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## Multiparametric measurements of the lava lake at Masaya volcano

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The recent lava lake activity at Masaya volcano, Nicaragua, provided an ideal and rare moment to investigate dynamic and rapid magmatic processes. A multiparametric and low-cost approach which combined high time resolution gas, thermal, and video of the rapidly convecting lava lake was used. Gas measurements were conducted using DOAS (Differential Optical Absorption Spectroscopy) by traversing beneath the plume and Raspberry Pi ultraviolet (UV) cameras. Temperature measurements of the lake were made using a Raspberry Pi near infrared thermal camera approach. Video footage of the lava lake allowed the determination of the unusually rapid lake velocity, and crucially the generation of activity statistics such as location and frequency of the frequent small (spherical-cap) bubble bursts at the surface. Contemporaneously acquired UV and thermal datasets also allowed the assessment of a detected oscillation in the sulphur dioxide degassing data. By combing all these data streams, the unique fluid dynamics of lava lake activity at this location is highlighted.