

Volcanic degassing along the enigmatic South Sandwich arc

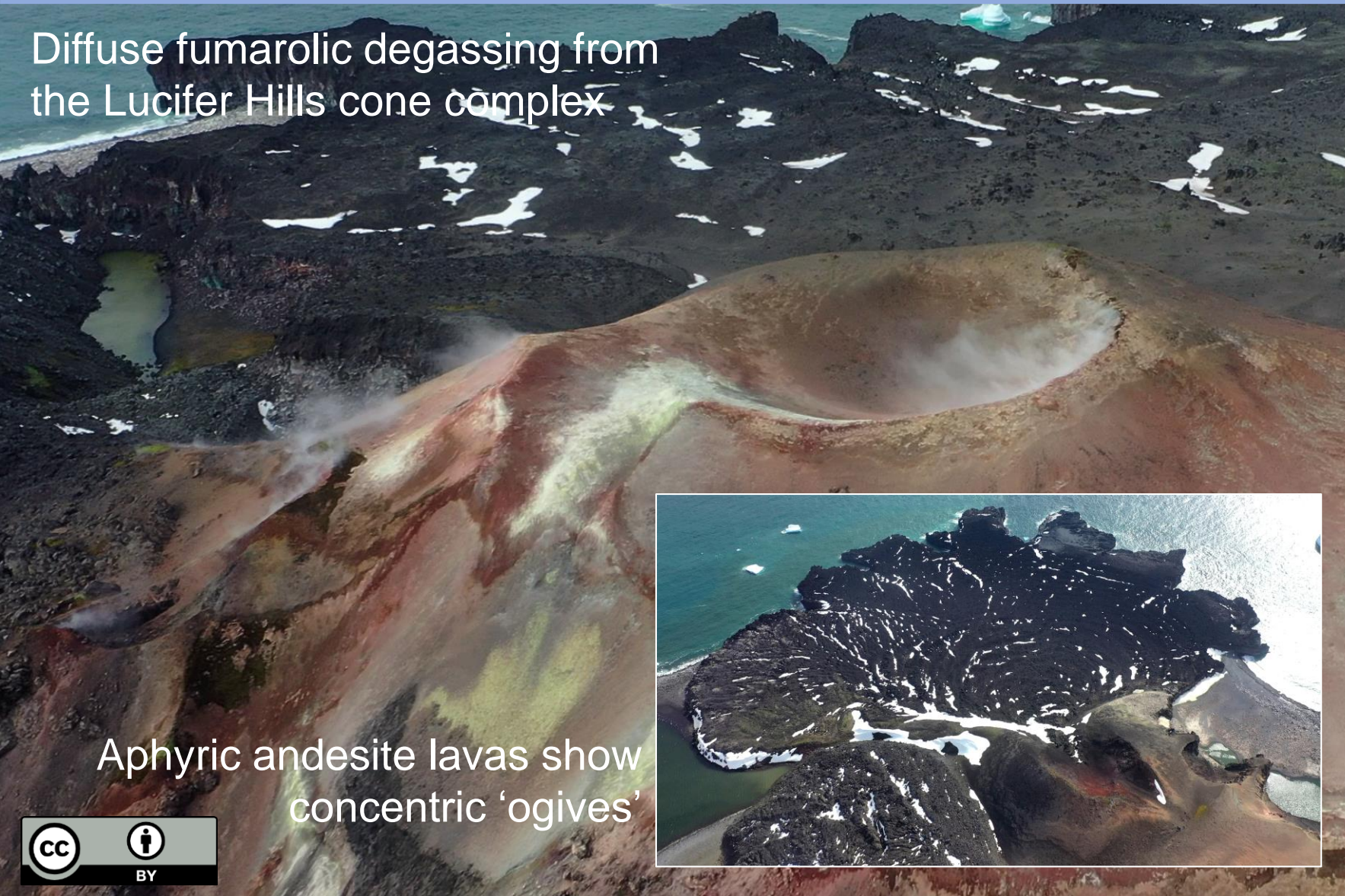
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Key Points

