

The sedimentological death mask of a dying glacier

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The Pasterze is Austria's largest glacier, and it is experiencing rapid downwasting and retreat. A mosaic of complex sedimentary deposits has been produced in recent years, which have not hitherto been studied, yet provide excellent lessons into the facies distribution expected from a dying valley glacier. In this paper, we present a new glaciological-geomorphological-geological map for the glacier in July 2021. Freshly exposed (since 2018) tills and flutes constitute a subglacial sediment-landform assemblage. An ice-marginal sediment-landform assemblage comprises meltwater streams, a delta system, and proglacial lake terrace deposits. The supraglacial assemblage, meanwhile, includes fossil englacial channel deposits revealed by ablation, together with debris bands, rockfall deposits, and supraglacial channel deposits. Collectively, these sediment landform assemblages constitute the building blocks of a dying glacier landsystem.