



Geochemistry, Geophysics, Geosystems

Supporting Information for

Characterizing Peridotite Xenoliths from Southern Vietnam: Insight into the Underlying Lithospheric Mantle

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Introduction

This supplement includes major and trace element data tables for samples from this study, and supporting figures showing representative xenolith mineral separates and rare earth element equilibration temperature calculations for each sample considered.

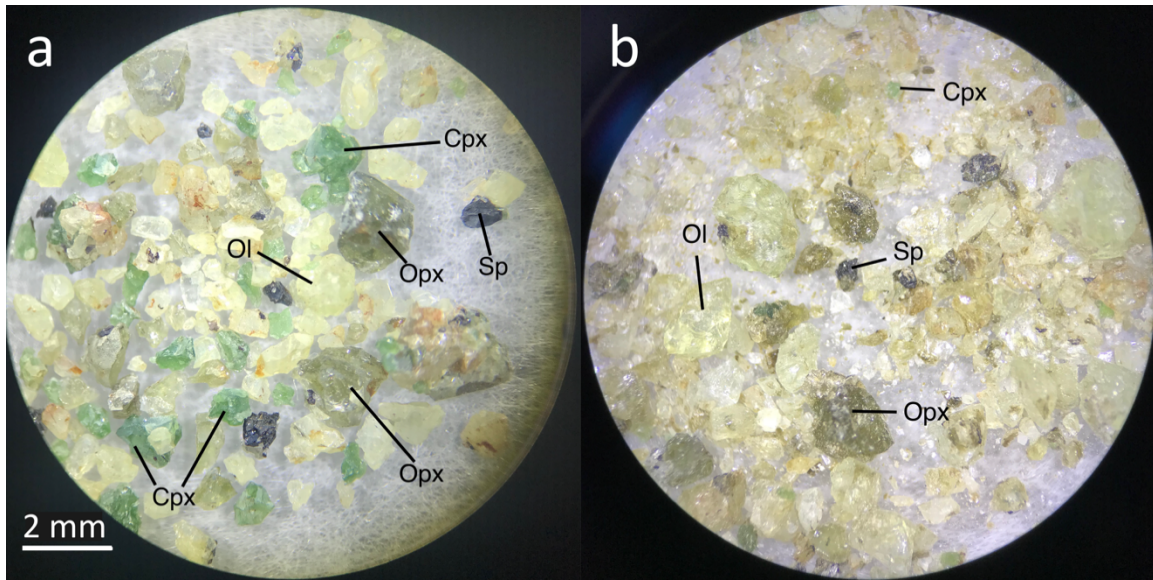
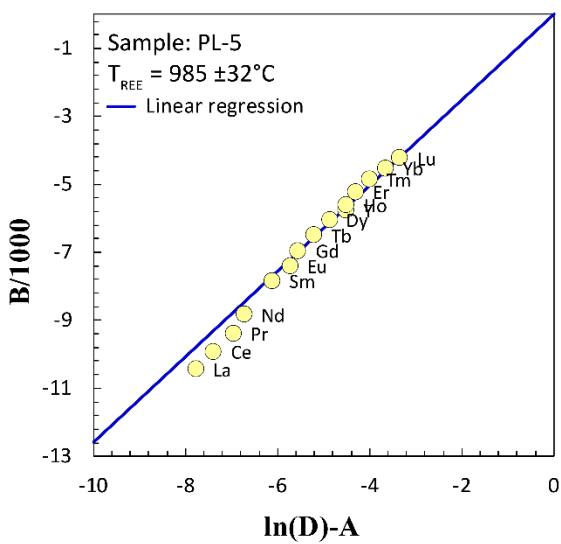
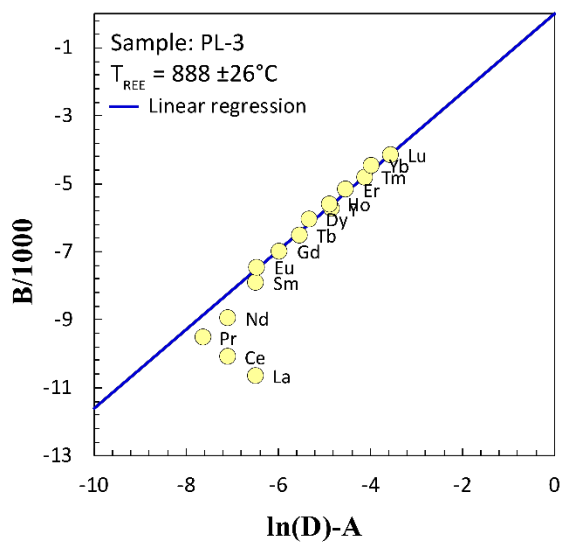
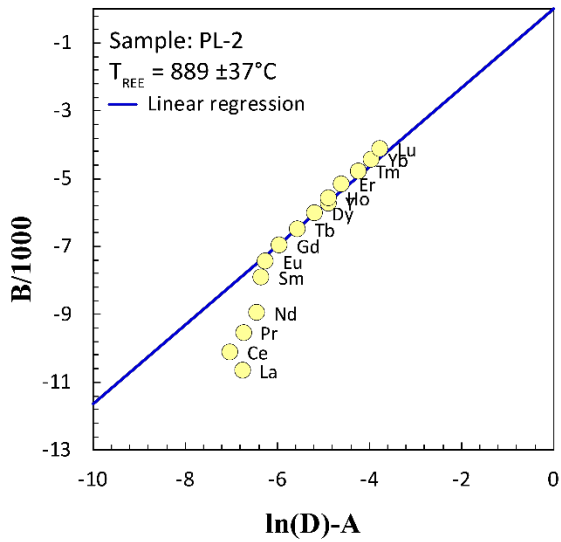
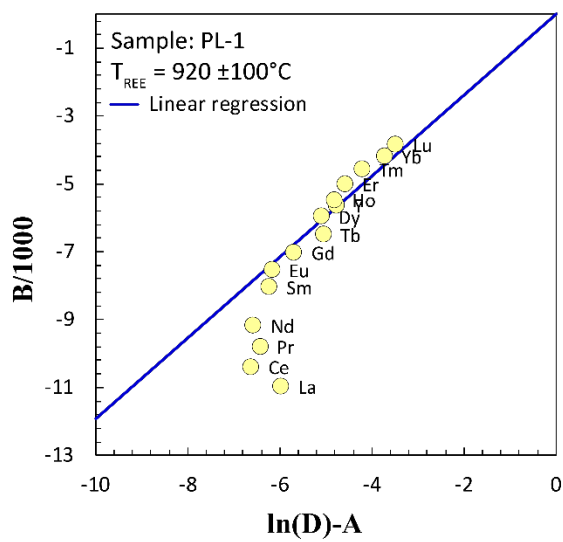
