Supplemental Material for

Spatiotemporal variation of modern lake, stream, and soil water isotopes in Iceland

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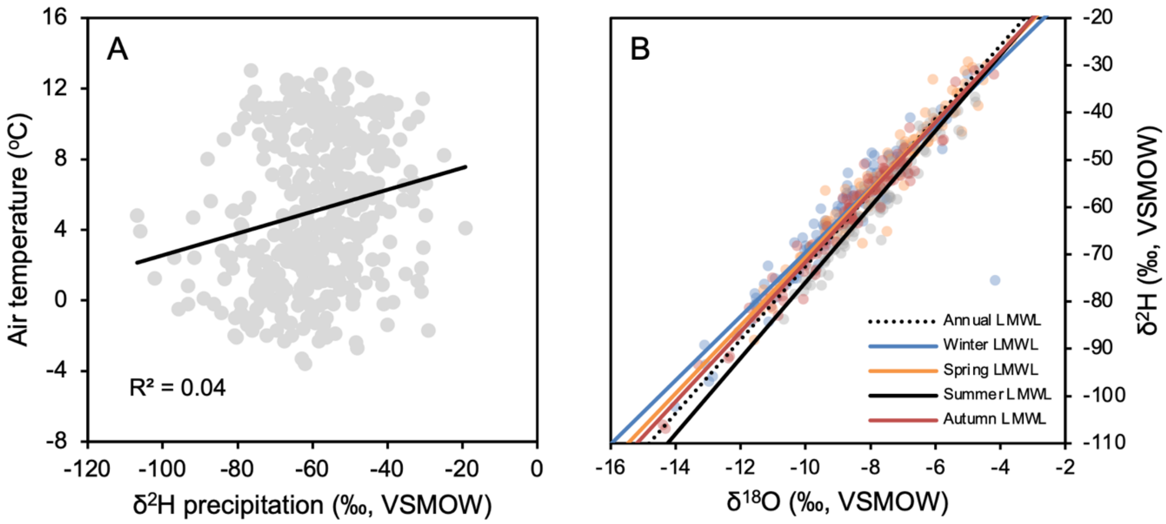

Fig. S1: Data from the Global Network of Isotopes in Precipitation (GNIP) station in Reykjavík (IAEA/WMO, 2015). A) Relationship between δ^2H (‰, VSMOW) and air temperature (ºC) and B) seasonal LMWLs (solid lines) and annual LMWL (dotted line). Individual data points are plotted underneath LMWLs and color coded according to winter (DJF, blue), spring (MAM, yellow), summer (JJA, gray), and autumn (SON, red).

