

Figure S1. Satellite image (Google Earth) of the 1941 cone on Tolbachik, Kamchatka, and the sampling field.



Figure S2. The 1941 scoria cone and the adjacent scoria field. Photo by M. Zelenski.

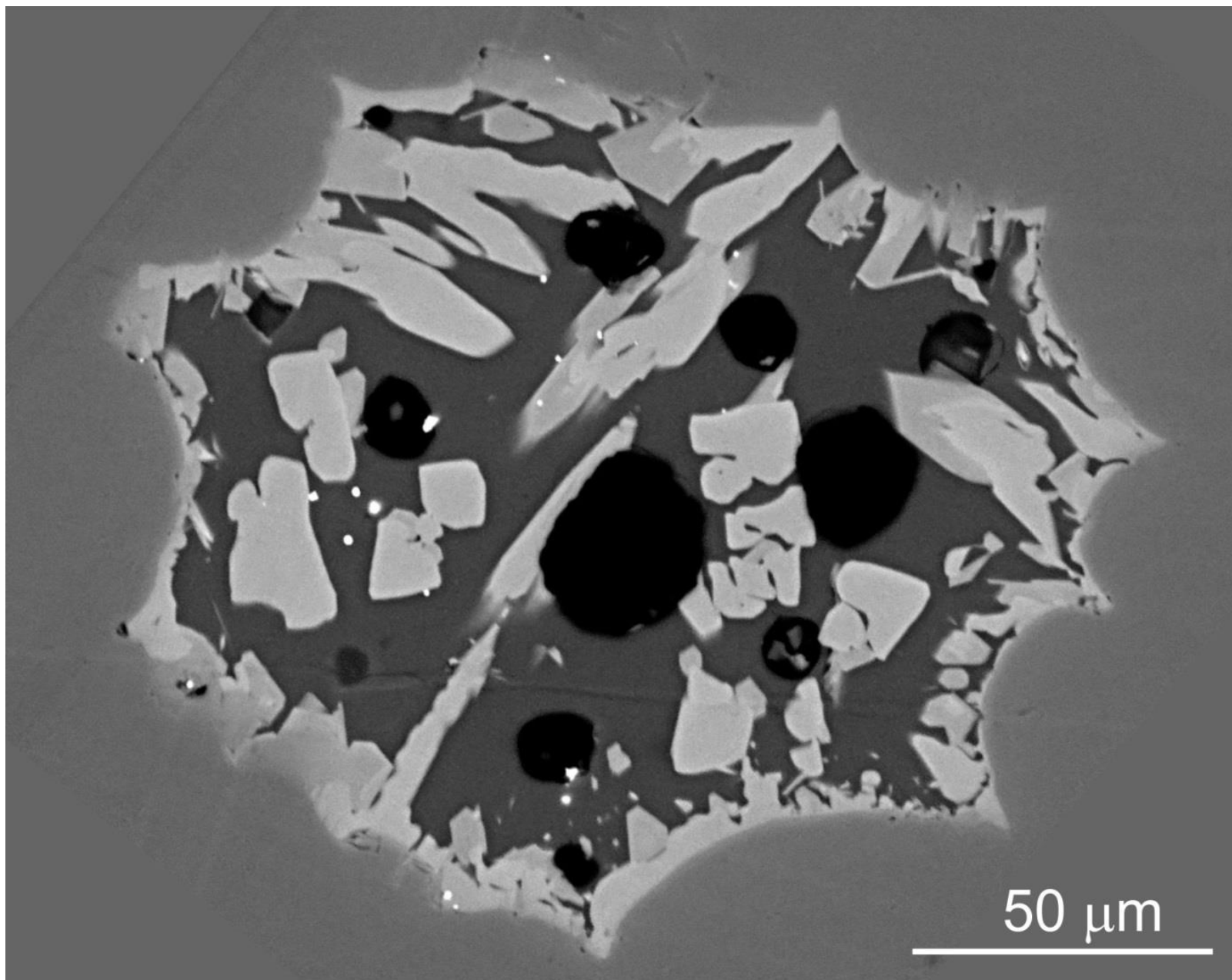


Figure S3. Large melt inclusion in olivine that underwent slow cooling. The 1941 Tolbachik eruption, lava flow. The sizes of daughter crystals are 20-30% of the diameter of the entire inclusion. The inclusion contains clinopyroxene, amphibole, magnetite, acid glass and several vapor bubbles.

