

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Major element analyses of olivine, spinel, orthopyroxene, and clinopyroxene

File Name: Supplementary Data 2

Description: Pyroxene trace element concentrations

File Name: Supplementary Data 3

Description: Reference material measurements throughout LA-ICP-MS session

File Name: Supplementary Data 4

Description: Additional peridotite major element analyses, clinopyroxene trace element data

File Name: Supplementary Data 5

Description: Melting model parameters used in this study with references