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Impact of climate change on hydro-meteorology of Kaligandaki River Basin- North of Nepal

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Many researchers depicted that hydrological modeling of glacierized catchments is a challenging task because of various inconsistencies that might be occurred in ice melt which represents an additional source of water. On the glaciers of the Nepalese High Mountains, a detailed knowledge of mass-balance observation and discharge measurement are considered and the combination of both will be analyzed by means of Monte Carlo analysis or General Climate Model (GCM)/CLARUN3 with multicriteria model performance evaluation. Importantly, the climate change is altering frequency of snowfall and depth (amount) of snowfall which resulted less water available for irrigations and for traditional agro-pastoral production systems. River sediment and river flows found satisfactorily correlated. This is an indication that with extreme events, hydro hazards, depleting permafrost areas and glacier melts have close links with river flows and sediment. Several villages settled on the river bank and slopes are likely to disappear within the next few decades in climate continue changing at present rate. Overall scenario of the basin is that livelihoods are vulnerable and settlement began shifting. Finally this will help to formulate a required numerical flow line glacier model on high Mountains of Nepal.

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