

## Characteristics of electromagnetic data at Marumori in Miyagi prefecture before and after Tohoku M9.0 earthquake

HASE, Hideaki<sup>1\*</sup>, UYESHIMA, Makoto<sup>1</sup>, KOYAMA, Takao<sup>1</sup>, YAMAYA, Yusuke<sup>1</sup>, OGAWA, Tsutomu<sup>1</sup>, ICHIKI, Masahiro<sup>2</sup>

<sup>1</sup>Earthquake Research Institute, Tokyo University, <sup>2</sup>Graduate School of Science, Tohoku University

Detection of electromagnetic signals associated with earthquake has been conducted in many years. Electromagnetic inductive effect, produced by electromagnetic variation in ionosphere or magnetosphere, is mainly included in observed electromagnetic data in the earth surface. The inductive effect is made by solar activity which varies widely cyclic or irregularly, and the observed electromagnetic data also vary widely. This fact sometimes leads to make mistakes identifying the signals associated with earthquakes. Therefore, when we discuss about electromagnetic signals associated with earthquakes, the signals must be distinguished from electromagnetic inductive effect.

Recently, we attempt to remove the inductive effect on time-series electromagnetic data by using MT frequency response function. This method is able to estimate inductive effect on time-series electric data from magnetic data, or magnetic data from electric data. If the inductive effect on observed electromagnetic data can be removed by the method, the signal should be clearly picked out. We will present the results of the analysis of MT time-series data in Marumori town, the southern part of Miyagi prefecture from the middle of Nov. 2010 to the end of Apr. 2011.

Keywords: The Tohoku M9.0 earthquake, electromagnetic changes, Miyagi prefecture, frequency response function