



Accumulation conditions in a high elevated basin of the Karakoram

Christoph Mayer (1), Astrid Lambrecht (2), Nicola Frank (3), Magrit Schwikowski (4), and Claudio Smiraglia (5)
(1) Bavarian Academy of Sciences and Humanities, Commission for Glaciology, Munich, Germany
(Christoph.Mayer@lrz.badw-muenchen.de), (2) Institute of Meteorology and Geophysics, University of Innsbruck, Innsbruck, Austria, (3) Institute of Meteorology, Albert-Ludwigs-Universität Freiburg, Freiburg, Germany, (4) Paul Scherrer Institute, Villigen, Switzerland, (5) Departement of Geography Ardito Desio, University of Milan, Italy

Recent observations based on remote sensing imagery show glacier advances of a number of glaciers across the Karakoram Range. Despite increasing temperatures on the global scale, especially glaciers with high elevated accumulation basins in the Karakoram seem to have positive mass balances during the last years. One of the reasons could be an increase of accumulation due to favourable precipitation conditions based on the recent climatic changes. Unfortunately not very much is known about high elevation precipitation in the Karakoram and only a very limited number of related studies exist. During an expedition to Urdok Glacier on the northern slope of the Karakoram, snow pit studies have been carried out in the accumulation basin at about 5300 m elevation. Besides usual snow stratigraphy and snow water equivalent measurements also stable isotopes and mineral dust were investigated. These data show distinct variations of precipitation conditions during the seasons. A detailed study of decadal circulation conditions based on reanalysis data allowed the characterisation of typical source regions of snow accumulation which were correlated to the data from the snow pits. This allows to quantify the contribution of different regions to the total accumulation and to investigate the long term variations of accumulation conditions in the higher reaches of the Karakoram Range.