

FIGURE S1. Effect of 3D aspect ratio on SEM(*w*)-CSDs. The sub-Plinian SEM(*w*)-CSDs corrected with various 3D shapes are shown as (a) *L* plots and (b) *S* plots. (a) The shapes of *L*-plot CSDs significantly depend on the 3D aspect ratio, whereas (b) *S*-plot CSDs preserve almost the same shape with vertical displacement due to the ratio.

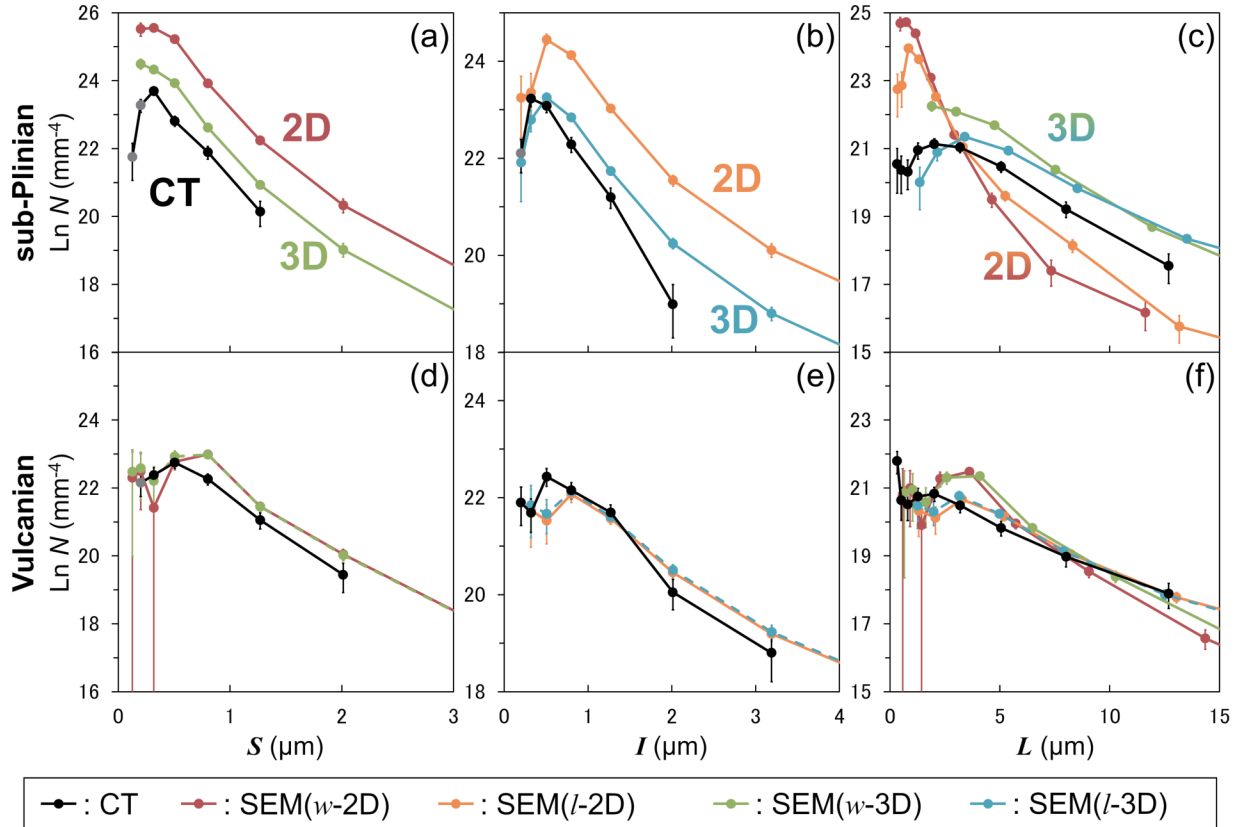


FIGURE S2. Comparison of CT-CSDs, SEM(2D)-CSDs, and SEM(3D)-CSDs for (a–c) the sub-Plinian pumice and (d–f) the Vulcanian pumice. The leftmost panels (a, d) are plotted against S , the center panels (b, e) against I , and the rightmost panels (c, f) against L . The CT-CSDs (black) include gray symbols indicating size intervals including crystals smaller than 5 pixels in length.

