

# Resolving Lunar Subsurface Resistivity Structures Using Magnetic Vector Field Measurements from Apollo Missions

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In this study, we utilized measurements from the three-axis fluxgate magnetometers on Apollo 15 and Apollo 16 to resolve the resistivity structures of the Moon. These data were collected during the same time period in 1972. We applied the ZH magnetovariation method to estimate the C response and the subsequent apparent resistivity changes associated with the frequencies at both landing sites. Unfortunately, the dataset from Apollo 15 yielded poor results due to possible deterioration of instruments left for several months. Since the data from Apollo 16 shows more consistent trends, similar to previous studies with the Apollo 12 measurements, we conducted the inversion using only the data from Apollo 16 to retrieve the possible resistivity structures of the lunar interior. The inverted structures exhibit a model similar to those from other studies. However, the shallow part of the model from Apollo 16 appears to be more resistive than that from Apollo 12 and other studies. We will further investigate these differences and seek possible explanations.

Keywords: apollo15, apollo16, lunar magnetic field, plasma sheet