



APPLICATION OF MULTI-FREQUENCY ELECTROMAGNETIC PROFILING IN STUDYING THE DISTRIBUTION OF BRONZE IN JINSHA RUIN WORSHIP

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Abstract- Like the Sanxingdui ruins, the Jinsha ruins are an important archaeological site in the Chengdu Plain. Excavation of these ruins may offer important evidence for the origins and evolution of the ancient Shu civilization. In order to protect historical relics during excavation, it is necessary to use a nondestructive approach when determining the distribution of those relics. Multi-frequency electromagnetic profiling is one nondestructive geophysical exploration technique.

With this method, the metal bodies underground can be detected based on the different conductivities of rocks and minerals in the crust. In the present paper, multi-frequency electromagnetic profiling was used to study the distribution of bronze in the sacrifice area of the Jinsha ruins, and the data were processed with multi electromagnetic dipole forward modeling. The distribution of bronze derived from multi-frequency electromagnetic profiling was in accordance with the results of site excavation, proving that multi-frequency electromagnetic profiling method is an effective and nondestructive means of assessing the distribution of bronze ware in archaeological ruins.

Index terms: multi-frequency electromagnetic profiles; Jinsha ruins; dipole-dipole array forward modeling; bronze ware.