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Glaciers and Palaeoclimatic Reconstructions in the Changme Khangpu Basin, Eastern Himalayas, INDIA

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Climate reconstructions from the Third Pole show that climate change is not uniform, but tends to exhibit a consistent pattern with changes at the regional scale over the Himalayan axis than elsewhere. To find out the answers related to the questions about the past climate in the Changme Khangpu Basin (CKB), an important region of Eastern Himalayas, the palaeoclimate research has been carried out using the proxy of glacier dynamicity. CKB covering an area of 767.8 km² and climatically this part mainly controlled by the Indian Summer Monsoon (ISM), limited penetration of Western Disturbances and North-East Monsoon. To reach the objective, the study has opted for geomorphic feature analysis, sedimentological analysis, and associated with geochronological methods using the Accelerator Mass Spectrometry ¹⁴C dating and Schmidt Hammer rebound value dating methods to place the glacier variability and associated climate changes over time. In addition, glacier geomorphology has been used to reconstruct the equilibrium line altitude shifts and associated temperature departures. The three valleys such as Changme Khangpu (CK), Khong Kyong Kangse (KKK) and Katao have shown consistency in glacier advances and climatic shifts in different time periods. It has been estimated that the CK valley Phase-II glacier advance was initiated by the peak in ISM and enhanced by the transition climatic phase between MIS 3 (i.e. prior to 32 ka calBP) and MIS 2. The KKK Phase-I glacier advance was related to the CK Phase-II advance. In addition, the post-glacial (between 14.29 to 3.5 ka calBP) relatable climatic phases in the CK valley and Katao valley also have been identified.

Keywords: Changme Khangpu Basin; Eastern Himalayas; Palaeoclimate; Glaciers, ¹⁴C AMS dating; Schmidt Hammer rebound value.