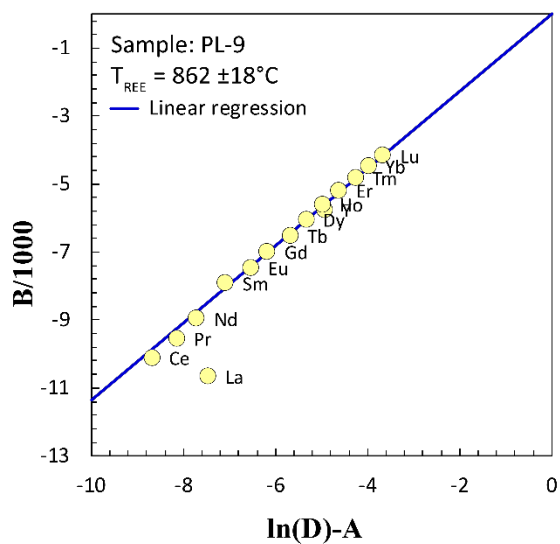
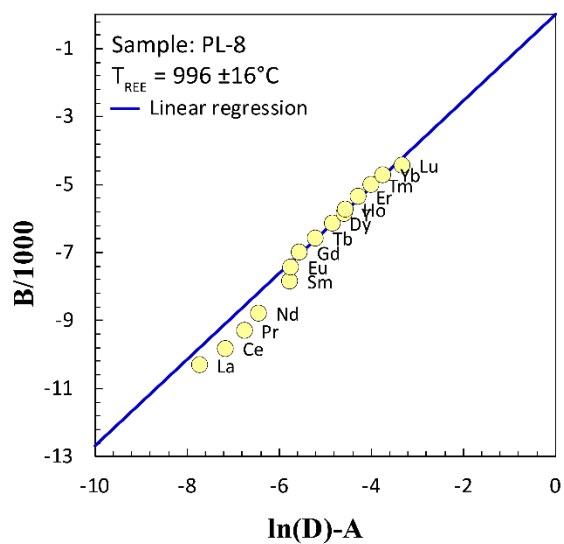
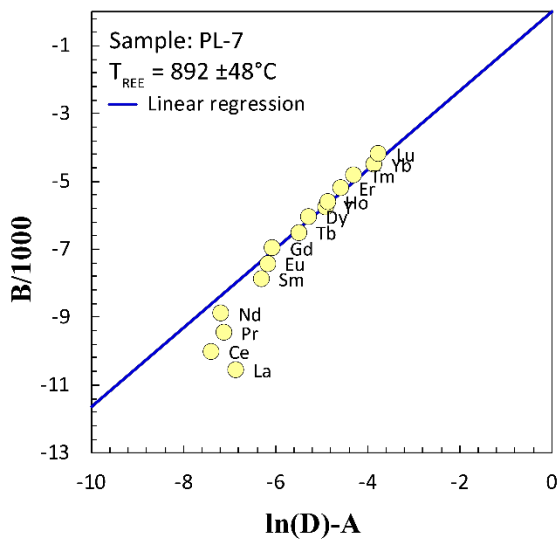
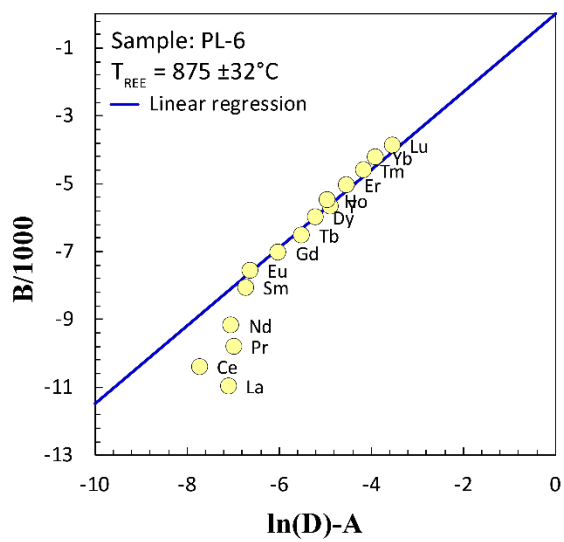
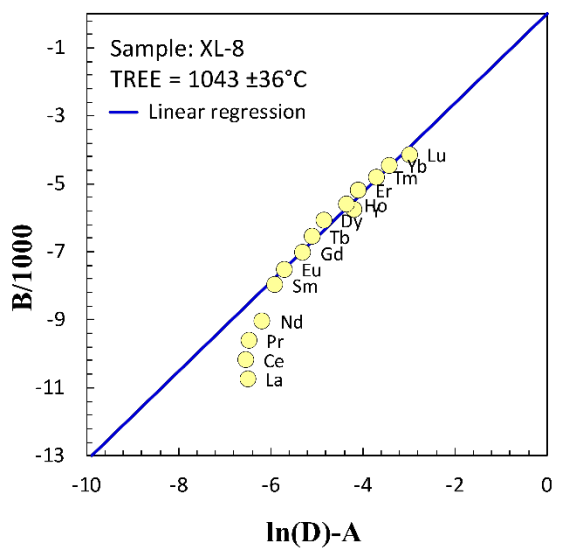
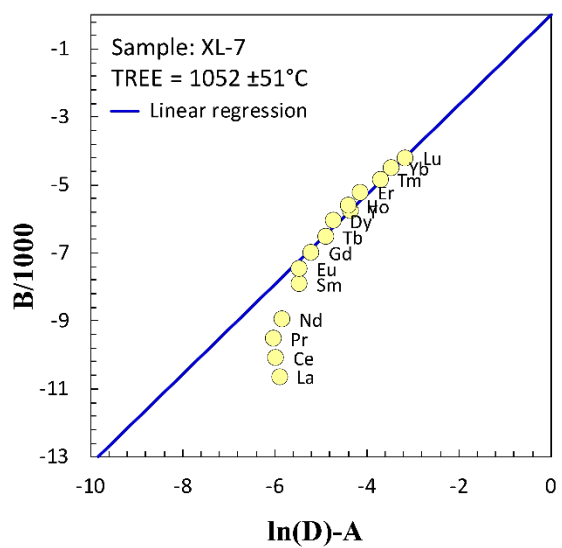
