

Supplementary figures for: Mapping vanishing glaciers in Vorarlberg, Austria

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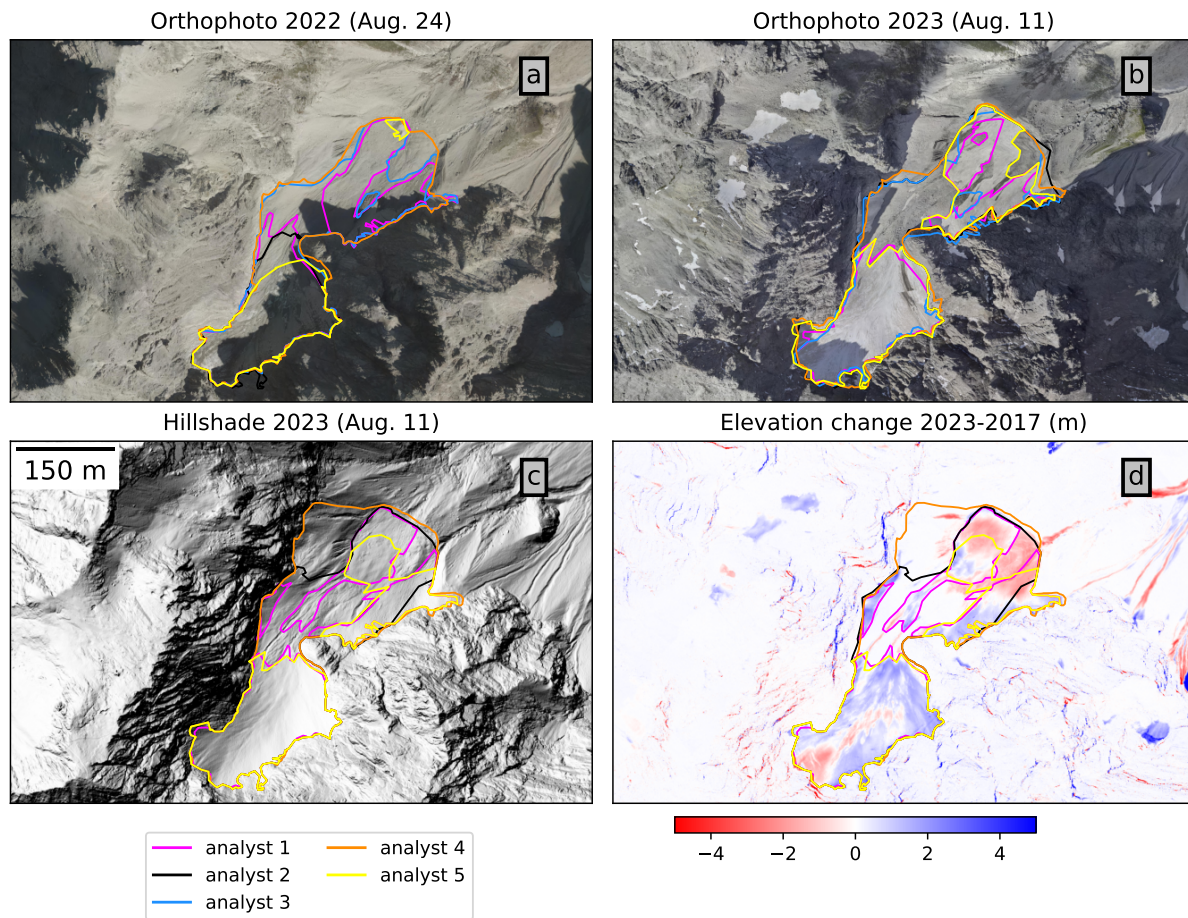


Fig. S1: 2022 and 2023 orthophotos, 2023 hillshade, and 2023-2017 elevation change for feature 19001 in the Lechtal region. Colored lines show the outlines produced by the analysts using the respective orthophotos or the hillshade and difference raster. EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

