Analysis of satellite data applicability for rock glacier creep monitoring

Abstract

Rock glaciers are characteristic forms of periglacial high mountain environments. The creeping of active rock glaciers and changes in its velocity are important indicators of climate change. If unstable, rock glaciers can impose hazards to anthropogenic objects and/or populated areas. The presented thesis deals with the question of rock glacier creep monitoring with the use of satellite data. Two main methods for detecting and measuring the movement of landforms on optical and radar imagery are introduced. These methods are image matching and differential SAR interferometry. The goal of the thesis is to evaluate the applicability of the given methods for the research of the movement of rock glaciers. The thesis provides an overview of existing satellite data as well as an analysis of their suitability for research depending on rock glacier velocity.

Keywords: remote sensing, movement monitoring, rock glaciers, image matching, DInSAR