



Preliminary paleomagnetic study of the Thetford Mines Ordovician Ophiolite (Canada)

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Extension associated with oceanic ridges at divergent plate boundaries is characterized by normal faulting and episodic magma supply. Studies in modern oceanic settings suggest locally along ridges both lower crust and upper mantle peridotites may be exhumed to the seafloor in features known as oceanic core complexes (OCC). OCC are characterized by long-lived low-angle detachment faults that extend for 10s of km, and that are crosscut by high-angle normal faults oriented parallel to the rift axis.

Here we present preliminary results from 12 paleomagnetic sites sampled on an example of fossilized Ordovician OCC preserved in the in the Canadian Appalachians, the Southern Quebec ophiolites. These were obducted and subjected to polyphase deformation during Palaeozoic orogeny along the Laurentian margin of Iapetus. Although locally obscured by tectonic fabrics and structures, the original relationships between the ophiolitic mantle, the overlying plutonic section, and onlapping Ordovician siliciclastic rocks can be reconstructed within the Thetford-Mines ophiolite. Preliminary results from AMS and Thermal demagnetization experiments record a remarkably consistent overprint from the youngest (Acadian) phase of Paleozoic orogeny. Although complicating further study of intra-oceanic deformation along the detachment fault in the original OCC, the results provide further insights into the progressive overprint of deformation events as recorded by AMS.