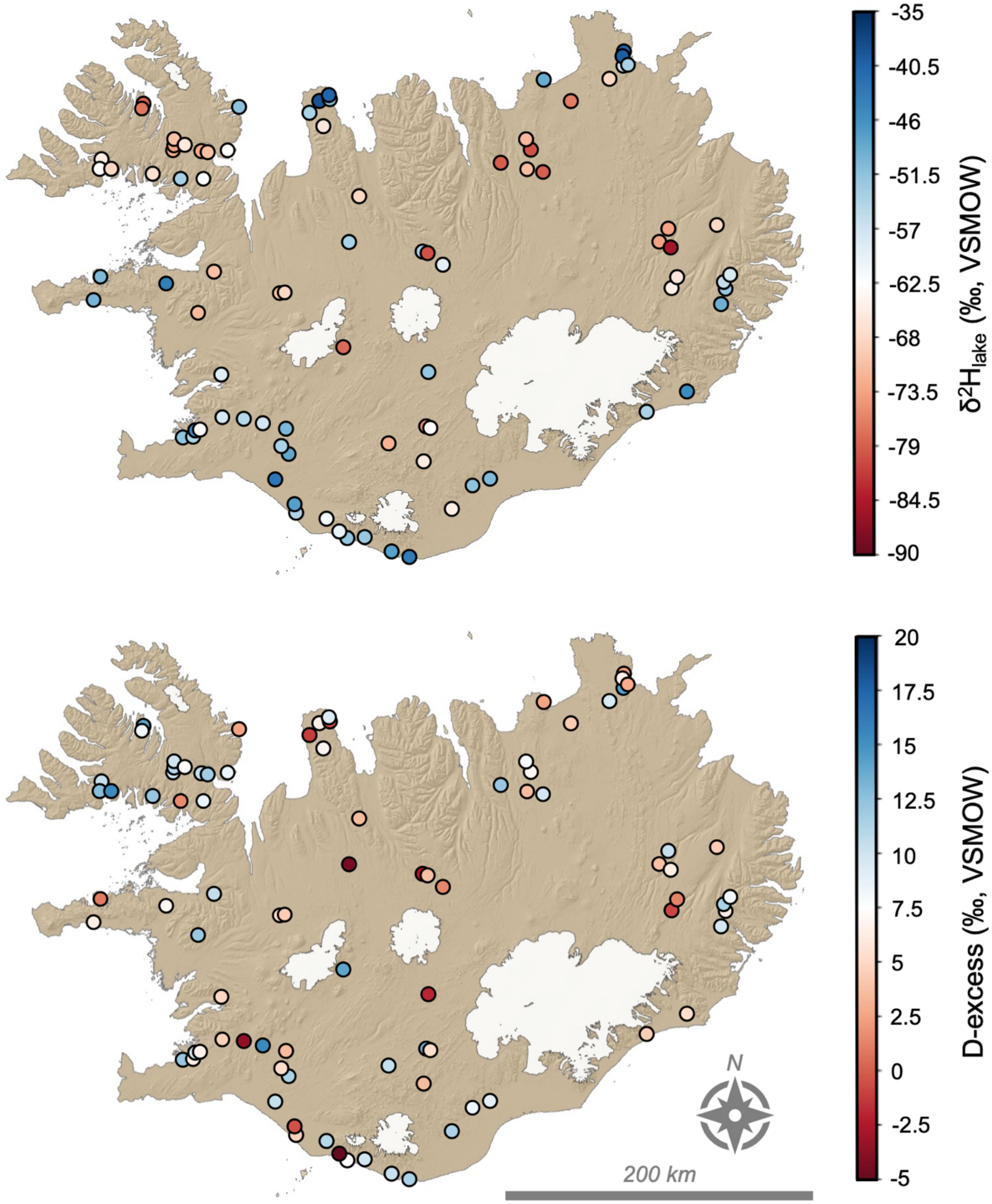

Fig. S2: Lake water isotope and d-excess maps for open lakes only.

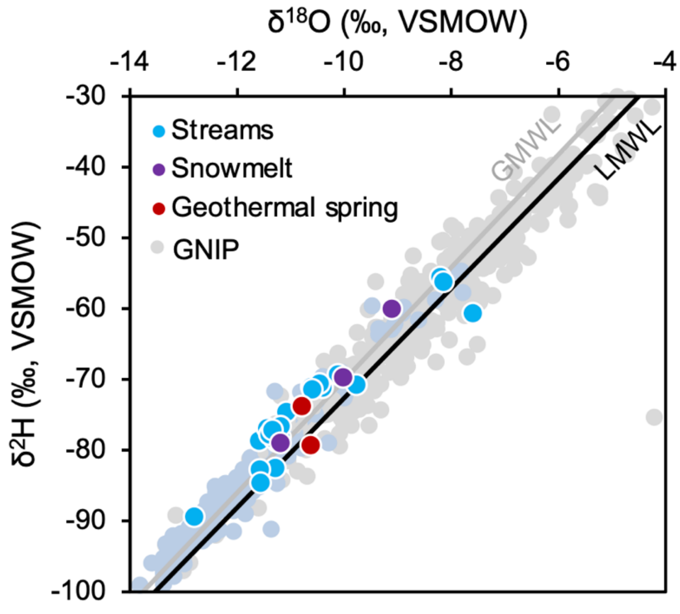

Fig. S3: Stream, snowmelt and geothermal spring water stable isotopes from 2002, 2003 and 2004 plotted against the GMWL and LMWL. Light blue datapoints are other Icelandic stream and river stable water isotopes from MacDonald et al. (2016) and Stefánsson et al. (2019) for reference.

