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Magnetotelluric survey at Kirishima volcanoes in 2010 and 2011 (Preliminary report)

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We conducted broadband magnetotelluric (MT) survey at Kirishima volcanoes in 2010 and 2011 to elucidate the electrical resistivity structure. From July to September 2010, we made MT measurements at 17 sites around Mt. Shinmoe. ADU07s of Metronix were used for measurements and measurement term was almost three weeks at each site. By preliminary results, directions of induction vectors go to north of Mt. Shinmoe, around Mt. Karakuni in and below the periods of 1 seconds, and tend to go to north-west of Mt. Shimoe, westward of Mt. Karakuni around 100 seconds. This may indicate that a shallow low resistive body exists at a few km depth of the north position of Mt. Shinmoe and a deep low resistive body exists at tens km depth of the north-west position of Mt. Shimoe.

From 26 January 2011, it occurred the active eruptions of Mt. Shinmoe. GPS measurements found that the position of 6km apart from Mt. Shimoe in north-west direction is the source of stress at 10 km depth, that is, a magma chamber. Thus the induction vectors may point at a deep main magma chamber and a shallow sub magma chamber.

After the eruption mentioned above, we are going to conduct MT survey at another 12 sites from March to April 2011 around the position of the magma chamber, and aim to detect main, sub magma chambers and its path.

Keywords: Mt. Shinmoe, MT, resistivity