

**Supplementary Figure 2** | Results of clinopyroxene-melt thermometry using the Putirka et al. (2003) calibration; data were filtered as described in the text. Shown are temperatures for every single rock sample sorted by eruption sequence from bottom to top, using each sample's groundmass composition. Note that samples SD13 and SD04 have the same sequential order based on field relations, as do samples SD06 and SD08. The highest temperatures for tephrites are indicated by sample SD04 and the lowest by sample SD06, which are also the least and the most evolved tephrite compositions, respectively, of our investigated samples.