

COMPLEX PROTOLITH ORIGIN OF SERPENTINIZED PERIDOTITES FROM THE SHERGOL OPHIOLITIC SLICE NORTH-WESTERN LADAKH HIMALAYA, JAMMU AND KASHMIR, INDIA

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Abstract

The serpentized peridotites, associated with blueschists of ocean island basalt/gabbro origin in Shergol Ophiolite slice north-western Ladakh Himalaya are discussed in this paper. Most studied serpentized peridotites have low Al/Si and high Mg/Si ratios in bulk rock compositions than primitive mantle, reflecting a refractory abyssal mantle peridotite protolith however, the two samples under study contain high Al/Si and low Mg/Si ratios compared to primitive mantle, signifying their ultramafic, cumulate protolith nature. REE modelling suggests that the Shergol peridotites of refractory nature represent mantle residues leftover after less than 15% partial melting whereas, the Shergol peridotites of a cumulate nature represent solidified melts located at the base of an oceanic crust in the context of Mesozoic Neo-Tethys ocean.

Keywords: Ladakh Himalaya; Ophiolites; Shergol Serpentinized Peridotites; Geochemistry; REE modelling.