



Glacier volume changes depending on exposition and altitude in the Zillertal Alps, Austria/Italy

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Retreat of glaciers in the Alps since their last Holocene maximum extent (around 1850) is one of the most obvious facts that demonstrate the recent global warming.

In our study we follow the volume changes of six valley glaciers in the Zillertal Alps since their maximum extent around 1850 up to 2007.

Our work focuses on the quantitative determination of the volumetric changes, which is achieved by using digital elevation models (DEM) with the aid of geographical information systems (GIS). The DEMs are derived from georeferenced topographic maps, the Austrian Glacier Inventory (1969, 1998), the South Tyrolean Glacier Inventory (1997) and the laser scanning survey of South Tyrol (2006). Besides of these, we use orthorectified aerial images (2003), from which we can make assumptions of the surface extent of the glaciers; and also a recent GPS survey of some glacier tongue, (2007 Fall).

The recent survey confirms the effect of the accelerated thawing/shortening of the glacier of the last two decades.