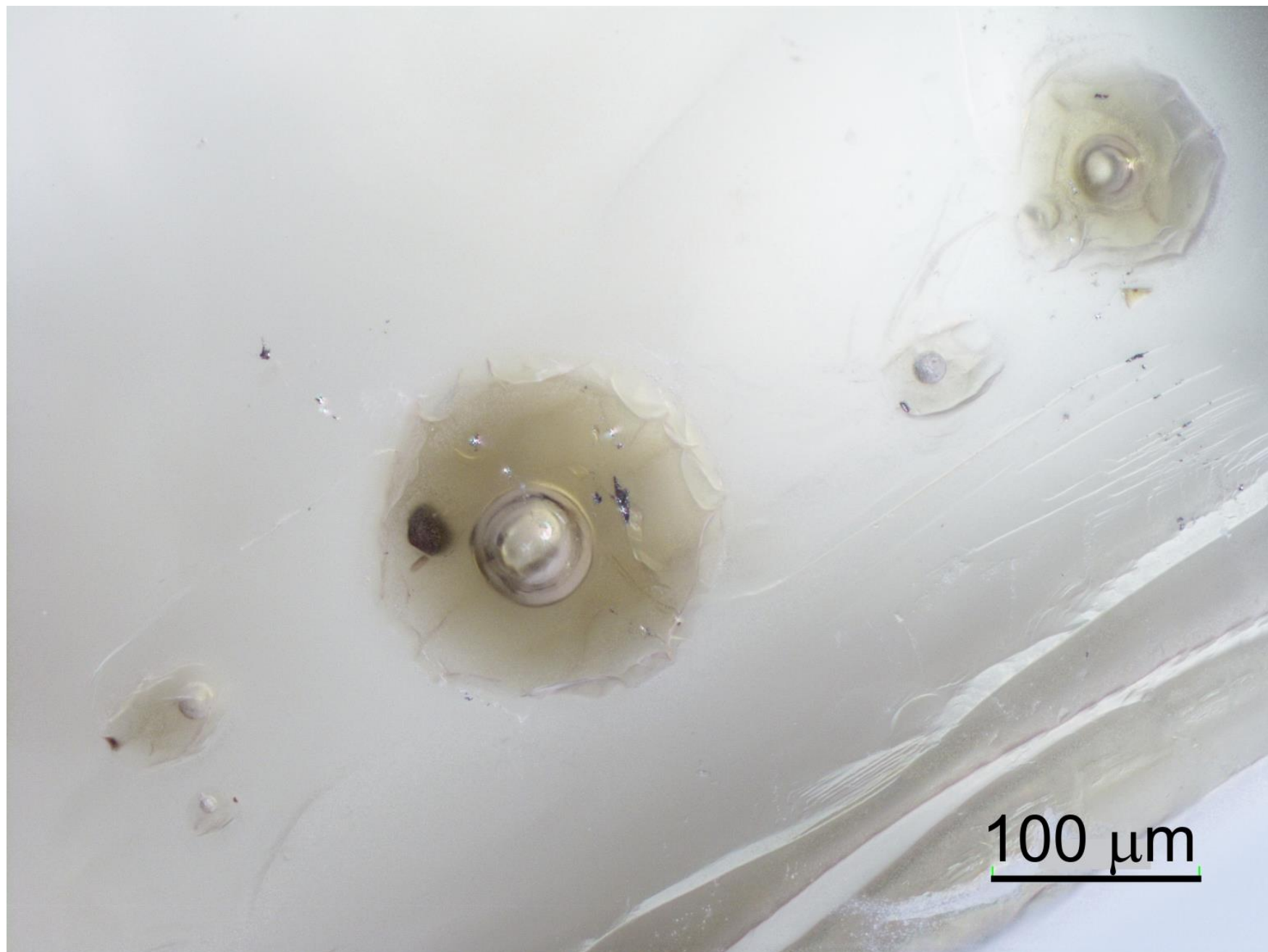


Figure S4. A cluster of normal (non-oxidized) melt inclusions with light brown glass and a sulfur content of about 3000 ppm S.

