

## Forward modeling of the EM-ACROSS at Inferno Crater Lake, New Zealand

\*Norihiro Kitaoka<sup>1</sup>, Yasuo Ogawa<sup>1</sup>, Keiichi Ishizu<sup>2</sup>, Takuto Minami<sup>3</sup>, T. Grant Caldwell<sup>4</sup>, Alison Kirkby<sup>4</sup>

1. Tokyo Institute of Technology, 2. University of Hyogo, 3. Kobe University, 4. GNS Science

Volcanic activity is interpreted to occur with the movement of fluids in the subsurface. Therefore, observing and monitoring the fluid-sensitive resistivity structure is important in the study of volcanic eruption prediction. A previous study (Legaz et al. 2009) showed that the Inferno Crater Lake on the North Island of New Zealand has cyclic resistivity variations due to a two-phase layer in the lower part of the lake. Therefore, our group conducted EM-Accurately Controlled Routinely Operated Signal System (EM-ACROSS) observations around the Inferno crater lake to observe the resistivity structure. In this study, we developed a forward problem analysis code for the EM-ACROSS method. In this presentation, we analyze a model of the Inferno Crater Lake and show that the shape of the two-phase region can be identified from the simulated data.

Keywords: EM-ACROSS, Inferno Crater Lake, Forward modeling