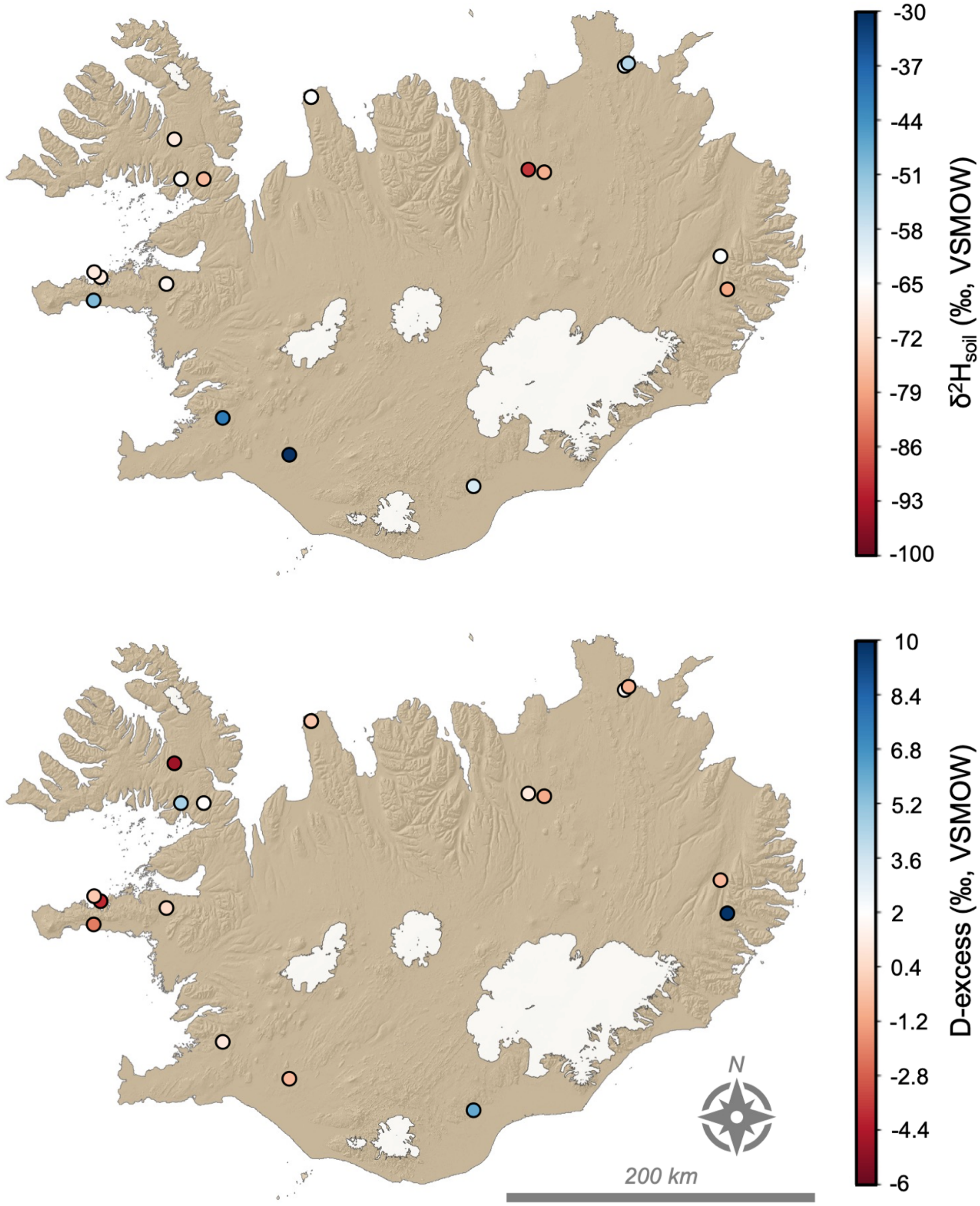

Fig. S4: Soil water hydrogen isotope and d-excess maps.