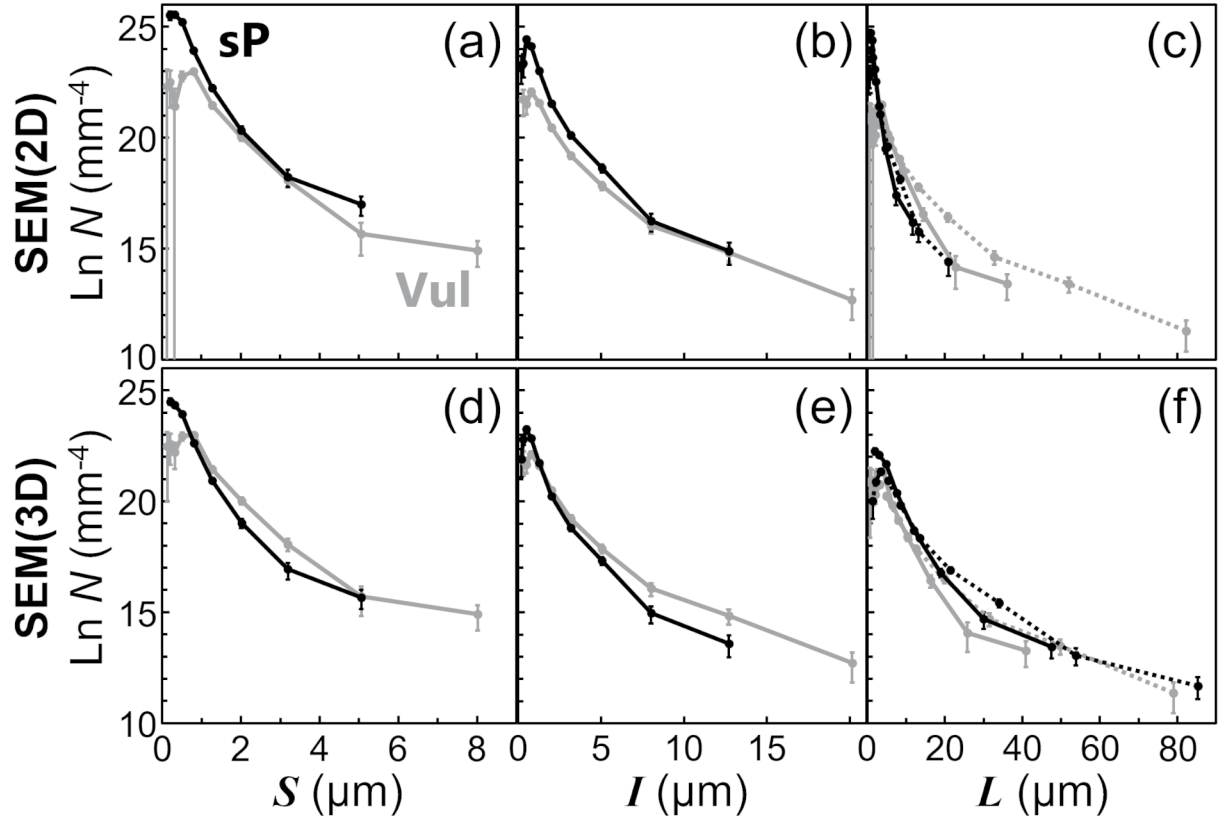


FIGURE S3. Differences in SEM-CSDs according to eruption style and plot type. SEM(2D)-CSDs and SEM(3D)-CSDs are shown in the upper (a–c) and lower rows (d–f), respectively. In each panel, the CSDs of the sub-Plinian pumice (‘sP’) are shown in black, and those of the Vulcanian pumice (‘Vul’) in gray. In the L plot (c, f), solid and dotted lines represent SEM(w)-CSDs and SEM(l)-CSDs, respectively.