SOCIB or the impact of new marine infrastructures in understanding and forecasting the coastal oceans: some examples from the Balearic Islands in the Mediterranean Sea

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New monitoring technologies are being progressively implemented in coastal ocean observatories. As an example, gliders allow high resolution sampling, showing the existence of new features, such as sub-mesoscale eddies that are characterised by strong horizontal gradients and intense vertical motions. These structures interact with the underlying mean flow and/or topography and can give rise to blocking of the general circulation or to intensified upper ocean biogeochemical exchanges. These are just two examples of scientific topics of worldwide relevance in a climate change context that require the use of new observing and modelling tools to unravel the structures and underlying processes of different interacting spatial and temporal scales. The real challenge is to use and integrate these new technologies to carefully and systematically monitor and resolve the different scales: from the crucial small ones, e.g. mesoscale/weeks, to the basin scale inter-annual and decadal variability, understand the associated biases and correct them. The western Mediterranean is a well-known ideal natural laboratory to understand this type of processes and interactions and SOCIB, the new Balearic Islands Coastal Observatory is one of such systems, a new facility of facilities extending from the coast to the open sea. SOCIB takes profit of the strategic position of the Balearic Islands at the Atlantic/Mediterranean transition area, one of the 'hot spots' of biodiversity in the world's oceans. SOCIB is unique among coastal ocean observatory systems in that its mission and objectives are science, technology and society driven. Some examples of recent advances will be presented and discussed.

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