Lognormal crystal size distribution of garnet porphyroblast from Lutzow-Holm Complex, Antarctica

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Thinly-layered quartzo-feldspathic gneisses occur in the Lutzow-Holm Complex at Skallen, East Antarctica. They are garnet-bearing and free from any mafic minerals, suggesting that garnet-forming reactions have completed. Some layers contain garnet grains that represent lognormal crystal size distributions (CSDs). These grains occur spatially homogeneous, as judged from the density distribution function. These lines of evidence suggest that the layer have experienced a single nucleation and growth event associated with a continuous garnet-forming reaction. Continuous supply of garnet components together with growth mechanism controlled by reduction of surface area may responsible for the lognormal CSDs.