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Institute of Environmental Protection
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TFMM - progress in the 2024-25 workplan

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29/02/2024, EMEP SB/WGE Extended Bureaux

Work plan items



1.1.1.1 Contribution of VOCs during high ozone pollution episodes

1.1.1.3 Aerosol chemical speciation in different models

1.1.1.4 Representation of intermediate and semi-volatile condensable emissions

1.1.1.8 Finalise the Eurodelta-BaP model intercomparison. Assessment of the BaP related health effects

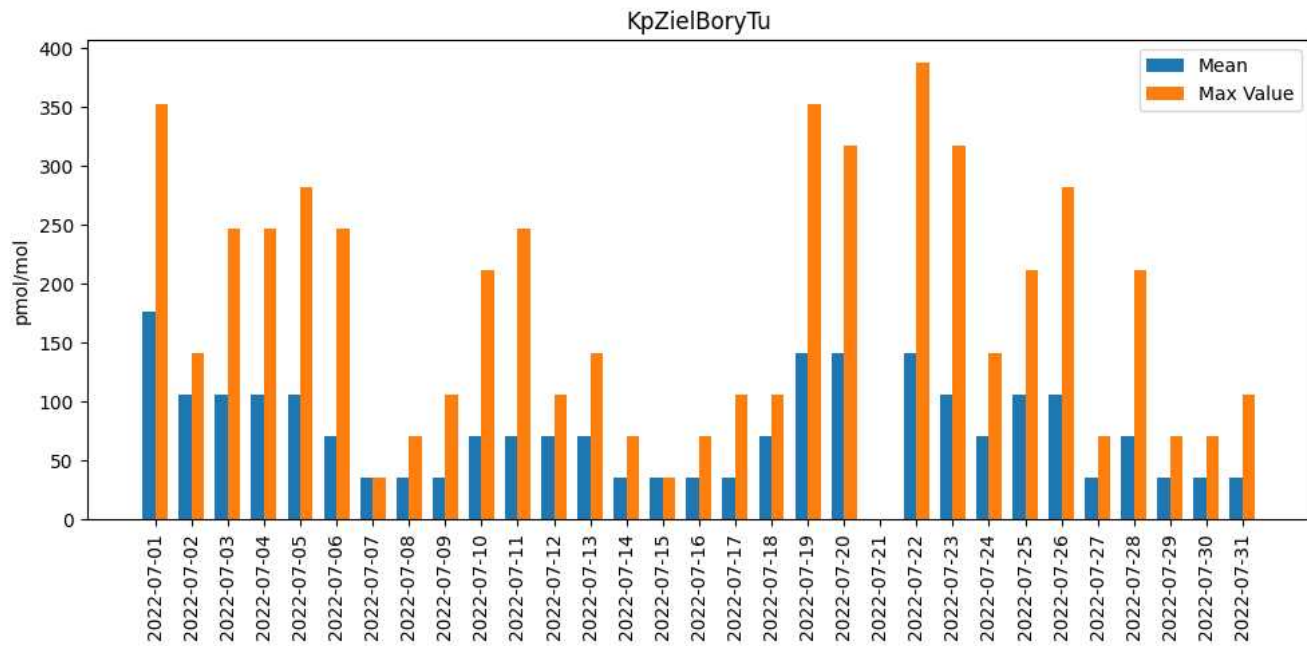
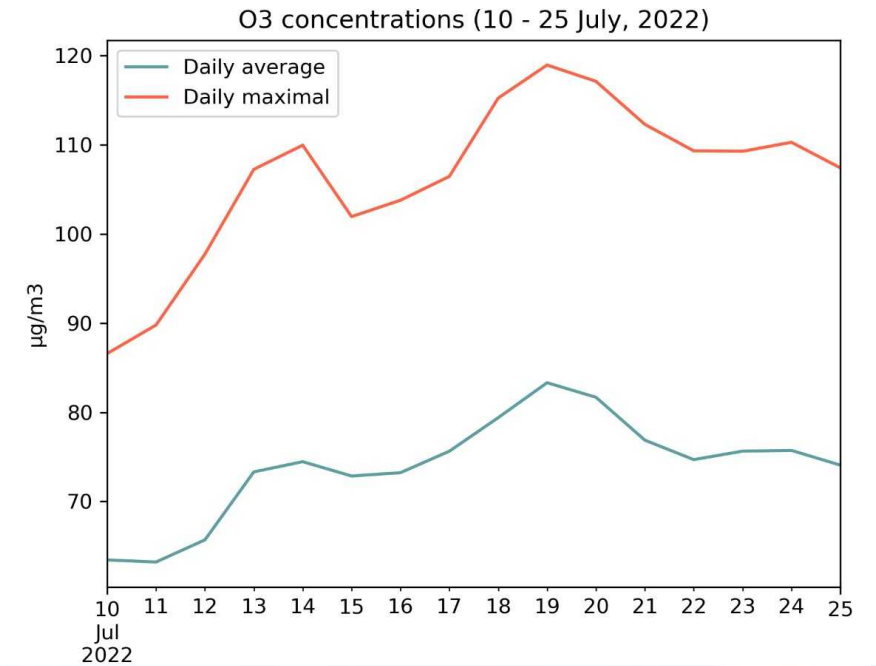
1.3.5 Low-Cost Sensor review of WMO report

