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Well-posedness results for the viscous MG equation.

We discuss the 3D active scalar equation called the magnetogeostrophic equation which was proposed by Moffatt and Loper as a model for the geodynamo process in the Earth's fluid core. When the fluid viscosity is nonzero the constitutive law that relates the drift velocity and the scalar temperature produces two orders of smoothing. We will describe the consequences of this property . (Received February 13, 2015)