

HINTEREISFERNER 1979, 1 : 10,000

(Aerial photogrammetric map)

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Hintereisferner was surveyed on August 14 and 30, 1979 using an aircraft of the "Bundesamt für Eich- und Vermessungswesen", Vienna, which flew at an altitude of 6100 m a.s.l. Photographs of 23x23 cm were taken with a wide-angle lens of 15.2 cm focal length, and they overlapped by 60% longitudinally and by 8-40% laterally. The area evaluated extends from the lowest point in the Rofen valley at 2200 m a.s.l. to the peak of the Weisskugel at 3731 m, so that the average scale of the photographs varied from 1:15,000 to 1:27,000.

The map was produced by H. Giersig at a scale of 1:10,000 with 10 m isohypses, using the colour blue for snow, ice and water and brown for all other surfaces. All points used in the trigonometric work done by H. Schneider have been entered on the map, as well as the meteorological stations and the precipitation gauges. Remnants of moraines from the glacier advances of about 1850 and 1920 have been mapped by G. Patzelt.

The map, being designed for glaciological work, does not specifically indicate areas of rocks or of different vegetation patterns. However, conspicuous rocks and boulders have been entered and are designated by the letter S. Footpaths and trails are represented by dotted lines, regardless of their dimension or state. Thin, broken lines separate grassland from bare ground wherever these features were clearly distinguishable - the lines are therefore not necessarily continuous. East of the "Reutherweg", broken lines are used to show conspicuous, parallel features at the surface.

The firn edge and transient snow line have been entered east (14 August survey) and west (30 August survey) of the line connecting the Langtauferer Spitze with the survey point "Vietoris".

The transition from bare ice to debris-covered ice is generally more gradual in nature than can be reproduced on a map. There are, however, places on Hintereisferner where it was justifiable to indicate such limits by a broken blue line - for example on the middle moraine between Langtauferer-Joch-Ferner and Hintereisferner. The margins of Hintereis-

ferner are heavily debris-covered. Along the left margin the glacier, by its shape, is clearly distinguishable from the lateral moraine; however, on the right margin, the transition between active ice, stagnant ice and/or ice-free lateral moraine is less easy to define. As a result, the right margin of the active glacier tongue was assumed to coincide with the furrow of the surface runoff channel.

The broken blue borderline between ice and ice-free terrain encompasses ice or snow areas that may not be part of the glacier proper; such are avalanches that have accumulated at the glacier margin, or temporarily snow-covered areas that are ice-free in other years.

On 14 August, 1979, the transient snow line was situated in the altitude interval 2790-2850 m a.s.l. By the end of the accumulation season on 21 September, it had retreated further, reaching a mean altitude of 2970m. The low position of the firn edge is explained by the positive mass balances in the two years previous: 1976/77 = +760 kg m<sup>-2</sup>, 1977/78 = +410 kg m<sup>-2</sup>, 1978/79 = -220 kg m<sup>-2</sup>.

Earlier maps of Hintereisferner by Blümcke and Hess (1:10,000, 1899) and Hess (1:10,000, 1924) have been supplemented by maps of the terminus alone (1905, 1914, 1917, 1918, 1919, and 1922). For historic references and further details of the present map see Kuhn (1981).

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#### REFERENCE

Kuhn, M., 1981: Begleitworte zur Karte des Hintereisferners 1979, 1:10,000. Zeitschrift für Gletscherkunde und Glazialgeologie, Vol. 16 (1), p. 117-124.