1.1.1.2 Chemicals of emerging concern

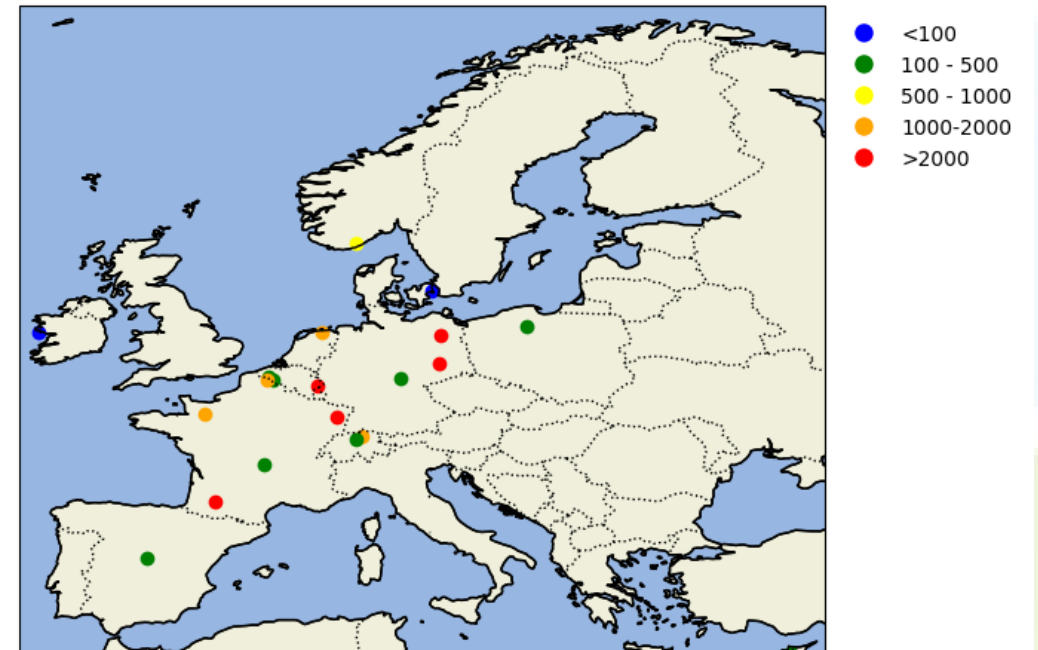


Preparation for modelling exercise

- 1) Analysis of O3 observations (two episodes)
- 2) Analysis of other available VOC observations from Airbase
- 3) Availability of biogenic emissions
- 4) Questionnaire on O3 related aspects

