RE-VISITING THE COOLING RATE DEPENDENCY OF THERMOREMANENCE ACQUISITION

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Models for the thermoremanent magnetisaton (TRM) acquisition of single-domain (SD) magnetic grains, include a time parameter (t), that defines the behaviour of an assemblage of magnetic grains for a given temperature in time t. This time t directly controls the blocking temperature and the intensity of the recorded TRM. However, in a cooling system, e.g., a lava, the temperature is constantly changing, making $t \sim 0$ s for any given temperature. In the geophysical literature, previous studies looking at the effect of cooling rate on TRM acquisition [e.g., Dodson and McClelland-Brown, 1980; Halgedahl, *et al.*, 1980] have circumnavigated this problem by taking discrete time intervals, i.e., steps with an equivalent time t_{eq} determined by the cooling rate.

By numerically solving the master equation [Spinu, *et al.*, 2001], it is possible to directly relate t_{eq} to $\partial T/\partial t$ without any need to use the step approximation. I investigate the effect of using the more robust definition of t_{eq}, and the implications for TRM acquisition and palaeointensity determination. For $\partial T/\partial t$ I have employed the standard Newtonian cooling rate equation.

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