

## Review on the manuscript „The countrywide historical gravity dataset of Lithuanian territory” (ESSD-2025-174), revised submission by Dominykas Šlikas and colleagues

### Review:

My general impression remains unchanged after this second review: the manuscript is scientifically interesting and contains information and datasets that are (urgently) needed by neighboring countries and other users. Please also refer to the comments available on the ESSD website (<https://essd.copernicus.org/preprints/essd-2025-174/>). It is therefore even more regrettable that, upon reading the revised manuscript, not all comments and suggestions for improvement have been consistently taken up or fully addressed. I would like to point this out in detail and ask the authors to implement these points, rather than merely acknowledging them with a smiley. 😊

My overall assessment of the revised version is therefore: **Accept with minor revisions.**

### Remaining points of criticism/suggestion:

#### (1) Framing of the contribution/novelty

I suggested/requested that the authors clearly acknowledge that the main contribution of the paper lies in data preservation and accessibility rather than in the development of new methodology.

**One to two sentences should be added early on (in the abstract or at the end of the introduction) to frame the novelty appropriately.**

*Justification:* I do not see any “practical novelties,” nor a clear statement that the applied methods are standard. The manuscript’s novelty lies in the compilation, homogenization, and accessibility of the data.

#### (2) Clarity and structure of the manuscript

I suggested shortening the section containing formulas, moving long derivations to the supplement, reducing repetition, and improving the scientific tone. However, the manuscript still contains extensive step-by-step coordinate transformation derivations and worked examples (e.g., Eqs. 3–15 plus example blocks).

**Suggestion: Compress this section to a workflow summary and retain only the key formulas, moving the remaining detailed derivations and examples to a (new) supplement.**

#### (3) Figures and maps

The authors have adopted most of the suggestions regarding the figures. Unfortunately,

some inconsistencies remain. Figures 1, 2, 5, 9, 10, 11, and 12 are shown at the same scale and in the same coordinate system, which greatly improves readability. However, the older map fragments still show different map extents, without this being explicitly stated by the authors. The same map extent is used in the fragments shown in Figs. 3, 6, and 7. The extent shown in Fig. 4 differs in latitude compared to the fragments in Figs. 3, 6, and 7. The Bouguer map in Fig. 8 shows only a single coordinate pair in the upper left corner (Long. = 24°00', Lat. = 55°15'). A second coordinate pair should be provided to better assess the spatial extent of the map.

**Suggestion:** Harmonize the map extents of Figs. 3, 6, 7, 4, and 8 by using the same map window. This common extent should also be indicated in Fig. 1 as a reference.

#### **(4) Data format**

The authors state (Section 3) that the dataset is published in DBF (dBASE) format, which is technically valid but increasingly outdated. The authors agreed: Reviewer is right. Data in CSV format was added to repository.

**Sorry, I did not find CSV formatted data in the repository. Already done?**

#### **(5) SI units**

Although I agree with the authors that cgs units are frequently (and still) used in gravity and are generally accepted, I would nevertheless insist that the manuscript explicitly states at least once, preferably in the Introduction (or elsewhere early in the text), **that**  $1 \text{ mGal} = 10^{-5} \text{ m s}^{-2}$ .

After all, we are physicists and/or geodesists 😊 !