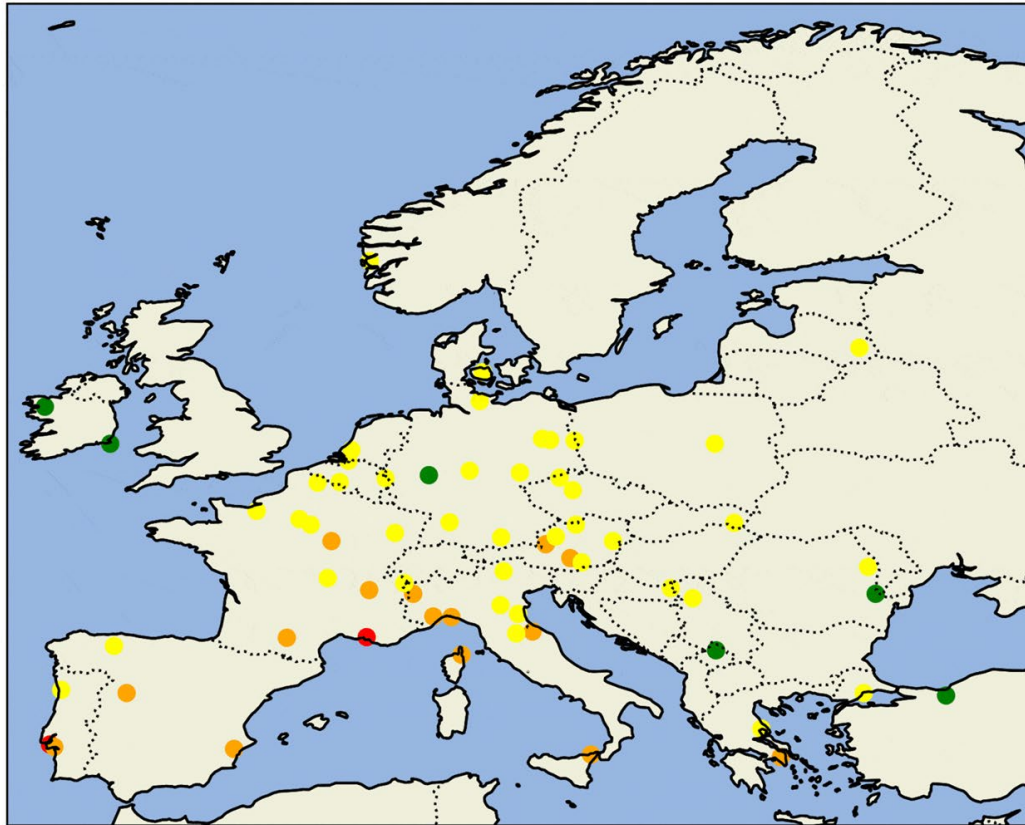


Isoprene concentrations (mean value) [pmol/mol] on 19 July, 2022

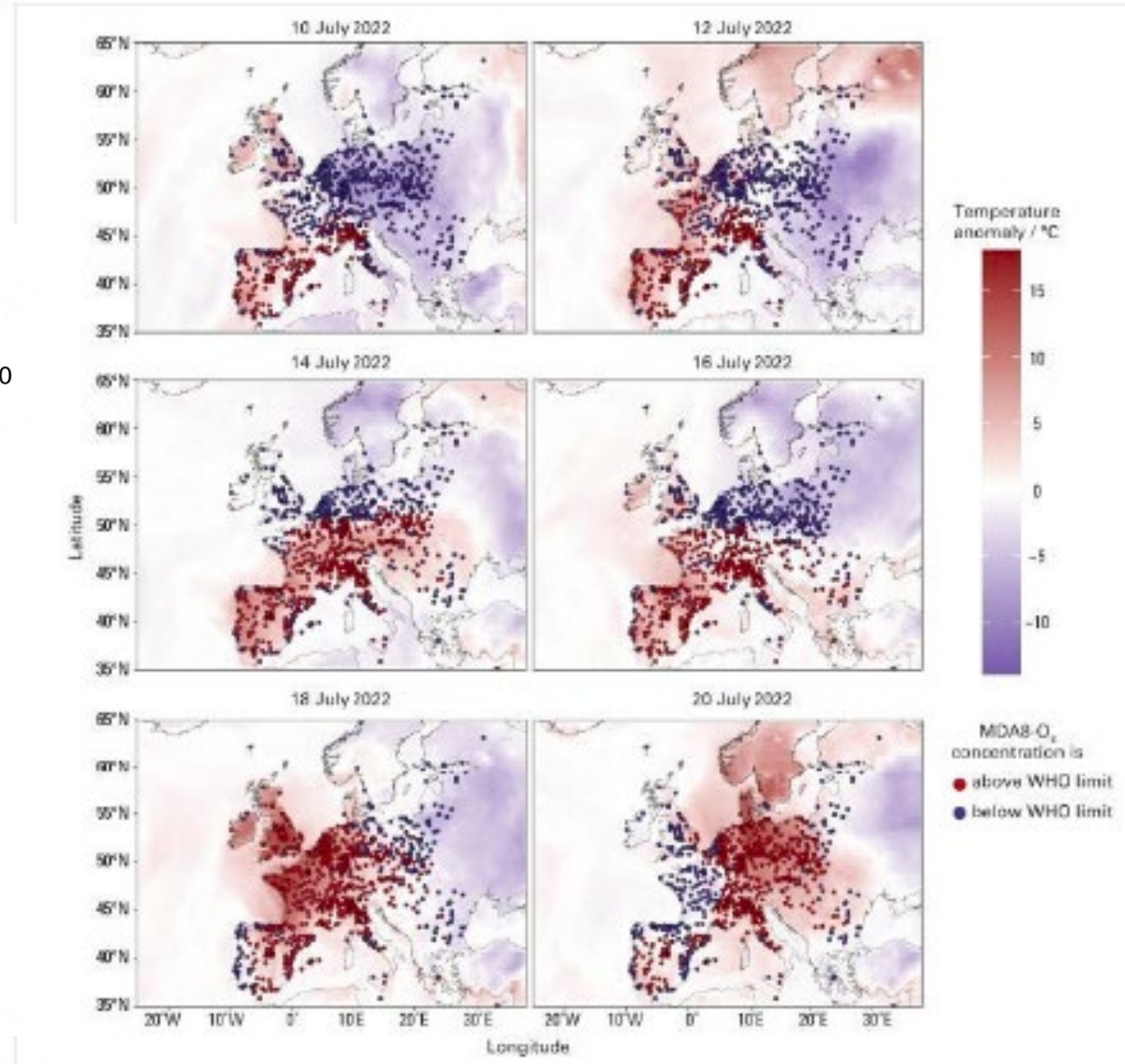


WMO Bulletin no. 3 (September 2023)

O₃ daily average concentrations [$\mu\text{g}/\text{m}^3$] on 10 July, 2022



- <40
- 40 - 70
- 70 - 100
- >100



Eurodelta BaP publication (Ciemat)



Analysis complete:

- Air concentration intercomparison and evaluation: GLEMOS, CHIMERE, MINNI, SILAM
- Gas/particle ratios: GLEMOS, CHIMERE, MINNI (almost all particle), SILAM (only gas)
- Deposition intercomparison: total, dry , wet: GLEMOS, CHIMERE
- Precipitation intercomparison: GLEMOS, CHIMERE

Conclusions for the moment:

- Significant differences between models, in terms of **total BaP** and **gas/particle ratio**.
- For the two models with **deposition data, large differences between models**;
- Future measurement needs: wet deposition and gas&particle measurements.

