



Development and Verification of In-House Distributed Acquisition System Specialized for Simultaneous Multi-Spacing Measurement of DC Resistivity

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In DC resistivity survey, a distributed acquisition system (DAS), which is completely separated transmission and receiver units, makes large-scale survey (several kilometers long) possible. However, it is very expensive to operate a large number of commercial receiver units, and a simplified DAS is needed for rugged mountain terrain, especially in Korea. Therefore, Cho et al. (2017) developed in-house DAS and verified it successfully. In this study, we introduce our latest DAS (DAS MK2) that is upgraded for field efficiency and noise performance. The DAS MK2 expanded its simultaneous measurement channel from 2 to 8 (50, 100, 200 m dipole-dipole survey can be conducted simultaneously), and achieved $10\text{nVrms}/\sqrt{\text{Hz}}$ noise performance in the range of ± 78 [U+33B7] (maximum gain condition). The DAS MK2 was successfully verified using 2.8 km survey line with 50, 100, 200-m dipole spacing. The verification survey was conducted 50, 100, 200-m simultaneously using the DAS MK2, thus we could shorten the survey schedule dramatically. Therefore, further studies will be focused on accumulating large-scale, high-density, and extremely deep geophysical survey records using our DAS.

S. H. Cho, "Real-Time Detection Method for underwater moving object using dc resistivity techniques and its geophysical applications," Ph.D. dissertation, Dept. Geophysical Exploration, Korea University of Science and Technology, Daejeon, Korea, 2017.

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