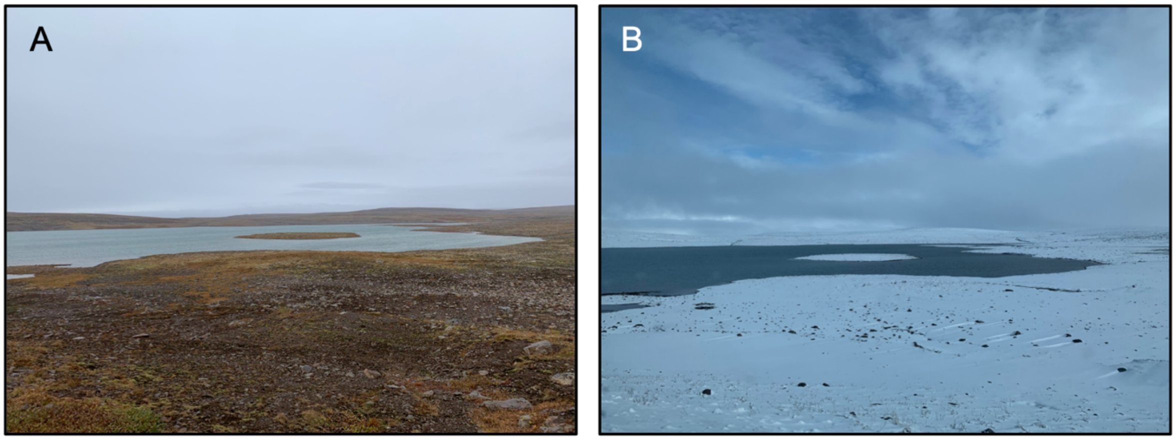

Fig. S5: Field photos of Margrétarvatn in the NW highlands in A) September 2019 and B) September 2020.