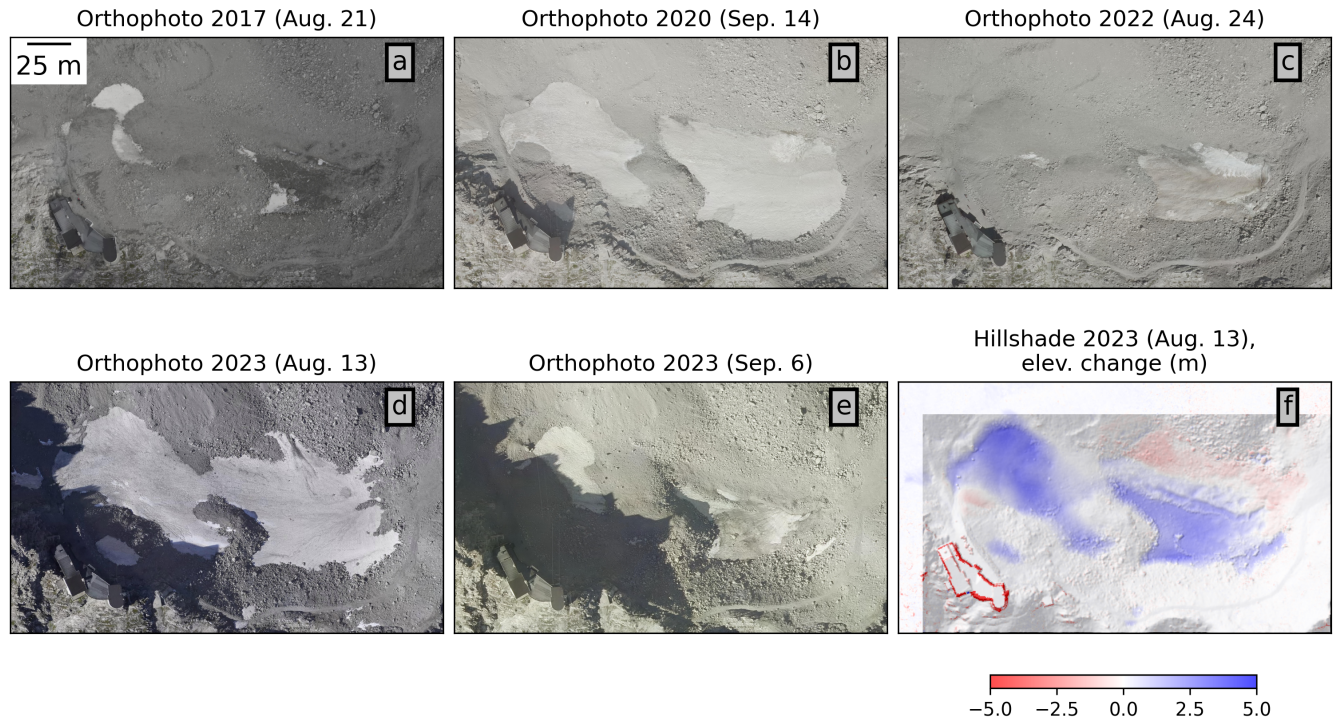


Fig. S2: Orthophotos of glacier 18006 in 2017 (a), 2020 (b), 2022 (c), August 2023 (d), and September 2023 (e). Panel e shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade, as in Fig. 3, panel d. The acquisition dates of the 2017 and 2023 DEMs correspond to the orthophotos in panels a and d, respectively. EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

