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1 Modelling-based discrimination between normal and inverse titanomagnetite magnetic fabrics using field- and frequency-dependent AMS

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In multi-domain titanomagnetite grain, the AMS maximum susceptibility is parallel to the maximum grain dimension, while the minimum susceptibility is parallel to the minimum dimension. In single-domain grain, the inverse relationship holds, i.e. the maximum susceptibility is parallel to the minimum dimension, while the minimum susceptibility is parallel to the maximum dimension. In some volcanic rocks, the predominating carriers of AMS are single-domain titanomagnetites and these rocks show inverse magnetic fabrics. In order to find out whether an inverse magnetic fabric is due to single-domain grains or has a geological reason, field- and frequency-dependent AMS should be investigated. The field-dependence of AMS is inherently a multi-domain phenomenon, while the frequency-dependence is a single-domain phenomenon. Examples are shown.