Zeppelin observatory, Ny-Ålesund, Svalbard

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ICOS INTEGRATED CARBON OBSERVATION SYSTEM
AGAGE
ACTRiS
GAW
emep
nilu

VOC measurements at Zeppelin Observatory

Zeppelin Medusa-GCMS next to ICOS flask sampler

- **Medusa-GCMS:**
  - Automated preconcentration unit with Nafion dryer followed by a GCMS
  - GCWerks software
  - 2L air sample every second hour
- **Calibration scales**: AGAGE (Ethane, Propane, Benzene, Toluene)

  NPL (n-Butane, n-Pentane)
- **Standards/blank/labair**

  Working standard (quaternary) every second run

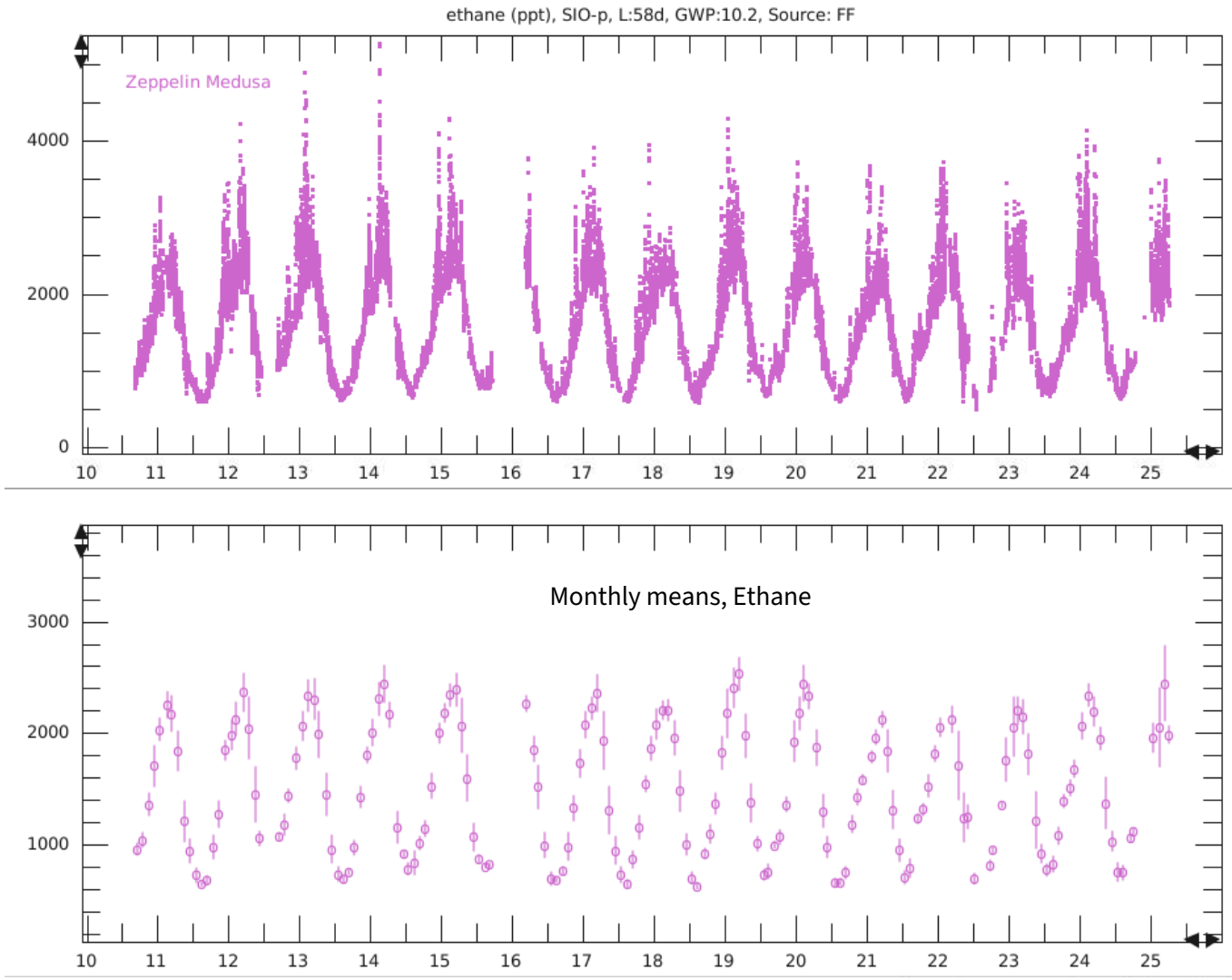
  Reference standard (tertiary) once a week

  Blank and labair run once a week
- **Sample inlet**: 15m above station level, heated stainless steel sampling line, high flow with residence time from inlet head to instrument inlet: 10-15 s

nilu

VOC time series from Zeppelin

- Medusa-GCMS: 2010 – present
- All data submitted to ebas
- Re-submission of the whole data set in 21. March 2025
- A new NPL VOC standard in 2024. Correction of the whole n-butane, n-pentane record.