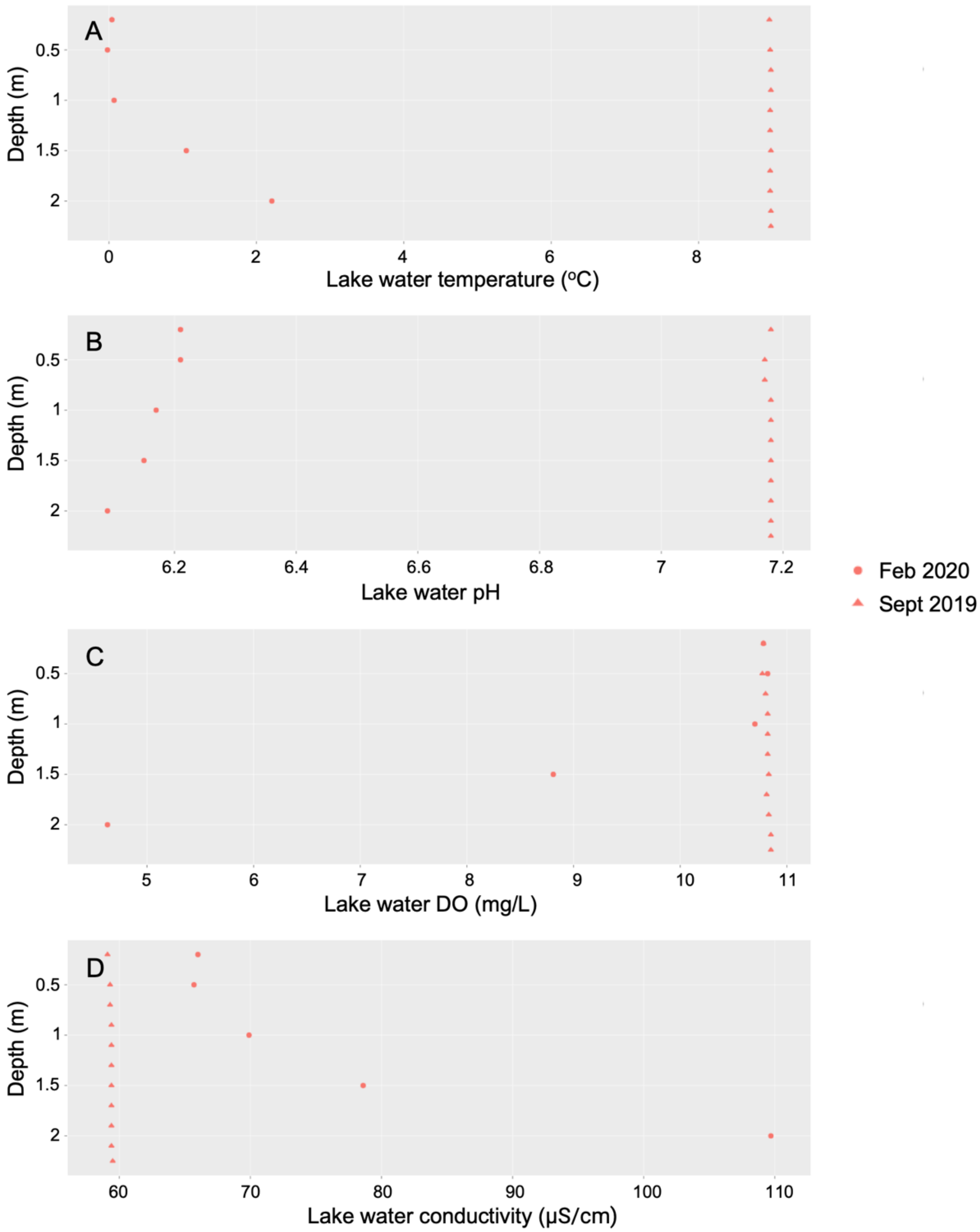

Fig. S6: Sonde water chemistry data collected from Litla Viðarvatn in September 2019 and February 2020 from the same location as water samples were taken from (i.e., center of the lake). A) lake water temperature (ºC), B) lake water pH, C) lake water dissolved oxygen (DO, mg/L), and D) lake water conductivity (μS/cm).

