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# Tectonic overprint on magnetic fabric of the Ordovician Thetford Mines Ophiolite (Canada)

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Studies in modern oceanic settings suggest locally along low-spreading ridges both lower crust and upper mantle peridotites may be exhumed to the seafloor in features known as oceanic core complexes (OCC). Examples of OCC on geological record can be preserved in ophiolites, relict of oceanic crust obducted onto continental margins, as for example the Jurassic Mirdita Ophiolite (Albania), suggesting that this spreading mode was active in the past. In order to understand such dynamics further, we investigated the OCC preserved in the Thetford Mines Ophiolite (TMO). TMO is part of the Southern Quebec ophiolites in the Canadian Appalachians (Quebec region), divided into three lithotectonic assemblages: The Humber Zone, a remnant of the Laurentian continental margin; The Cambrian-Ordovician Dunnage Zone, a remnant of the Iapetus Ocean and including the TMO and other ophiolites; and Silurian-Devonian Gaspé Belt, the sedimentary cover sequence. These were subjected to polyphase deformation, experiencing two Paleozoic orogenies: The Ordovician Taconian Orogeny (the Humber and Dunnage zones were amalgamated) and the Devonian Acadian orogeny which deformed and metamorphosed both the Dunnage Zone and the overlying Gaspe Belt.
Here we present results from 12 paleomagnetic sites sampled on Humber zone on pillow lavas, dykes, layered gabbros and serpentinized dunites. Our results from AMS experiments show that these rocks, formed by fundamentally different magmatic processes, share a common magnetic fabric, with a kmin axis NW-SE orientated and the kmax steeply plunging to the NE. Additional processing of acquired BSE images and chemical mapping analyses at the SEM show that the kmax of the magnetic fabric is parallel to the elongation of magnetic particles (Iron rich minerals). This remarkably consistent fabric has a tectonic origin and is consistent with shortening perpendicular to the regional trend of fold axes.