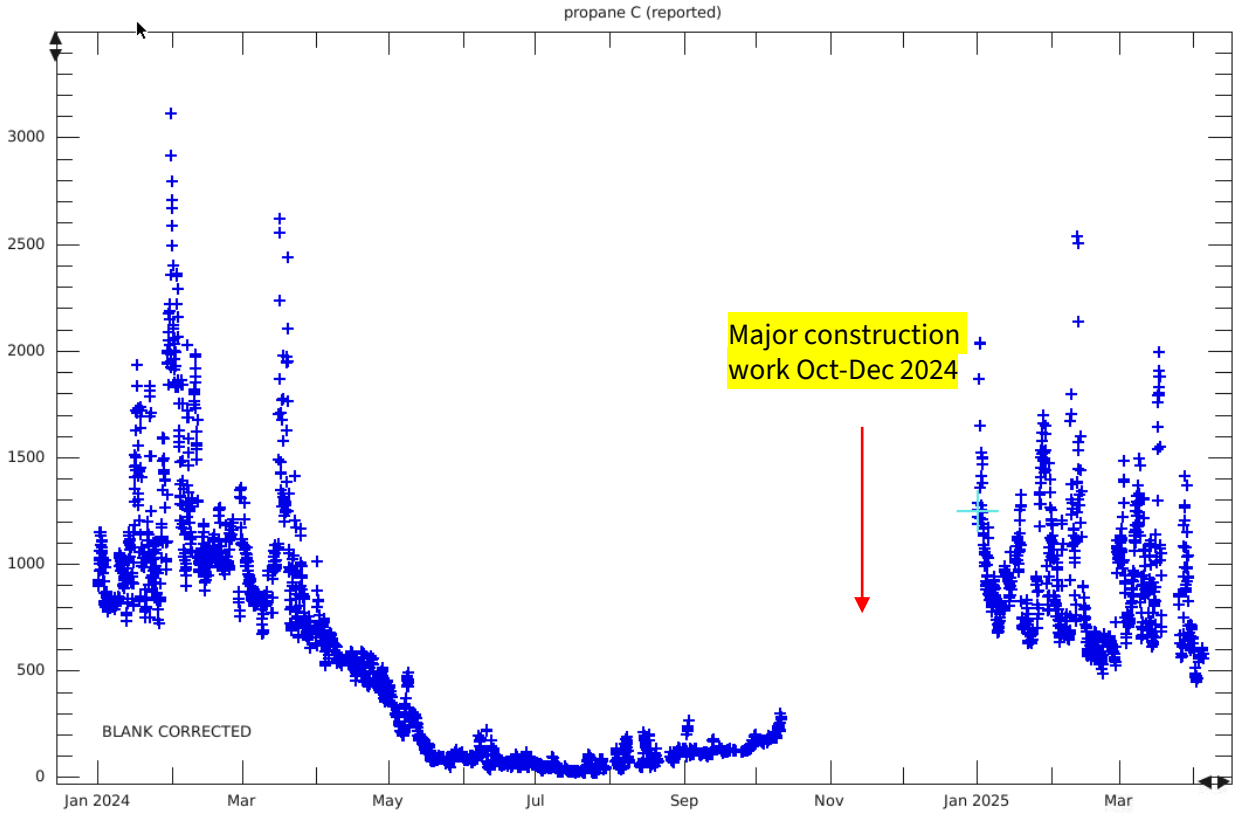


New NPL VOC standard and major gap in measurements

Old NPL (2012) vs New NPL (2024)

	% increase in NPL 2012
Ethane	1,1
Propane	0,8
i-Butane	0,6
n-Butane	5,8
i-Pentane	1,8
n-Pentane	6,7
Benzene	4,1
Toluene	11,4

Stop due to construction work from October 2024



Ethane - High events – gas leaks from Russia