

Preliminary results on the 3D voxel model of the subsurface of the Belgian Continental Shelf

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The BCS until recently regarded as one of the most well-studied areas of the North Sea has more to show than originally thought. Buried valleys, deltaic units, tidal channels, and erosional unconformities provide a challenging environment for 3D modelling. Within the frame of the Belspo Brain-be project TILES (Transnational and Integrated Long-term Marine Exploitation Strategies), a 3D voxel model of the subsurface of the North Sea will be created. The borehole and 2D seismic database of Belgium and Holland were combined to create the geological scheme of the area, unified borehole lithological descriptions and 2d bounding surfaces determining lithostratigraphical units. The previously mentioned data were interpolated using ISATIS to create the 3D voxel model. Each voxel is describing either a unique value of a lithological feature (fine sand, gravel, etc.) or the occurrence probability of it. Results from the probability voxel model, showed a more detailed distribution of Pleistocene to Holocene stratigraphical units, outlined the deltaic fan of the Schelde River and also provided a preliminary model that can be used to determine resources volumes and their sustainable exploitation and in planning coastal zone and offshore area development.

References

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