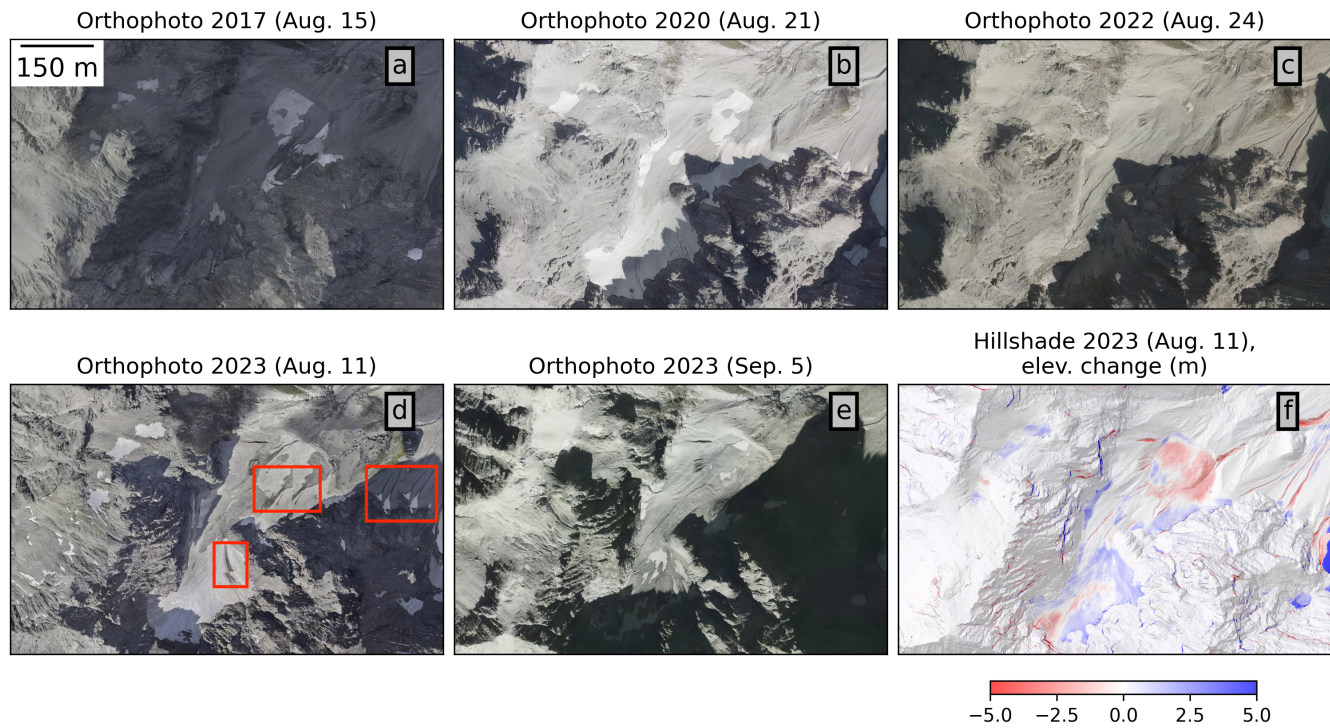


Fig. S3: Orthophotos of glacier 19001 in 2017 (a), 2020 (b), 2022 (c), August 2023 (d), and September 2023 (e). Panel e shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade, as in Fig. S1, panel d. The acquisition dates of the 2017 and 2023 DEMs correspond to the orthophotos in panels a and d, respectively. Red boxes in panel d indicate evidence of a mosaicing problem in this image. EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

