



Glacier Change in the Western Himalayas: A Case Study of Suru Glacier, Northern India

Susanne Schmidt (1), Marcus Nüsser (1), M. S. Nathawat (2), S. Ghosh (2), and A. C. Pandey (2)

(1) Department of Geography, South Asia Institute, Heidelberg University, Heidelberg, Germany

(s.schmidt@sai.uni-heidelberg.de), (2) Department of Remote Sensing, Birla Institute of Technology, Mesra, Ranchi, India

Mountain glaciers are considered as primary indicators to monitor the impact of climate change on regional temperature and precipitation patterns. They are linked to the atmosphere through mass and energy exchange which determine accumulation and ablation throughout the year. Since the advent of satellite remote sensing and its data availability to researchers from 1972 onwards, mapping and monitoring of glaciers become more popular because of its improved multi-spectral, multi-temporal and multi-spatial resolution. The investigated Suru Glacier is located in the upper Zaskar catchment, a major southern tributary of the Indus valley in the western Himalayan Range, Northwest India. The 8 km long glacier ranges from about 4700 m up to 5800 m a.s.l. To detect the changes of Suru Glacier remote sensing data such as Corona from 1972, diverse IRS and Landsat data, as well as an additional topographic map from 1962 were used. In order to calculate the volumetric changes of the glacier, dGPS measurements were carried out in 2007 and 2008. These measurements were then related and compared to a digital elevation model, which was generated from the topographic map, and to a SRTM-DEM (version 4, 2000). The co-registered data show a glacier retreat of about 120 m between 1962 and 2009. Apart from the recession of the glacier snout a certain downwasting of the glacier is detectable.