INTEGRATED GEOPHYSICAL METHODS APPLIED TO SUBMERGED ARCHAEOLOGICAL REMAINS DETECTION IN NOVIODUNUM ROMAN ARCHAEOLOGICAL SITE

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This paper illustrates the results obtained by investigating roman underwater archaeological site of Noviodunum by mean of marine geophysical methods. In particular, will be illustrated processing techniques of acoustic and magnetic data acquired in order to identify and measure the submerged

archaeological remains in Danube river. The two fluvial geophysical methods for archaeological surveys used in this study are: acoustic methods ( morphological survey of the surface by mean of the side scan sonar) and the magnetic method.

The reconstruction of dimension of the archaeological site and the evaluation of his physical proprieties are the principal results of the complex data processing, that will be described.

Noviodunum was passed under Roman control with the annexation of Thrace in 46 AD, being then attached to the Roman province of Moesia. It became an important port of Classis Flavia Moesica and a military center of the region starting from Domitian–Trajan, after the conquest of Dacia.

In conclusion, the results showed that the combination of side scan sonar, and magnetometry methods can better distinguish the archaeological target of interest from other artificial and natural objects. The overlay of data in a single GIS project has allowed the spatial correlation of the results and the overlay of targets side scan sonar, and magnetometry for the detection of the archaeological remains (Archeaological Targets).

The reconstruction of the morphology of the most important underwater archaeological sites is possible with the acoustic method side scan sonar, with high accuracy in calculating the size of the target. The magnetometric method method is able to identify archaeological objects containing iron and magnetite: particularly in the magnetometric survey carried out in Noviodunum fortres we have find a good approximation of the true dimension of Noviodunum harbor in the Roman Empire.

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