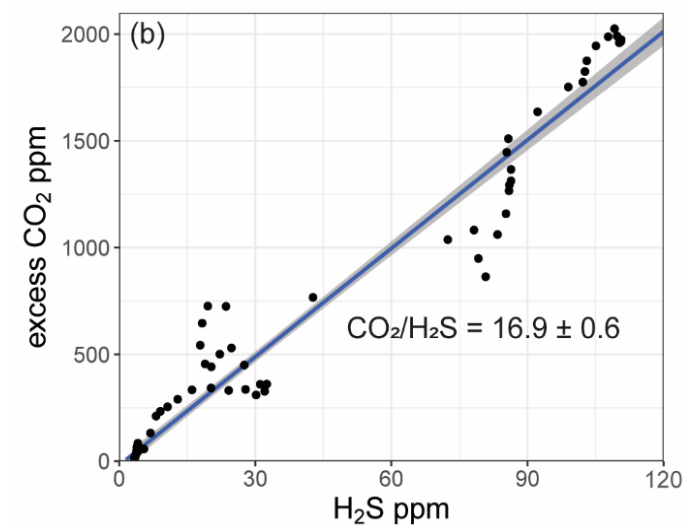
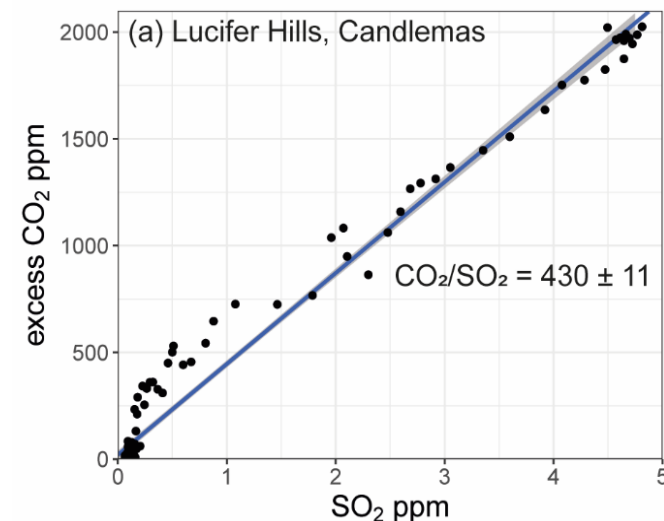
- Mt Michael is the most active volcanic emitter of the South Sandwich arc, with an SO_2 flux of $145 \pm 59 \text{ t d}^{-1}$ (similar to the 2005-15 satellite OMI average of $263 \pm 63 \text{ t d}^{-1}$ (Carn et al., 2017))
- Fumarolic emissions and geothermal ground heating are pervasive along the arc, especially on Candlemas and Bellingshausen.
- Recent lavas and tephra deposits are preserved in glacial ice and subaerial exposures, including pristine hydromagmatic products from Ashen Hills, Saunders.

Candlemas has extensive fumarolic emissions

Diffuse fumarolic degassing from the Lucifer Hills cone complex



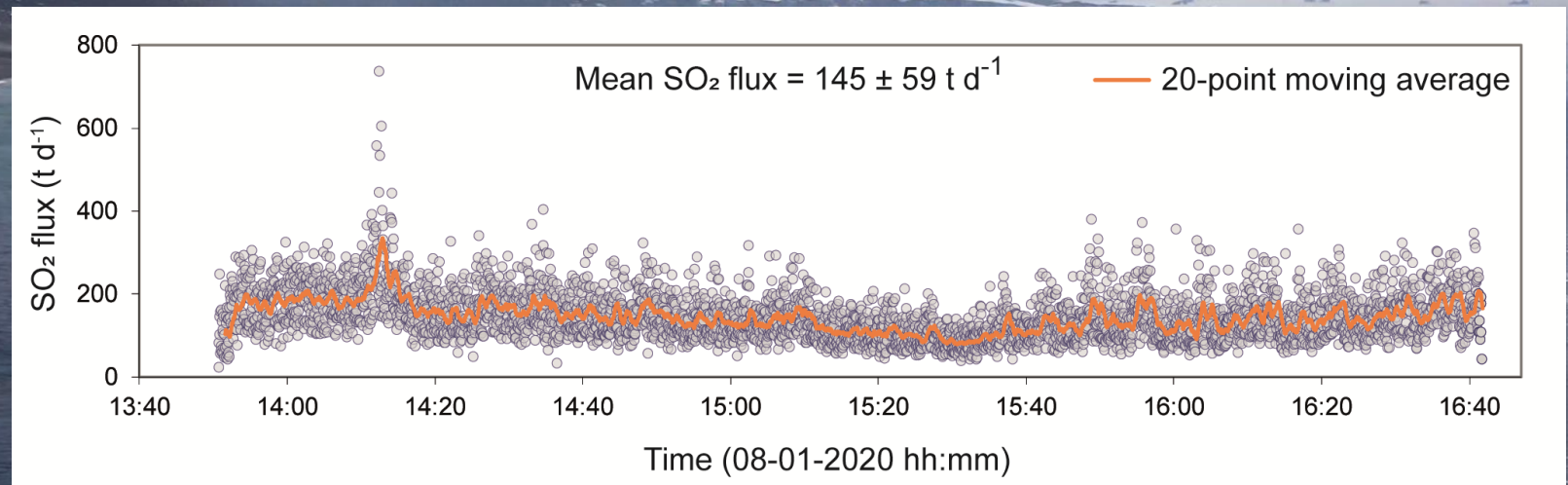
Aphyric andesite lavas show concentric 'ogives'



