



CO₂ flux emissions from the Holuhraun eruption, Iceland (August 2014-present)

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Key words: Holuhraun, CO₂, SO₂, MultiGAS

At the time of writing, the gas-rich fissure eruption in Holuhraun, Iceland is still ongoing. This eruption provided a unique opportunity to characterise composition and fluxes of magmatic gases released by a long-lived Iceland eruption. Here, we report on a volcanic gas dataset gathered using a Multi-component Gas Analyzer System (Multi-GAS); giving an evaluation of the CO₂ flux from the eruption by combining the measured CO₂/SO₂ ratios with SO₂ fluxes measured by near-source DOAS traverses. This demonstrates work within the FP7 EU-funded project FUTUREVOLC, aimed at making Iceland a supersite for volcanological research. Within this project we developed a field-ready MultiGAS that was deployed to the eruption site as soon as there were surface manifestations of the unrest. Due to difficulties in locating a suitable location at the eruption, a permanent site for the MultiGAS has not yet been found. Campaign measurements were made during the first 2 months of the eruption and will be made as conditions allow. Measurements of plume composition were made both of emissions from the main vent and at the edges of the degassing lava flows. Multi-GAS results show that, after a brief phase of CO₂-rich gas being released at the eruption onset (CO₂/SO₂ up to 30), the ratio between CO₂ and SO₂ in the plume was around 1. Based on near-source DOAS traverses made in the middle of September, the CO₂ flux has been between 20000-40000 tons/day, similar to values typically measured at Mount Etna during eruptive.