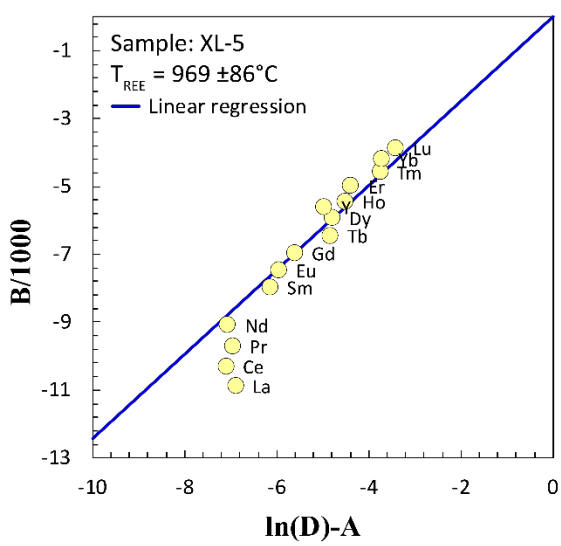
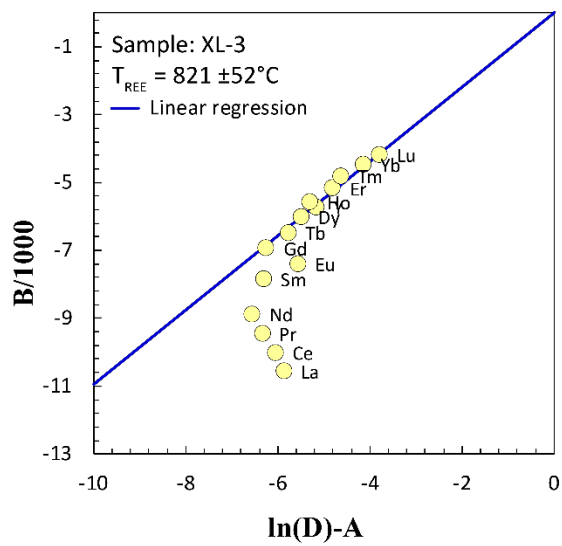
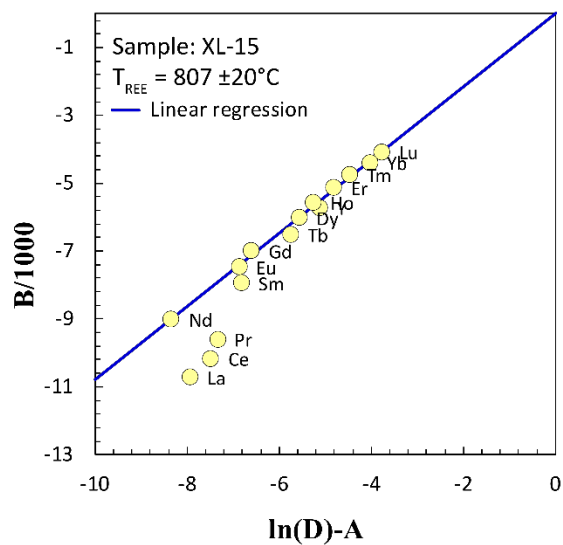
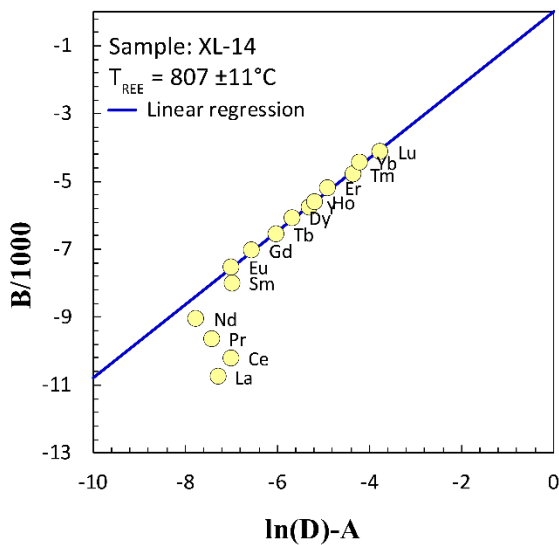
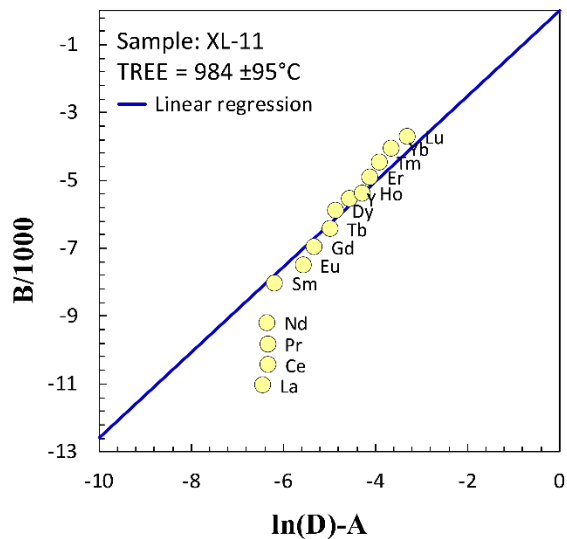
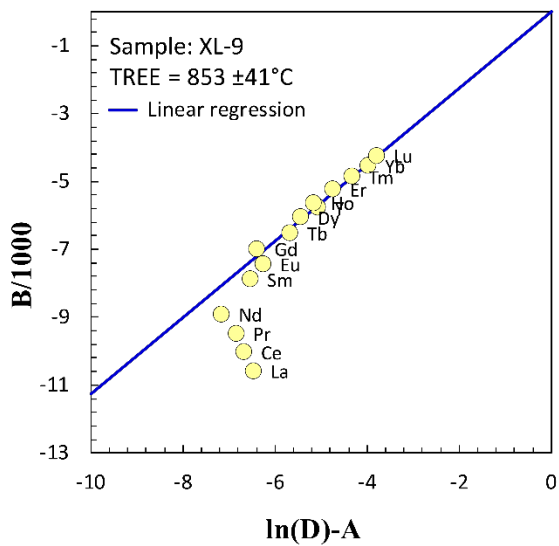


