[JJ] Evening Poster | S (Solid Earth Sciences) | S-EM Earth's Electromagnetism

[S-EM17]Geomagnetism, Paleomagnetism and Rock Magnetism

convener:Nobutatsu Mochizuki(Priority Organization for Innovation and Excellence, Kumamoto University), Hisayoshi Shimizu(Earthquake Research Institute, University of Tokyo)
Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
We are going to discuss the issues on the magnetic fields of the Earth and planets, paleomagnetism, rock-magnetism, and their applications. This session includes the following topics: (1) observation and analysis of the magnetic fields of the Earth and planets, (2) paleomagnetic field variations obtained from natural and archaeological materials, (3) numerical simulations on the magnetic fields of the Earth and planets, (4) measurements and theories of magnetic properties of rocks, minerals, meteorites and other materials, (5) climate changes and global and local surface tectonics based on the paleomagnetic measurements of rocks and sediments, (6) observations of the magnetic anomalies and the crustal magnetization models of the Earth, planets and satellites, and (7) developments of the experimental method and data analysis. The presentation and discussion will be made in Japanese or English in this session.

[SEM17-P09]Eruption age determination of the latest lava flows at Yokodake Volcano, Japan, using paleomagnetic methods

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Yokodake volcano, which consist of the nine lava flows (Y1-Y9) and accompanied pyroclastic materials, is only active volcano belonging to northern Yatsugatake volcanoes in central Japan. Eruption ages of Y1-Y8 lava were not determined. Although the latest eruption of Y9 lava had been estimated using ^{14}C dating (Okuno, 1995; Okuno and Kobayashi, 2010), room exists for improvement in precision of the age determination. In this study, we carried out eruption age determination of the Y8 and Y9 lava flows using paleomagnetic methods.
Thirty-two and sixty paleomagnetic samples were collected from Y8 and Y9 lava flow, respectively. We determined the components of remanent magnetization from PThD experiments. Paleointensities were estimated by using IZZI method (Yu and Tauxe, 2005).
As a result, mean direction of magnetic components obtained from Y8 and Y9 lava, is Dec=4.5°, Inc=50.7° (α95=4.1°) and Dec=4.7°, Inc=51.8° (α95=2.2°), respectively. Paleointensity of Y8 and Y9 lava is estimated to be 48.4±2.1 μT and 52.4±4.3 μT, respectively. Palaeomagnetic age was estimated by comparing our results with paleosecular variations of the geomagnetic field (Hayashida et al., 2007; Hatakeyama et al., in prep.). Paleomagnetic age of Y8 and Y9 lava is estimated to be ca 3.5 ka, and ca 0.6 and 2.4 ka, respectively. As for Y9 lava, these two ages are consistent with ^{14}C age of previous studies. Although lava morphology and vegetation on the lava suggests younger eruption age, further study using alternative dating will be needed to determine the eruption age of Y9 lava.
In addition, we measured declination in situ with sun compass. Calculated declinations are quite different with declination of the IGRF-12 or Geospatial Information Authority of Japan. It is reconfirmed that measurement of declination using sun compass is quite important for paleomagnetic sampling with magnetic compass, if NRM intensity is very high.