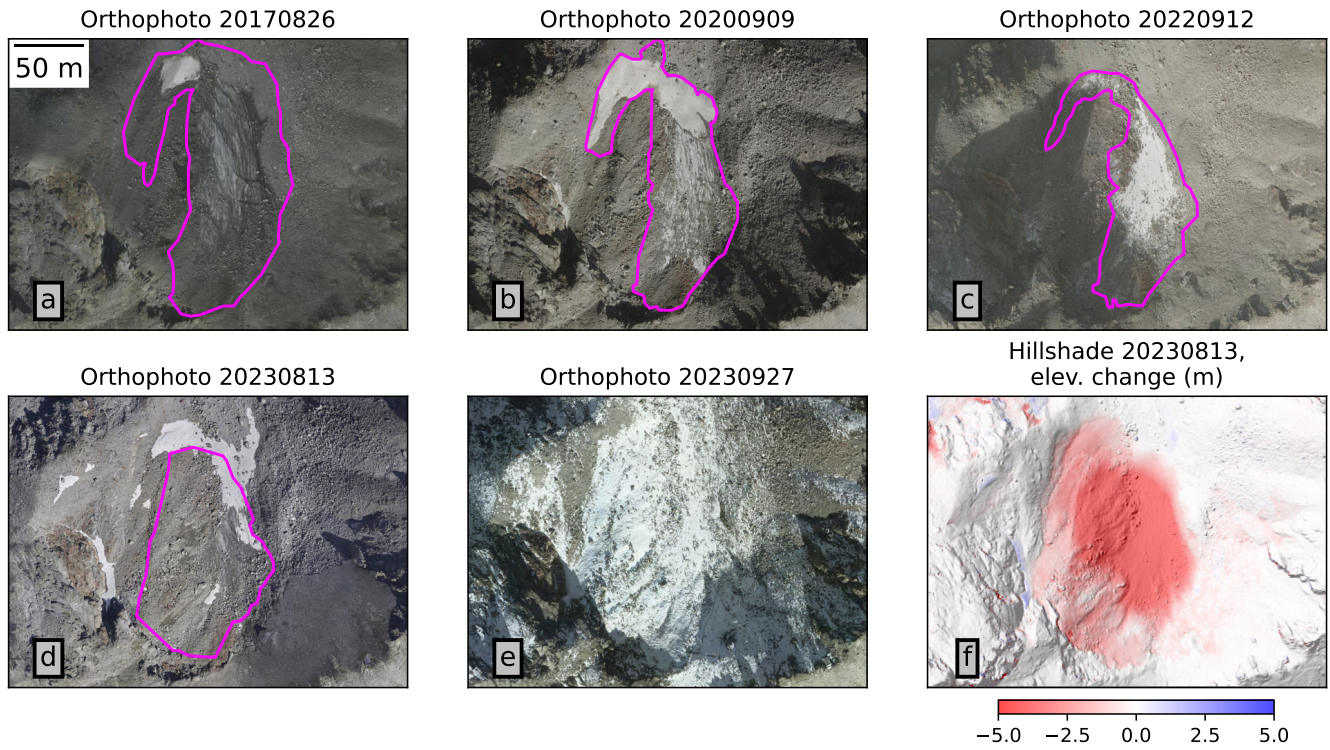


Fig. S4: Orthophotos of Platten Glacier in 2017 (a), 2020 (b), 2022 (c), August 2023 (d), and September 2023 (f). Panel e shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade. The acquisition dates of the 2017 and 2023 DEMs correspond to the orthophotos in panels a and d, respectively. EPSG:31254.

