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Kotor Bay area hydrodynamics and pollutant dispersion simulations: a tool for contingency plans

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Harbor and coastal areas, according to ITOPF statistics, are frequent scenarios of small oil spill accidents, usually caused by oil tanker collision in maneuvering or during oil download. For sake of marine environment and human activities, contingency plans are required to minimise the damages of oil spills. In this regard numerical simulations are a useful tool to explore both the worst or more probable accident scenarios.
We present the case study of Kotor Bay, a semi-closed basin in the Adriatic Sea, an environmental and historical heritage, under UNESCO protection.
LESCOAST model, a LES model suitable to simulate sea currents in harbor and coastal areas is adopted to reproduce the hydrodynamic. The sea surface stress, required by the model, of the most frequent wind conditions is computed through preliminary low-atmosphere simulations which account for the surrounding orography.
Hydrodynamic and wind stress maps give an accurate input to a state of art model for the prediction of oil spill dispersion which account for the main forcing on the oil, namely gravity and friction. Finally, the computed pollutant dispersion process is used to map the sensitive areas and intervention time in the Kotor Bay.

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