

ADAPTATION OF A HIGH ALPINE GAUGING STATION (VERNAGTBACH, OETZTAL ALPS/AUSTRIA) TO GREATLY ENHANCED GLACIAL DISCHARGE

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In 1973, the gauging station "Pegelstation Vernagtbach" was constructed at an elevation of 2,640m, draining a basin of 11.44km² with a glacierisation of approximately 80%. Discharge has been monitored since then at a temporal resolution of one hour, which allows a detailed analysis of the processes governing the glacial runoff regime. Remarkable glacier mass loss since the mid 1980s has led to increased mean runoff values. Connected with this glacier shrinkage, the extent of the firm region of Vernagtferner has been greatly reduced to less than one tenth of its original size. As a result, temporary storage of meltwater in the firm has greatly diminished, and the diurnal fluctuations of discharge have increased dramatically during the past five years. The measuring capacity of the gauging station, of 10m³/s, was repeatedly surpassed by 50% in the summer of 1994, causing damage to the station and the first significant data loss. An adaptation of the gauging station to these altered runoff conditions was attempted in fall 1995, which should have increased the measuring capacity without having to enlarge the cross-sectional area of the measuring channel.