

## Description of Additional supplementary files

**File name: Supplementary data 1.**

**Description:** Petrography of the studied mafic potassic rocks

**File name: Supplementary data 2.**

**Description:** Compositions of individual melt inclusions analyzed by LA-ICP-MS in mafic potassic rocks

**File name: Supplementary data 3.**

**Description:** Compositions of sulfide inclusions in mafic potassic rocks analyzed by LA-ICP-MS

**File name: Supplementary data 4.**

**Description:** Results of oxybarometry based on V concentrations in melt inclusion-olivine pairs analyzed by LA-ICP-MS and results of oxybarometry based on compositions of spinel inclusion-olivine pairs analyzed by EPMA

**File name: Supplementary data 5.**

**Description:** Abundance of sulfides in fusible mantle components

**File name: Supplementary data 6.**

**Description:** Compositions of sulfide inclusions in mantle rocks analyzed by LA-ICP-MS

**File name: Supplementary data 7.**

**Description:** Run conditions and product modes of mantle partial melting experiments

**File name: Supplementary data 8.**

**Description:** Compositions of experimental melts analyzed by EPMA and results of oxybarometry based on V concentrations in experimental melts and olivine analyzed by LA-ICP-MS

**File name: Supplementary data 9.**

**Description:** Compositions of melt inclusions analyzed by LA-ICP-MS in variably evolved potassic rocks from the Sanjiang region

**File name: Supplementary data 10.**

**Description:** Compositions of glassy melt inclusions (plus glass standards) analyzed by EPMA