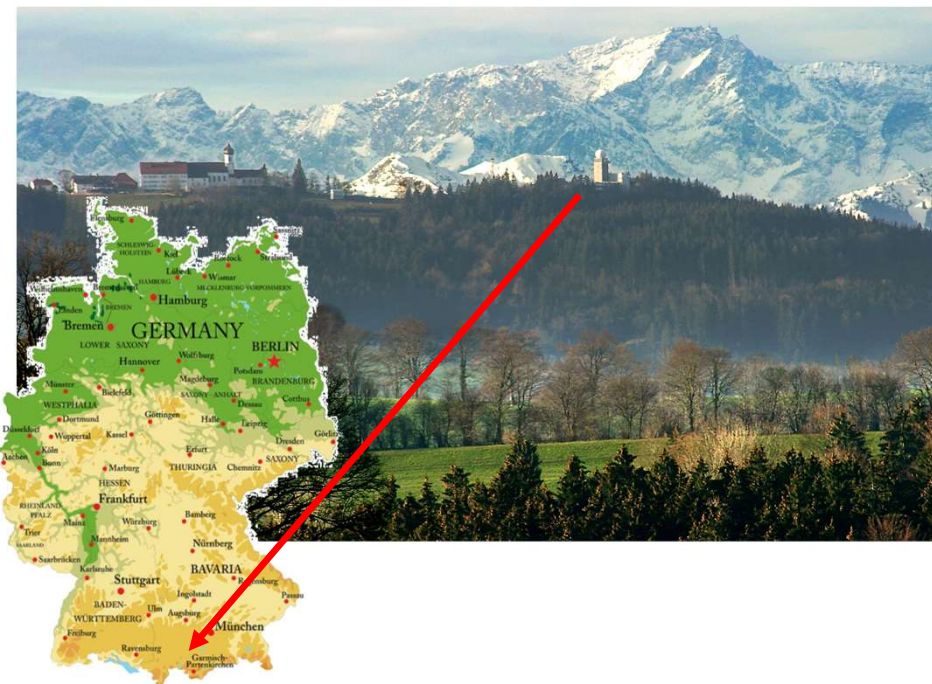


Harmonized Flagging @ Hohenpeissenberg?

Anja Claude, Robert Holla, Felix Klein, and Dagmar Kubistin
Meteorological Observatory Hohenpeissenberg, DWD, Germany

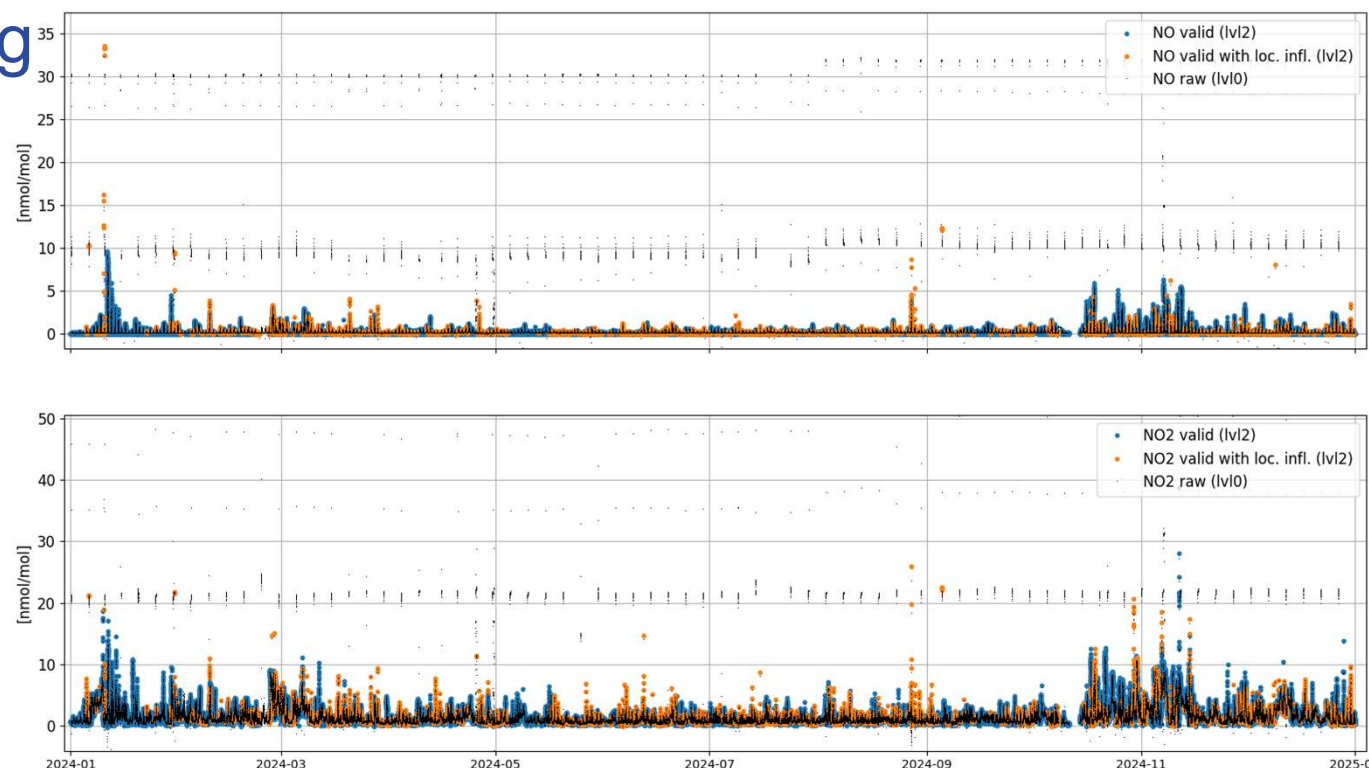
The Meteorological Observatory Hohenpeißenberg

