The vertical profile of boron contents through the Wadi Fizh section, Oman ophiolite

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Boron contents were analyzed for the oceanic crustal rocks of a complete section through the Wadi Fizh area in the Oman ophiolite. The chemical properties of boron, which are highly incompatible and soluble, provide valuable information about the mechanism of both magmatic and fluid-related process. For instance, boron could be a powerful tracer for fluid contribution from subducting oceanic slab to overlying mantle wedge where island-arc magma forms. Boron contents of oceanic crust mainly depend on hydrothermal alteration by seawater. Initial studies of oceanic basalts have shown that fresh MORB has a low boron abundance and becomes progressively more enriched by relatively low-temperature alteration, whereas boron is efficiently extracted from basalts at temperatures higher than 200^{o}C (Ishikawa and Nakamura, 1992). However, boron contents of altered gabbros are still uncertain so that the vertical distribution of boron contents through the successive sequence of oceanic crust has never been determined. To estimate the boron inventory of the oceanic crust is important for quantifying the sources of boron in arc volcanic rocks. The present data provide new insight into the boron geochemical cycle.