

Interactive comment on “Bathymetric Properties of the Baltic Sea” by Martin Jakobsson et al.

Anonymous Referee #3

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This manuscript analyses and compares two different digital terrain models of the Baltic Sea: EMODnet and IOWTOPO, and also compares EMODnet to higher-resolution multibeam bathymetric data.

Overall, this research is rigorous and cites appropriate prior published work. It refines some of the basic properties of the Baltic Sea, especially the area and volume, and refines the depths of various sills (important for modeling deep-water exchange between basins). As such, it should become a frequently referenced paper for Baltic Sea bathymetric properties.

The manuscript also identifies some of the weaknesses in the older IOWTOPO, in particular, less source data to enable quantification of minimum and maximum depths in various cells. The hope is that further multibeam bathymetric surveying in the Baltic, as well as other parts of the world, will enable the development of more-statistically

C1

rigorous terrain models in the future.

The authors do identify a research topic worthy of further investigation: how the downgrading of high-resolution terrain models to larger cell sizes can degrade the accuracy of the derived, coarser model, especially where sparse data are used, which is common over much of the world's ocean floor. Development of techniques to more accurately downgrade high-resolution data and models to lower-resolution (larger cell size) will be of significant value to the global bathymetric community, in particular GEBCO.

Side note: there are two section '3.2'. One of page 8, line 13 ("3.2 Bathymetric Sills"), and another on page 9, line 8 ("3.2 High-resolution bathymetry in the Southern Quark").

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C2