



Harnessing Marine Products for Effective Environmental Management

Nowadays, there is an increasing volume of ocean data that can be utilized for the operational management of environmental accidents. In this presentation, I will describe specific application services related to two maritime spill management cases [Garcia-Sanchez et al., 2021, 2022]. The first case involves the fuel spill resulting from the Volcan Tamasite Ferry crashing into the Nelson Mandela Dike in La Luz Port in April 2017. The second case examines the origin of a spill that affected the Eastern Mediterranean and several Middle Eastern countries' shorelines in early 2021, which was of unknown source. The comparison of the performance of various datasets elucidates the structure of Uncertainty Quantification [Garcia-Sanchez et al., 2022, 2023]. References: G. García-Sánchez, A. M. Mancho, A. G. Ramos, J. Coca, B. Pérez-Gómez, E. Alvarez-Fanjul, M. G. Sotillo, M. García-León, V. J. García-Garrido, S. Wiggins. Very High Resolution Tools for the Monitoring and Assessment of Environmental Hazards in Coastal Areas. *Frontiers in Marine Science* 7, 605804 (2021). G. García-Sánchez, A. M. Mancho, A. G. Ramos, J. Coca, S. Wiggins. Structured pathways in the turbulence organizing recent oil spill events in the Eastern Mediterranean. *Scientific Reports* 12, 3662 (2022). G. García-Sánchez, A. M. Mancho, S. Wiggins. A bridge between invariant dynamical structures and uncertainty quantification. *Commun. Nonlinear Sci. Numer. Simul.* 104, 106016 (2022). G. García-Sánchez, A. M. Mancho, M. Agaoglou, S. Wiggins. New links between invariant dynamical structures and uncertainty quantification. *Physica D* 453 133826 (2023). Support from PIE project Ref. 202250E001 funded by CSIC, from grant PID2021-123348OB-I00 funded by MCIN/ AEI /10.13039/501100011033/ and by FEDER A way for making Europe and by H2020 grant No 821922, is acknowledged.

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