

Editorial
Photograph of the Month



Ductile slickenside striations, Ontario, Canada. Photograph Shoufa Lin, Canada. ©Shoufa Lin.

The photograph shows slickensides with well-developed “ridge-in-groove”-type striations, developed in an S–C mylonite along the northern margin of the Pukaskwa batholith (a ca. 60 km wide granitoid dome) in the Archean Superior Craton, Ontario, Canada. The slickensides are surfaces exposed by parting along C-surfaces, and the ridge-and-groove feature reflects the curvi-planar geometry of the C-surfaces. Such striations are a product of ductile deformation (Lin and

Williams, 1992) and are a reliable indicator of the shear direction (Lin et al., 2007). Here the striations pitch to the west and the associated shearing is a south-over-north (or granitoid-side-up) dip slip with a sinistral strike-slip component. Similar striations are also developed along the southern margin of the granitoid dome, but plunge to the east, and the associated shearing is a north-over-south (also granitoid-side-up) dip slip, again with a sinistral strike-slip component. The kinematic data

indicate that doming (related to diapirism and sagduction or vertical tectonism in the Archean) occurred synchronously with regional horizontal shearing (related to horizontal tectonism in the Archean) (cf. Lin, 2005, 2007; Parmenter et al., 2006). View looking south. Pukaskwa National Park, northeast shore of Lake Superior, UTM 554081mE, 5379158mN.

References

- Lin, S., 2005. Synchronous vertical and horizontal tectonism in the Archean: kinematic evidence from a synclinal keel in the northwestern Superior craton, Manitoba. *Precambrian Research* 139, 181–194.
- Lin, S., 2007. When did the life of plate tectonics begin? *GSA Today* 17(3), 12.
- Lin, S., Williams, P.F., 1992. The origin of ridge-in-groove slickenside striae and associated steps in an S–C mylonite. *Journal of Structural Geology* 14, 315–321.
- Lin, S., Jiang, D., Williams, P.F., 2007. Importance of differentiating ductile slickenside striations from stretching lineations and variation of shear direction across a high-strain zone. *Journal of Structural Geology* 29, 850–862.
- Parmenter, A.C., Lin, S., Corkery, M.T., 2006. Structural evolution of the Cross Lake greenstone belt in the northwestern Superior Province, Manitoba: Implications for relationship between vertical and horizontal tectonism. *Canadian Journal of Earth Sciences* 43, 767–787.

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