

Geophysical Methods in Environmental Studies

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Abstract

Micro Geophysical methods are powerful tools to explore the subsoil for environmental investigations. Among the possible fields of application are hydrological and hydrogeological characterization and monitoring, slope stability assessments, archaeological surveys, locating voids and karstic features, soil characterization, contamination assessment, and so forth. Ground-penetrating radar (GPR), seismic, DC resistivity, electromagnetic induction, gravity, and magnetic methods are the most used, whilst the use of other technologies has grown over the past decades. The available techniques are characterized by different penetration and resolution capabilities, from few centimeters to kilometers. For this reason, there is drive in the scientific community towards the integration of several geophysical methods in order to detect and characterize the subsoil from the analysis of different physical properties. A paper in this special issue presents an original use of the gravity field to model the sea level oscillations. The analysis of the gravity field leads to the forecast of sea level variation due to meteorological tide events. This analysis defines compensation in the inverse hydrobarometric factor to be taken into account for a correct compensation of the atmospheric pressure variations in basins. This phenomenon has several consequences in Harbor Water Side Management and in Water Quality Control as shown by the reported case studies and introduces a new reference parameter (the so-called Water 1000).

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Biography

Umberta Tinivella has completed his Studies in Italy. He worked as a professor in National Institute of Oceanography, Italy. He had

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