

ACTRIS NMHC measurements by FMI

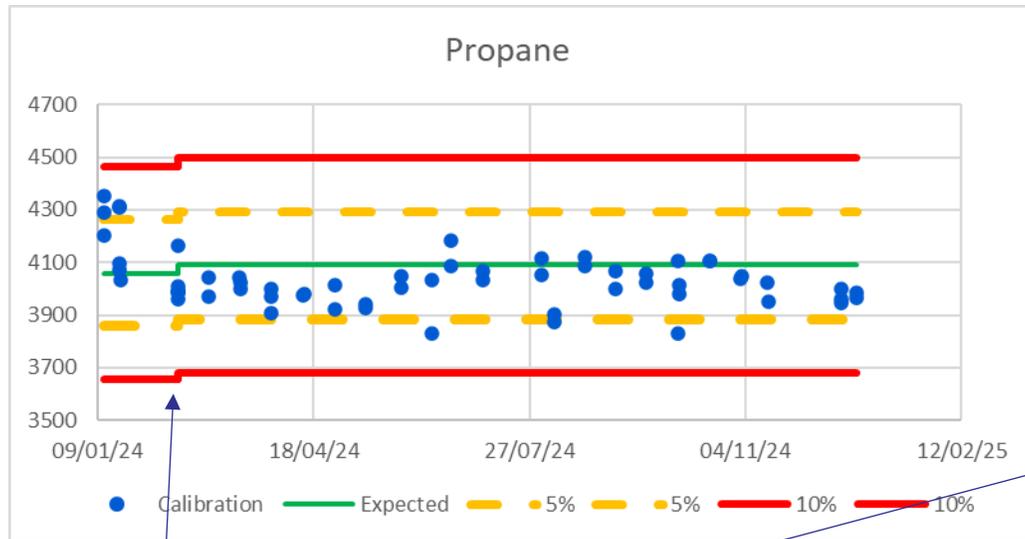
Pallas, Sammaltunturi

- Sub-Arctic station (565m a.s.l.)
- C₂-C₉ hydrocarbons
- In situ gas chromatographic measurements (TD-GC-FID/FID on top of the Sammaltunturi since 2010)
- Canister sampling and offline analysis in 1994-2011

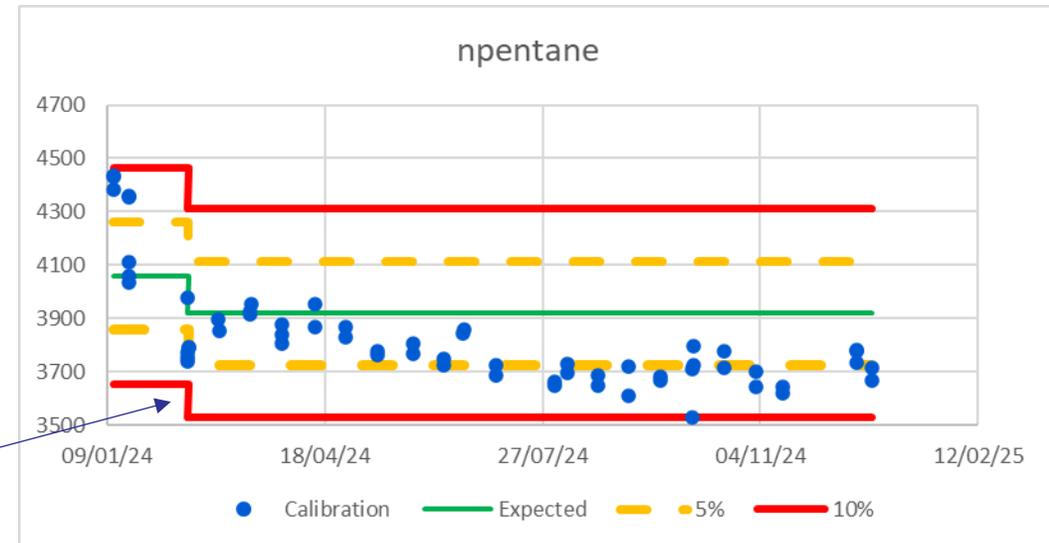
Continuous terpene measurements have started with an TD-GC-MS (Perkin Elmer)



Calibration cards for NPL standard gas (D156916)



