

Figure 2: (a) Age depth model and results of sedimentological laboratory analysis of sediment core SKD-P1-18, showing (b) mean grain size, (c) loss on ignition, (d) dry bulk density and (e) magnetic susceptibility. Section LIF-2 (46-245 cm) is a visually homogeneous section, while LIF-1 and LIF-3 are mainly laminated.

Findings

- High accumulation rates provide a high resolution proglacial lake record of the last 400 years.
- LIF-1 and LIF-3 are predominantly laminated.
- Homogeneous section (LIF-2) represents one (or multiple) extreme event(s) with substantially higher accumulation ratios that occurred during the end of the Little Ice Age (LIA).
- Sedimentological and geophysical analyses show high-frequency variability during second half of LIA, representing glacier activity.
- Our record allows for the extension of available instrumental records responsible for glacier activity, i.e. summer temperature and winter precipitation, into the LIA.

Outlook

- Electron microprobe analysis of tephra from LIF-1 and additional radiocarbon ages allow for a future more detailed age-depth model.
- Cosmogenic surface exposure dates from moraine boulders of the glacier foreland enable the assessment of the spatio-temporal deglaciation pattern of Vatnsdalur.

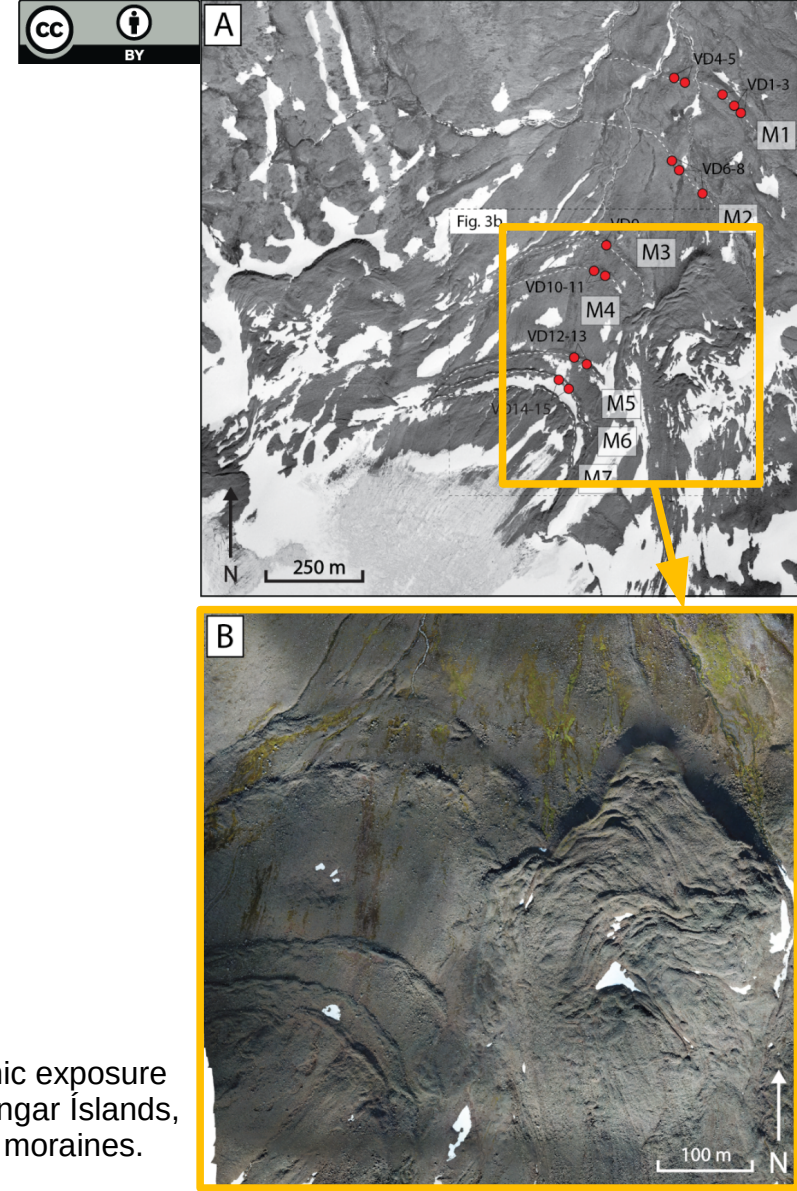


Figure 3: (A) Vatnsdalur glacier foreland with location of sampled boulders for cosmogenic exposure dating indicated by red dots. Moraines are labelled M1-M7. Aerial image from Landmælingar Íslands, 1994. (B) High-resolution drone imagery of the foreland with more recent latero-terminal moraines.