Submitted Abstract

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Abstract

Snow is an essential feature of mountainous regions worldwide and contributes to mountainous regions acting as water towers and providing a critical water supply for downstream areas. In addition, water from snowmelt is essential for power generation, irrigation, water supply, groundwater recharge and aquatic ecosystems. Climate change is clearly altering the amount and distribution of snow cover in the mountains in space and time. However, the relationship between climate change, or more precisely atmospheric variables, and snowpack responses is not simple and straightforward. Snow on the ground can subsequently be redistributed through numerous mechanisms. Ablation (loss of snow cover), on the other hand, is a complex process chain of surface-atmosphere interactions that reduces snow deposited on the ground by melting or sublimation. The conclusions from the existing studies show that despite the great importance of snow in mountain regions, an inventory of snow cover in mountains on a global scale is still lacking. Even regional inventories are strongly limited to a few well-monitored mountain regions such as the US Rockies and the European Alps.

The Joint Bodyl on the Status of Mountain Snowcover therefore has multiple motivations and objectives:

1. the primary research objective is to provide robust information on changes in mountain snowpack at the global scale over the past decades, based on the compilation and standardisation of existing data (sources) at sufficiently high resolution

2. in addition to compiling and analysing existing data series by examining spatial and temporal trends in snowpack properties and derived indicators, this initiative also aims to better understand the processes of accumulation and ablation based on existing modelling and observational studies.

3 Another important objective of the initiative is to provide open access to snow data for the research community and to contribute to operational capacity building with respect to understanding changes in mountain snowpack and its climate, water and environmental impacts and responses.

The Joint Body is structured into 4 main activities (work packages):

WP1: Quality control and homogenisation of mountain snow data for use in climatology and hydrology.

WP2: Status of multidecadal changes of snow cover in mountain regions of the world

WP3: Processes of snow accumulation

WP4: Snow ablation processes - research gaps in mountain snow modelling

The presentation will introduce the topics of the Joint Body and outline how snow researchers can and should be involved and how participants can benefit from this bottom-up initiative.