

## **Erebus volcano: an open-vent archetype**

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Erebus is well known for its lava lake, alkaline intraplate character, and, of course, its southerly latitude. It also serves as a paradigm of open-vent volcanism, with persistent degassing and sporadic Strombolian eruptions associated with the long-lived lava lake. Its proximity to the largest station in Antarctica (McMurdo), and the comprehensive logistical support from the US Antarctic Program, provide an exceptional research infrastructure such that Erebus ranks among the world's outstanding laboratory volcanoes. On one level, the behaviour of Erebus simple, stable and sustained but the magma differentiation (basanite, through intermediate terms, to phonolite), mantle-to-surface degassing (and associated redox changes), and the moderate viscosity of the surficial (phonolitic) magma, superimpose fascinating complexity on the long-lived lava lake. The gases emitted from the lava lake are dominated by carbon dioxide (by mass), symptomatic of the important role played by carbon dioxide in magmatic evolution beneath the volcano. In addition to the signature of deeper magmatic processes evident in the surface gas signature, cyclic changes in gas composition and lava lake height and velocity highlight aspects of magma convection and degassing in the uppermost parts of the magma conduit and the lava lake itself. This presentation will provide an overview of recent research findings from Erebus and link to several other contributions on Erebus being given at the IAVCEI meeting.