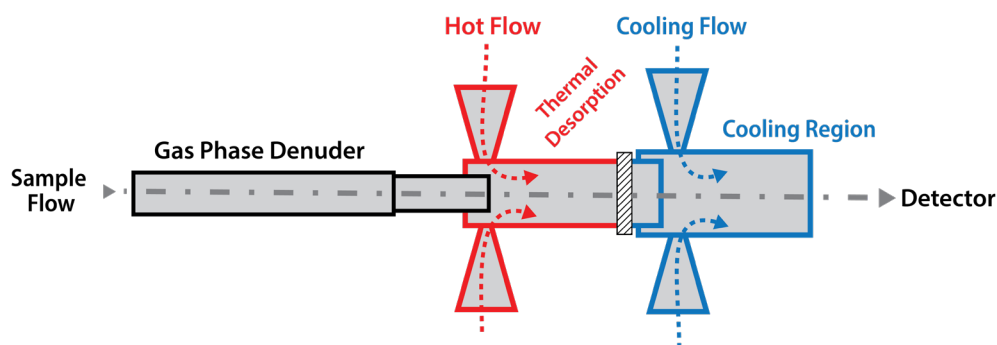


Wall-Free Particle Evaporator (WALL-E)

Online detection and identification of particulate species



Flow Schematic

Applications

Online identification and quantification of particle constituents when coupled with chemical ionization mass spectrometers (CIMS)

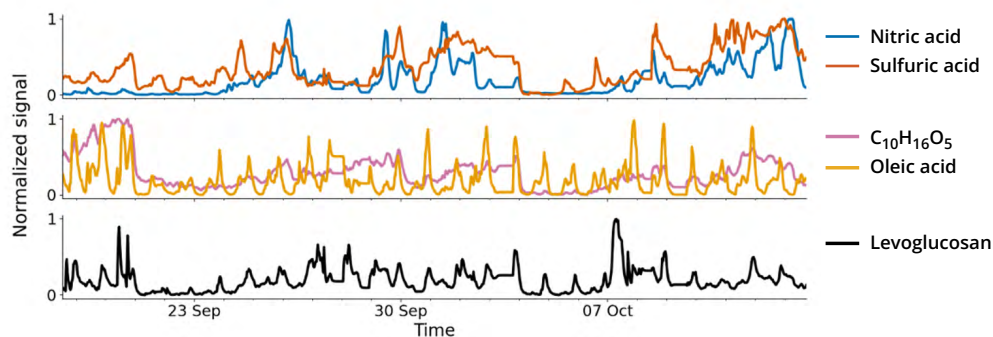
- Measurements of organic and inorganic species in ambient aerosol
- Chemical characterization of aerosol species produced in chamber experiments
- Identification of particulate species for use as signatures of sources and processes
- Detection of extremely low volatility organic species such as highly oxidized monomers and dimers

Advantages

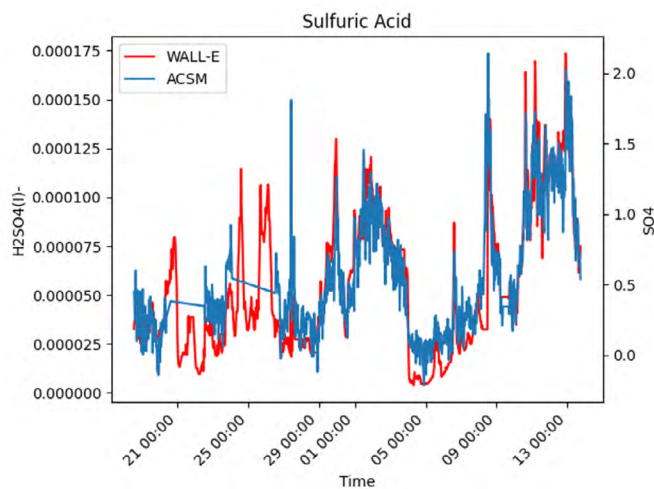
- Ability to evaporate particles while maintaining the molecular integrity of the compounds in the particles
- Minimal thermal decomposition
- Interfaces easily with Aerodyne's Vocus Mass Spectrometers (Vocus Flex and Vocus B)
- Can be used with multiple Vocus reactors (PTR, Aim, Nitrate), targeting detection of a wide range of species
- Online sampling with high time resolution
- Sub ng m⁻³ detection limit for individual species
- Programmable desorption temperatures

Wall-Free Particle Evaporator (WALL-E)

Sample Wall-E Performance Data



*Wall-E paired with Vocus B:
Ambient data acquired in Paris
(MONALISA Campaign, 2025)*



*Wall-E comparison of Iodide CIMS with
co-located ACSM for sulfate speciation*

REFERENCES

Gao, L., et al. (2025), *Atmos. Meas. Tech.*, doi: 10.5194/amt-18-5087-2025.



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WALL-E