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Future NF: Taunus Observatory Status of gas-phase in-situ measurements

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Site overview

Mt. Kleiner Feldberg, 825 m a.s.l., 20 km NW of Frankfurt

In-situ aerosol and trace gas measurements



Site overview

Continental background, agricultural, and urban influence; often within clouds

Main focuses:

New particle formation, role of ammonia

Halogenated hydrocarbons



Instrument overview

Name of instrument	Measured parameters	Mandatory/ additional	Status
GC-MS Medusa	NMHCs	Mandatory	Measuring at TO
Humidity sensor	H ₂ O (RH)	Mandatory	To be installed
Chemiluminiscence detector + photolytic converter	NO, NO ₂ , NO _x	Mandatory	Characterisation in lab
UV absorption photometer	O ₃	Mandatory	Characterisation in lab
PTR-MS VOCUS	Volatile organic compounds	Mandatory	Ordered

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PTR-MS VOCUS	Volatile organic compounds	Mandatory	Ordered
Cavity Ring-Down Spectrometer Picarro	CO	Additional	Measuring at TO
CI-API-TOF-MS	Condensable vapours (H ₂ SO ₄ , MSA, OOMs etc.)	Additional	Measuring at TO
Ion chromatograph MARGA	NH ₃ , HCl, HONO, HNO ₃ , SO ₂ , aerosol chemical composition	Additional	Measuring at TO (with issues)
Fluorescence monitor	SO ₂	Additional	Characterisation in lab
IR absorption spectrometer TILDAS	NH ₃	Non- ACTRIS	Characterisation in lab

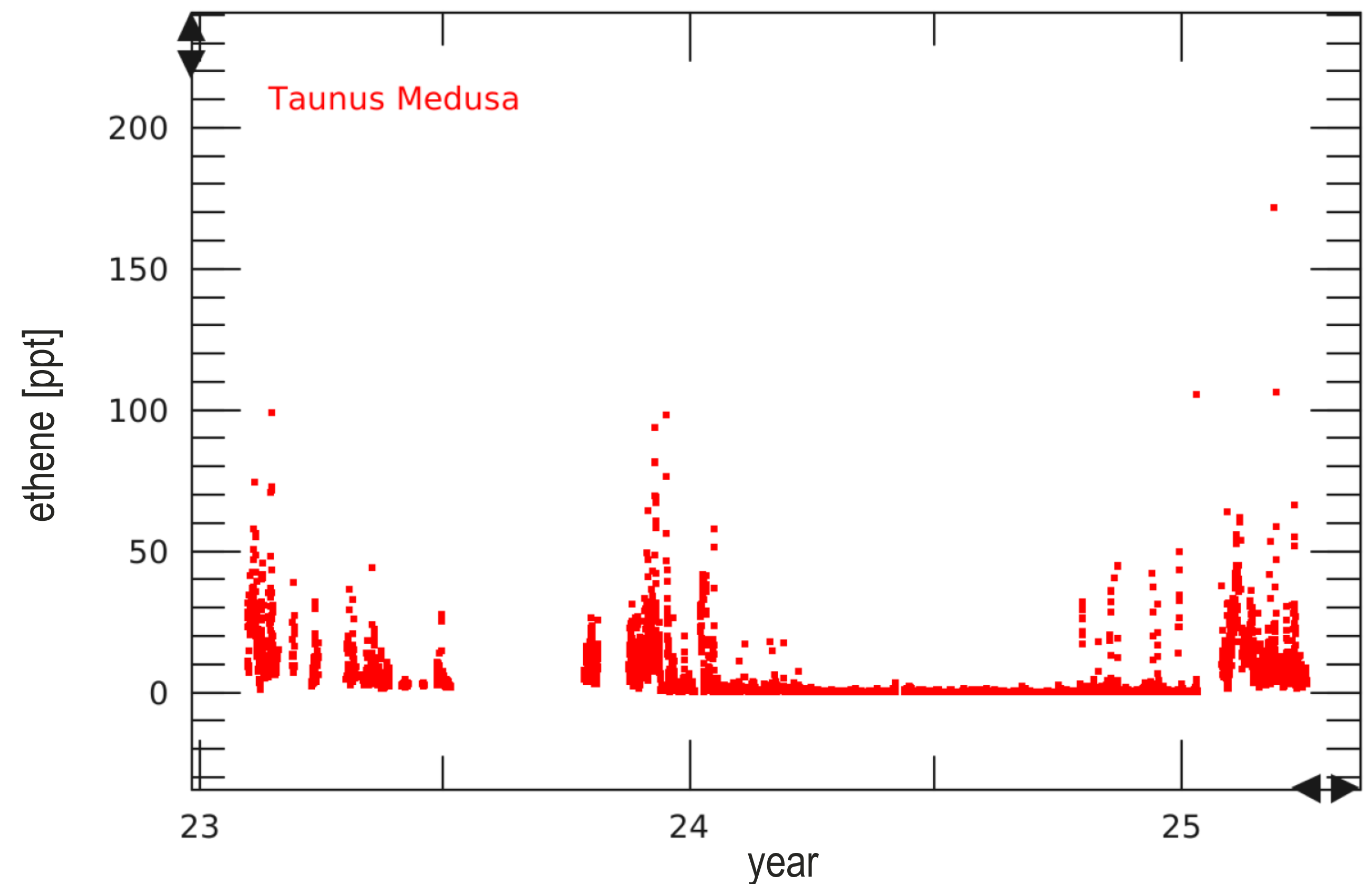
Start of labelling planned for winter 2025/26

First results

GC-MS Medusa: continuous measurement since 02/2023

calibrated species (working standard calibrated yearly against NPL standard):

ethyne, ethene, ethane, i-butane, n-butane,
propane, i-pentane, n-pentane, toluene, propene



First results

CI-API-TOF-MS: continuous measurement since autumn 2024

- Participation in intercomparison campaign in Hyytiälä 2024
- On-site calibrations to be realized
- Inorganic acids, Oxygenated Organic Molecules (OOMs)