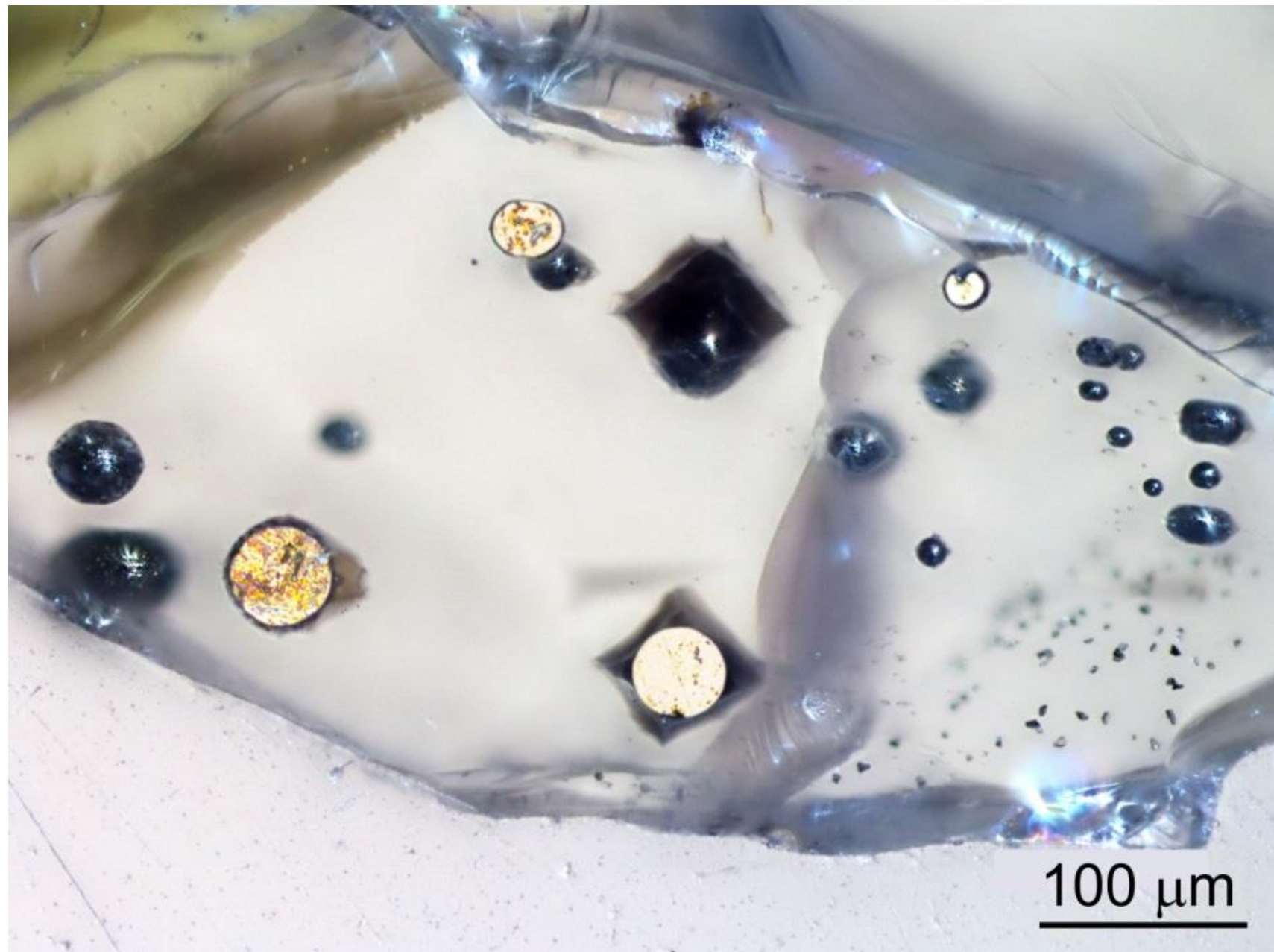


Figure S5. An olivine crystal with a sulfide swarm and melt inclusions filled with dark brown glass. Four sulfide globules are exposed; more globules are enclosed in olivine. The 1941 Tolbachik eruption.

