the data distribution. Inspection of the ICs in the original variable space may lead to geochemical interpretations; in this case, the IC1 compositional vector likely corresponds to parent-daughter fractionation associated with melting and the subsequent radiogenic ingrowth (Iwamori and Nakamura, 2015). Likewise, the IC2 vector corresponds to that associated with aqueous fluid-rock interactions and radiogenic ingrowth. Polynesian OIBs show an extremely wide variation in IC2, from –4 of high μ (μ = $^{238}U/^{204}Pb$: HIMU) basalt to +4 of EM1 basalts for a limited range of positive IC1 (Fig. 3c), suggesting that their sources consist of a package of a subducted and dehydrated slab and the overlying hydrated boundary layer (Iwamori and Nakamura, 2015). On the IC1–IC2 plane, the two melt inclusions and the bulk-rocks are plotted in the first quadrant with positive IC1 and IC2 (Fig. 3d), implying their origin from a source characterized by a long-term enrichment of melt-component (positive IC1) and aqueous fluid component (positive IC2) (Iwamori and Nakamura, 2015). Two clusters are recognized in the bulk-rock data of Rarotonga Island at IC1 ~ 0.5 and $1.1 \leq$ IC1 ≤ 1.6, and each cluster elongates along IC2 with $1 \leq \Delta$IC2 ≤ 2 (Fig. 3d). The rtg41-mi1 is more enriched with aqueous fluid-component (higher IC2) and depleted in melt-component (lower IC1) compared to rtg13-mi2. Such discrimination has become possible owing to high-precision analysis of Pb isotopes by LA-ICP-MS and ICA, which suggests that the mantle source beneath Rarotonga Island is heterogeneous. This study is ongoing and we will add discussion on the effects of crystallization and add analytical data of homogenized melt inclusions. Heating homogenization will ensure implications from trace elements if some diffusive volatile elements are discarded (Hauri, 2002).

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Supplementary Materials

URL (http://www.terrapub.co.jp/journals/GJ/archives/data/51/MS497.pdf)
Figures S1 to S3
Tables S1 and S2