- ➔ Rural background station
- ➔ GAW global station (since 1995)
- ➔ ICOS station (since 2015)
- ➔ ACTRIS NF and CF (since 2023)
- ➔ Measurement program
 - ➔ Trace gases in situ/remote sensing
 - ➔ Aerosol in situ/remote sensing
 - ➔ Ozone in situ/remote sensing
 - ➔ Meteorology



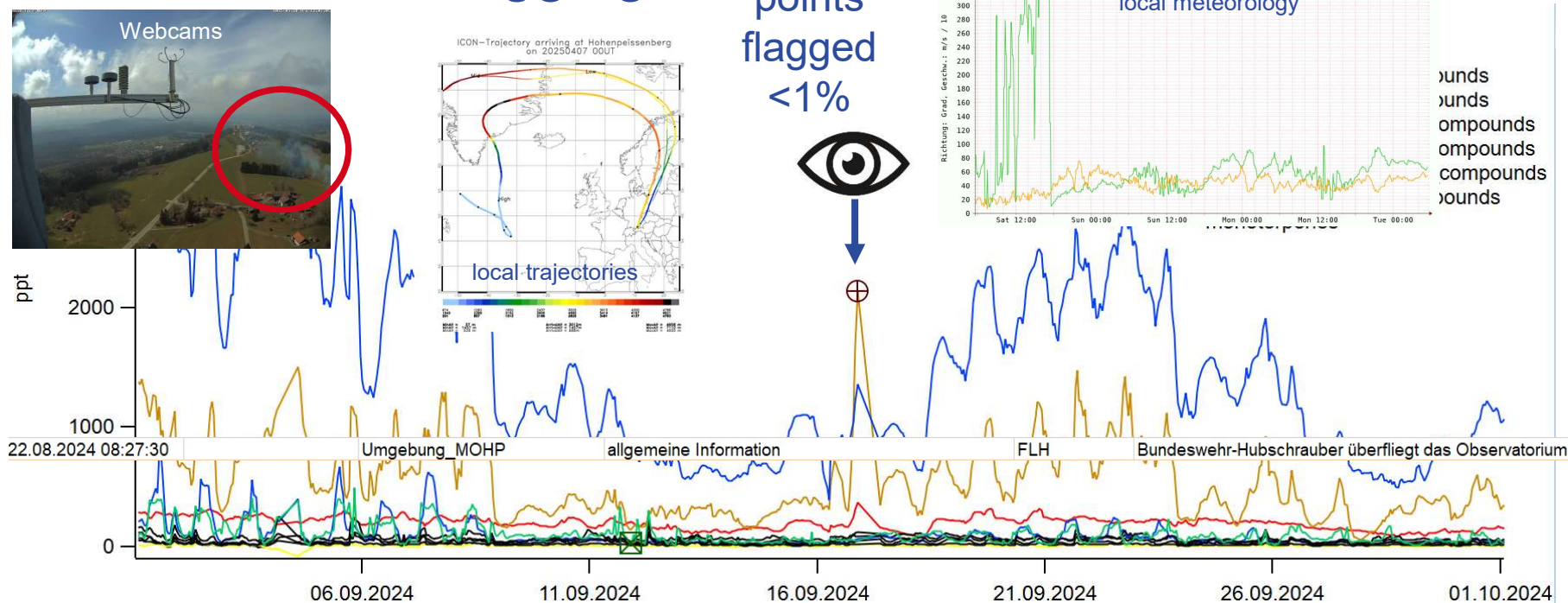
NO_x flagging

- criteria for „flag 559“ were presented during ACTRIS CiGas Flagging workshop on 24.01.2025
