Storms: a challenge of knowledge

Papili Sonia[1] and Thomas Wever[2]

[1] Belgian Navy-RCMG, Renard Centre of Marine Geology, VSW-MWU, Marine basis Zeebrugge, Graaf Jansdijk 1, B-8380 Zeebrugge, Belgium
E-mail: sonia.papili@ugent.be; sonia.papili@mil.be

[2] Wehrtechnische Dienststelle für Schiffe, Marinewaffen, Maritime Technologie und Forschung, WTD 71 Berliner Str. 115, D-24340 Eckernförde, Germany
E-mail: ThomasWever@BWB.ORG

Dealing with storms is always a fascinating matter. They are uncontrollable and destructive.

It is not always possible to get real data measurements during a storm due to large magnitudes involved. To investigate the sea-floor is always difficult, to investigate it during a storm is almost impossible.

Initially, the main purpose of this research was better understanding the sand dynamics in high dynamic environment related to the presence of objects on the sea-floor. Four instruments were deployed in September 2008 to measure the sediment height surrounding themselves at regular time intervals. This allows observing the sand height variation in time and space in the vicinity of a generic obstacle in a dynamic environment.

During the recording period, two storms passed the experiment site, in October and in November 2008. This gave the rare opportunity to observe and analyze data directly measured on the sea-floor and during storms. It was a chance to study the influence of storms on the sediments surrounding a cylindrical object, and how this affects the coverage, as also, the visibility of the object.

Interesting was to observe an exposure of the object with the onset of the storm reaching a minimum burial during maximum wave heights and maximum wave energy. A roll event was always observed in correspondence to this minimum burial. Moreover the combined action waves-currents at the seafloor produced scouring around the object.

A deposition phase started immediately after the main storm. Also the processes during this sedimentation phase were observed.

Storms, sediments, objects and sea-floor: what a challenge of knowledge!