



Results from CPTU profiles and core-log data within PROMESS 1: Preliminary multiparameter correlations

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One of the original approaches of the “European PROfiles across Mediterranean Sedimentary Systems Part 1” (PROMESS 1) project was to perform geotechnical site characterizations using CPTU tests from a drilling vessel in order to (i) characterize the sediment profile before coring, (ii) assess the consolidation state of the sediment and (iii) obtain correlations with geophysical data. In this study, we present a geotechnical, geophysical and stratigraphic correlation from CPTU profiles for two sites located about 800 km apart, site PRGL2 on the outer continental shelf of the Gulf of Lions and site PRAD2 on the inner shelf of the Adriatic Sea. The total length of the CPTU profiles is 100 m for PGL2 and 33 for PRAD2.

Corrected tip resistance (q_t), pore pressure (u_2) and lateral friction (f_s) measurements from both CPTU profiles have been correlated with P-wave velocity (V_p) and spectral gamma-density (γ) profiles, both measured using Geotek's MSCL (Multi-Sensor Corer Logger). High V_p values generally correspond to peaks in q_t , while u_2 commonly shows an inverse relationship. A clear correlation is also observed between the CPTU parameters and the γ profile, although comparison is less obvious due to the discontinuous γ profile. The amount and quality of the data obtained allow to establish a site-specific quantitative correlation between q_t , V_p , u_2 and γ . Furthermore, a simple estimate of the OverConsolidation Ratio (OCR) has been obtained from the shape of the CPTU profiles based on the normalized cone resistance. CPTU profiles with depth-converted seismic reflection sections as well as available sedimentological information for both sites has allowed to characterize some surfaces in terms of q_t . For instance, the transgressive surface (TS) and the maximum flooding surface (MFS) have been identified to be consistent with sharp increases of q_t , although these

increases are slightly less pronounced for the MFS as compared to the TS.