

火山島におけるMT法探査データの特徴について

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Magnetotelluric data obtained at volcanic island

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Effects of volcanic topography and surrounding seawater are serious problem to analyze the MT data that is obtained in and around a volcanic area. Especially at volcano island, these effects due to the topography raised from the seafloor and surrounding seawater are inevitable problem. Three-dimensional analysis fixing these structures as known information is one way to solve this problem. In a practical investigation, however, 2-D analysis is commonly applied because it can be difficult to obtain enough data for a 3-D analysis. In this presentation, considering a 2-D analysis along a survey line, we introduce specific features of the MT responses calculated by 3-D analysis assuming some cases at volcanic island. In order to compare the calculated response with a natural data, the 3-D resistivity model was prepared considering the topography and bathymetry around the Hachijo-Nishiyama volcano, which is located at the in Hachijo island, 300 km south of Tokyo, Japan. As a result, it is common to most cases that the calculated response of TM mode is similar in 2-D and 3-D cases, while TE mode is quite different. This suggests that 2-D analysis using TE mode data can bring an artificial structure beneath a volcano island.