

EXAMPLES IN THE INVERSION OF SEAFLOOR MAGNETOTELLURIC DATA

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1. INTRODUCTION

Much modern understanding of Earth's interior comes from marine geophysics; the study of various physical properties of Earth beneath the ocean floor. The present paper concerns a recently-developed marine method known as seafloor magnetotelluric (MT) measurement. The method, for which new interpretational procedures are still being developed, exploits the phenomenon of natural electromagnetic induction which occurs in Earth on a global scale. Fluctuations in the natural electric and magnetic fields are measured on the seafloor, and the ratio of the electric signal to the magnetic signal is termed the MT impedance. This quantity is frequency dependent, complex, a tensor, and a function of the electrical conductivity beneath the observing site and of the salt water in the ocean above.

The inversion of such MT data, to obtain electrical conductivity values for the material beneath the seafloor, then becomes central to determining geophysical information. This paper presents and compares inversions of a single data set