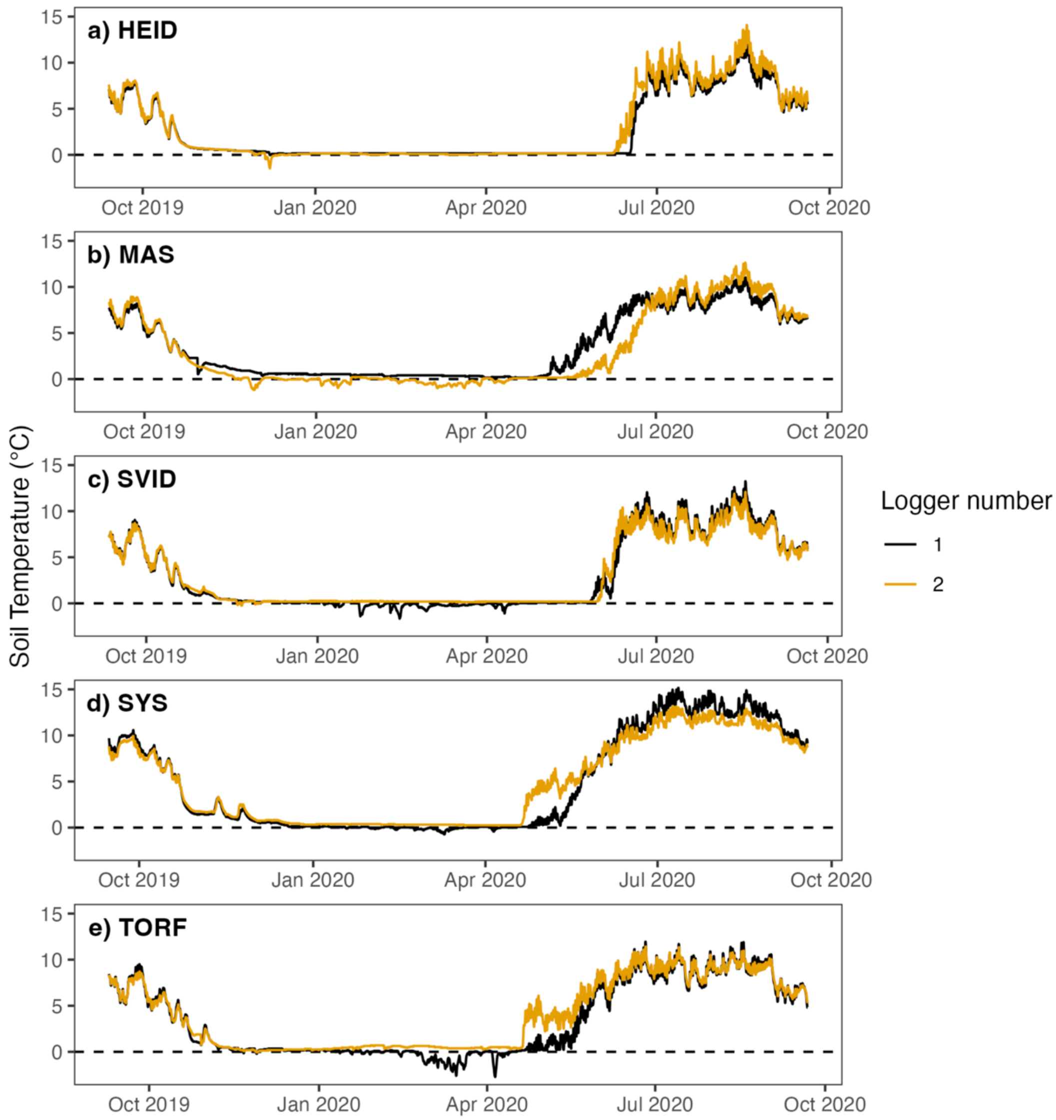

Fig. S7: Soil temperature records from September 2019 to September 2020 for two soil sample sites (black and orange curves) in the lake catchments of A) Heiðarvatn (HEID), B) Másvatn (MAS), C) Stóra Viðarvatn (SVID), D) Systravatn (SYS), and E) Torfdalsvatn (TORF) (Raberg et al., 2021b). Temperatures are recorded at the same depths as soil samples were obtained from (i.e., 10 cm below the surface).

References

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MacDonald, A. M., Black, A. R., Dochartaigh, B. É., Everest, J., Darling, W. G., Flett, V., and Peach, D. W.: Using stable isotopes and continuous meltwater river monitoring to investigate the hydrology of a rapidly retreating Icelandic outlet glacier, Annals of Glaciology, 57, 151-158, https://doi.org/10.1017/aog.2016.22, 2016.

Stefánsson, A., Arnórsson, S., Sveinbjörnsdóttir, Á. E., Heinemeier, J., and Kristmannsdóttir, H.: Isotope (δD, $\delta^{18}O$, ^{3}H, $\delta^{13}C$, ^{14}C) and chemical (B, Cl) constrains on water origin, mixing, water-rock interaction and age of low-temperature geothermal water, Applied Geochemistry, 108, 104380, https://doi.org/10.1016/j.apgeochem.2019.104380, 2019.