

A sampler for atmospheric volatile organic compounds by copter unmanned aerial vehicles

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Supplementary Material

Description of the calibration standard.

The thermal desorption cartridge samples were calibrated using a commercial standard from Apel-Riemer Environmental Inc. on a daily basis. The standard contained isoprene, α -pinene, β -pinene, limonene, myrcene, aromadendrene, methyl vinyl ketone, terpinolene, methacrolein, farnesol, cis-3-hexenyl-acetate, caryophyllene, 3-carene, longifolene, acetaldehyde, methanol, acetone, benzene, toluene, o-xylene, 1,3,5-trimethylbenzene, 1,2,4-trichlorobenzene, 1,3,5-triisopropylbenzene, C₃-C₁₀ alkanes, and C₃-C₆ alkenes.

Table T1. Sampler Components.

Item	Manufacturer	Part number	Specification
Pressure sensor	NXP	MPX4100AP-ND	20 to 105 kPa \pm 1.8% FS
Valve manifold	NResearch Inc.	161T102	5 sample channels
Valve driver board	NResearch Inc.	161D5X24	
Flow sensor	Omron	D6F-P	0 to 1 SLPM \pm 5% FS
Micro Diaphragm pump	Parker Hargraves	E155-11-050	0.1 to 0.6 L min ⁻¹
Needle Valve	Universal Power Conv.	F-2822-51-B85-K-V	
Microcontroller	Arduino	Uno	
Power	DJI Matrice 600	TB48S	18 VDC, 130 Wh, 2.5 Wh used

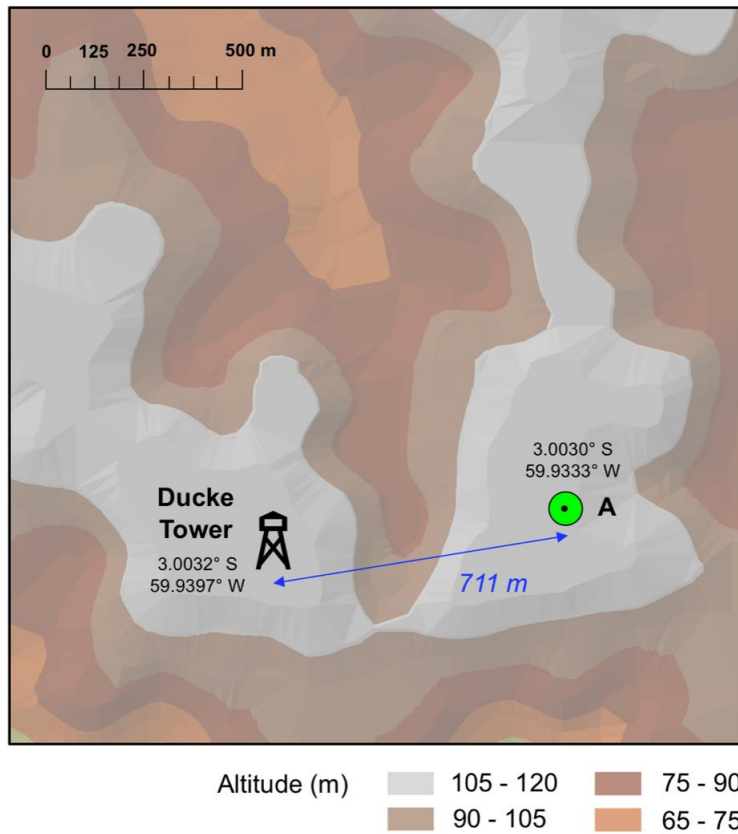


Figure S1. Topographical map of the experimental site. Labels indicate the location of the tower and point A, where samples were taken with the UAV.