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500 miles from civilisation: Volcanoes of the South Sandwich Islands

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The South Sandwich Islands are a chain of active volcanoes in the Southern Ocean, and are one of the most remote and enigmatic volcanic regions on Earth. Sporadic observations from rare cloud-free satellite images—and even rarer in situ reports—provide glimpses into an active volcanic system characterised by persistent gas emissions and frequent eruptive activity. However, our understanding of the state of volcanic activity along this arc is hugely incomplete compared to arcs globally, and the islands have only ever been visited on a handful of occasions. In January 2020, I visited the South Sandwich Islands as part of a multi-disciplinary scientific expedition to explore the unique ecology, volcanology, and glaciology of these remote island environments. My aim on this expedition was to study the volcanic processes taking place along the South Sandwich arc, with a focus on characterising the chemistry of the volcanic gases being released. I set out to collect samples and in situ measurements that would constrain the chemical composition and emission rate of active gas emissions and previously erupted lavas. In addition to presenting my geological and volcanological observations, I will describe the unique experience of being at sea in a small boat for six weeks, whilst 500 miles from civilisation.