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Preface: Quaternary landscape dynamics in the Eastern Alps, from the highest peaks to the North Alpine Foreland – a guidebook to field trips

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This volume has been compiled as a field companion to four Quaternary excursions offered at the Pangeo-DEUQUA 2024 conference held in Salzburg, Austria, from 23 to 27 September 2024 (Fig. 1). The conference motto is "converging disciplines", and it is the first joint meeting of the Austrian Geological Society (ÖGG, Österreichische Geologische Gesellschaft) and the German Quaternary Association (DEUQUA, Deutsche Quartärvereinigung). The conference is hosted by the Geology Group, Department of Environment and Biodiversity at the Faculty of Natural and Life Sciences, Paris Lodron University of Salzburg. The city of Salzburg, located at the transition between the North Alpine Foreland (Molasse) basin and the high Alps, is a great starting point not only for classic geological excursions but also to explore a variety of Quaternary environments. The Quaternary excursions at Pangeo-DEUQUA 2024 visit a range of sites from high in the Alps to the perialpine lowlands, with a focus on key surface processes linked to the climatic extremes during the Quaternary, including the massive impact of anthropogenically induced climate change.

The contribution by Hartmeyer and Otto (2024, Fig. 1A) introduces the open-air lab at Kitzsteinhorn, Hohe Tauern range (Salzburg), and presents high-resolution data, which show the significant consequences of human-induced climate warming on glaciation, permafrost degradation and rock slope stability in the high Alps. The contribution by Reitner and Steinbichler (2024, Fig. 1B) focuses on the deglaciation history and related processes in the Alps after the Last Glacial Maximum (LGM). The setting of this excursion to the Hüttwinkl Valley (upper part of the Rauris Valley), also in the Hohe Tauern, Salzburg, offers a unique sedimentary and morphological archive for determining the relative chronology of glacial, gravitational and fluvial processes. Salcher et al. (2024, Fig. 1C) present evidence on the erosional and depositional dynamics of a major piedmont glacier. The particularly well preserved landforms in the North Alpine Foreland record three glacial maxima that allow clear insights into the processes associated with periods of ice buildup to ice wastage as well as postglacial landscape evolution. The contribution by Sprafke et al. (2024, Fig. 1D) is dedicated to the famous loess–paleosol sequences around Krems at the Danube, Wachau region. These authors present recent paleoenvironmental data from key outcrops at sites at Paudorf, Göttweig and Krems (Schießstätte) which track the development of the regional climate back into the Early Pleistocene.

I thank all the authors for their informative and relevant contributions to this guidebook.

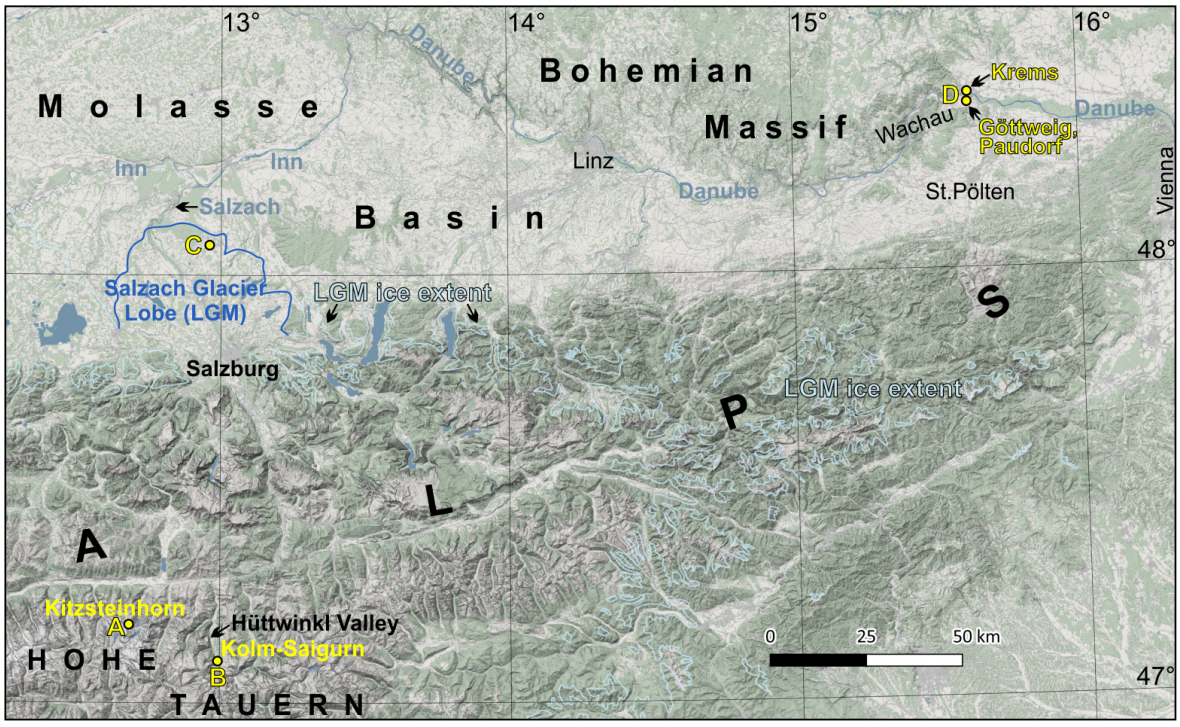

Figure 1. Quaternary excursions offered at Pangeo-DEUQUA 2024. (A) Kitzsteinhorn: Open-Air Lab (Hartmeyer and Otto, 2024, 23 September 2024), (B) Kolm-Saigurn: deglaciation history and mass movements since the LGM (Reitner and Steinbichler, 2024, 23 September 2024). (C) Salzach Glacier: dynamics of a major glacier lobe (Salcher et al., 2024, 26 September 2024). (D) Loess–paleosol sequences around Krems (Sprafke et al., 2024, 27 September 2024). Map data derived from http://geoland.at (last access: 4 June 2024; hillshade) and from ESA (EOX terrain layer, © ESA). LGM ice extent adapted from van Husen (1987).

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