



Characteristics of worldwide glacier fluctuations based on the analysis of 197 glacier length records

P.W. Leclercq, J. Oerlemans

The Institute for Marine and Atmospheric research Utrecht, Utrecht University, The Netherlands

During the last few centuries glaciers have retreated worldwide. This retreat is frequently mentioned as a sign of global warming. But not all glaciers have retreated to the same extent. There is a significant individual and regional variability.

Oerlemans (2007) has assembled a dataset of length records from 197 valley glaciers. Although there is a strong bias to the European Alps, the set of length records has a global coverage with glaciers on all continents except for Antarctica. All records start before 1945, most of the records start in the second half of the nineteenth century and the records of 35 glaciers start earlier than 1850. The longest record is that of the Untere Grindelwaldgletscher, going back to 1534. Of all glaciers in the set we know the location, the altitude range of the flow line, the length and the area of the glacier, and the mean yearly precipitation.

We analyse the variability in the change in glacier length, worldwide as well as regional. We investigate the dependence of length changes of individual glaciers on the location and on the geometric characteristics. The climatic setting is also considered.