

## Description of Additional Supplementary Files

**Supplementary Dataset:** Grain sizes and shapes, and calculated EBSD indexes ( $J$ -,  $M$ -, BA-indexes) for neoblasts and porphyroclasts of olivine and orthopyroxene. Maps marked with an asterisk (\*) contain olivine-rich and polymineralic domains. Consequently, all parameters of grain sizes, shapes, and EBSD indexes have been calculated for each domain separately. Sample COL-DR01-18 is too altered to characterize grain sizes and shapes. The corrected diameter  $d^*$  is the diameter multiplied by 1.2 to correct for sectioning effects before applying the piezometer of Van der Wal et al.<sup>32</sup> (Methods). Abbreviations: olivine (OL) – orthopyroxene (OPX).