic assessment of the relationship between sediment yield and its controlling catchment descriptors. The sediment yield from a river basin depends on its geology and topography (digital elevation data), land use/land cover and storm characteristics etc. This study evaluates the impact of use of various digital elevation model (DEM) data (e.g., ALOS PALSAR 12.5 m, CARTO 30 m, ASTER 30 m, SRTM 90 m, GEO-AUS 500 m and USGS 1000) on sediment yield of Beas River flowing through Northern part of India. In this study, Soil and Water Assessment Tool (SWAT) based hydrological model was developed for the river basin. Results indicated that the sediment yield from the basin varies substantially with change in DEM resolution. It was found that daily sediment yield from sub-watersheds within the basin tends to decrease as the resolution of the DEM becomes coarser. Further, it was noted that the stream flow discharge from the basin does not change considerably with the change in DEM resolution.