

Introducing the glacier loss day as indicator for unsustainable glacier melt

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In the hydrological year 2021/22 Alpine glaciers showed unprecedented mass loss. On Hintereisferner (Ötztal Alps, Austria), the mean specific mass balance reached a new negative extreme of -3319 kg m^{-2} . Near-daily observations of surface elevation changes from a permanent terrestrial laser scanning setup allowed determining the day in the hydrological year, when the mass balance of Hintereisferner started to become negative. This Glacier Loss Day (GLD) was already reached on 24 June in 2022 and gave way to a long ice ablation period. In 2021/22, this and the high cumulative positive degree days explain the record mass loss. By comparing the GLDs of the three years 2020-2022, we found a gross yet expressive indicator of the glacier's imbalance with the persistently warming climate.