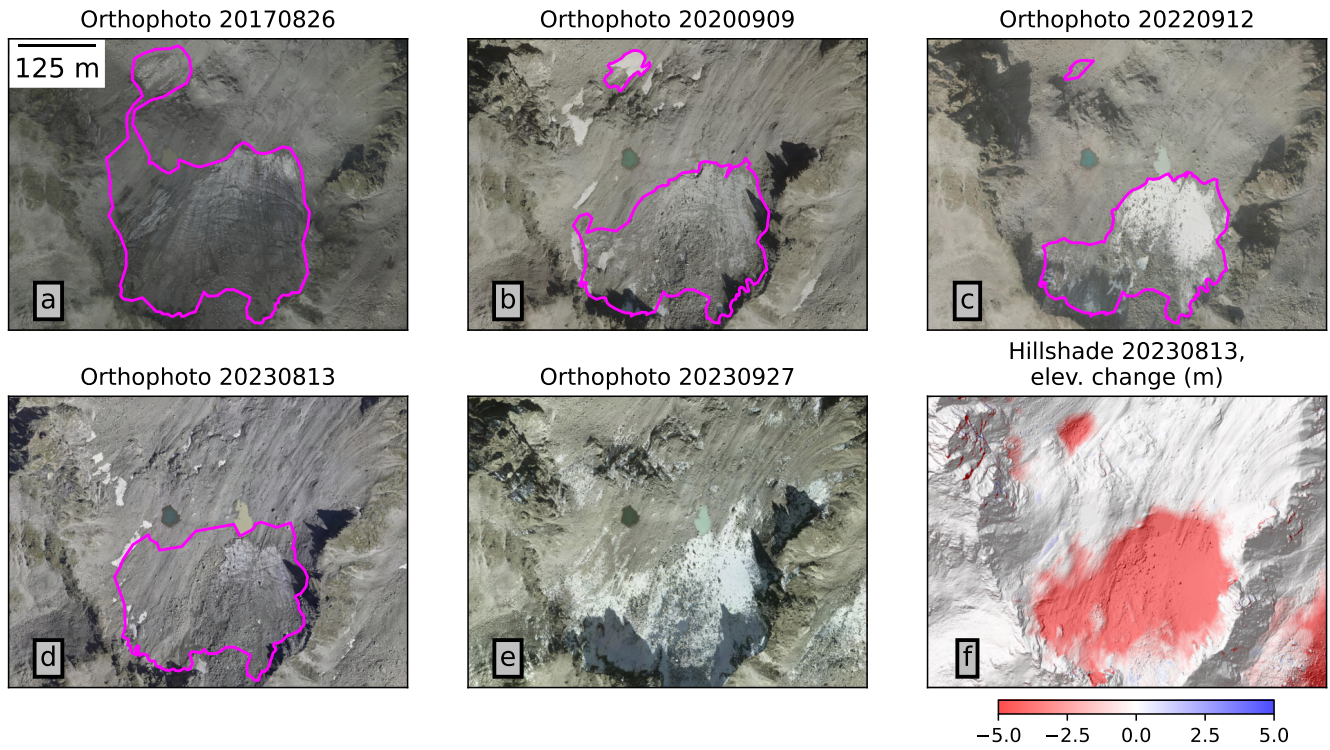


Fig. S5: Orthophotos of Schweizer Glacier in 2017 (a), 2020 (b), 2022 (c), August 2023 (d), and September 2023 (f). Panel e shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade. The acquisition dates of the 2017 and 2023 DEMs correspond to the orthophotos in panels a and d, respectively. EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

