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## Modelling sediment resuspension and transport induced by ships propellers in ports – the study case of the Port of Genoa

Antonio Guarnieri<sup>1</sup>, Sina Saremi<sup>2</sup>, Jacob H. Jensen<sup>2</sup>, Andrea Pedroncini<sup>3</sup>, Marco Vaccari<sup>4</sup>, and Caterina Vincenzi<sup>4</sup>

<sup>1</sup>DHI S.r.l. Via Bombrini 11/12, Genova, now at Istituto Nazionale di Geofisica e Vulcanologia, Sezione di Bologna, Via D. Creti 12, 40128 Bologna, Italy

<sup>2</sup>DHI, Horsholm, Denmark

<sup>3</sup>DHI S.r.l., Via Bombrini 11/12, Genova

<sup>4</sup>Autorità di Sistema Portuale del Mar Ligure Occidentale (Genova), Palazzo San Giorgio - Via della Mercanzia 2

The action of propellers induced jets on the seabed of ports and harbors might be responsible of erosion and deposition of sediment around the port basin, potentially inducing important variations of the bottom topography in the medium to long time scales. Such dynamics constantly repeated for long periods can result in drastic reduction of ships' clearance - in the case of deposition - or might be a threat for the stability and duration of the structures - in the case of erosion in the close vicinity of berths and decks. These sediment processes are sources of problems for the port managing authorities, both for the safety of navigation and for the optimization of the management and maintenance of the ports' bottom.

In the present work we study by means of integrated numerical modeling the erosion and sediment transport induced by naval traffic in the passenger Port of Genoa (Italy) and we propose a novel delayed-mode methodology and new science-based tools useful to optimize and efficiently plan the maintenance of the port sea bed. Fully operational real-time tools can be further developed starting from the proposed methodology in order to monitor the dynamics of the sediment on a daily basis.

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