



Large volcanoclastic debris flow resulting from a plinian caldera lake eruption: case study from the Cantal volcano (France)

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Voluminous volcanoclastic deposits often result from large-scale eruptive events. Here we show that a subaqueous eruption beneath a caldera lake has triggered 7.9 Ma ago one of the most spectacular volcanoclastic flow on Earth on the Cantal volcano (France), the largest Miocene eruptive complex in Europe. This study is based on a field investigation, new K-Ar ages measurements and a quantitative geomorphological analysis. The morphological and sedimentological characteristics of this Large Breccia Flow (LBF), which corresponds to a unique event in space and time, are compatible with those of a giant debris flow (100 km³). Even if this mechanism is observed nowadays during local eruptive events, such a process able to trigger an isotropic giant debris flow up to ca. 25 km, has never been described at this scale. Investigations about the origin of this giant debris flow converge to a plinian caldera lake eruption.