



Investigation of Benthic Boundary Layer processes through seafloor observatories

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The investigation of the Benthic Boundary Layer (BBL) involves the study of a wide spectrum of different, but connected, processes. In order to study the evolution of physical, geochemical, geological and biological phenomena, and to comprehend their possible relationships, a long-term monitoring with the seafloor observatory support is necessary.

Unlike mooring approach, the sea bottom observatories represent a more stable platform wherein a wide variety of instrument can be mounted, giving several advantages on power autonomy and higher sampling rate. In addition, the shortest distance to the bottom of observatory instruments, permits to appreciate even phenomena that can happen close to the sea bottom.

The stable localisation of all the instruments at the same bottom depth and their accurate unit time reference allow a relatively easier and efficient comparison of different kind of signals recorded *in situ*, offering a new and interesting possibility to better understand and describe possible benthic processes.

Although to collect long-time series often can give some instrumental drifting problems (especially for the electrode sensors or, in shallow environment, due to bigger fouling activity), an efficient instrumental pre and post-calibration, as well as the possibility to collect water samples during the long period of measurements, guarantee to restore the signals recorded during the data processing phases.

The versatility of these observatories then offers a good opportunity to investigate, in the same time, different natural fields and with different instrumental approaches. In addition, it permit to discover that the BBL is not at all a stable environment but, as

all the interface layers, it is dominated by strong dynamics processes.