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Coarse sediment tracing experiment at the Promenade des Anglais (Nice, France)



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Introduction: coarse sediments tend to shift offshore at Nice's beach. Based on the steepness of the seafloor, no wave process is able to bring back the sediments to the foreshore

Motivation: increasing the basic knowledge about coarse sediment displacement at this beach quantifying the transport rate of coarse tracers 4, 24 and 48 hours after the injection during a time interval characterized by very low to no wave activity



Preliminary results: 126 pebbles marked by RFID tags were injected in the swash-zone (January 2020) along cross-shore transects. The tracers were dropped on the fair-weather berm crest, on the foreshore, and on the step crest

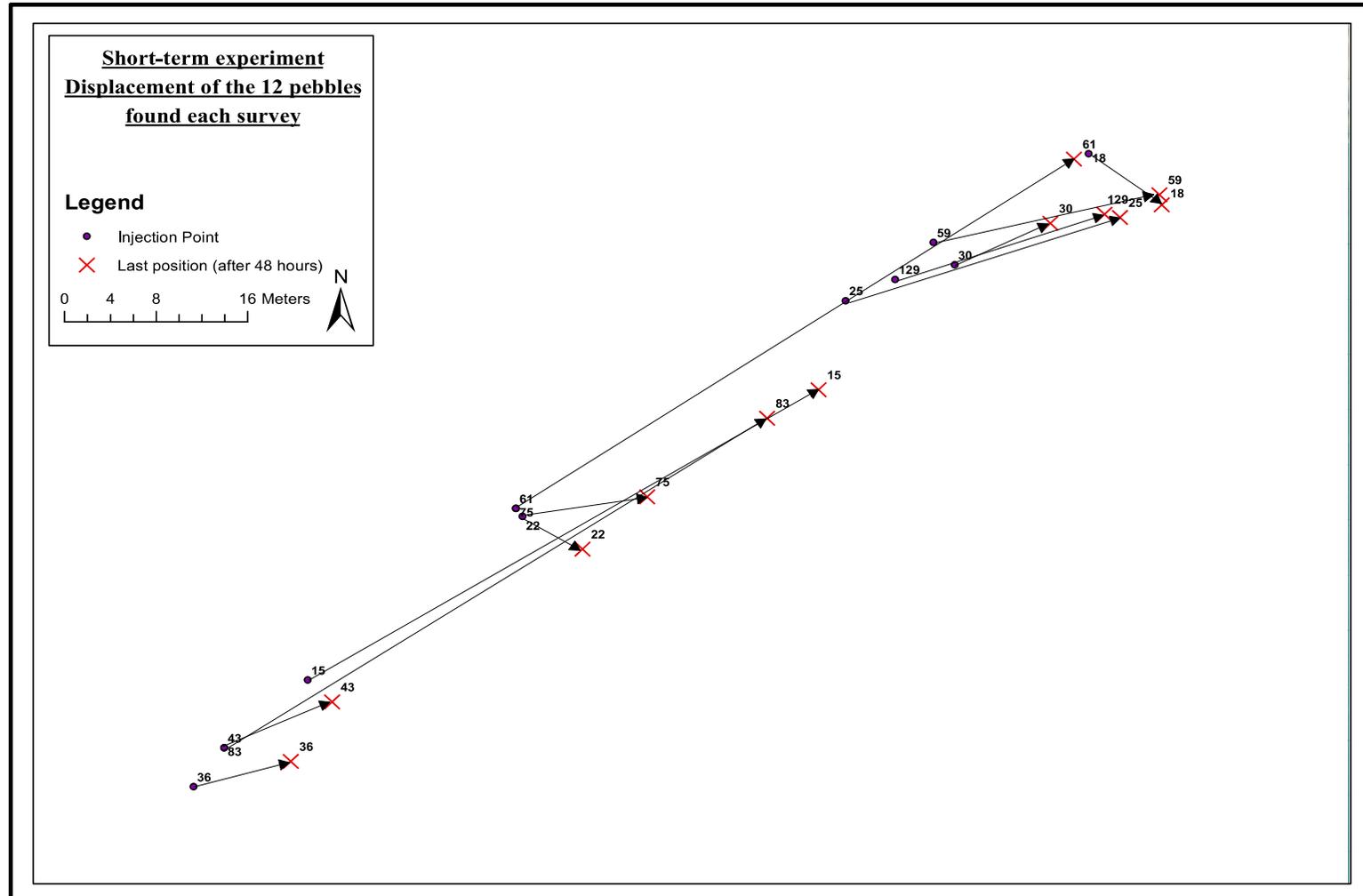
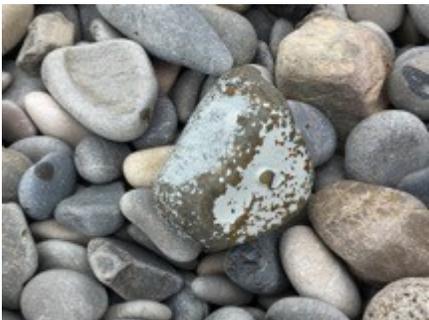
The **table** shows the recovery rate of the tracers 4, 24 and 48 hours after the injection

4 hours	24 hours	48 hours
70	115	18



Preliminary results: plot showing displacement range and direction of the tracers that were recovered at each survey

Friction factors in as well: the paint has been scratched off the surface just after 24 hours



Future perspectives: the early results confirm that coarse sediments tend to move significantly in short timespans and with low wave activity (*Bertoni et al., 2013; Grottoli et al., 2019*)

Matching such data with those provided by topographic surveys and sea weather characteristics (waves and tide) would shed some light on the morphodynamics processes active at Nice's beach



References cited:

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- Grottoli E., Bertoni D., Pozzebon A., Ciavola P., 2019. Influence of particle shape on pebble transport in a mixed sand and gravel beach during low energy conditions: Implications for nourishment projects. *Ocean and Coastal Management* **169**, 171-181. doi: 10.1016/j.ocecoaman.2018.12.014