

Red relief image map and integration of topographic data in and around the Japan Sea

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In recent years, we conducted marine seismic surveys in the Japan Sea with the research vessels of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC). In these surveys, high quality bathymetric data by the multi-narrow beam echo sounder have been obtained simultaneously with navigation of vessels. In this report, we describe about red relief image map and DEM (Digital Elevation Model) data which are created by the integration of topographic data in and around the Japan Sea.

We used various accuracy and/or scale data, such as J-EGG 500m gridded data, digital bathymetric contour data (M7000), and GEBCO 2014 30arc second grid data, in addition to multi-narrow beam data. To remove noises from enormous point cloud data, we applied ground filtering algorithms of aerial Lidar processing system. And to check for errors, like artificial irregular peak pits, visualized data by red relief image map. Corrected bathymetric data and land elevation data are gridded by spline interpolation, and jointed to a sheet of DEM dataset compilation at 0.0005 degree resolution.

Created red relief image map from corrected DEM dataset are easily understandable sea floor feature, such as fold structure, volcano, and submerged valley. This bathymetric data and visualizing are beneficial to understand active faults and folds, seismicity, and crustal structure in the Japan Sea.

Keywords: Japan Sea, Bathymetric data, Data integration, Red relief image map, DEM