

Deformation of the metamorphic sole beneath the Oman ophiolite in the Al Wasit area, Sultanate of Oman

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The metamorphic sole beneath the Oman ophiolite crops out sporadically over the whole range of the Oman Mountains. They are modeled to have been produced by an intraoceanic thrusting of a detached oceanic lithosphere emplaced onto an adjacent oceanic crust. The underthrusting oceanic materials were metamorphosed up to amphibolite and granulite facies by the heat from the overriding hotter mantle peridotites due to their thrusting movement in the late Cretaceous. We observed that the amphibolites close to the peridotite were well boudinaged.

The Oman ophiolite is the largest scale ophiolite in the World, extending about 100 km wide and 400 km long in Sultanate of Oman and United Arab Emirates, north-eastern Arabian Peninsula. The metamorphic sole beneath the Oman ophiolite crops out sporadically as small slices over the whole range of the Oman Mountains. They are modeled to have been produced by an intraoceanic thrusting of a detached oceanic lithosphere emplaced onto an adjacent oceanic crust. The underthrusting oceanic materials were metamorphosed up to amphibolite and granulite facies by the heat from the overthrusting hotter mantle peridotites with influence of shear deformation due to their thrusting movement in the late Cretaceous. It consists of amphibolites and metacherts with minor amount of metapelites and marbles. The amphibolites close to the peridotites were highly deformed during oceanic thrusting: they exhibit unusual boudinage structures and small scale deformation structures such as mineral lineations and porphyroclast systems of feldspar.