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Characterisation of the magmatic signature in gas emissions from Turrialba Volcano, Costa Rica

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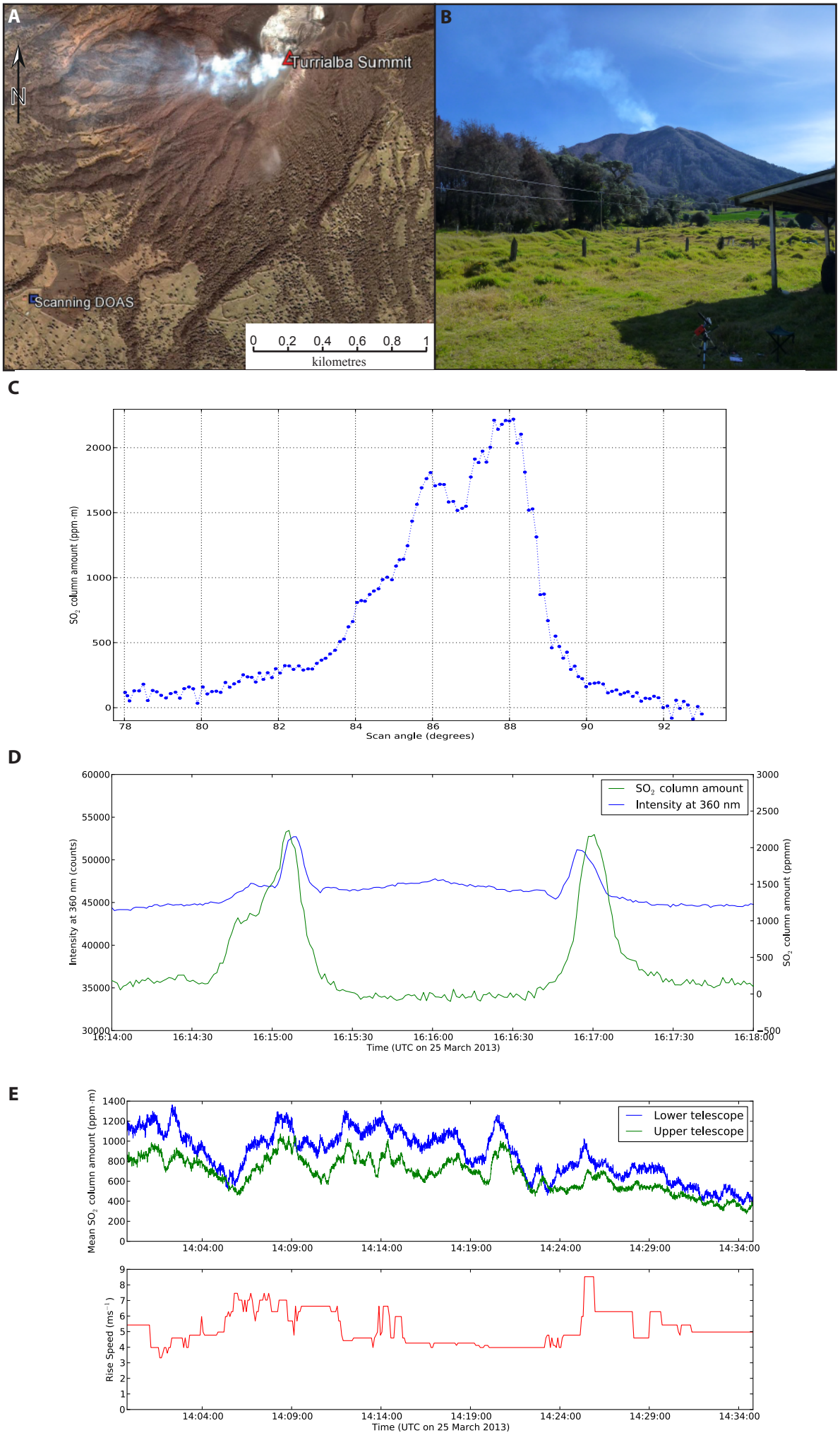

