Kanda Lab

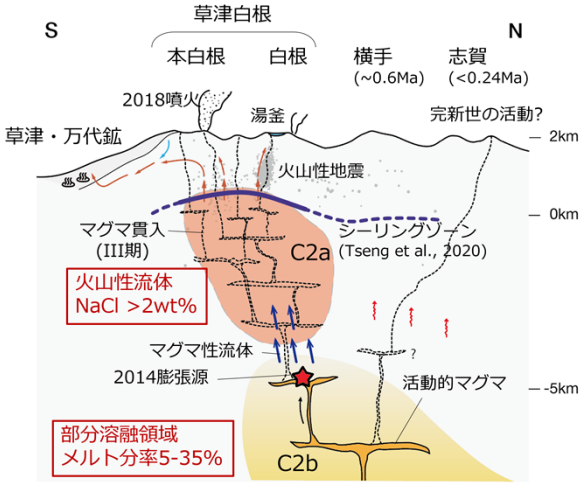
Understanding the structure and state inside the volcano

Multidisciplinary Resilience Research Center

http://www.ksvo.titech.ac.jp/~kanda/

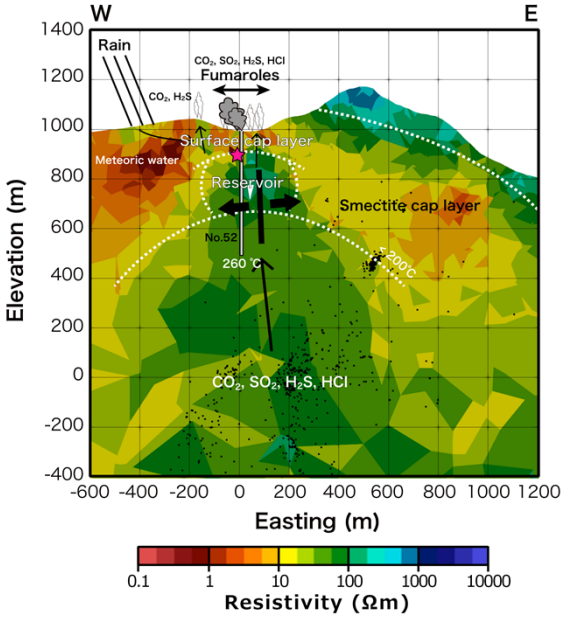
- Revealing underground structures using the magnetotellurics
- Understanding thermal states from geomagnetic observations
- Hydrothermal fluid flow simulations

The main research subject is the volcanic hydrothermal system, which is the place where phreatic eruptions occur. As a research method, we mainly use the magnetotelluric method that can estimate the subsurface distribution of the resistivity. In addition, we evaluate the thermal states inside the volcanic edifice from the geomagnetic field observations and speculate the physical process by conducting hydrothermal fluid flow simulations based on the estimated subsurface structure.



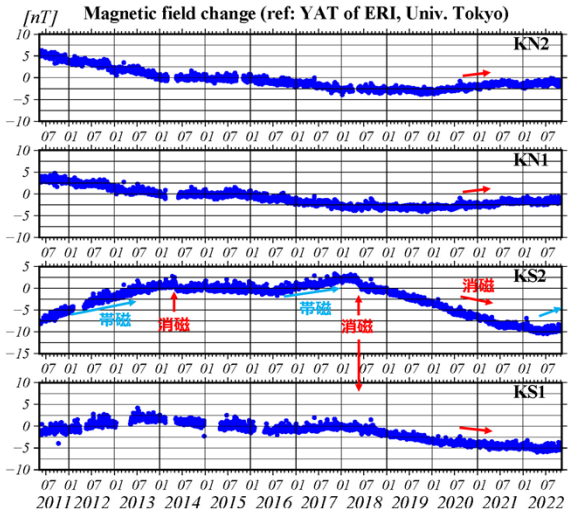
Magmatic hydrothermal system image of Kusatsu-Shirane Volcano

・Imaging of the magmatic-hydrothermal system using magnetotellurics reveals the location of the magma reservoir for the first time.



Imaging the hydrothermal system of Owakudani, Hakone Volcano

・The subsurface resistivity structure of Owakudani, where a small phreatic eruption occurred in 2015, was clarified by magnetotellurics



Observation of the total geomagnetic field at Kusatsu-Shirane Volcano

・Geomagnetic field changes associated with the increased volcanic activity in 2014 and 2018 were observed.