



## **Analyses of Glacier Changes and Water Availability in Ladakh (Northern India)**

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The arid region of Ladakh in the trans-Himalaya of northern India is sandwiched between the Karakorum and Himalaya. Long-term measurements in Leh (3600 m a. s. l.), the only meteorological station in Ladakh, indicate mean annual precipitation of 95 mm. The area is characterized by small glaciers above 5200 m a. s. l. Due to the low precipitation, the human settlements and agriculture depend on snow- and glacier-fed irrigation systems. In contrast to the large amount of studies which describe the water management systems in Ladakh, one can observe a significant lack of studies investigating hydrological processes and recent glacier changes.

The aim of the presented study is to estimate contemporary glacier changes and water availability in Ladakh. To detect such changes over the last 40 years, we use satellite images (Corona, Aster, Landsat). For estimation of the glacier volumes, we are planning to apply radar techniques in three selected tributaries of the Indus. Furthermore, automatic camera systems will be mounted in the upper catchments to monitor glacier dynamics and seasonal snow cover distribution and duration. The usage of terrestrial images with both high temporal and spatial resolution enables to monitor rapid changes of seasonal snow cover distribution. The poster presents the concept of the planned studies as well as first results of glacier changes based on the analyses of satellite images and field work during summer 2007.