



Processing and interpretation of GPR data collected in the Church of the Assumption of the Blessed Virgin Mary in Klodzko, Poland

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In this paper review of details about GPR investigation from Church of the Assumption of the Blessed Virgin Mary, which was obtained during SEG Field Camp 2016, are represented.

Church was constructed from the fourteenth through the sixteenth centuries. Its rich architectural forms, embellished interior, which was ornamented by Italian stuccoists, are closely bound up with its magnificent history. According to the information about church's history, there are burials of the founder of the Chapel of the Dead Count Montani of Ołdrzychowice and several crypts under the floor of the church. Also in the 20 century, the entry point to the tunnel network was discovered below the parochial Church of the Assumption of the Blessed Virgin Mary. Moreover, it is considered that there are still could be unrevealed secrets bellow church.

70 GPR profiles were recorded with GPRs MALA 500 and 800 MHz antennas. Investigations were carried out in chapels, along and cross aisles. The surveys in the chapels were designed in a regular grid which covered the whole space on the floor.

Processing of GPR profiles was done in software ReflexW. Firstly such processing tools as DC shift, move star time, gain function, background removal. To get geometry of big reflectors, which are located on the same depth with smaller reflectors (hyperbolas for targets with radius 0), parameter "radius of the target" was increased till synthetic hyperbola fitted the anomaly on the GPR profile for bigger object.

As a result of processing and interpretation of the results, on radargrams collected by different antennas reflections are visible almost on the same places. On the profiles, obtained in the Chapel of the Dead strong reflections identified on the depth 0.1; 1.15 m which fit to the hyperbola for target's radius 3m and 2 m; on the depth 2.7 m there is a reflection from flat surface. On profiles gathered in St. Jacob Chapel, there are anomalies located in the southwestern part of it, with a radius from 2 to 3 m, at the depth 0.16 m. Along aisles there are reflectors with a radius equal from 7 to 18 m on depth from 1.5 to 3m.

Thereby it was preliminary concluded, that in the chapels tombs were the objects, from which wave was reflected and in aisles anomalies provoked by presence of underground structures, such as hypogeum or underground passages with arches on the top of them or remains of old foundation.

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