Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

SEM21-P09 Room:Convention Hall Time:May 25 15:30-16:45

Paleointensity determination of welded tuffs correlated with widespread tephras

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In order to calibrate relative paleointensity (RPIs) variation curve to absolute values, Takai et al. (2002) proposed to use absolute paleointensities from pyroclastic flows which are correlated with widespread tephras. Using to the oxygen isotope age estimate of the widespread tephra, absolute paleointensity from the welded tuff can be compared with RPIs.

In the JpGU 2011 Meeting, we reported paleointensities of welded tuffs of Aso-1, Aso-2, Aso-3, and Aso-4 using the LTD-DHT Shaw method. In this study, we are measuring paleointensities of welded tuffs of Funakura, Ito, Imaichi, and Yabakei. These welded tuffs have been correlated with widespread tephras of K-Ah, AT, Ss-Az, and Ss-Pnk, respectively. Two to six paleointensities have been obtained and average paleointensities are calculated as 30.9 +/-5.6 micro T for Funakura, 14.9 +/-0.6 micro T for Ito, 32.2 +/-1.3 micro T for Imaichi, and 30.7 +/-1.2 micro T for Yabakei.

We compare our LTD-DHT Shaw data with the Thellier data of Takai et al. (2002). Four of the 6 average paleointensities determined by the Thellier method are 10-50% highler than those by LTD-DHT Shaw method. Also, we will compare the paleointensity results with a relative paleointensity stack (PISO-1500) using the ages of widespread tephras based on the oxygen isotope stratigraphy. PISO-1500 is 5-100% higher than all paleointensities.

Keywords: paleointensity, pyroclastic flow, widespread tephra, PISO-1500, LTD-DHT Shaw method