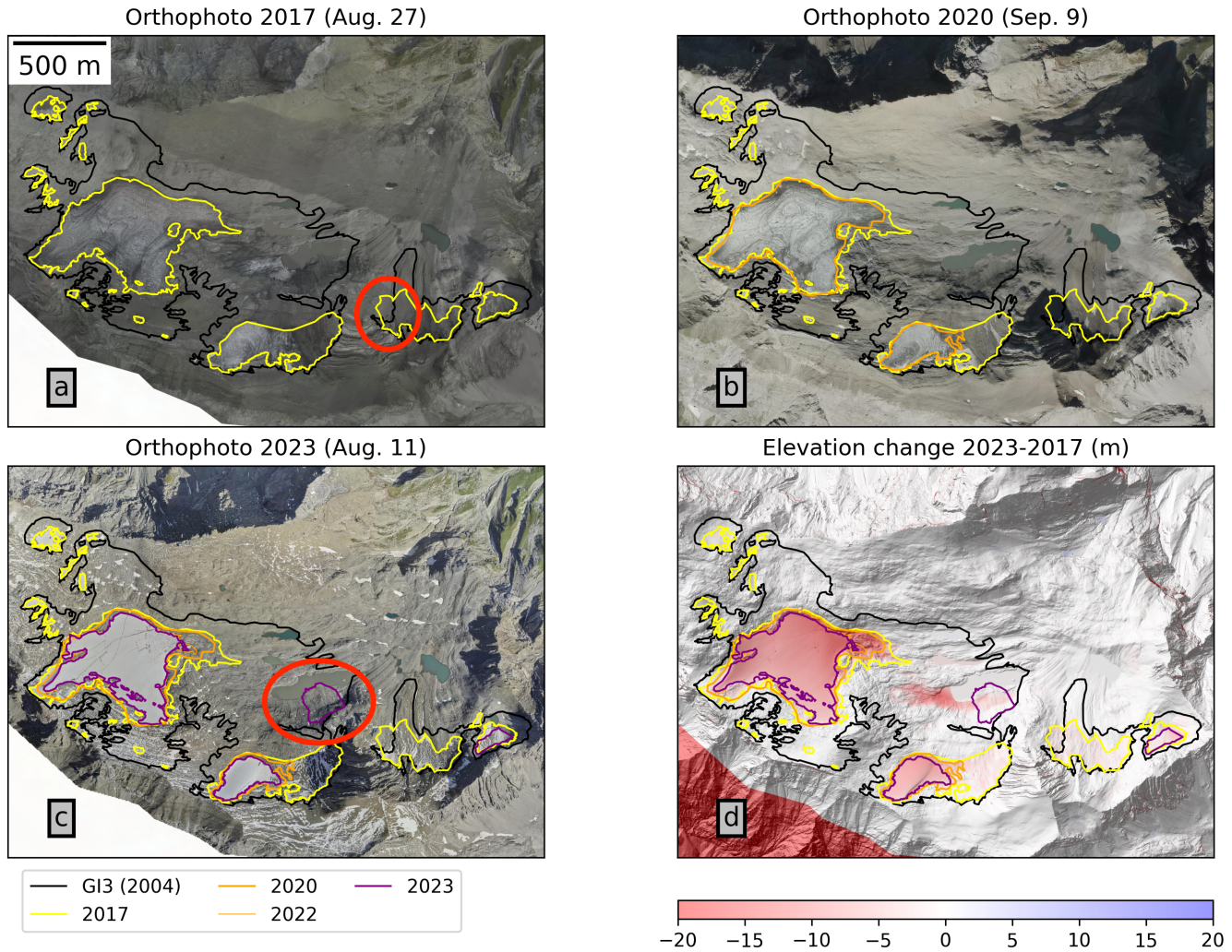


Fig. S6: Orthophotos and corresponding outlines for Brandner glacier in 2017 (a), 2020 (b), and 2023 (c). Panel d shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade. The red ellipses in panel a and c indicate a discrepancy between GI3 and the 2017 outline and a feature that was mapped in 2023 but not previously, respectively. The red corner in the lower left of panel d is an artifact caused by the edge of the DEM coverage. EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