- ~1100 single periods
- 3.7% of valid data is „Unspecified contamination or local influence, but considered valid“ (559)
- coverage valid data per year 95% (CLD1 only)

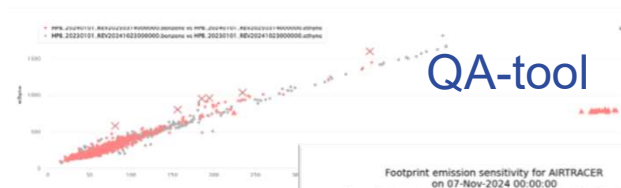


PTR-TOF-MS flagging

68 Data
points
flagged
<1%



NMHC (GC) flagging

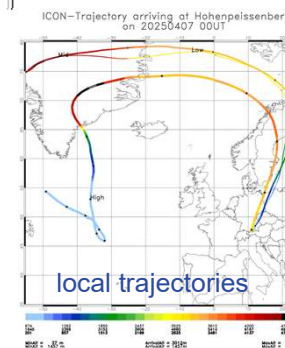
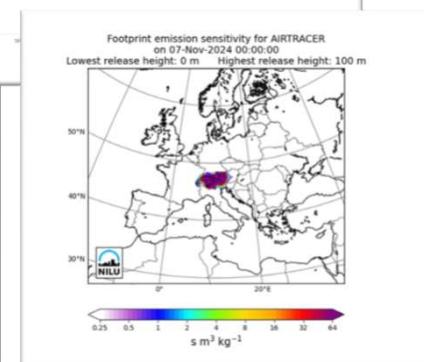
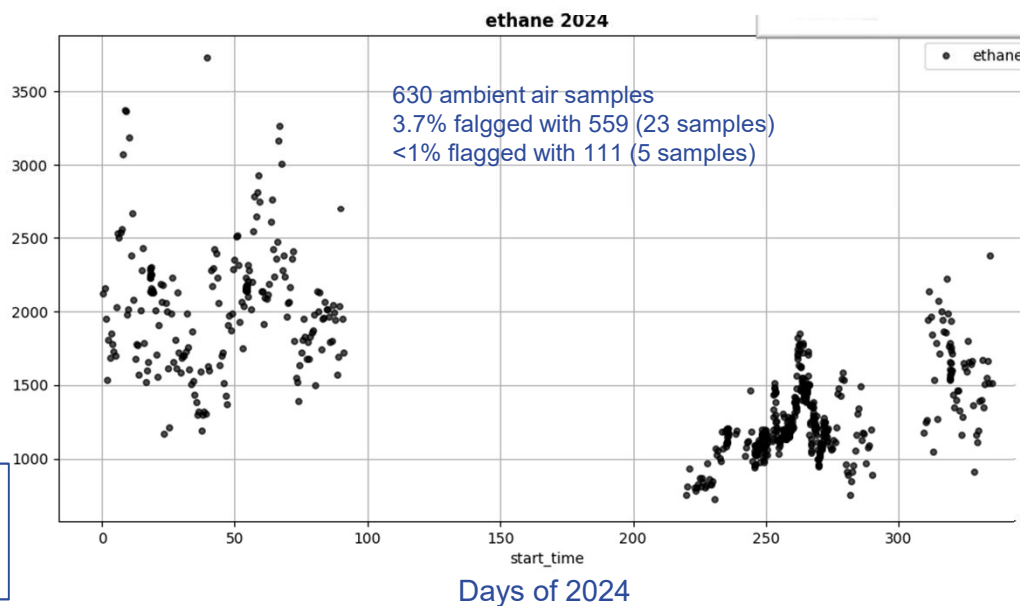


