

# AGU FALL MEETING

San Francisco | 14 – 18 December 2015

## NS43B-1976: Integrated Approaches On Archaeo-Geophysical Data

ABSTRACT



Thursday, 17 December 2015 13:40 - 18:00

Moscone South - Poster Hall

**Key words:** Ground Penetrating Radar (GPR), Magnetometry, Geophysical Data Integration, Principal Component Analyse (PCA), Aizanoi Archaeological Site

An application of geophysical integration methods which often appeared are divided into two classes as qualitative and quantitative approaches. This work focused on the application of quantitative integration approaches, which involve the mathematical and statistical integration techniques, on the archaeo-geophysical data obtained in Aizanoi Archaeological Site, Turkey. Two geophysical methods were applied as Ground Penetrating Radar (GPR) and Magnetometry for archaeological prospection on the selected archaeological site. After basic data processing of each geophysical method, the mathematical approaches of Sums and Products and the statistical approach of Principal Component Analysis (PCA) have been applied for the integration. These integration approaches were first tested on synthetic digital images before application to field data. Then the same approaches were applied to 2D magnetic maps and 2D GPR time slices which were obtained on the same unit grids in the archaeological site. Initially, the geophysical data were examined individually by referencing with archeological maps and informations obtained from archaeologists and some important structures as possible walls, roads and relics were determined. The results of all integration approaches provided very important and different details about the anomalies related to archaeological features. By using all those applications, integrated images can provide complementary informations as well about the archaeological relics under the ground.

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