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# Volcano-hydrothermal system and activity of Sirung volcano (Pantar Island, Indonesia)

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## Abstract

Sirung is a frequently active volcano located in the remote parts of Western Timor (Indonesia). Sirung has a crater with several hydrothermal features including a crater lake. We present a timeseries of satellite images of the lake and chemical and isotope data from the hyperacid hydrothermal system. The fluids sampled in the crater present the typical features of hyperacidic systems with high TDS, low pH and  $\delta^{34}\text{S}_{\text{HSO}_4}$ - $\delta^{34}\text{S}_{\text{S}^0}$  among the highest for such lakes. The cations concentrations are predominantly controlled by the precipitation of alunite, jarosite, silica phases, native sulfur and pyrite which dominate the shallow portions of the hydrothermal system. These minerals may control shallow sealing processes thought to trigger phreatic eruptions elsewhere. Sparse Mg/Cl and  $\text{SO}_4/\text{Cl}$  ratios and lake parameters derived from satellite images suggest gradual increase in heat and gas flux, most

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