



HYFREW project: Hydrogeophysical studies for the characterisation and monitoring of fresh water in coastal area

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The paper describes the first activities of the Bilateral Project CNR-University of Malta called HYFREW (<https://hyfrew.wordpress.com>). The purpose of the project is to develop a comprehensive and systematic methodology for the detection of fresh water/sea water interaction in coastal areas. The research activities will address two different observation scales: laboratory and nearshore scale. A laboratory controlled experiment (about 1 m³ in volume) will enable the observation of fluid migration and seepage at the seafloor using hydro-geophysical approaches and the definition of the best parameters for its deployment in the field. A field test site in the Maltese Islands, where the interaction between sea-water and fresh-water is an important phenomenon to be monitored, will be chosen.

The present work describes the project laboratory activities. Geoelectrical measurements have been carried out on samples derived from drilling activities on the coastal area of Malta. Each sample comes from different geological layers that characterise the Malta coast. This kind of measurements will enable an improved interpretation of the geoelectrical data acquired in the field. The second activity of this project involved the development a geoelectrical monitoring system for fluid (water and gas) migration below the seafloor and its seepage. The results from experiments deploying this instruments will described.

This study has been carried out in the frame of the Bilateral Project CNR-University of Malta 2018-2019.