New NPL cylinder

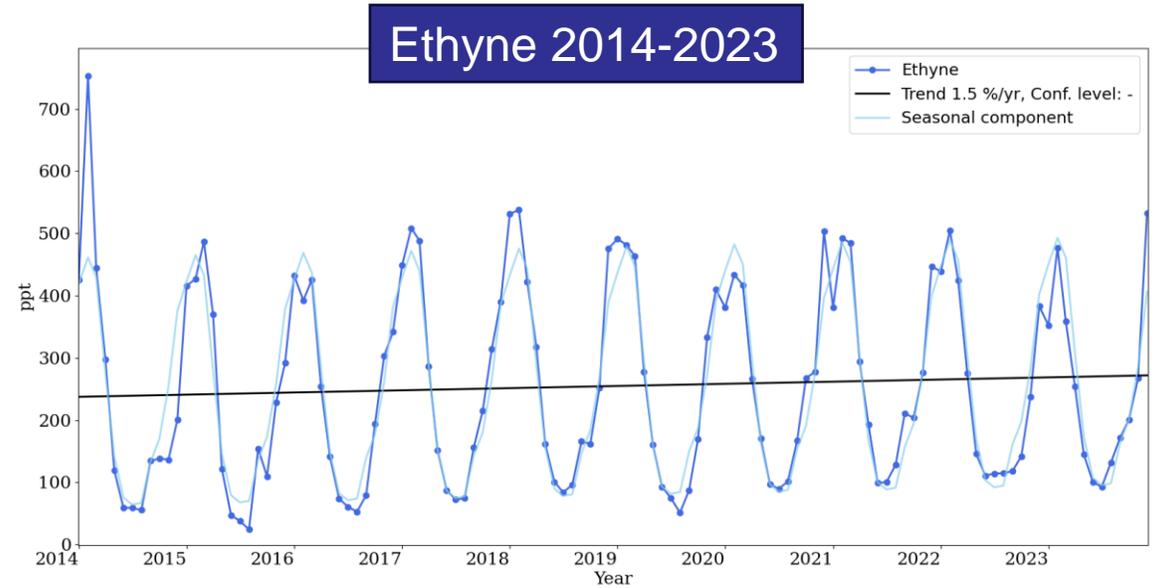
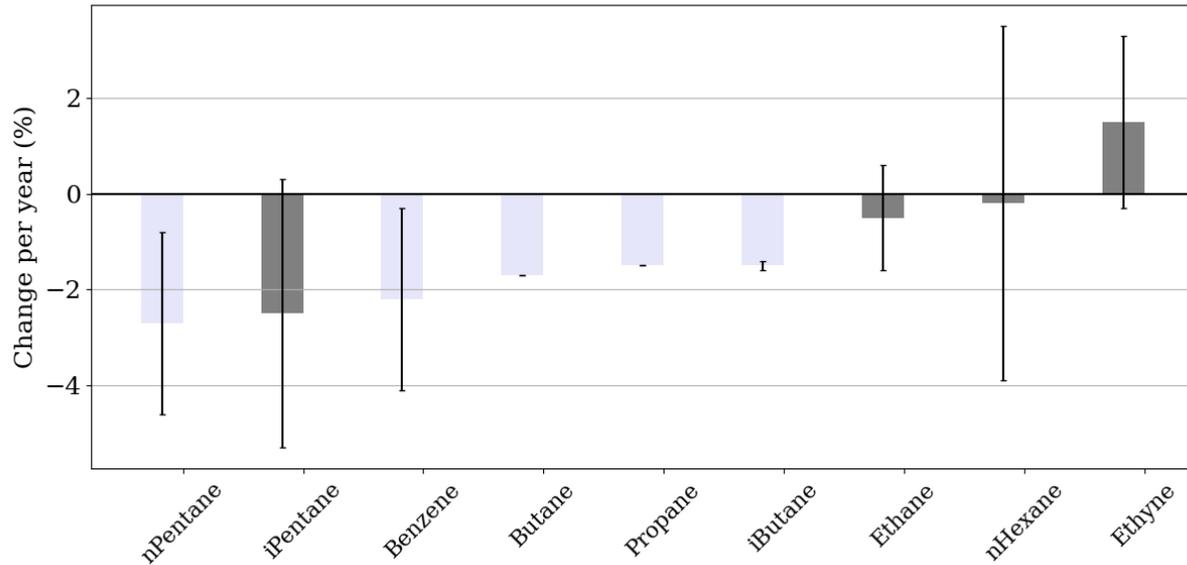


- Decreasing response for the pentanes and other (unreported) higher NMHCs

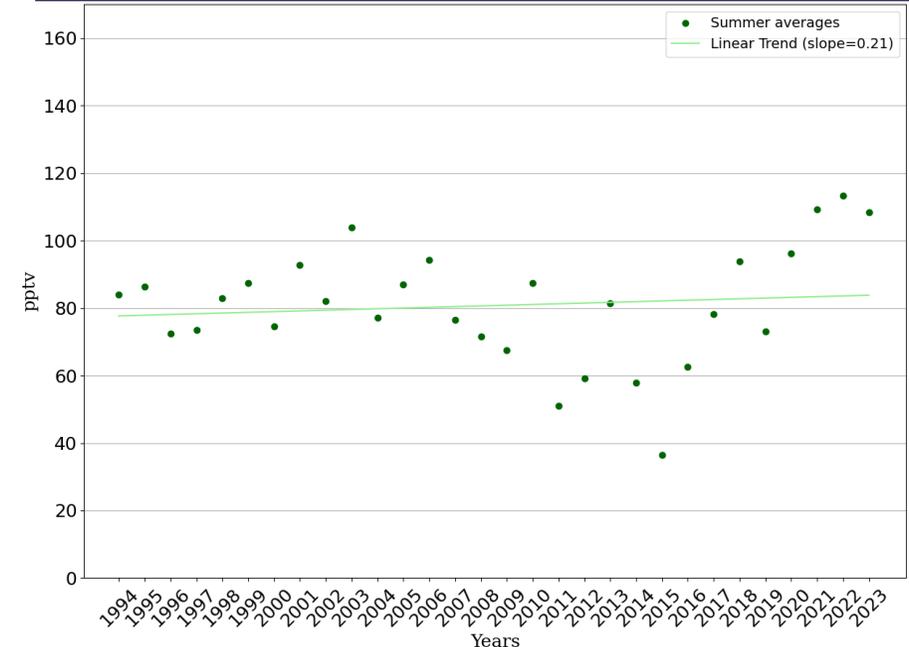


Trends in 2014-2023

- For most of the VOCs, the calculated trends were still steadily decreasing
- Indicative increasing trend for 2014-2023 was found for ethyne
- More detailed analysis revealed that the summer concentrations of ethyne have started to increase
 - Maybe seen also for ethane and propane in summer
 - Yamal oil and gas field by the Kara Sea was started in Russia in 2015



Ethyne summer averages in 1994-2023



Continuous terpenoids measurements at Pallas

- TD-GC-MS (PerkinElmer)
- Preliminary results from the first summer measurements
- Station located on top of the fjäll
 - Surrounding vegetation: subarctic heat, mountain birches
 - Large forest areas surrounding the fjäll

