FIELD_AC: Fluxes, Interactions and Environment at the Land-Ocean Boundary. Downscaling, Assimilation and Coupling

Description

Coastal-zone oceanographic predictions seldom appraise the land discharge as a boundary condition. River fluxes are sometimes considered, but neglecting their 3D character, while the "distributed" continental run-off is not taken into consideration. Moreover, many coastal scale processes, particulary those relevant in geographical restricted domains (coasts with harbours or river mouth areas), are not well parametrized in the present simulations. Because of this situation, local predictions still present significant errors and are not robust enough, even being locally wrong for sharp gradient events, such as flash flood discharges into the Mediterranean sea.

This hampers decision-making in coastal zones. The FIELD_AC project aimed to provide an improved operational service for coastal areas and to generate added value for shelf and regional scale predictions from GMES Marine Core Services. Local assimilation will be analysed together with advanced error metrics to provide a reliable service that can be transferred to public and private parties, using the spin-off company that will result from the project. This was achieved by the introduction of more comprehensive "lans" boundary conditions, improved local parametrizations and new coupling terms/strategies for the studied field cases. They covered a representative range of meteo-oceanographic drivers for four "geometrically" restricted domains (Catalan coast, Venice gulf, Liverpool bay and the Wadden sea). FIELD_AC bridged the gap from shelf predictions to local (river mouth or harbour/beach scales) simulations required at the coastal zone. This resulted in a wider demand for operational services and an enhanced use of in-situ and remote observations. Such improvements (services and expertise) will require the advancement of the present state of the art.

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