

Geochemical characteristics of the Alley volcanics, the Oman ophiolite

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Major and trace element compositions were determined for bulk rocks and clinopyroxene phenocrysts of the Alley volcanics in the Oman ophiolite. In terms of the trace element composition, the Alley volcanics can be subdivided into at least three types, that is, arc tholeiite/calc-alkaline rocks, boninite and low-Pb andesite/dacite. The occurrence of boninite, which had not ever been reported in the Oman ophiolite, suggests that the ancient Oman subduction zone had extraordinarily hot thermal structure at least locality. Such a thermal structure may be derived from subduction of young lithosphere into young mantle which presumably initiated near the spreading axis.