QA-tool

log books

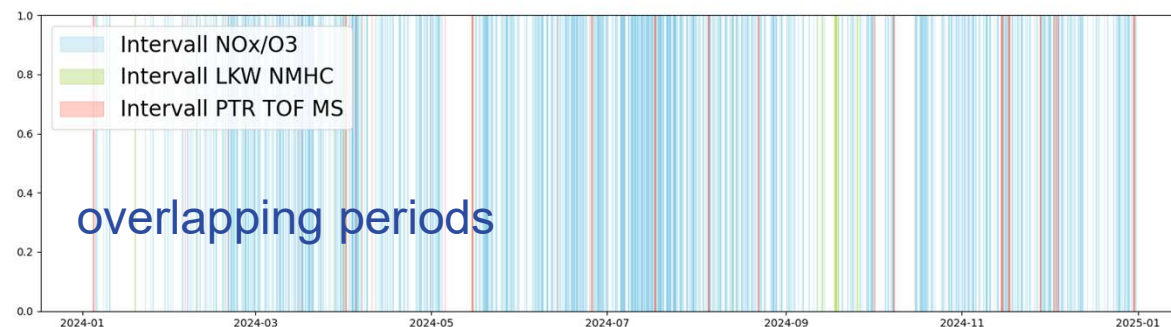
local meteo

Parallel
measurements



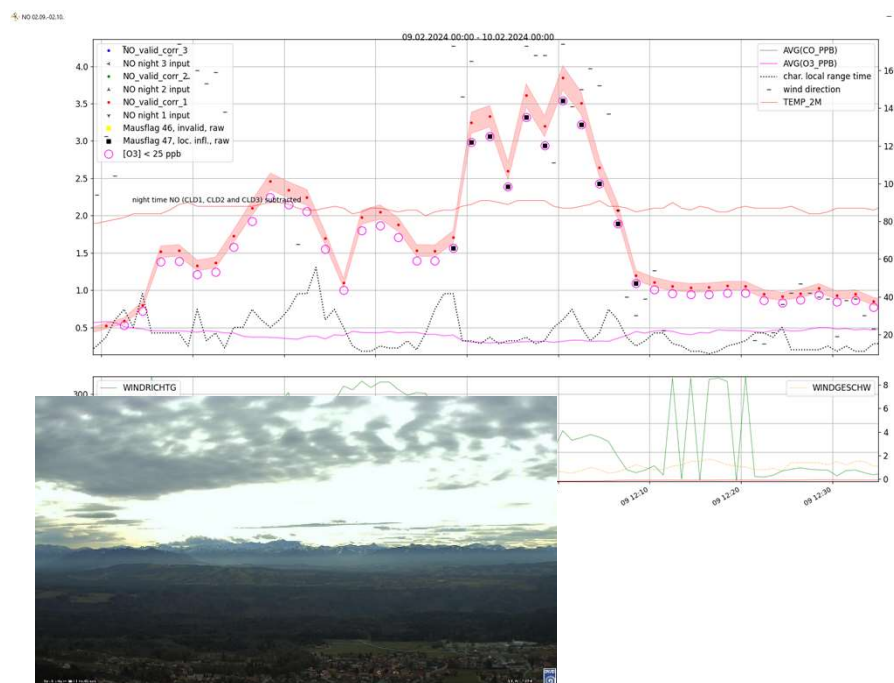
Combined flags NO_x & NMHC (GC) & VOC (PTR)

2024 – flag 559

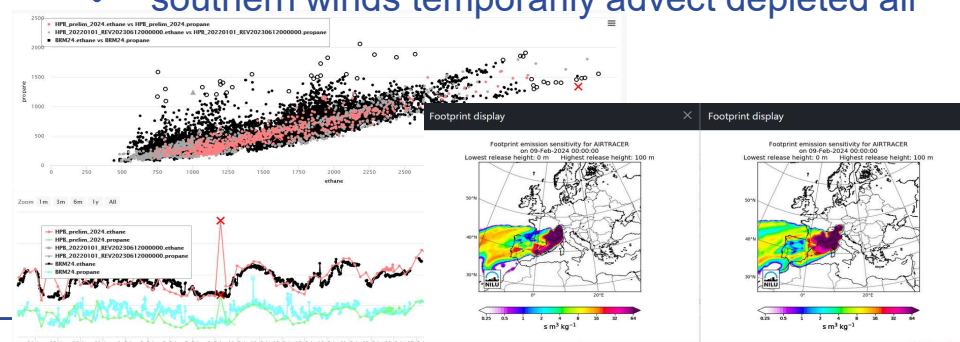


- found 14 overlapping periods in total
- average length of periods is 25 minutes
- total time of overlapping periods for 2024 is 6 hours ($\triangleq 1.4\%$ of total 559 periods)
- **no „559“ overlaps of PTR/VOC**
- **1 „559“ overlap of NO_x/VOC (09.02.)**
- **13 „559“ overlaps of PTR/NO_x**

