

PALEOINTENSITY EXPERIMENTS ON THE HAWAII 1960 LAVA FLOW

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Samples from the 1960 lava flow on Hawaii Island were studied using the multi-specimen parallel difference pTRM method to validate the ancient field strength of $\sim 36 \mu\text{T}$. Several sets of specimens were treated at different temperatures, and between 440 and 500C paleointensities between 32.2 and 34.2 μT were obtained. At 550C a significant overestimate was obtained which was clearly caused by thermal alteration processes. At 400C a similar overestimate was obtained, possibly the effect of cooling rate differences. The specimens used for these PI determinations were thermally stabilized and a full TRM was produced for synthetic PI experiments. These reproduced the laboratory field within error limits, if similar cooling rates were used for the full TRM and pTRM acquisition. Using a slower cooling rate for the TRM acquisition led to an overestimate of the PI. Systematic variations of the unblocking temperature spectra of different specimens were observed on the between drill-core level, while such variability was much smaller between specimens of one drill-core. Based on this observations a new protocol of the multi-specimen PI method presented, that is much less affected by such rock magnetic variability. The protocol is tested on synthetic TRM and natural TRM, using specimens from the 1960 lava flow.

Paleointensity

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