## Supplementary figures for

## Magma residence time, ascent rate and eruptive style of the November ash-laden activity during the 2021 Tajogaite eruption (La Palma, Spain)

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Figure S1. Componentry of the ash particles of 17 November sample using a polished thin section, SEM images and manual point counting in JMicroVision
Figure S2. Componentry of the ash particles of 18 November sample using a polished thin section, SEM images and manual point counting in JMicroVision
Figure S3. Plots of pressure and temperature estimates obtained by using Thermobar package (Wieser et al., 2022) for different barometer and thermometer models and water content

**Figure S4**. Plots of P-T estimates for the different models considered in this study (blue stars) with a) 1 wt.%  $H_2O$ , b) 2 wt.%  $H_2O$ , and c) 3 wt.%  $H_2O$  amongst the calibration dataset of different Cpx-based thermobarometers available on Thermobar

Figure S1. Componentry of the ash particles of 17 November sample using a polished thin section, SEM images and manual point counting in JMicroVision



Figure S2. Componentry of the ash particles of 18 November sample using a polished thin section, SEM images and manual point counting in JMicroVision



**Figure S3**. Plots of pressure and temperature estimates obtained by using Thermobar package (Wieser et al. 2022) for different barometer and thermometer models and water content. N17P08 (barometer of Neave and Putirka (2017) and thermometer (eq. 33) of Putirka (2008)), M13 (barometer and thermometer of Masotta et al. (2013)), P03 (barometer from Putirka et al. (2003) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 20) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 33) of Putirka (2008)), P08 (barometer (eq. 30) and thermometer (eq. 30) and the



**Figure S4a**. Plots of P-T estimates for the different models considered in this study with 1 wt.%  $H_2O$  (blue stars) amongst the calibration dataset of different Cpx-based thermobarometers available on Thermobar (Putirka 2008; Masotta et al. 2013; Neave and Putirka 2017; Petrelli et al. 2020).



**Figure S4b.** Plots of P-T estimates for the different models considered in this study with 2 wt.%  $H_2O$  (blue stars) amongst the calibration dataset of different Cpx-based thermobarometers available on Thermobar (Putirka 2008; Masotta et al. 2013; Neave and Putirka 2017; Petrelli et al. 2020).





Figure S4c. Plots of P-T estimates for the different models considered in this study with 3 wt.%  $H_2O$  (blue stars) amongst the calibration dataset of different Cpx-based thermobarometers available on Thermobar (Putirka 2008; Masotta et al. 2013; Neave and Putirka 2017; Petrelli et al. 2020).