Figure S1. Olivine (Ol), orthopyroxene (Opx) clinopyroxene (Cpx), and spinel (Sp) mineral separates of **a)** a fertile sample (VN-2018-21-PL-2) and **b)** a refractory sample (VN-2018-36-XL-12). Fertile samples have higher modal cpx and, therefore, have higher potential to generate melting. Refractory samples have lower modal cpx, likely due to previous melt extraction.









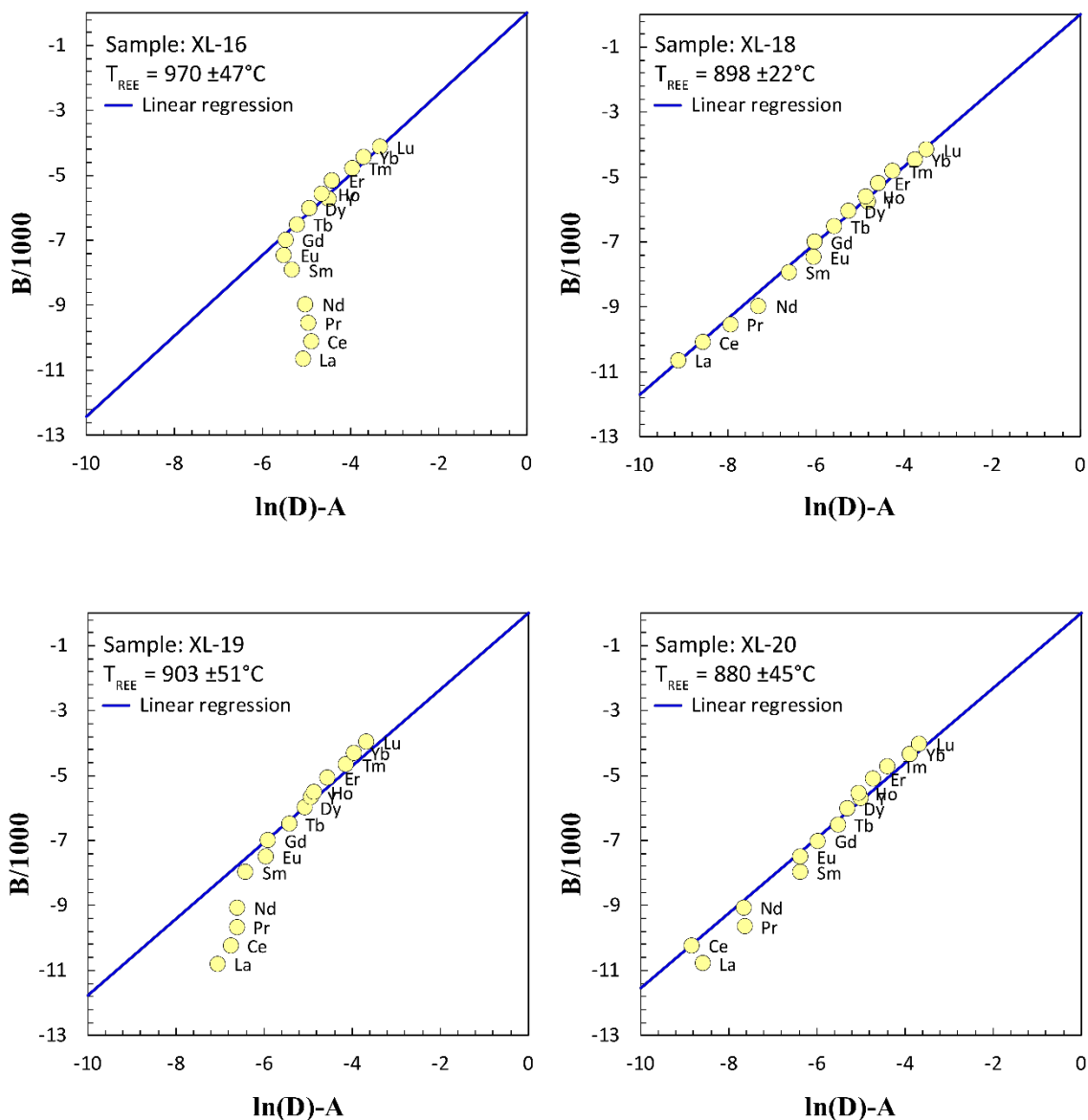


Figure S2. T_{REE} inversion diagrams for individual Vietnam xenolith clinopyroxene measurements from this study, for each xenolith sample as marked. Diagrams are shown for methods after Liang et al. (2013).

