The preprint of the dataset paper primarily presents monthly $\delta^{18}O/\delta^{2}H$ measurements from 22 precipitation stations and 19 rivers across Romania and Moldova from the period 2015–2017, while sharing temperature/precipitation/discharge data and local meteoric water lines. The main findings of the paper are that precipitation isotopes signal is split into three regions shaped by the Carpathians blocking moisture from different sources (Atlantic, Mediterranean, Siberian High-driven continental air).

The paper fits nicely into the scope of ESSD. However, before publication, the following issues have to addressed.

Major comments

Title — Spatial and temporal variability of δ18O and δ2H in rivers and precipitation in Eastern Europe suggests the database covers E EU, while it is restricted to data from Moldova and Romania. Therefore I would suggest either of the two versions below:

- Spatial and temporal variability of δ18O and δ2H in rivers and precipitation from Eastern Europe
- Spatial and temporal variability of δ18O and δ2H in rivers and precipitation in an Eastern European subregion

Conclusions — The three-region spatial framework (west/south/east of the Carpathians) is presented as a conclusion but is never formally derived, mapped, or statistically supported in the Results. This would be a genuine contribution if substantiated — add a map and basic statistical support (even preliminary), or soften the framing.

Discussion/Conclusions general — The dataset is only 3 years / 36 monthly points per station. This is adequate for a first regional dataset but should be stated explicitly as a limitation on climatological interpretation, rather than left implicit.

Line specific comments

1. **L105–106, Table 2 ("Average discharge")** — Clarify whether the reported values are mean or maximum discharge, specify the reference period, and cite the data source.
2. **Section 3.3 (L176–191)** — Well-documented QC, but spatial-consistency checking across neighboring stations (useful for catching database errors or validating extreme values) is missing. Suggest the IsoQC web tool (https://sapps.geochem.hu/isoqc/) as a possible addition.
3. **L182 vs. L186** — Internal inconsistency: L182 states d-excess was calculated "For precipitation samples," but L186 ("Measurement of river samples did not yield negative d-excess values") and Fig. 3b (river d-excess boxplots) confirm it was also computed for rivers. Revise the methods text.
4. **L195–196** — I do not recommend using GNIP meteorological data; also, the source of the Moldovan discharge data is not stated anywhere.

5. **L206–207 vs. Section 5 (L317–319)** — Data availability is stated twice (in-text and in the dedicated section). Consolidate; per ESSD convention this belongs only in the Data availability section.
6. **L241** — "Marginally lower" is vague. Quantify, and state whether the 5 stations where PWLSR slope < OLSR slope show any spatial pattern.
7. **L247–249** — If LMWL slopes are genuinely lower in eastern/southern Romania and Moldova, discuss this against the pattern identified from GNIP stations across the temperate and boreal regions of Europe (Lécuyer et al., 2020, https://doi.org/10.1144/SP507-2020-6) or the pattern identified recently in modern precipitation across the Mediterranean Basin (Hatvani et al., 2023 10.1016/j.jhydrol.2022.128925).
8. **L251–253** — Could you present the altitude gradient for d2H as well? Isotopic altitude gradient is often calculated using only d18O, on the grounds that d18O and d2H are closely correlated; however, in many isotope hydrology calculations, it is useful to include d2H data in the calculation, and the empirical gradient value determined for this parameter is useful for that purpose. For further regional comparisons, see Kern et al., 2020. https://doi.org/10.3390/w12061797
9. **L276, Fig. 3b dashed lines** — The "lower by ~1‰" claim needs an explicit reference point (vs. precipitation mean?).
10. **L304–316** — The snow-decline/heatwave narrative draws entirely on external trend studies (Birsan, Amihăesei, Micu), not on trends demonstrated within this 3-year dataset. Flag explicitly as literature-based inference, not a finding of this study.

Tables and Figures

Table 1 / L113 — Mark which precipitation stations belong to the GNIP network (5 Moldovan stations use GNIP data; unclear if any Romanian stations overlap).

Table 2 — Mark whether any river stations are part of the GNIR network (Halder et al., 2015, already cited in the Introduction).

Table 3,

L199–200,— LMWLs use 2012–2017 data; confirm whether all stations meet the 48-month minimum-record criterion recommended by Putnam et al. (2019) for reliable LMWL fitting, and add a column with *n* (data pairs) per station in Table 3, flagging any that fall short.

L240–249 — The OLSR vs. PWLSR slope/intercept comparison ("higher in 13/19 stations") has no accompanying significance or uncertainty assessment; check whether differences fall within the reported ± errors before framing them as a real effect.

Fig. 1 caption — "dark green" is imprecise; the catchments are simply left unshaded/undimmed against the background. **L85 / Fig. 1** — Indicate the extent of the Carpathian range directly on the map.

Fig. 2 caption — Additional description needed what do the dots, the horizontal lines represent, what does the box show… etc. E.g. “Two upright lines represent the data within the 1.5 IQR. The data between 1.5 times the IQR are indicated with an asterisk (outliers) (Kovács et al., 2012). Kovács, J., Tanos, P., Korponai, J., Kovácsné Székely, I., Gondár, K., Gondár-Sőregi, K., Hatvani, I.G., 2012. Analysis of water quality data for scientists. In: Voudouris, Kostas, Voutsa, D. (Eds.), Water Quality Monitoring and Assessment. InTech, pp. 65–94. https://doi.org/10.5772/32173.

L208–209 vs. Fig. 2a — Text states Tg. Secuiesc and Rarău have the lowest δ18O minima, but the boxplot appears to show the lowest value under Leaova. Verify against the underlying data.

L227, Fig. 3/Fig. 4 — The claim that autumnal d-excess maxima are higher in SW Romania is hard to verify from the current heatmap (Fig. 4). Add a map panel or plot the autumnal d-excess spatially.

Fig. 4 — Needs a color scale/legend; station codes (BM, BN, BZ...) are undefined — cross-reference them in Table 1.

Fig. 6 caption, L300–302 — Increase axis-title/label font size; use a uniform y-axis scale across panels a–c for cross-panel comparability.

References

L55–56 — Holko et al. (2012) covers Central Europe and Vystavna et al. (2018) Eastern Europe, not SE Europe specifically. Replace with region-appropriate citations: Fórizs et al. (2025, *Central European Geology* 68(1), doi:10.1556/24.2025.00146 — Hungary) and Gjeshovska et al. (2026, doi:10.3390/w18151861 – Macedonia)

L129–131 — Add a reference supporting the claim that algal film alters 18O/16O and 2H/1H ratios.

References, ~L478–479 — Rozanski et al. (1992) is listed as *J. Geophys. Res.* 78, 1–36, but the DOI (10.1029/gm078p0001) belongs to the AGU Geophysical Monograph Series vol. 78, not JGR. Correct the journal/series name.

Forray et al. (2024) DOI is broken: "https://soi.org/..." should read "https://doi.org/...".

Minor comments

- **L27, L341** — "asses" → "assess" (occurs twice: abstract and conclusions).
- **L29** — "long times series" → "long time-series." or “long-term data”
- **L176** — "was" → "were" ("data... were analyzed").
- **L220** — Insert "values": "...δ18O and δ2H values are much lower..."

- **L273–275** — A supporting reference for the evaporative-enrichment interpretation would strengthen this sentence.
- **L327** — Insert "signature": "...hence the δ18O and δ2H signature of precipitation."
- **L48** — Inconsistent punctuation: "Masse-Dufresne et al.; 2021, Vystavna et al., 2021" — normalize citation formatting.

Claude AI was used to polish the language of the present review.