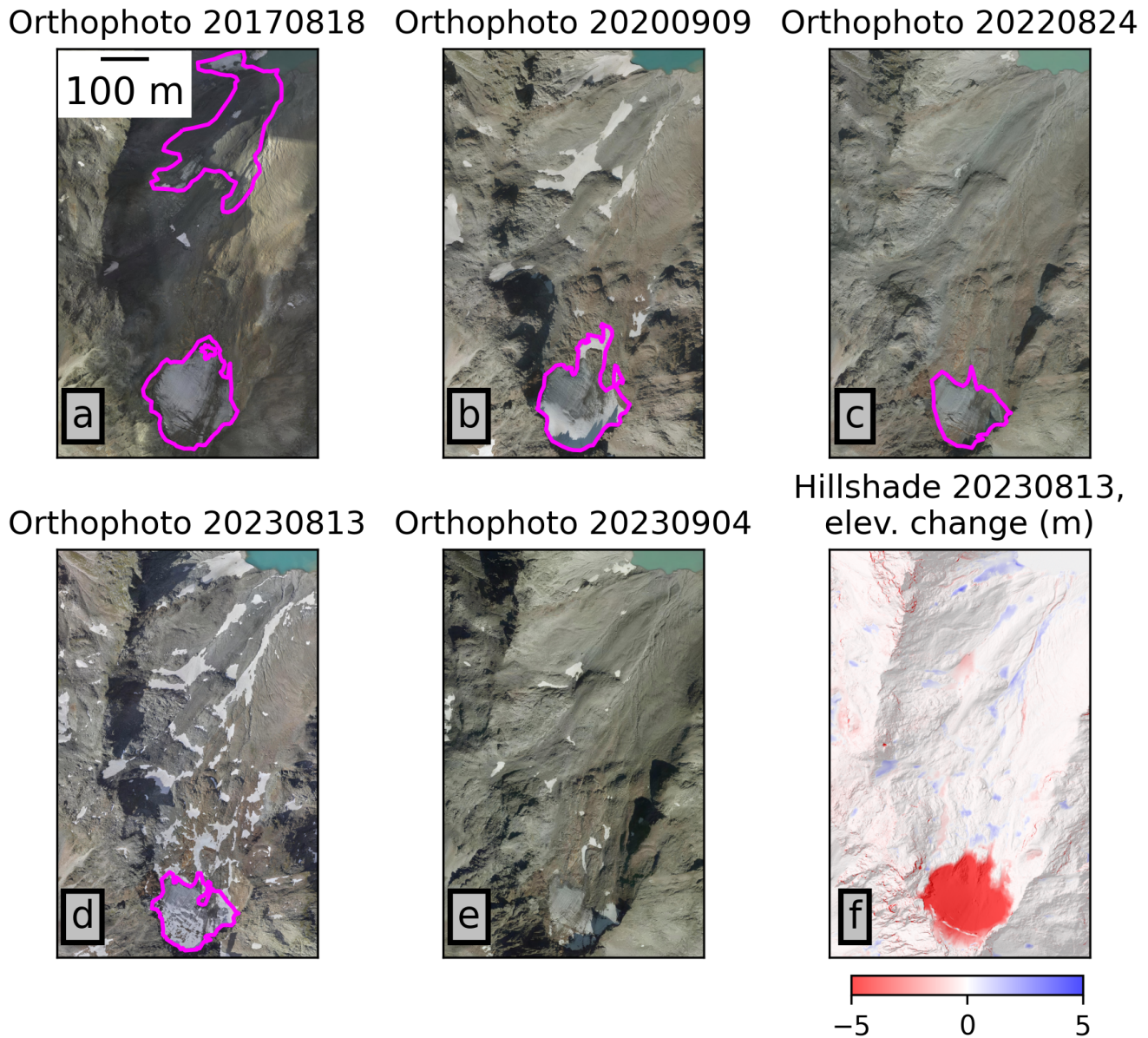


Fig. S7: Orthophotos of Kaltenberg Glacier in 2017 (a), 2020 (b), 2022 (c), August 2023 (d), and September 2023 (f). Panel e shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade. The acquisition dates of the 2017 and 2023 DEMs correspond to the orthophotos in panels a and d, respectively. EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

