

Two Alpine glaciers over the past two centuries: A scientific view based on pictorial sources

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<http://www.danielsteiner.ch/GIUB/science.html>

Abstract

For centuries high mountains and glaciers have been a source of both paralyzing fear and strange fascination. Natural scientists first began to show interest in Alpine glaciers at the beginning of the eighteenth century, but although the first simple observations of glacier movements and moraines were made, no systematic scientific investigations were carried out.

The nineteenth century witnessed the Ice Age hypothesis and the beginning of modern experimental glaciology. Initial detailed studies of glacier-related phenomena were undertaken on the Unteraar Glacier, in Switzerland, in the

1840s by Louis Agassiz (1807–73). His contributions to the newly established scientific field earned him the title of the “Father of Glaciology”. Impressive glacier advances affecting the majority of Alpine glaciers at about the same time can be recognized from archives and documentary evidence. In addition, new kinds of documentary data that could be used to study glacier fluctuations appeared. The technical progress of photography made it possible to record a glacier’s position without any artistic distortion, and the first geometrically exact topographic map of Switzerland, the so-called Dufour map, was published between 1844 and 1864.

In general, all these historical records can give a very detailed picture of glacial fluctuations in the Swiss Alps during the Late Holocene. They allow the extension of the study of glacier history farther into the past than would be possible with the use of direct measurements alone. Empirical qualitative and/or quantitative data, mainly on the length but also on the area and volume of glaciers, can be derived from these sources.