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Paleointensity determination of welded tuffs: Investigation on the curved NRM-TRM1∗ plots

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There are some widespread tephras identified in marine sediment cores which have been correlated with the oxygen isotope stratigraphy. If we could obtain absolute paleointensites from the welded tuffs which were formed with these tehpras, we can correlate the absolute paleointensites to the oxygen isotope stratigraphy. That is, we can compare the absolute paleointensity and a relative paleointensity on oxygen isotope stratigraphy with no error in age. For this purpose, we are measuring absolute paleointensites from welded tuffs which have been correlated with widespread tephras. In the JpGU 2012 Meeting, we reported paleointensities from Funakura, Ito, Kakuto, Imaichi and Yabakei welded tuffs which were correlated to K-Ah, AT, Kkt, Ss-Az and Ss-Pnk, respectively using the LTD-DHT Shaw method.

In addition to the data noted above, we have been conducting paleointensity measurements on 11 units (19 sites). To date, we have have collected samples from 16 units (30 sites) in total. We have obtained reliavle paleointensities from 9 unis (18 sites). On the other hand we have obtained no paleointensity estimate from 8 sites. In these sites, NRM-TRM1∗ plots are curved, where the correlation coefficient r_N is lower than 0.995. We considered that the cause for the curved NRM-TRM1∗ plots might be NRM, and checked the distribution of blocking temperature and coercivity. Two peaks are observed in the distribution of blocking temperature for the samples from the sites which gave the curved NRM-TRM1∗ plots, while a single peak is observed for the samples from the sites which gave the straight NRM-TRM1∗ plots. We are going to conduct rock magnetic measurements and discuss possible causes of the curved NRM-TRM1∗ plots.

Keywords: paleointensity, welded tuff, LTD-DHT Shaw method, blocking temperature, rock magnetism