

7.3 REAL TIME MONITORING OF THE NATURAL BROADBAND EM SIGNALS: APPLICATIONS FOR MONITORING OF ACTIVE VOLCANOES

E. Erdoğan^{1*}, Y. Avram¹, G. Hill², M. Moorkamp³

¹Phoenix Geophysics Limited, Toronto, ON, Canada

²Czech Academy of Science, Prague, Czech Republic

³University of Munich, Germany

*Corresponding author e-mail: eedogan@phoenix-geophysics.com

ABSTRACT

In recent years, there have been notable advancements in remote network data transfer methods that have had a transformative impact on various geophysical techniques. The monitoring of natural electromagnetic (EM) fields, in particular, has proven to be a valuable tool for gaining insights into tectonic events. However, permanent monitoring stations have historically encountered challenges related to the transfer of data due to the substantial file sizes involved. Fortunately, recent developments in network systems and the state-of-the-art technology employed in magnetotelluric (MT) data loggers have paved the way for real-time access to MT data, presenting an innovative approach to monitoring natural electromagnetic fields.

In this study, we present an examination of several case studies that showcase real-time volcano monitoring, with a particular emphasis on active volcanoes, such as those found in Hawai'i, Mount St. Helens, and Stromboli. Through these case studies, we aim to underscore the practicality and effectiveness of utilizing real-time MT data for volcano monitoring.

KEY WORDS : magnetotellurics, natural EM signals, real time, monitoring, volcanos