



Calderas and magma reservoirs

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Large caldera-forming eruptions have long been a focus of both petrological and volcanological studies; traditionally, both have assumed that eruptible magma is stored within a single long-lived melt body. Over the past decade, however, advances in analytical techniques have provided new views of magma storage regions, many of which provide evidence of multiple melt lenses feeding a single eruption, and/or rapid pre-eruptive assembly of large volumes of melt. These new petrological views of magmatic systems have not yet been fully integrated into volcanological perspectives of caldera-forming eruptions.

We discuss the implications of syn-eruptive melt extraction from complex, rather than simple, reservoirs and its potential control over eruption size and style, and caldera collapse timing and style. Implications extend to monitoring of volcanic unrest and eruption progress under conditions where successive melt lenses may be tapped. We conclude that emerging views of complex magma reservoir configurations provide exciting opportunities for re-examining volcanological concepts of caldera-forming systems