Abstract

It became especially important to notify users to be aware of artifacts in bathymetry, since the increase of public interest towards the ocean and release of such exploratory tools as Google Ocean. Artifacts in gridded bathymetry can be defined as any dubious features in the bathymetry surface. Dubious features are those whose existence is questionable according to geologic knowledge of the processes in the area. Any bathymetry grid is a compilation of various data sources with different accuracies, resolution and distribution. Artifacts in the bathymetry grids are characterized by presence and distribution of the source data. Artifacts can be caused by systematic errors in the source data, or by interpolation errors. Mauna [2007] defines artifacts as "deceptive artificial features or artifacts that are introduced to surface model via system-specific collection or processing techniques". Several types of artifacts encountered in the bathymetry of GECBO_08, SRTM30_Plus, Smith & Sandwell [S&S] and IBCAO grids are illustrated. The types of artifacts encountered are classified according to the nature of the source data types, since that is the major factor that characterizes them. The given illustrations of the artifacts are just the few examples, and users should be aware of existence of unseen features in any bathymetric compilation. By comparing to the source trackline coverage for the bathymetry grid, users should verify whether the feature is real or non-existent.

Conclusions

1) We present classification scheme for the types of artifacts encountered in several bathymetry grids, such as IBCAO-v2.23, GECBO_08, SRTM30_Plus ver. 6, Smith and Sandwell ver.13.1. Artifacts are classified according to the nature of the source data types which characterize them.

2) The given illustrations of the artifacts are just the few examples. Users should be aware of existence of unseen features in any bathymetric compilation. By comparing to the source trackline coverage for the bathymetry grid, users should verify whether the feature is real or non-existent.

3) Artifacts are unpleasant for visualization purposes, but users should not forget about vertical exaggeration commonly used in visualizing bathymetry.

4) The scale of artifacts varies, from artifacts that can be neglected in deep water areas, to the most pronounced artifacts observed in Type B grids on shelves with the size up to 50% of water depth.

5) Users should be aware that the grids are being constantly updated and the artifacts present in this work might be corrected in the future versions of the grids.

References

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