ABSTRACT

2-D Time domain induced polarization (TDIP) and resistivity geophysical data were collected by employing the multi-electrode gradient array at the north of the Bosumtwi crater to delineate one of the most important deposit for cratering studies, the suevitic breccias, which have been outlined by scanty geological information. Traverses were carried out on seven profile lines in the terrain. The topographically corrected resistivity and TDIP data were inverted using the least square inversion technique. Coupled with pre-existing geological information, the two electrical methods revealed essentially three formations and they portray a marked agreement. An overlying soil layer with which occupied approximately 2 m showed intense variability of resistivity and chargeability values. The suevites, where present occurs immediately below the soil layer as patches. Weathered target rocks probably derivates from underlying polymict breccias surrounds the suevites. The suevites have a resistivity of about 3 - 50 Ωm and this value agrees with the resistivity of their analogues at the Ries impact crater in Germany. The weathered target rocks and the polymict breccias recorded resistivities of 50 - 99 Ωm and greater than 100 Ωm respectively. Even though the calculated chargeabilities were not strictly conclusive for the individual lithologies, the suevites registered relatively lower values compared to the country rocks at almost all the locations of investigation. The agreement between the TDIP and the resistivity method coupled with geological information shows that the TDIP technique is a promising tool for mapping suevites and in general mapping lithological contrasts in consolidated rock materials.