



## **Magnetic fabric analysis of gabbros beneath a fossil melt lens in the Oman ophiolite**

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Geophysical experiments over spreading ridges demonstrate the presence of thin melt lenses beneath spreading axes. It has also been shown that these melt lenses are commonly found at the sheeted dyke-gabbro transition and overlie a large area of hot and predominantly solid material, termed the crystal mush zone. Very little, however, is conclusively known about the processes that are taking place beneath the melt lens and the melt transportation method that feeds this high level melt lens.

Previous field studies in the Oman ophiolite have identified high-level varitextured gabbros at the sheeted dyke-gabbro transition zone as the fossilized remains of a melt lens. We conducted detailed sampling of foliated gabbros directly beneath the varitextured gabbros in the Wadi Abyad and Khafifah areas of the Oman ophiolite and present the results of magnetic fabric analyses (AMS and AARM) here.

Our results from the Wadi Abyad area show a strong sub-vertical fabric defined by steeply plunging  $K_{max}$  axes which cluster on the foliation plane of the measured macroscopic fabric (72/254 dip and dip direction) that become more vertical when a tectonic tilt correction for a NE-dipping (32/032) Moho is applied. A more varied fabric, however, is seen in the Khafifah area with individual clusters of  $K_{max}$  and  $K_{int}$  defining an overall girdle distribution that parallels the observed foliation (35/277). The fabric once again becomes steeper when corrected for the regional dip of the Moho (here 29/173). We consider the Wadi Abyad data to represent a zone of focused upwards transportation through the crystal mush, feeding the high-level melt lens, although downward flow of crystal mush to form the lower gabbros cannot be excluded. Whereas the Khafifah data are interpreted to represent transportation in anastomosing melt channels through the crystal mush.