

MAPPING OF SUBMARINE SAND BANKS ON THE BELGIAN CONTINENTAL SHELF BASED ON MULTIBEAM ECHOSOUNDER DATA

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The mapping of the sandbanks on the Belgian Continental Shelf is part of a study on the stability of these sand banks. On this part of the North Sea we observe structures on different scales : on a large scale we find sandbanks with a length of 10 and more km's, a width of several km's and an elevation above the sea floor of a few dozen meters. Superposed on and perpendicular to these banks sandwaves vary in height from less than a meter to several meters and expand over several 100 m's. The multibeam echosounder is the first instrument that obtains data that allows us to produce accurate maps, whereon even these small structures are represented correctly.

The multibeam echosounder provides us with a enormous amount of data (111 depth measurements, up to 25 times a second) and a total coverage. This allows us to produce maps on a low scale. Therefore the quality requirements of the data are very high : GPS positioning, corrections for all the movements of the ship and it's position in respect to the water level, a accurate tidal correction etc... The produced maps are also depending on the interpolation model used for the creation of the DTM. On this issue intensive research is certainly necessary.

The final products are 2-dimensional and 3-dimensional visualizations of the submarine surface. These maps can be combined with other data (granulometrical, biological and geological). Here the relations between these parameters and the topography can be studied in depth. The maps can also be combined with the existing nautical maps. By combining different measures of the same area it is also possible to produce a temporal sequence, where the evolution of the sea bottom topography and of different parameters superposed on it can be studied. By applying mathematical functions it's possible to quantify this evolution.