



Ways forward in quantifying data uncertainty in geological databases

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Issues of compatibility of geological data resulting from the merging of many different data sources and time periods may jeopardize harmonization of data products. Important progress has been made due to increasing data standardization, e.g., at a European scale through the SeaDataNet and Geo-Seas data management infrastructures. Common geological data standards are unambiguously defined, avoiding semantic overlap in geological data and associated metadata. Quality flagging is also applied increasingly, though ways in further propagating this information in data products is still at its infancy.

For the Belgian and southern Netherlands part of the North Sea, databases are now rigorously re-analyzed in view of quantifying quality flags in terms of uncertainty to be propagated through a 3D voxel model of the subsurface (<https://odnature.naturalsciences.be/tiles/>). An approach is worked out to consistently account for differences in positioning, sampling gear, analysis procedures and vintage. The flag scaling is used in the interpolation process of geological data, but will also be used when visualizing the suitability of geological resources in a decision support system. Expert knowledge is systematically revisited as to avoid totally inappropriate use of the flag scaling process.

The quality flagging is also important when communicating results to end-users. Therefore, an open data policy in combination with several processing tools will be at the heart of a new Belgian geological data portal as a platform for knowledge building (KB) and knowledge management (KM) serving the marine geoscience, the policy community and the public at large.