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Artificial islands in northern Lazio (Italy): evaluation of different hydrodynamic scenarios in support of the design

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The present work shows the assessment of the hypothetical influence on the hydrodynamic field induced by the construction of three artificial islands off the northern coast of Lazio (Italy).
The proposed settlements will be realized with cutting-edge techniques already used around the world, allowing to explore, develop, test and apply the possibilities of a truly sustainable development of the coast. Following the identification of suitable sites, the design and construction of these insular facilities will procede locating them in such a way as to protect the coasts, adjusting sediment transportation and encouraging the recovery and development of marine ecosystems with high ecological value. The eco-sustainable islands will be created also using (reusing and recycling) residual material from human activities, as already experienced with considerable success in projects realised worldwide.
To assess the effects of artificial islands on the coastline dynamics different scenarios were considered with different design choices and weather conditions through the application of two forecasting mathematical models that calculate wind-induced currents (ADCIRC) and the propagation of waves (STWAVE) and that can also assess the variation of littoral drift effects induced by coastline modifications.