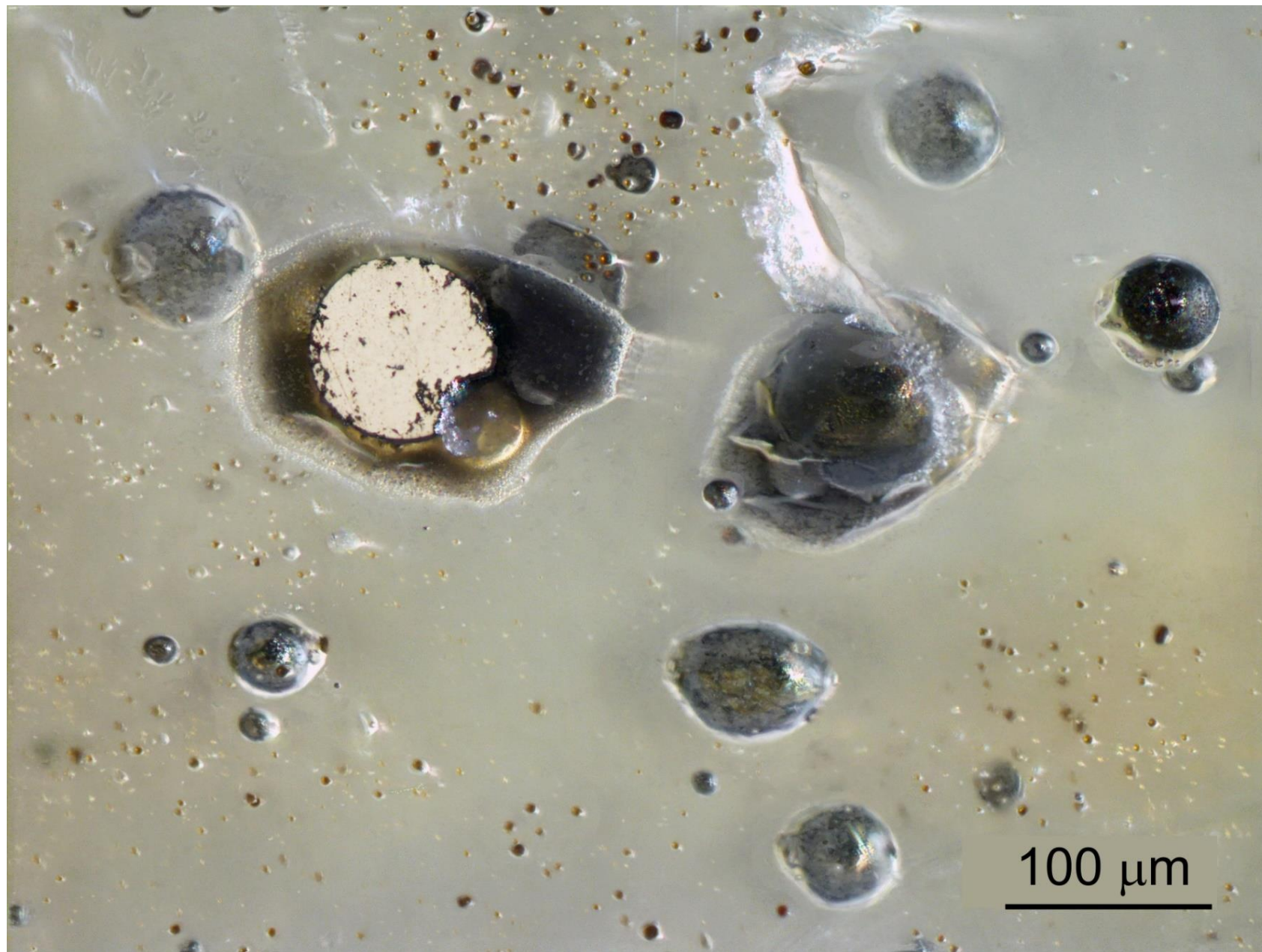


Figure S6. An olivine crystal with a swarm of sulfide globules and melt inclusions filled with dark brown glass. One sulfide globule is exposed. Numerous inclusions of brown chromite are also present. The 1941 Tolbachik eruption.