Figure S1 Moussallam et al.,

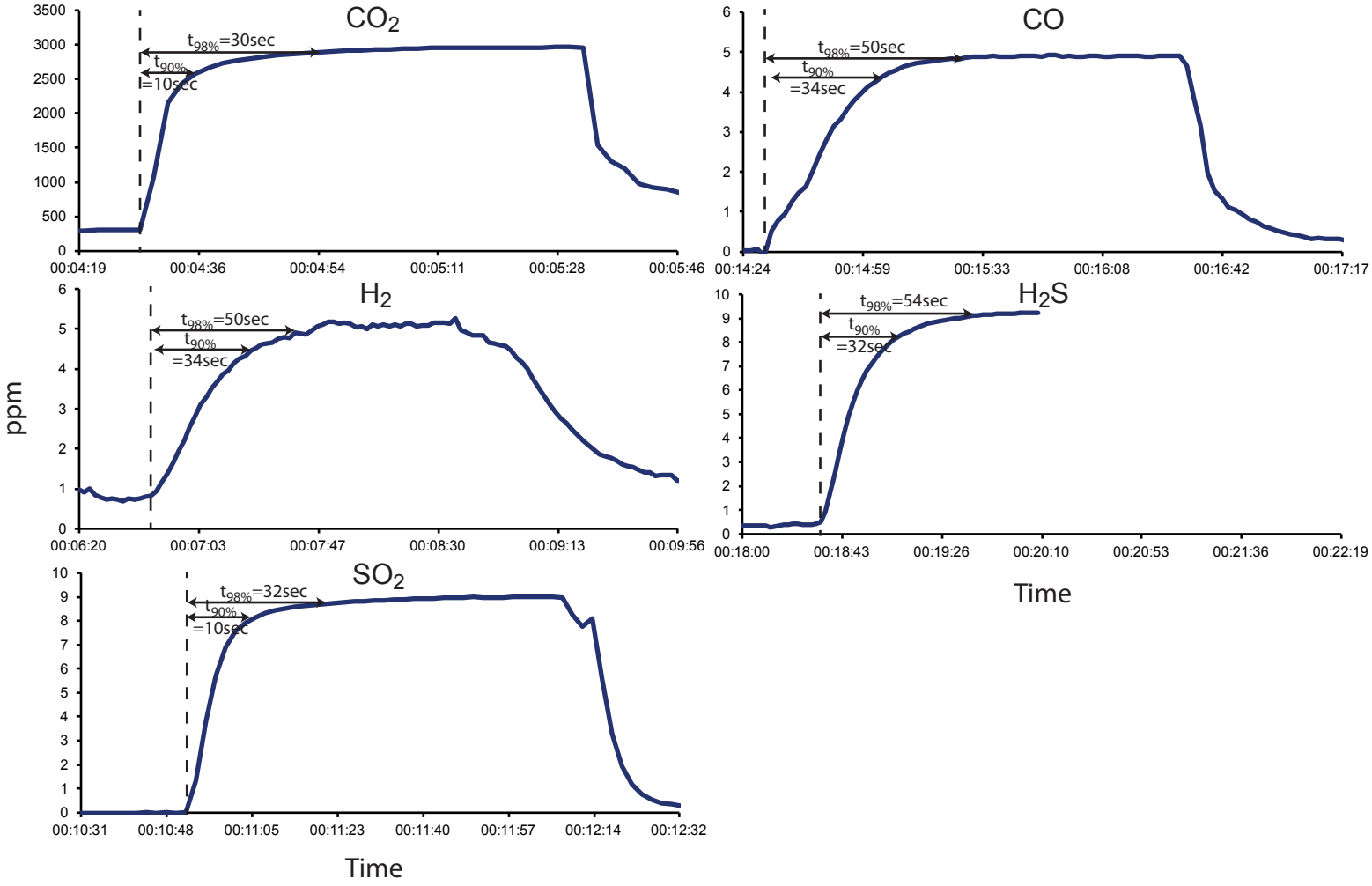

Figure S2 Moussallam et al.,

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Figure S1: **A**. Satellite image showing the location of the scanning DOAS instrument relative to the summit of Turrialba volcano. **B**. Picture of Turrialba summit taken from the scanning cite on 25 March 2013 and representative of the clear sky and transparent plume conditions prevailing during the field period. **C**. Typical horizontal scan across the plume, acquired on 23 March, showing the high scan resolution, typical SO_2 column amounts and that the scan covered the entire plume and included clear-sky backgrounds on each side. **D**. Intensity at 360 nm as a function of scan angle showing that the plume transparency (estimated as the ratio of signals at about 360 nm registered inside and outside the plume) typically varies between 0.9 and 0.8 (0 representing an entirely opaque plume and 1 a totally transparent plume). Corresponding SO_2 column amount are also shown, note the speed at which a typical scan is acquired. **E**. Upper panel: SO_2 column amount from the upper and lower telescope of a dual wide field of view (DW-FOV) spectrometer system showing the high correlation between the two units. Lower panel: rise speed determined by cross correlation of data shown in the upper panel.

Figure S2: Response time of each sensor expressed as $t_{10\%}$ and $t_{2\%}$ corresponding to the time between standard gas injection (vertical dashed line) and a signal reaching 90% and 98% of the plateau value. CO_2 and SO_2 sensors have a response time of $t_{98\%}$ = 30 s while CO, H_2 and H_2S are consistently 20 s delayed in terms of $t_{98\%}$.