Supplementary Information

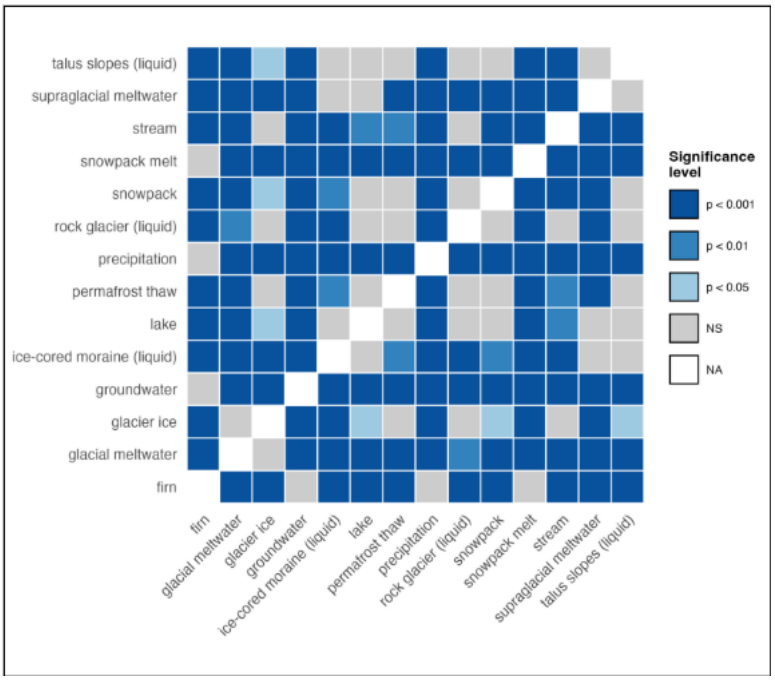

Figure S1. Pairwise statistical comparison among cryosphere-related hydrological endmembers showing levels of significance for differences in isotopic composition between water types. Each cell represents the result of a post-hoc test between two endmembers, with colour intensity indicating significance level (dark blue: $p < 0.001$; medium blue: $p < 0.01$; light blue: $p < 0.05$; grey: not significant; white: not available). The matrix highlights which endmembers are isotopically distinct versus those showing overlapping signatures across glacierized catchment components.

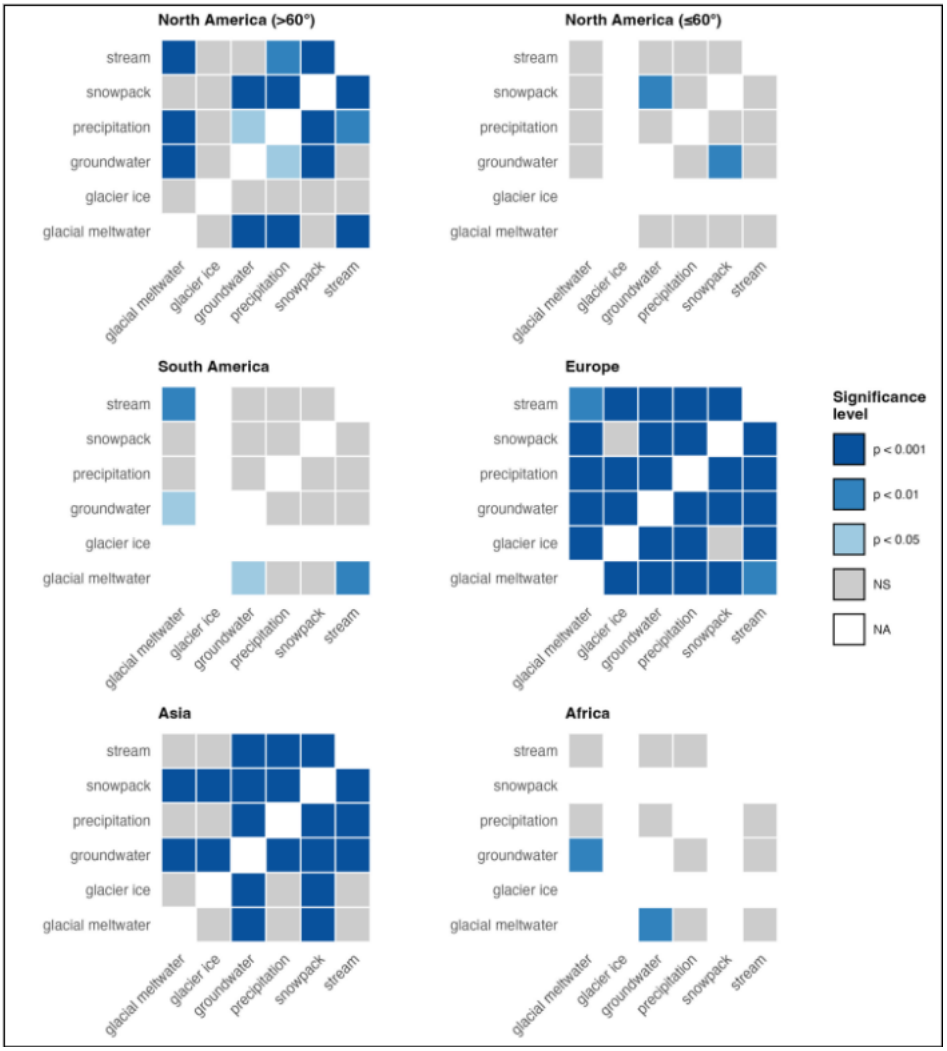

Figure S2. Regional pairwise statistical comparison of $\delta^{18}O$ values among major hydrological and cryosphere endmembers across North America (>60° and ≤60°), South America, Europe, Asia, and Africa. Heatmaps display significance levels from post-hoc tests evaluating isotopic differences between endmembers, with darker colours indicating stronger statistical separation ($p < 0.001$ to $p < 0.05$), grey representing non-significant results, and white indicating unavailable data.

Table S1. References used to build the database

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