LCS - WMO report



- The current version of the WMO Low-Cost Sensor (LCS) Report (under preparation) summarises some of the key conclusions of the 2020 report before expanding on previous reports and discussing the use of LCS at a network level and the use of LCS data along with other information sources to analyse air quality.
- Lead by Carl Malings (NASA) with the contribution of more than 120 experts and stakeholders from public and private sectors.
- Expected publication early May 2024

Chemicals of Emerging Concern



Towards a harmonized approach for atmospheric monitoring of Chemicals of Emerging Concern (CECs)

8-10 November 2023 at NILU, Kjeller, Norway.

The overall aim of this workshop was to recommend approaches for sampling and analysis of CECs to support the needs of EMEP and harmonized with other regional and global monitoring programmes. Experts shared experiences of measuring CEC, the current scientific knowledge and gaps. Challenges and recommendations regarding various aspect in the sampling chain and in the analysis was discussed.

- [Agenda](#)

Presentations on national and regional experiences:

https://projects.nilu.no/ccc/tfmm/kjeller_2023/index.html

Science questions for the 2024-2025 period (1)



- 1) How biogenic and anthropogenic VOCs contribute to ozone formation episodes across Europe;
 - a) How well do models reproduce ozone variability and levels?
 - b) How well do models reproduce VOC variability and levels?
 - c) How to compare modelled and observed VOC species?
 - d) Common approach for ozone regime analysis

Feedback to decision makers:

How much can VOC mitigation impact the reduction of ozone episodes and background ozone levels

Science questions for the 2024-2025 period and beyond (2)



- 2) What is the contribution of secondary aerosol production as compared to primary;
- a) To what extent do primary aerosol reproduce variability and pattern of the observed PM₁₀/PM_{2.5}?
 - b) What is the natural component in the background?
 - c) How does secondary aerosols production differ between the models?
 - d) Are available emission data sufficient to reproduce aerosol chemical composition?

Feedback to decision makers:

Assessment of the contribution from the natural sources (no control) and secondary production (potentially nonlinear relation to the emission reduction)

Collaboration with other Convention bodies to support Gothenburg Protocol Revision



CCC, MSC-W, MSC-E - TFMM 2024-2025 work plan items

TFHTAP - online meeting + presentation at TFMM annual meeting (ozone/CH₄; ozone in future climate, wild fires)

TFEiP - VOC emission profile, availability and reliability of OC/BC emission data

TFHealth - tools for health assessment based on modelling/measurements

TFICAP - TFMM was represented at TFICAP on 13/14 February

FAIRMODE - synergies - presentation at FAIRMODE plenary meeting

- LCS
- Emission benchmarking
- Dust transport (also CAMS)
- Source receptor modelling

TFMM internal communication



1. Email address: tfmm@ios.edu.pl
2. 1st TFMM online brief on 20/12/2023 (workplan overview, update from WMO, update on the campaigns)
3. 2nd TFMM online brief on 6/02/2024 (FAIRMODE, CEN/TC WG44, annual meeting details)
4. Revision of mailing list
5. 3rd TFMM online brief (end of March / beginning of April)
6. 6/7 May 2024 - 25th TFMM annual meeting
7. June 2024 - 1st TFMM newsletter (based on the annual meeting outcome)

25TH annual TFMM meeting (Warsaw, Slowicza 32)

6-7 May 2024



Topics:

- Ozone variability in Europe (episodes/heat waves, long-term trends, impact of fires, impact of methane)
- Ozone and VOC monitoring and modeling with a focus on EMEP campaigns
- Representation of PM chemical composition in air quality models (OC/BC, BaP, condensable emissions)
- Chemicals of Emerging Concern
- Low-Cost Sensors
- General country updates

<https://forms.gle/8nCBf3RBMAak6tyc8>



Thank you

