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MICROSTRUCTURE INVESTIGATION OF SUBMARINE SEDIMENTS FOR THE ENVIRONMENTAL CHARACTERISATION OF A CONTAMINATED SITE

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The city of Taranto in the south of Italy is one of the areas declared as “at high risk of environmental crisis” by the national government (Italian Law n. 349/86) because it represents one of the most complex industrial sites in Europe, located near urban areas of high population density. All the industrial activities are responsible for the high environmental contamination, mainly due to heavy metals and organic pollutants.
This experimental research is part of the multidisciplinary studies that have been funded by the Regional Agency for Environmental Protection (ARPA-Puglia), and financially supported by specific national legislative procedures (Italian Law n. 129 2012), for a preliminary selection of sustainable strategies for the remediation and management of the Mar Piccolo environmental contamination.
The research allowed to notice that the samples collected in the most contaminated top layer exhibited peculiar properties with respect to the deeper ones. The paper presents a set of data which characterizes the microstructure of the sediments in their natural state, in order to discern about the peculiar behaviour of sediments. In particular, leaching tests, mercury intrusion porosimetry tests and mineralogical analysis have been performed.

Keywords: Submarine sediments. Contaminated soils. Microstructure. Laboratory testing.

[1] Vitone C., Federico A., Puzrin A.M., Plötze M., Carrassi E., Todaro F. (2016). On the geotechnical characterisation of the polluted submarine sediments from Taranto. Environmental Science and Pollution Research, 23:12535-12553.