Ground Penetrating Radar and passive seismic investigation at the villa of Madonna dell’Alto in Campi Salentina (Lecce, Italy)

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We will present the results of Ground Penetrating Radar ([1-3] and passive seismic [4] prospections performed in the villa of Madonna dell'Alto in Campi Salentina (in the outskirts of Lecce, southern Italy). The structure dates back to the nineteen's century. The villa presents a peculiar structure having a central room of a hexagonal shape surrounded by several other small rooms. GPR prospecting has been performed in a central hexagonal room acquiring data on an orthogonal grid having a spacing of 25 cm. The GPR system used was a Ris Hi-Mode manufactured by IDSGeoradar s.r.l. and equipped with a dual antenna at central frequency 200 and 600 MHz. A classical processing composed of zero timing, background removal, gain vs. depth, 1D filtering, Kirchhoff migration and depth slicing was applied on the data. The propagation velocity exploited for the migration algorithm was c=12 cm/ns. In this area, from the slices, we have noted an apparent target at the time depth of 390 cm. However, a comparison with the Bscans revealed that it is most probably due to the effects of the walls and the ceiling of the room where the measurements were taken. Single GPR lines were also taken in the other rooms of the villa where some potential anomalies have been identified. However, another campaign is planned in order to extend the data collection and interpretation.

Furthermore, within the Villa a set of seismic passive measurements have been taken by the means of a portable seismograph. The data where acquired both inside the structure in correspondence of the GPR investigation as well as on top of the structure. Data were processed by applying the H/V and the H/H [4] techniques.

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References

