



Paleomagnetic record of basaltic volcanism from Pukaki and Onepoto maar lake cores, Auckland Volcanic Field, New Zealand

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The Auckland Volcanic Field (AVF) contains several maars that formed after the last interglacial and subsequently filled with sediment. Two of these maars, Pukaki and Onepoto, were recently cored as part of the Auckland Maar Lakes Project. The tephra stratigraphy of the cores indicates that sediment accumulated relatively slowly in both maars until the Holocene when ocean waters breached the craters and they filled up quite rapidly. Using u-channels, we collected 23 m of pre-Holocene lacustrine sediment from the Pukaki 1-01 core and 15 m from the Onepoto core. Paleomagnetic measurements were performed on these at the University of California, Davis. We used environmental magnetic methods to look for evidence of basaltic volcanism in AVF, which is not easily detected by other chemical or physical techniques. Our results provide new information about the eruptive history of this field during the late Glacial period in New Zealand. The main finding is that local basaltic tephra layers visible in the cores show up as spikes in the concentration dependent magnetic parameters, suggesting that other spikes represent tephra layers that are not as easily discerned. This provides evidence for a much greater number of possible basaltic events in the AVF than has previously been detected which has serious consequences for hazard and risk assessment in the Auckland area.