



Seasonal variability of the marine circulation in the Campania Coastal System: a high-resolution numerical model study for the year 2016

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2016 monthly hindcasts produced by a high-resolution Campania Regional sigma-coordinate Ocean Model (CROM) are used to study the seasonal variability of the circulation in the three adjacent, semi-enclosed and shallow basins of the Campania Coastal System (CCS): the gulfs of Gaeta, Naples and Salerno. CROM is implemented in the region with a $1/144^\circ$ resolution and is nested with an operational circulation model covering the whole Mediterranean Sea with a $1/16^\circ$ resolution. Forcing is provided by surface momentum, heat, and freshwater fluxes computed from the non-hydrostatic SKIRON/Eta atmospheric modelling system outputs. A winter, a spring, a summer and an autumn period of the reference year 2016 are analysed in detail in the three gulfs. The relative importance of the flow induced by remote large-scale currents through topographic interactions and of that induced locally by the wind is found to vary, even over a weekly time scale, in all of the three gulfs. An analysis of the high-frequency variability shows that, besides the current changes induced by the typical mid-latitude atmospheric synoptic variability, inertial currents in the open sea and sea breeze-induced currents in the gulfs are present. Model-data comparison is performed in the CCS with altimeter data, satellite-derived turbidity distributions, and a high-frequency radar system. Significant model-data agreement is generally found.