Paleomagnetic intensity of Aso pyroclastic flows: Additional results with Shaw method and Thellier method with pTRM-tail check.

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For the sake to calibrate the absolute value of the 'relative paleointensity variation curve' drawn from sediment cores, Takai et al. (2002) proposed to use pyroclastic flows co-bearing with wide spread tephras. The pyroclastic flows prepare volcanic rocks with TRM, which let us determine absolute paleointensity, and the tephras prepare the correlation with sediment stratigraphy. While 4 out of 6 pyroclastic flows are consistent with Sint-800 paleointensity variation curve, two flows, Aso-2 and Aso-4, show weaker and stronger than Sint-800 beyond the error, respectively. We revisited the paleointensity study of them, adding LTD-DHT Shaw method, and the pTRM-tail check in Thellier experiment.

For Aso-2 welded tuff, 11 samples from 3 sites were submitted to Thellier experiments, and 6 passed a set of pretty stringent criteria including pTRM-tail check, which is not performed by Takai et al. (2002). They give an average paleointensity of 20.2+-1.5uT, which is virtually identical to 20.2+-1.0uT (27 samples) given by Takai et al. (2002). Although the success rate was not good in LTD-DHT Shaw method, 2 out of 12 specimens passed stringent criteria, and gave 25.8+-3.4uT, which is consistent with Takai et al. (2002).

Eight sites were set for Aso-4 welded tuff, and 42 specimens were submitted to Thellier experiments. Twelve specimens from 4 sites passed the same criteria as Aso-2, and yield a mean paleointensity of 43.1+-1.4uT. It again agrees with the value (45.6+-1.7uT) of Takai et al. (2002). LTD-DHT Shaw method experiment is also applied for 12 specimens from 3 sites, and 4 passed the criteria giving 38.2+-1.7. Although it is a little smaller than Thellier results, it is way larger than the Sint-800 at the time of Aso-4.

The new paleointensity results with another method suggest that the discrepancy from the Sint-800 is not attributed to the experimental problems.