Example „matching flag“



- VOC/NO_x matching
- NO_x flag derived from peak signature
- Ethane (and other substances) very high compared to BRM, local wind speed <1m/s from S
- reduced ozone < 25 ppb
- haze layer visible in southern direction
- southern winds temporarily advect depleted air

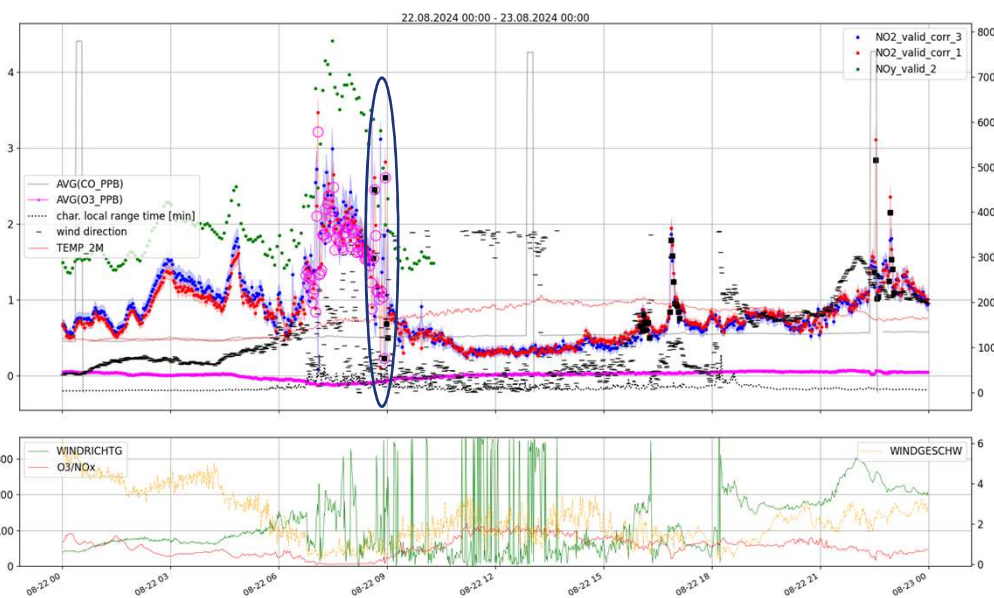


08.04.2025

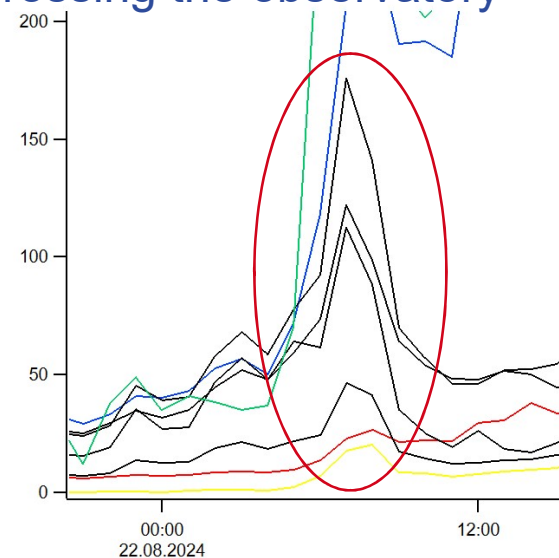
ACTRIS CiGas Data Workshop 2025

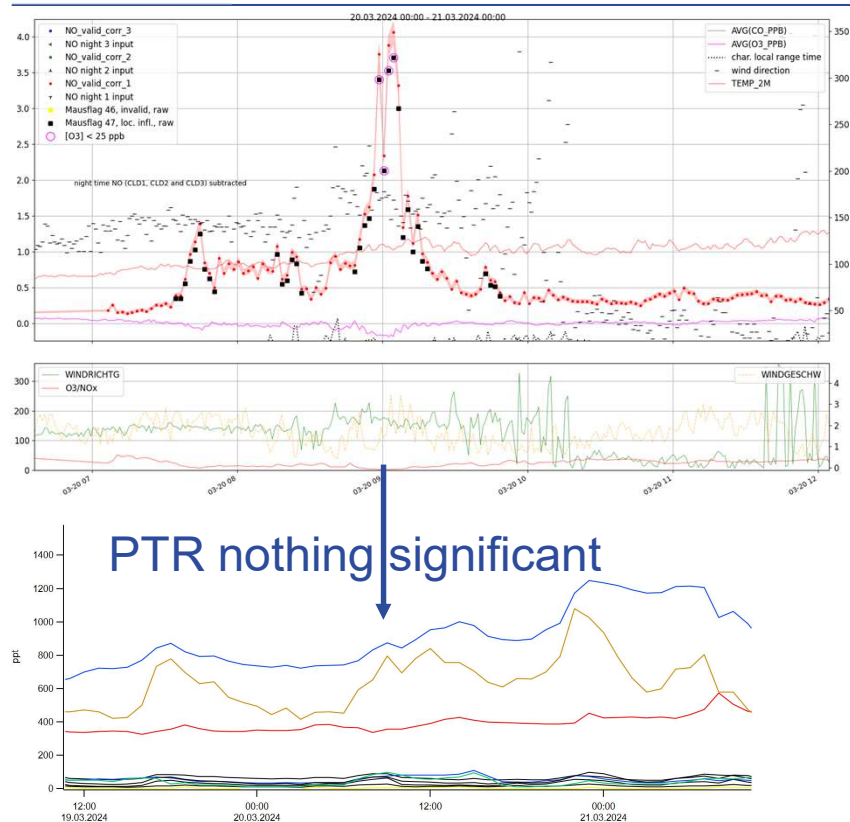
7

Example „matching flag“

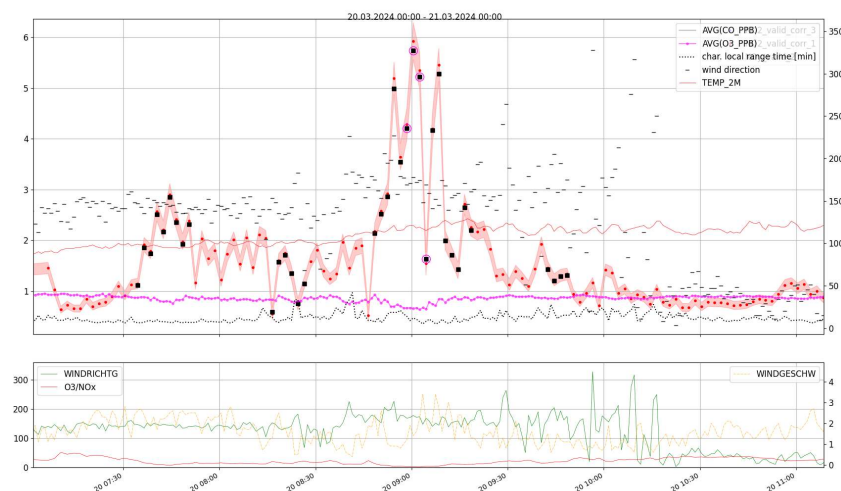


- PTR/NO_x matching (NMHCs – no sample)
- military helicopter crossing the observatory





Example „no match“



- 20.03.: 4 ppb NO, 6 ppb NO₂
- Ozone depleted below 25 ppb
- no VOC sample, no PTR flag

Outlook and discussion

Results of comparison:

no overlaps of all three instruments – 14 overlaps in total

one major issue: time resolution/finite integration times reduce number of potential overlaps

Still to include the flags from in situ aerosol data & and updated NMHC data & try different way of flagging

Harmonize flags at the station – pro and cons?

Shared work, hamonized data set regarding the flags

do we change the statistics of a data set by taking over flag periods from other components?

- causal relation between components (chemical, physical) or independent quantities
- consider sensitivity of annual statistics to taking 559 into account or not

revise flags of previous years to keep a harmonized data set?

What do we (data provider) need / what do users need?

What does ACTRIS need/want to provide for the user?