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## Water balance study of a high altitude catchment in Indus basin of Himalayas: application of physics-based distributed hydrologic model-MIKE SHE

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**Abstract:** The water balance of the Lidder basin was done by re-enacting all components of the hydrological cycle. MIKE SHE model was utilised to simulate all components of hydrological cycle of the Lidder basin. Water balance components were estimated at three sub-catchments; Aru, Sheeshnag and at Akura and the model results show that ET losses at Aru, Sheeshnag, and Akura (total catchment) were to be 19.23%, 19.65% and 24.61% of the total rainfall while runoff at Aru, Sheeshnag and Akura (total catchment) of Lidder basin were 34%, 40% and 57.02% of the total rainfall. Snowmelt contribution to the total streamflow in the Lidder River at Aru, Sheeshnag, and Akura (total catchment) was found to be 58.54%, 54.19% and 41.75%. The base flow contribution to the discharge in Lidder River at Aru, Sheeshnag, and Akura (total catchment) were estimated to be, 22%, 35% and 43% respectively.

**Keywords:** distributed hydrological model; water balance; coupled model.

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