

The first buoy for continuous measuring of surface Suspended Particulate Matter concentration on the Belgian inner shelf

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SPM concentration is a key parameter to describe the environmental status, and to evaluate and understand the impact of human activities in nearshore areas. Long-term measurements are needed in order to resolve all variations in SPM concentration. In fall 2013, continuous buoy measurements of SPM concentration were initiated and realized in close cooperation with VLOOT dab who is the responsible for maintaining the navigational buoys in the Belgian waters. Both parties agreed upon to select the AW cardinal buoy for holding the OBS-5+ (optical backscatter point sensor) at its side. The stand-alone OBS-5+ is equipped with an anti-biofouling wiper and installed in a stainless steel frame hanging at about 1.5m under sea surface. Both *in situ* and in lab sensor calibrations were performed, together with burst sampling over long enough time guaranteeing qualitative SPM concentration data. The AW buoy (51°22.42'N 3°7.05'E) is located at about 6km off Zeebrugge harbor, in a water depth of 10m and in the direct proximity of the benthic tripod location MOW1 (51°22.04'N 3°6.95'E, measurements since 2005). The motivation for having both types of *in situ* measurements co-located is the RBINS-OD Natural Environment commitment within the European framework JERICO (www.ierico-fp7.eu) WP 10.6, *viz.* inter-comparison study between SPM concentrations derived from different platforms (i.e. buoys, benthic frames, satellite). In a second phase, an upgrade of the system with a second water quality sensor (e.g. fluorimeter) and a module for real-time data transmission is foreseen (currently under market study investigation). Processes affecting SPM concentration are turbulence, tides, neap-spring cycles, meteorological events, season, and other long-term fluctuations. In this poster a time-series of about 20 days (26 September – 16 October, 2013) reveals new insights in the short- (storms) and medium-term (spring-neap cycle) sediment dynamics at different depths, such as vertical mixing and suspended sediment stratification. Once (much) more data have been gathered, correlation with satellite imagery (downloadable from the GRIMAS extraction tool website) will be investigated.