

**R004-12**

**Zoom meeting A : 11/4 PM1 (13:45-15:30)**

**14:00~14:15**

## **Paleomagnetic directions and intensities from volcanic rocks in the Tendaho Graben in the Afar depression, Ethiopia**

#Haotian Liu<sup>1</sup>, Nobutatsu Mochizuki<sup>2</sup>, Chie Kato<sup>3</sup>, Tesfaye Kidane<sup>4</sup>, Ameha Muluneh<sup>5</sup>, Masakazu Fujii<sup>6</sup>, Ryokei Yoshimura<sup>7</sup>, Shin-ichi Kagashima<sup>8</sup>, Yo-ichiro Otofujii<sup>9</sup>, Naoto Ishikawa<sup>10</sup>

<sup>(1)</sup>Kumamoto Univ., <sup>(2)</sup>Kumamoto University, <sup>(3)</sup>Division of Earth Sciences, SCS, Kyushu Univ., <sup>(4)</sup>University of KwaZulu Natal, South Africa, <sup>(5)</sup>Addis Ababa Univ., <sup>(6)</sup>NIPR, <sup>(7)</sup>DPRI, Kyoto Univ., <sup>(8)</sup>Yamagata Univ., <sup>(9)</sup>Japan Geochronology Network, Japan, <sup>(10)</sup>School of Sustainable Design, The University of Toyama

The Afar depression is one of the unique areas for the study of the spreading centers. Magnetic anomaly observation and paleomagnetic measurements in Afar area are considered to be important to understand the magnetization structure of the spreading axis. In this study, paleomagnetic measurements were made on the samples from volcanic rocks of 43 sites across the spreading axis in the Tendaho Graben in Afar. For specimens of the 43 sites, 16 specimens were measured by thermal demagnetization and 84 specimens were measured by alternating field demagnetization. Checking remanent magnetization directions for each site shows that four sites directions are less reliable. We adopt the other 83 results from 39 sites which give reliable paleomagnetic directions, and calculate the mean-site directions. Combining our data with the reported data of 21 sites, paleomagnetic directions are obtained for 60 sites across the spreading axis in the Tendaho Graben. For the 60 sites, 41 sites show normal polarity, 17 sites have reverse polarity, and 2 sites show intermediate directions. The paleomagnetic polarity shows a simple pattern along the line vertical to the spreading axis, which is reverse-normal-reverse polarity from southwest to northeast. The normal polarity zone is observed at the spreading axis with a width of about 40 km and the reverse polarity zones are recognized at both sides of the normal zone. We have also conducted paleomagnetic intensity measurements by the Tsunakawa-Shaw method. Up to now, preliminary paleointensity results were obtained from a specimen for each of 28 sites. Seventeen out of the 28 results passed the selection criteria. The obtained paleointensities range from 10  $\mu$  T to 42  $\mu$  T. The paleomagnetic direction and intensity data can give us a more precise time constraint on the formation process of the fissure lavas.