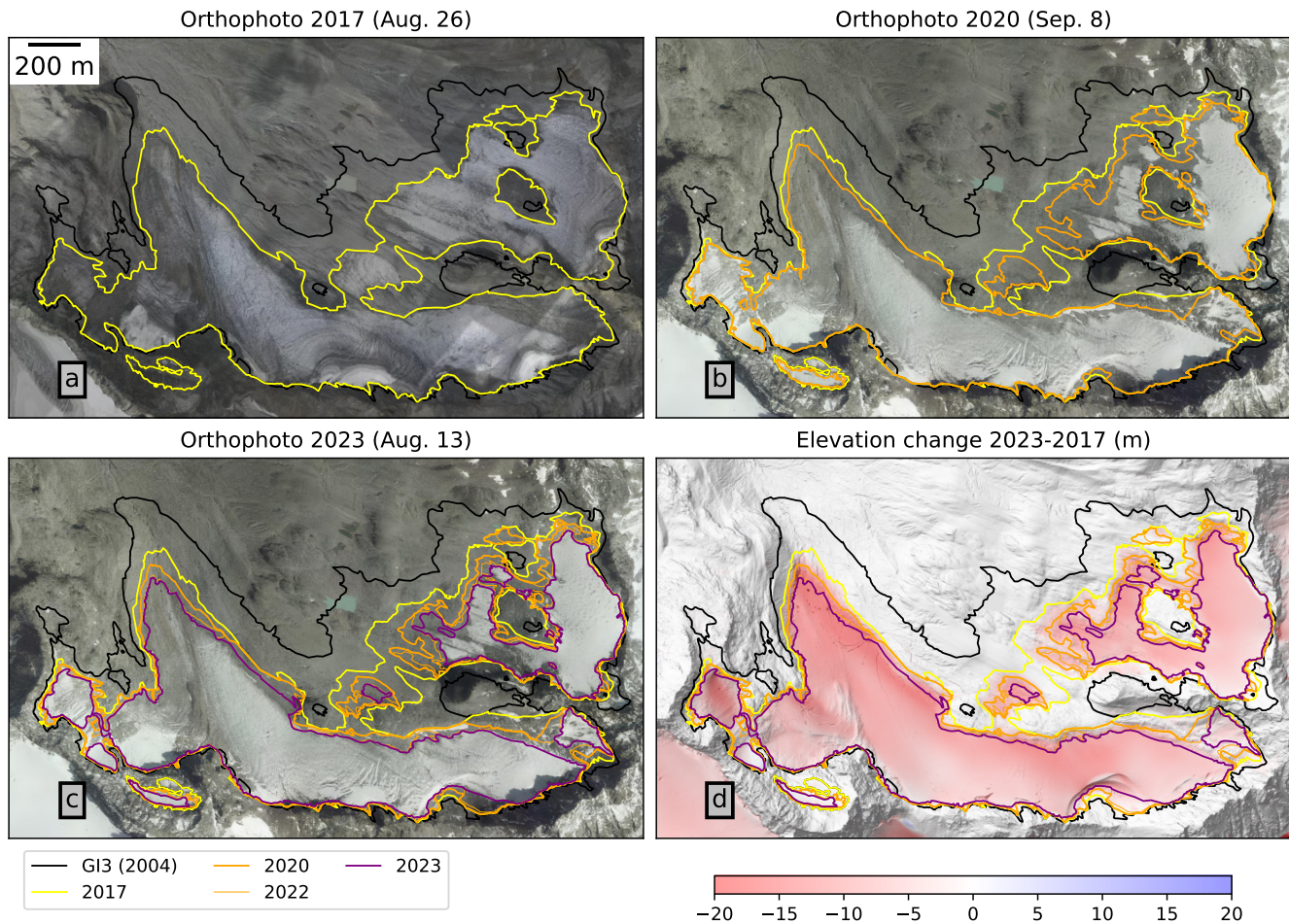


Fig. S8: Orthophotos and corresponding outlines for Vermunt glacier in 2017 (a), 2020 (b), and 2023 (c). Panel d shows elevation change between 2017 and 2023 as an overlay over the 2023 hillshade. The 2017 outlines for this region were taken from the existing regional Silvretta inventory (Fischer and others, 2021), GI3 outlines from (Fischer and others, 2015) EPSG:31254. All imagery obtained via <https://vogis.vorarlberg.at/> (CC BY 4.0).

REFERENCES

- Fischer A, Seiser B, Stocker-Waldhuber M and Abermann J (2015) The Austrian Glacier Inventory GI 3, 2006, in ArcGIS (shapefile) format (doi: 10.1594/PANGAEA.844985), in supplement to: Fischer, Andrea; Seiser, Bernd; Stocker-Waldhuber, Martin; Mitterer, Christian; Abermann, Jakob (2015): Tracing glacier changes in Austria from the Little Ice Age to the present using a lidar-based high-resolution glacier inventory in Austria. *The Cryosphere*, 9(2), 753-766, <https://doi.org/10.5194/tc-9-753-2015>
- Fischer A, Stocker-Waldhuber M, Seiser B, Helfricht K and Schwaizer G (2021) Glacier inventory Austrian Silvretta 2017/2018 (doi: 10.1594/PANGAEA.936109)