



The development of the Deception Island volcano caldera under control of the Bransfield Basin sinistral strike-slip tectonic regime (NW Antarctica)

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Abstract

Deception Island is a small and volcanically active caldera volcano of Quaternary age, located in the marginal basin of Bransfield Strait, NW Antarctica. The distribution and orientation of fracture and fault systems that have affected the Deception volcanic edifice, and the elongated geometry of its volcanic caldera, are consistent with a model of Riedel deformation induced by a regional left-lateral simple shear zone. It is suggested that this caldera was formed above a magma chamber stretched under the influence of the regional transtensional regime with left-lateral simple shear. The collapse may have occurred in at least two phases: first, a small volume event occurred along the compressed flanks of the volcano edifice; and second, a large collapse event affected the stretched flanks of the volcano edifice.

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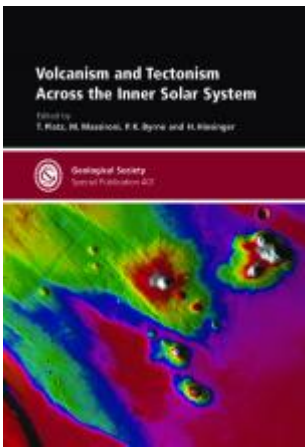
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