

Temporal variation in source compositions of hotspot volcanoes in French Polynesia

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In order to elucidate the origin of the HIMU component, submarine surveys were conducted by the manned submersible Shinkai on the submarine flank of the HIMU islands in French Polynesia. We successfully collected rock samples from submarine ridges of each island. These rocks have similar major element compositions to subaerial rocks. Isotopic compositions of some submarine rocks overlap with those of subaerial ones, but the others show distinct isotopic compositions from the latter. This indicates that the isotopic compositions of lavas in HIMU islands are more heterogeneous than ever thought. The overall isotopic systematic of submarine and subaerial rocks can be explained by mixing of HIMU and DM, and the source compositions changed during volcano growth.