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New approaches to sand resource management – in a constrained environment

Vera Van Lancker

Mineral and geological resources are non-renewable on time-scales relevant for decision-makers. The sustainable management of these invaluable resources requires a thorough and careful balancing of available quantity and quality versus rapidly changing societal and economical needs. The need for such an approach is recognized in the EU's Raw Materials Initiative, which highlights the optimization of the geological knowledge base as a key element in ensuring sustainable supplies from within the EU borders. Comprehensive knowledge on the distribution, composition and dynamics of geological resources therefore is the backbone of long-term strategies for resource use in a rapidly changing world.

As a world premiere a transborder geological knowledge base is now available for the Belgian and southern Netherlands part of the North Sea comprising volumetric 3D pixel ('voxel') models of its subsurface, environmental impact models accounting for geological boundary conditions, a geological data portal and a voxel-based resource decision support module. The newly developed tools assist in the preparation of long-term adaptive management strategies, as well as in scientifically underpinning new legally binding measures to optimize and maximize long-term exploitation of aggregate resources within sustainable environmental limits. These proposed measures feed into policy plans that are periodically evaluated and adapted (e.g., Marine Spatial Planning and the Marine Strategy Framework Directive, the environmental pillar of Europe's Maritime Policy). More info on this Belgian Science Policy project: https://odnature.naturalsciences.be/tiles/

TILES Consortium: Royal Belgian Institute of Natural Sciences (coordinator); Ghent University, Department of Geology and Department of Telecommunications; TNO Geological Survey of the Netherlands; and FPS Economy, Continental Shelf Department