

Deciphering Mega-Ripple variability in an anthropogenically-steered environment: implications for mine burial studies.

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ABSTRACT

In 2007 the Ministry of Defence, in collaboration with Ghent University, developed a project on the understanding of mega-ripple variability in view of improving mine burial prediction models in sandbank areas. Results will assist in the monitoring of sea-mines, heritage of two World Wars, nowadays partially or totally buried by sandy bedforms.

In this paper we will present results from ‘The Vlakte Van De Raan – Akkaert Bank’ region, a sandbank area on the Belgian Continental Shelf where intensive disposal of dredged material takes place. Five years time series of multibeam echosoundings (Kongsberg Simrad EM1002-EM3002) were built-up.

Migration of dunes (2-3m in height) has been observed of up to 20m in a South West direction opposite to the dominant North East current direction. Magnitudes of migration are largest near to the disposal ground (Van Lancker et al., 2012). Megaripples has been observed too, but their variability was not quantified. During this study a series of parallel profiles, aligned transversally to the dunes, were investigated in time. Profiles with ebb-dominance were analyzed separately from those with a flood-dominance. Differences are highlighted between those closely settled to the disposal ground and those further located.

From the bedform migration, a volume quantification was performed following the results of Duffy (2012). Results are being analysed against hydro-meteorological influences and volumes of dumped material.

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