

A UAV-based sampling system to analyse greenhouse gases and volatile organic carbons encompassing compound specific stable isotope analysis

Simon Leitner¹, Wendelin Feichtinger², Stefan Mayer², Florian Mayer², Dustin Krompetz³, Rebecca Hood-Nowotny¹, and Andrea Watzinger¹

¹University of Natural Resources and Life Sciences, Vienna, Institute of Soil Research, Tulln, Austria

²Combinnotec GmbH, Alland, Austria

³M3 Consulting Group, LLC, DBA M3 Agriculture Technologies, Phoenix, Arizona, United States

Correspondence to: Simon Leitner (simon.leitner@boku.ac.at)

10 Supplementary Material

Table S1. Technical description of the Hermes V2

Climb Rate	2.5 m/s
Decent Rate	2.0 m/s
Horizontal Velocity	0 - 12 m/s
Max Operating Altitude	Line of Sight
Max Takeoff Mass	12.25 kg
Empty Mass	5.45 kg
Ready to Fly Mass	7.25 kg
Dimensions of Airframe	1500 mm (width) 1500 mm (depth) 635 mm (height)
Est Usable Time Aloft (Zero Payload)	23 Minutes (22 vDC RTL)
Est Usable Time Aloft (Max Payload)	8 Minutes (22 vDC RTL)
Max Wind	37 kph

t-Test of peak area values per injection volume obtained by the analysis via thermal desorption or purge and trap autosampling

- 15 Table S2 Student-t-Test of mean values of injection volume specific peak area values obtained from TD and purge and trap (p&t) measurements for chlorinated ethenes within the liquid calibration standard (SD = standard deviation).

Compound	Peak Area_{mean}	Peak Area_{SD}	Method	p-value
cDCE	2.53	0.04	p&t	1.0
cDCE	2.97	0.34	TD	
PCE	2.29	0.02	p&t	0.3
PCE	2.25	0.27	TD	
TCE	2.48	0.01	p&t	1.0
TCE	2.77	0.34	TD	
tDCE	2.25	0.07	p&t	1.0
tDCE	2.41	0.23	TD	