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Discussion

Comment on a paper "The origin of high magnetic remanence in fault pseudotachylites: Theoretical considerations and implication for coseismic electrical currents" by E.C. Ferré, M.S. Zechmeister, J.W. Geissman, N. Mathana Sekaran, and K. Kocak

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Authors of the commented paper prescribed natural remanent magnetization (NRM) of pseudotachylites to co-seismic electrical currents. They rule out the Earth magnetic field as being too weak to magnetize pseudotachylites to the sufficient observed NRM intensity.

However, the authors show on page 132 that the saturation remanence of pseudotachylites is 11,000 A/m. Listed maximum NRM intensity in their paper is 132 A/m (see page 132). The ration between the NRM intensity and saturation remanence is therefore 0.012. Based on the papers discussing remanence acquired by electric currents (Wasilewski and Kletetschka, 1999) and consideration of geo-magnetically acquired remanent magnetism in rocks and meteorites (Kletetschka et al., 2003, 2004) this ratio falls in the range of (0.01–0.02) that is consistent with remanent magnetization acquired within the geomagnetic field (50,000 nT). Therefore any magnetization by co-seismic currents is not required and appears to be only speculation.

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