



## Searching for remains of a observation platform (pavimentum) of Nicolas Copernicus's astronomical instruments

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St. Stanislas's canony in Frombork (northern Poland) was the last place of residence of the famous astronomer Nicolas Copernicus (1473-1543). It is very probable that he conducted his astronomical observations from the garden using so-called pavementum to arrange his instruments. Copernicus's pavementum was a 2 by 1.5m pedestal, probably a floor based on a brick foundation with a rail. Ground penetrating radar examinations were carried out in the canony's garden in January 2009 to obtain 3-D model of the 2 meter thick upper part of sediments and resulted in recognition of stratigraphy of the site and allowed to find some anomalies which are suspected to be a human origin.

The analysis of historical sources enabled the researchers to limit the study area to a plot of land at the back of the St. Stanislaw's canony building. As a result, the GPR probing was undertaken on the rectangular plot of ground of 43 m by 95 m, located to the south west of the canony building. The searched object was a kind of a pavement, possibly made of bricks or stone and bricks, and the size from 1.5 m by 2 m, to 4 m by 4 m, or even 7 m by 3 m.

During the field research the impulse GPR SIR SYSTEM-2000 GSSI<sup>TM</sup> was used. For the profiling a monostatic 400MHz central frequency antenna was used. The selected value of the dielectric constant was 15, which represents the velocity of 7.7 cm/ns of the electromagnetic wave propagation in the deposit. In practice this means that in the study area the vertical scale of the returning electromagnetic wave includes about 2.3 m (60 ns) of the deposit of diverse graining with a large content of humus and debris. The horizontal scale was measured in the real time with the use of the GSSI survey wheel.

The construction of the three-dimensional block of the deposit was based on 95 vertical cross-sections at one-meter spaces and the SE-NW course. As a result, the 3-D model showed the horizontal extends of the geophysical anomalies. The GPR studies have shown a number of geophysical anomalies in the study plot of land. Four of them, due to their location, size and characteristics, were selected for further analysis.

The archaeological excavations conducted in summer 2009, however, did not prove to be successful in finding the observation platform of Nicolas Copernicus. In numerous places, though, the traces of the 16th-century living surface were found. Moreover, the 19th-century pedestal of the monument of Nicolas Copernicus as well as lots of debris was found. Unfortunately, the object which might have been the remnant of the pavementum has not been found. The observation platform has probably been damaged in the course of the latter human activity in the area.

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