



Integrated geophysical survey for prospecting Mallorca cathedral soil

J.O. Caselles (1), J. Clapes (1), R. Osorio (1), G. Martínez (3), J.A. Canas (1), Ll.G. Pujades (1) and V. Pérez Gracia (1)

(1) Technical University of Catalonia, Barcelona, Spain, (2) Universidad Michoacana de San Nicolas de Hidalgo, Michoacán, Mexico. (oriol.caselles@upc.edu / phone: 34-934017257)

The Santa Maria Church of Palma de Mallorca (Spain) is an outstanding old Gothic cathedral built during the 14th and 15th centuries. A distinctive feature of this magnificent building is found in the large dimensions and slenderness of its structural elements. The study here presented is a part of a project oriented to the assessment of the condition and performance of the building structure. This church seems to be partially built over a high deep Roman filling soil. So the main geotechnical problem is to test the soils where the Cathedral is standing in order to assure their foundation stability. To achieve this goal and in order to know the soil properties, we have used GPR and electrical capacitive coupled methods. We performed 17 GPR and 7 electrical profiles. In addition, we have realized 20 GPR profiles allowing to obtain two ·D images of the Cathedral underground. In this work we show the main results obtained.