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沈み込み開始と連続的海嶺沈み込みによるトルードス SSZ オフィオライトの形成、その溶岩層序、化学組成、Ar-Ar 年代の新資料
Geochemistry and geochronology of the Troodos ophiolite: An SSZ ophiolite by an extended episode of ridge subduction

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New trace-element, radiogenic isotopic, and geochronologic data from the Troodos ophiolite, considered in concert with the large body of previously published data, give new insight into the tectonic history of this storied ophiolite, as well as demonstrating the variability of suprasubduction-zone ophiolites, and differences between them and commonly used modern analogs. Similar to earlier studies, we find that island-arc tholeiite of the lower pillow lava sequence erupted first, followed by boninite. We further divide boninitic rocks into boninite making up the upper pillow lava sequence, and depleted boninites that we consider late infill lavas. We obtained an Ar-Ar age from arc tholeiite of 90.6 ± 1.2 Ma, comparable to U-Pb ages from ophiolite plagiogranites. New biostratigraphic data indicate that most of the basal pelagic sedimentary rocks that conformably overlie the boninitic rocks are ca. 75 Ma. This suggests that voluminous eruption of boninitic rocks persisted until ca. 75 Ma. Limited eruption of boninitic lavas may have continued until 55.5 ± 0.9 Ma, based on the Ar-Ar age we obtained.The duration of arc magmatism at Troodos (at least 16 m.y., with some activity perhaps extending 35 m.y.) without the development of a mature arc edifice greatly exceeds that of other well-studied suprasubduction-zone ophiolites. We propose that Troodos was formed over a newly formed subduction zone, similar to many proposed models, but that the extended period of magmatism (boninitic) resulted from a prolonged period of ridge subduction.

キーワード: トルードスオフィオライト, 島弧ソレアイト, 2 種のボニナイト, Ar-Ar 年代と放散虫, 沈み込み開始, 海嶺沈み込み
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