

**Impacts of climatic change on mountain regions: A summary of the IPCC
second assessment report**

Martin Beniston

University of Fribourg, Department of Geography, Switzerland

1998

Keywords: mountains, ecology, climatology, climate change, warming effect, hydrology.

Abstract

Mountains cover about 20% of continental surfaces and are the source of most of the world's major river systems. Mountains are under considerable stress from humans, and climate change would exacerbate existing conflicts between environmental and socioeconomic concerns. Paleo-environmental records indicate that past warming of climate has caused the distribution of vegetation to shift to higher elevations, resulting in the loss of some species and ecosystems. Simulated scenarios suggest that continued warming could have similar consequences for ecosystems in mountains in all latitude belts, and thus species and ecosystems with limited climatic ranges could disappear.

In most mountain regions, a warmer climate will reduce the extent and volume of glaciers and the amount of permafrost and seasonal snow cover. Along with possible precipitation changes, this would affect soil stability and a range of socioeconomic activities (e.g., agriculture, tourism, hydropower, and logging). Climate change may disrupt mountain resources for indigenous populations (e.g., fuel and subsistence and cash crops) in many developing countries. Recreational activities, which are increasingly important economically to many regions, also face likely disruptions.

Perturbations to water regimes in mountains would have major consequences for people living downstream, outside of the mountains, who are heavily dependent on their hydrological resources.

Because of their climatic and habitat diversity, mountains provide excellent locations for maintaining biological diversity. In particular, large north-south mountain chains can facilitate migration if appropriately managed, and anticipating for climate change.

Notes to readers

This is an abstract of a paper presented at the Global Threats to the Australian Snow Country Conference held at the Australian Institute of Alpine Studies, Jindabyne, Australia. 17-19 February 1998.

To read all abstracts presented at the Global Threats to the Australian Snow Country Conference, go to:

<http://www.aias.org.au/newsletters/newslet1.html#snow>

IPCC stands for Intergovernmental Panel on Climate Change.

The Mountain Forum would like to thank Ken Green and the Australian Institute of Alpine Studies for their permission to include this abstract in our Mountain Forum Online Library.