

Evaluation of *in situ* and remote sensing sampling methods of SPM concentration

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Time series of *in situ* SPM concentration and satellite imagery are valuable data sources for the analysis of suspended-sediment transport in coastal or estuarine areas. Still, shortcomings remain, with satellite imagery suffering from a low temporal resolution and only related to surface data, whilst *in situ* measurements have a limited spatial resolution.

Ship time and budget are often limited; it is thus of primary importance to choose a sampling method or a combination of methods, providing a representative sub-sample of the population in the time- and space domain. If long-term variations, induced by natural changes or anthropogenic effects, need resolving, overprinting tidal, neap-spring as also seasonal signals need filtering. This requires sufficiently dense sampling in time and long data series. To our knowledge only few efforts are being made to design or to evaluate existing sampling schemes. Often the best sampling strategy cannot be chosen, as it depends also on the availability of remote sensing and *in situ* data. Autonomous stations (tripods) with an almost continuous measurement of SPM concentration are relatively easy to design; however optical remote sensing images, available at lower time resolution and fair weather conditions only, often miss the occurring high ranges of SPM concentration during storms. Knowledge on the uncertainty, introduced by the sampling method and instrumentation, is therefore important in data interpretation, as well as data assimilation.

The aim of the presentation is the evaluation of the temporal SPM heterogeneity in the Belgian nearshore, using a large set of SPM concentration data from MODIS (MODerate resolution Imaging Spectroradiometer) ocean colour satellite and from *in situ* measurements (tidal cycle, tripod). As match-ups (satellite picture at the same time as *in situ* measurements) are scarce, statistical methods are used to evaluate the differences and similarities in the data sets. This approach is new and allows comparing different data sets, not necessarily sampled at the same moment in time. Further, the sampling strategy is analysed and the representativeness of the different data sets is discussed.