

## ESR24-021 - Constraining Vienna's carbon footprint

### Zusammenfassung

Cities are hot spots of anthropogenic greenhouse gas (GHG) emissions. Recognizing this, cities across the world, including Vienna, have announced ambitious net zero targets. However, the efficacy of mitigation may be compromised by uncertainties in municipal GHG inventories. Observations and atmospheric modeling can provide powerful solutions to independently monitor progress of urban climate mitigation policy and enhance transparency.

Constraining Vienna's Carbon Footprint (CVCF) will build upon the infrastructure, partnership and findings of the Vienna Urban Carbon Laboratory (VUCL), which established a tall-tower research station measuring CO<sub>2</sub> and CH<sub>4</sub> fluxes, concentrations and stable isotopes in Vienna's city center. In addition to continuing these measurements, CVCF plans to establish a peri-urban observation station in the Vienna Woods and develop a new clumped-isotope method to better distinguish traffic emissions from biogenic sources of CO<sub>2</sub>.

To unlock the full potential of these measurements for quantifying Vienna's CO<sub>2</sub> and CH<sub>4</sub> emissions, CVCF will use atmospheric transport modeling. The project will develop a completely novel isotope-enabled inverse modeling framework that will combine the information contained in the various measurements. The foreseen system will take advantage of both the highly resolved but spatially limited information contained in the flux footprints as well as the less resolved yet spatially more extensive concentration footprints.

Wissenschaftliche Disziplinen:

Atmospheric chemistry (40%) | Environmental physics (40%) | Sustainable urban development (20%)

Keywords:

greenhouse gases flux measurements isotopic measurement transport modelling inverse modelling

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Status: Vertrag in Vorbereitung

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Weiterführende Links zu den beteiligten Personen und zum Projekt finden Sie unter  
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