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Sinop Province, Şahintepesi Region, Bayraktepe Tumulus' Display With Electrical Resistivity Tomography

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Paphlagonia is located on the Boztepe Foreland (Sinop Foreland) and its peninsula, which extends northwards along the coastal lane of the Black Sea. Sinop is at the northernmost tip of Turkey, in the middle of the Black Sea region. Archaeological excavations of the entire Sinop province have uncovered artifacts from the Bronze Age dating back to 3000 BC. Most ancient sources indicate that Mithridates is buried in Sinop. It is alleged that the Tumuli on the crest of the historical peninsula, called Boztepe in Sinop, could be the resting spot of Mithridates.

There are three tumuli in this area known as Şahin Tepesi Mevkii (Şahin Hill Site). In order to determine the location of the burial chamber of the tomb, Electrical Resistivity Tomography (ERT) measurement methods were used, which is a geophysical method capable of three dimensional (3D) measurement and evaluation. In the area of the tumulus, measurements were made in a 57 electrode array using a 42 x 36 m (total 1512 m2) spread electrode pattern with 6m spacing. In the study, an AGI brand SuperString R1 Resistivity device and equipment were used. Resistivity data were interpreted using AGI Earthimag 3D software. From the geoelectric resistivity data, 2D and 3D images were obtained as a result of data processing. In the tumulus area smooth geometrical forms and individual high-amplitude anomalies were visualized, that could be attributed to structural remains and the presence of archaeological materials. These anomalies were plotted on the gridded location plan of the excavation area.

Within the artificial hill forming the tumulus, with regards to the natural geological units, anomalies such as very high resistivity, linear elongations, angular rotations, curves, etc. (stone wall, hollow room) that are caused by architectural elements were observed. These geometrically shaped, very highly resistive, anomalies should be checked.

Keywords: Sinope, Tumulus, Electrical Resistivity Tomography, Archaeo-geophysics