MAGMATIC FABRICS IN SVECONORWEGIAN POSTCOLLISIONAL MAGMATIC BODIES (SOUTHERN NORWAY) REAVELED BY THEIR ANISOTROPY OF MAGNETIC SUSCEPTIBLITY (AMS)

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Magmatic bodies such as granitoid plutons and dykes usually display an ill-defined and, hence, not easily measurable magmatic fabric, expressed by a shape-preferred orientation of the rock-forming minerals. An anisotropy of the magnetic susceptibility (AMS) also arises in these rocks from the crystallographic- and/or shape-preferred orientation of the magnetic rock-forming minerals. The AMS and magmatic fabrics are coaxial in many magmatic rocks, i.e. K_1 (the long axis of the ellipsoid describing AMS in a low applied magnetic field) is parallel to the magmatic lineation and K_3 (the ellipsoid short axis) is perpendicular to the magmatic foliation. Hence, AMS measurements have been extensively used in the last two decades to determine weakly-anisotropic magmatic fabrics. These AMS studies reveal that magmatic fabrics record the deformation related to magma flow and/or to emplacement in a regional strain field. Hence, valuable information on the magma emplacement kinematics and, often, on the crustal deformation kinematics are provided. Mapping of magmatic fabrics, through AMS measurements, may also help in locating magma sources.

The AMS technique has been successfully applied to Sveconorwegian (Grenvillian) postcollisionnal intrusions from southern Norway. The postcollisionnal magmatism of the Sveconorwegian orogen is represented by two distinct, but penecontemporaneous suites: a hornblende + biotite granitoid suite (HBG suite; ca. 1.00-0.92 Ga) and an anorthosite-mangerite-charnockite suite (AMC suite). The AMC suite is found mainly in the Rogaland anorthosite province (ca. 0.93-0.92 Ga). Selected AMS studies conducted on igneous bodies belonging to the two suites will be presented and their implications for the late magmatic and tectonic evolutions of the Sveconorwegian orogen will be discussed.