

Historical glacier variations in southern South America since the Little Ice Age: examples from Lago Viedma (southern Patagonia) and Mendoza (central Andes)

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The evaluation of historical information can give valuable insight in past glacier dynamics, especially before the onset of modern measurements. Early photographs and maps depict changes for selected glaciers in southern South America. Within this study, written documents and pictorial historical records (drawings, sketches, engravings, photographs, chronicles, topographic maps) are critically analysed, with a particular focus on two regions: Lago Viedma (El Chaltén, southern Patagonia, 49.5°S, 73.0°W) and the Río Mendoza basin (Mendoza, central Andes, 33.1°S, 69.9°W).

For the Lago Viedma area, early historical data for the end of the 19th century stem from the expedition of the Chilean-Argentinean border commission. In addition, the expedition by the German Scientific Society, conducted between 1910 and 1916, and the later photographs by Alberto M. de Agostini give an excellent depiction of the glaciers.

In the beginning of the 20th century, Robert Helbling explored the Argentinean-Chilean Andes together with his friend Friedrich Reichert. In the summer of 1909/10, they started a detailed survey of the highly glacierized Juncal-Tupungato mountains (Río Mendoza basin), leading in 1914 to the first accurate topographic map of the area. In 1934, the sudden drainage of a glacier-dammed lake in the upper Río del Plomo valley caused fatalities and considerable damage to constructions and the Transandine Railway.