

Glaciotectonic structure and origin of Badswat glacier moraine

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Abstract

The lithology and Glaciotectonic structures studies are carried out on Badswat glacier moraine to evaluate its origin. The Badswat glacier moraine runs through center of valley and develops in result of ice movement from north to south. The first look of moraine gives impression of medial moraine but vegetation and western dipping of moraine confirms as lateral moraine. The reconnaissance survey of Badswat glacier allows to divide moraine in three segments: a. Segment starts from junction of glacier and its distributary and twists towards eastern slope of Valley and minimize the width of glaciers; b. concave segment begins from displacement of moraine to south of present snout of glacier; c. segment changes shape from concave to straight. The concave segment illustrates cycle of retreat and advancing despite decrease in mass balance of glaciers. The presence of concave little moraine at snout demonstrates advance of glacier before start of present retreat. Whereas, structure at end of segment “a” has influence on movement of glaciers for example thick cover debris block the movement of glaciers which reflects on mass balance of glacier at segment “b”. However, present mass balance is decreased due to climate change or neotectonic process in the area. The glaciotectonic structures on eastern slope of valley indicate glacier activity mainly along eastern slope. The sedimentation section of Badswat Glacier area is simple glaciotectonic sediments and less deformed. However, glaciotectonic process develops on eastern flank. The boulder layer on the coarse sediments is tabular deposition. The sediments of moraine are less deformed but consolidate by push of ice. The boulder deposit layer on coarse sand and pebbles demonstrate maximum height of glacier during glaciation period. The absence of end moraines at Badswat glaciers shows retreating of glacier. The supraonds causes mudflow/ floods in Badswat Catchment area. The detail study of glaciofluvial sediments and structures with deterring of age of sediments will help to develop model of climate change and its impact on advance and retreat scenario of Badswat Glacier.