Geophysical Research Abstracts
Vol. 14, EGU2012-1798, 2012
EGU General Assembly 2012
© Author(s) 2012

200 years of liquid and solid precipitation in major river systems originating in the Greater Alpine Region

K. Haslinger, B. Chimani, and R. Böhm

Climate Research Department, Central Institute for Meteorology and Geodynamics, Vienna, Austria
(klaus.haslinger@zamg.ac.at)

In this investigation the long-term precipitation regime of large river catchments and river systems originating in the European Alps and surroundings are analyzed. It is based on the new HISTALP high resolution (5') gridded dataset for liquid and solid precipitation which covers the Greater Alpine Region (GAR, 4-19 deg East, 43-49 deg North, 0-3500m a. s. l.) on a monthly basis spanning from 1800-2003. The catchments encompass those of the Po, Rhone, parts of the Rhine, Danube, Drava and Sava and some specific coastal areas like Liguria, the Eastern Adriatic Coast or the French Riviera amongst others.

The amount of total, liquid and solid precipitation [mm and mm water equivalent] is analyzed regarding the long term trends as well as possible change points revealing distinct trend periods. Furthermore the altitude dependence of these trends is investigated, particularly the differences between the liquid and the solid fraction. To detect the impact of 200 years of climate change yielding a temperature increase of nearly 2°C in the Greater Alpine Region, changes in the annual cycle of precipitation are analyzed.

This dataset allows for the first time to investigate such long time series of liquid and solid precipitation in the alpine region on a catchment scale and is therefore important for the assessment of past changes in the hydrologic system as well as for estimates in the future. We are looking forward to extend this study incorporating data of river discharge to find out how the rivers react on changing precipitation regimes.