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Thermal infrared measurements bridged vent temperature to variation in gas flux and gas concentration, case of Yasur and Dukono

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Magmatic volatiles exit active vents along different styles of emission. Energetic discharges generally commence with a short initial gas thrust phase followed by a dominant phase of buoyant rise until cooling causes the puff to stall and disperse whilst passive degassing is characterized by continuous emission of gas. However, during gas measurements on Yasur (Vanuatu) and Dukono (Indonesia) energetic releases lumped with passive degassing and the fluctuation of gas concentration and emission rate recorded by MultiGAS and UV-Camera cannot distinguish these respective contributions in the plume. Besides, thermal recording, performed in parallel to the latter measurements indicates that changes in vent temperature can be tied to the variation in gas flux and concentration in the plume. Results further suggest that passive degassing on Yasur and Dukono is likely to be sustained by numerous small puffing that subsequently produce the main gas contribution in the plume.