

First steps towards developing a risk-based hydrographic surveying policy

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Developing a risk-based hydrographic surveying policy requires predicting depths with available bathymetric data. Previous research used the methods of Inverse Distance Weighting (IDW) and kriging using a regular grid for interpolation.

The aim of this paper is to investigate the use of quadtree decomposition applied to bathymetric data to define a new grid as the basis for improved interpolation and risk assessment. The quadtree approach allows to adapt the resolution of the grid depending on the variability and data availability such that grid sizes may vary with location.

A case study will be tested where the seafloor is relatively flat or sloping versus an area where sandwaves are present. The resulting grid will be the basis for developing a risk-based probability map for which the accuracy of the interpolated depths is important for assigning resurvey frequencies for the Netherland Continental Shelf (NCS).