



Carrier of NRM in oceanic basalt studied by continuous thermal demagnetisation

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Stepwise thermal demagnetisation usually allows reliable identification of the NRM carrying minerals by their unblocking temperatures. In many ocean basalts recovered by DSDP/ODP/IODP the predominant magnetic mineral is titanomagemite with a Curie-Temperature between 300°C and 400°C. This can be demonstrated unequivocally by rock magnetic and mineralogical techniques. However, for most of these samples, stepwise thermal demagnetisation shows unblocking temperatures of the NRM between 500°C and 580°C and sometimes a complex decay behaviour of the intensity. Therefore, it is difficult to directly demonstrate if or if not the NRM of these rocks is carried by titanomagemite. With the help of continuous thermal demagnetisation we can identify titanomagemite as the remanence carrying mineral with an unblocking temperature around 400°C. Furthermore, by simulating the stepwise thermal demagnetisation steps with continuous thermal demagnetisation runs, we can demonstrate how the thermal alteration during the heating experiment is affecting the NRM. Measurements were conducted with a high temperature spinner magnetometer with an electric furnace that allows the measurement of two magnetisation components. We will also report on a new instrument development that consist of an off-axis-spinner magnetometer for the simultaneous measurement of three magnetisation components and a hot air furnace.