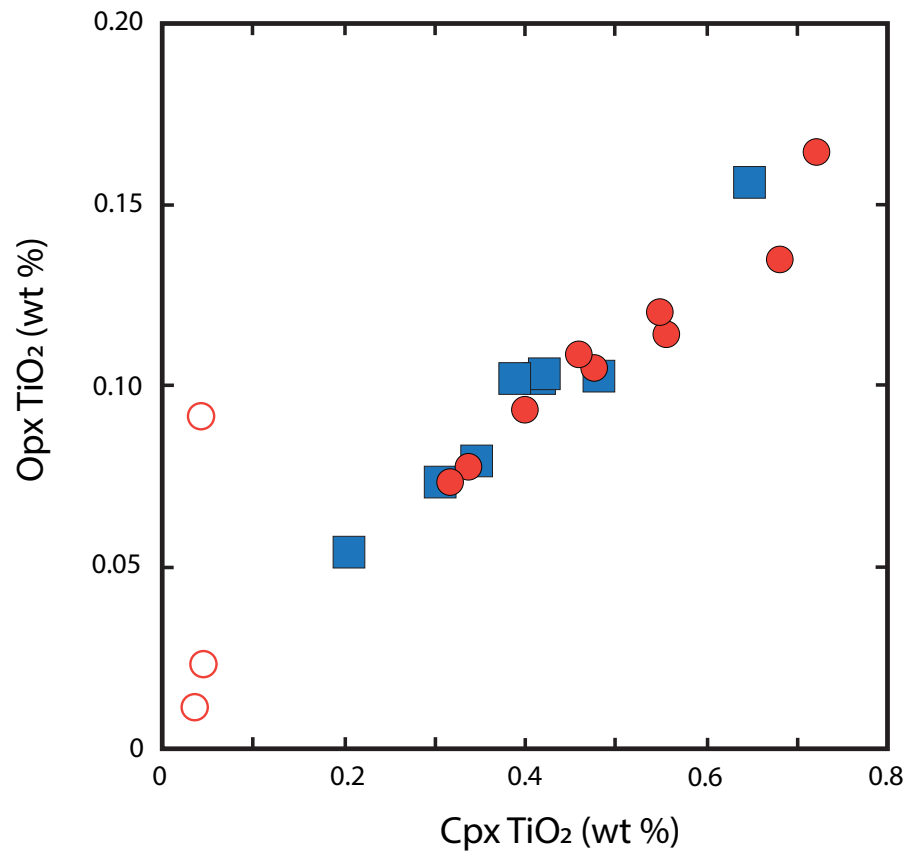


Figure S3. Orthopyroxene vs. clinopyroxene TiO₂ contents in samples from this study. Overall, samples lie along a strong positive correlation, indicating that pyroxenes in these samples are largely in chemical equilibrium for thermobarometry purposes.

Table S1. (See separate supplementary file.) Average major element compositions of core and rim measurements for minerals from Vietnam xenoliths. Uncertainties are expressed as 1σ standard deviation.

Table S2. (See separate supplementary file.) Average trace element compositions (ppm) of clinopyroxene (cpx) and orthopyroxene (opx) in Vietnam xenoliths. Uncertainties expressed as 1σ standard deviation.

Supplementary References

Liang, Y., Sun, C., & Yao, L. (2013). A REE-in-two-pyroxene thermometer for mafic and ultramafic rocks. *Geochimica et Cosmochimica Acta* **102**, 246–260, doi:10.1016/j.gca.2012.10.035.