



Modeling strategy for snow cover simulation in a high mountain catchment using temperature-index snowmelt method

Fan Zhang, Hongbo Zhang, and Chen Zeng

Chinese Academy of Sciences, Institute of Tibetan Plateau Research, Beijing, China (zhangfan@itpcas.ac.cn)

Snowmelt simulation in high mountain catchments remains challenging with scarce gauges. Based on snow cover simulation in the Karuxung River catchment in South Tibet of China using a temperature-index model, numerical experiments were designed and performed to test the effects of various calibration strategies, altitude zonal resolutions, and model refinement methods on the simulation results, so as to improve the simulation accuracy and provide some guidelines for applying temperature-index snowmelt model to high mountain catchment with data scarcity. More accurate simulation of snow cover and snowmelt will improve our understanding of hydrological processes and help assess impacts of changing climate on high mountain catchments.