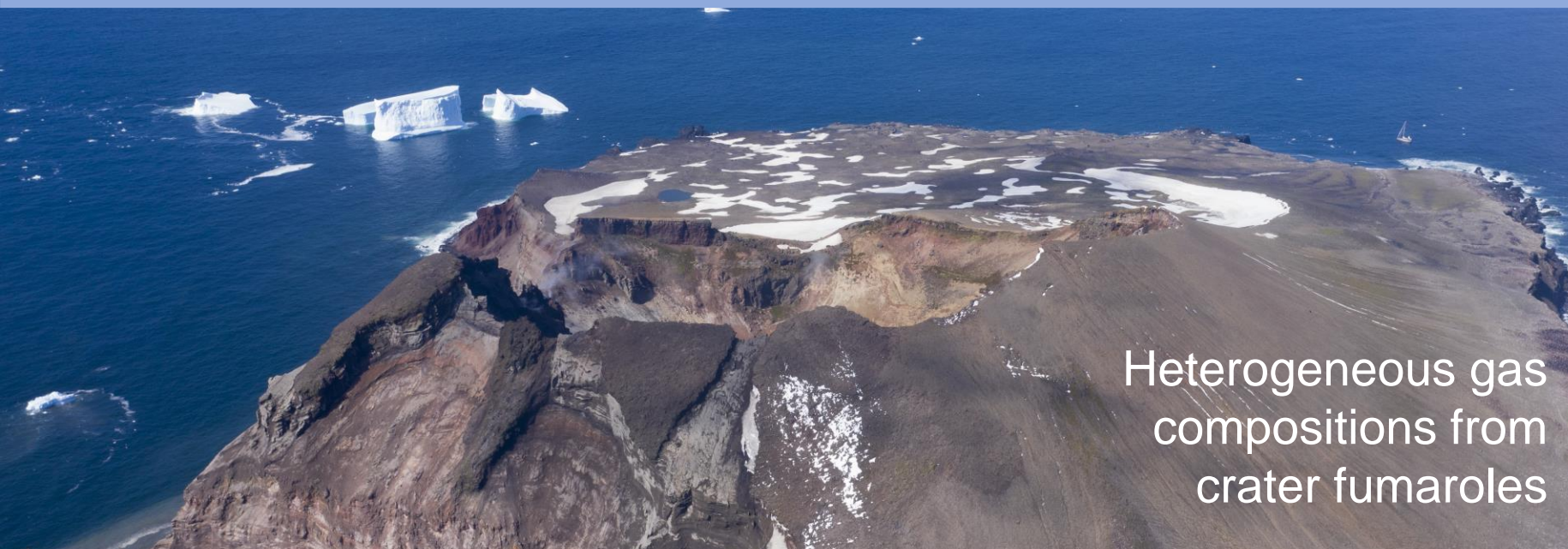
Mt Michael is emitting a strong summit plume

SO_2 flux = $145 \pm 59 \text{ t d}^{-1}$ (January 2020)

