STRUCTURE AND ANISOTROPY OF MAGNETIC SUSCEPTIBILITY (AMS) OF GRANITOIDS WITHIN THE CHINAMORA BATHOLITH, ZIMBABWE

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The Chinamora batholith has frequently been used to demonstrate pluton emplacement mechanisms. The batholith is surrounded by greenstones showing structural geometries that are indicative of early layer-parallel shearing and later folding. Wall rocks are moderately inclined and show radial or tangential lineations, triaxial strain ellipsoids and kinematics that demonstrate off-the-dome sliding and coeval expansion. AMS measurements have been carried out to recognize the indistinct fabric elements of the granitoid rocks. Age dating has been done to constrain the time span of emplacement.Macroscopic fabrics in the gneisses range from weak foliations with megacryst alignment to augen gneisses close to the batholith-greenstone contacts. Magnetic fabrics show a margin parallel foliation dipping away from the center of the batholith and a stable eastward plunging lineation. Bulk susceptibilities are strong for the southeastern gneisses and less pronounced for those in the northwest. Magnetic fabrics in the equigranular granites are similar to those of the gneisses. In contrast, the porphyritic granites revealed a NE-SW oriented lineation and a SE dipping foliation. This magnetic fabric correlates well with a macroscopic foliation but the dip of the magnetic foliation is shallower. The results of the measurements don't point to a single emplacement process as was stated by some earlier authors but suggest at least two distinct phases of intrusion. It's argued that pluton diapirism and ballooning plutonism played a part in the formation of the fabrics in the gneisses and equigranular granites, whereas the fabrics in the porphyritic granites probably reflect oblique emplacement of a sheet.