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Thermomagnetic characteristics in the Hikageyama lava: searching a paleomagnetic record of the Laschamp excursion

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In the JpGU 2013 Meeting, we reported a paleomagnetic record from the Hikageyama lave. Among the 9 sites, 4 sites in the eastern part of the Hikageyama yielded consistent site mean directions characterized by shallow inclinations and easterly deflection. These site mean directions provide virtual geomagnetic poles (VGP) at around 50 N and 100 W. It can be assumed therefore that the Hikageyama dacite recorded anomalous geomagnetic field at the time of the Laschamp excursion. In addition to the above record, stepwise thermal (TH) demagnetization revealed that the above 4 sites yielded consistent site mean directions.

Thermomagnetic analysis revealed that most samples are composed of a single phase Curie temperature, suggesting magnetite as a remanence carrying mineral. And, the above 4 sites are classified into two groups. One (HKG-9, 10) shows a single phase, similar to the above. The other (HKG-11, 12) shows two phases, suggesting titanohematite and hematite. According to TH demagnetization results, one has two or three NRM components remanence. The other has a single component, which showed highly stable remanence which cannot be demagnetized at peak alternating field of 100 mT as previously reported. We will report these components discussion together with the thermomagnetic results.

Keywords: Rock magnetism, Hikageyama lava, Geomagnetic excursion, Laschamp excursion