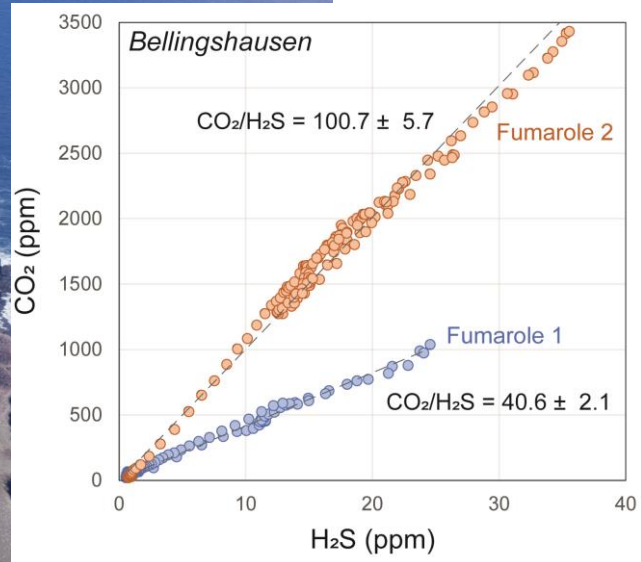
Ashen Hills have depositional features characteristic of hydromagmatic activity



Bellingshausen exposed through sector collapses



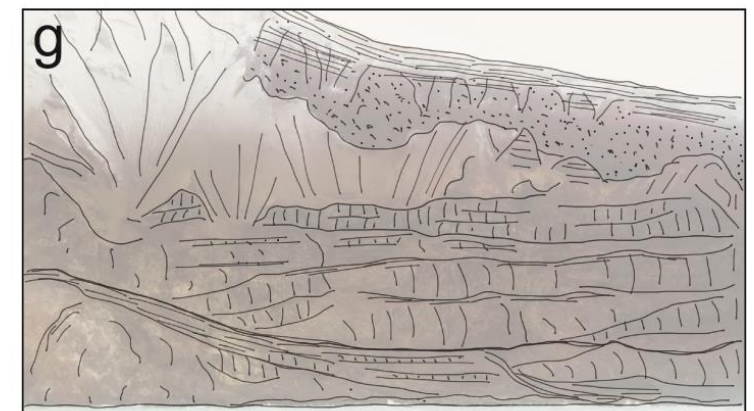
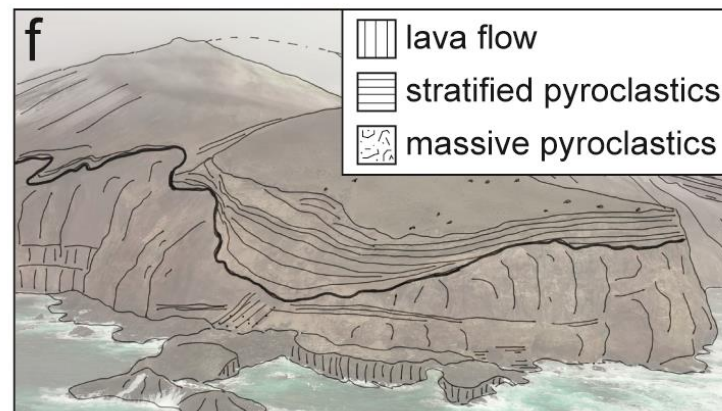
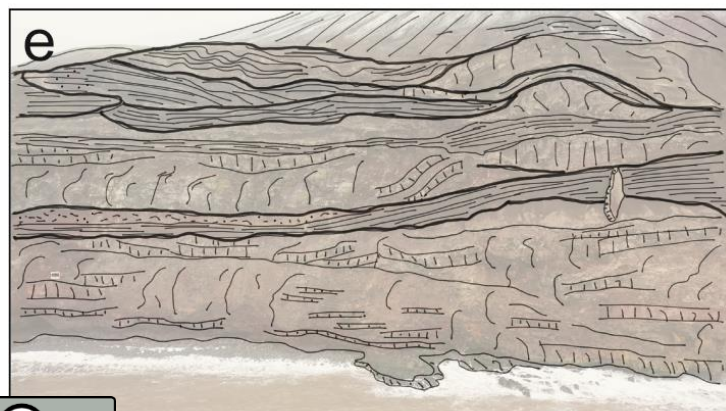
Heterogeneous gas compositions from crater fumaroles



Stratigraphy exposed on two flanks by large-scale collapses



Zavadovski degassing from steeply inclined crater



Many thanks to *Pelagic Australis* expedition team

A multi-disciplinary expedition to explore the *volcanology*, *ecology* and *glaciology* of the South Sandwich Islands and South Georgia

