



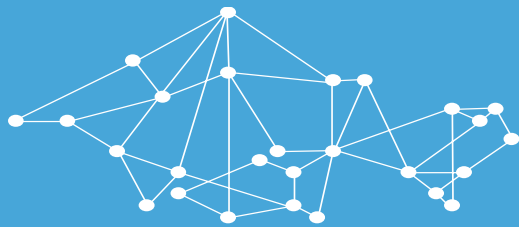
**FAIRMODE**

Forum for air quality modelling in Europe

## WG8 WORKSHOP ON SPATIAL REPRESENTATIVENESS

WEBINAR, 29<sup>TH</sup> JANUARY 2024

LEONOR TARRASON & MATT ROSS-JONES

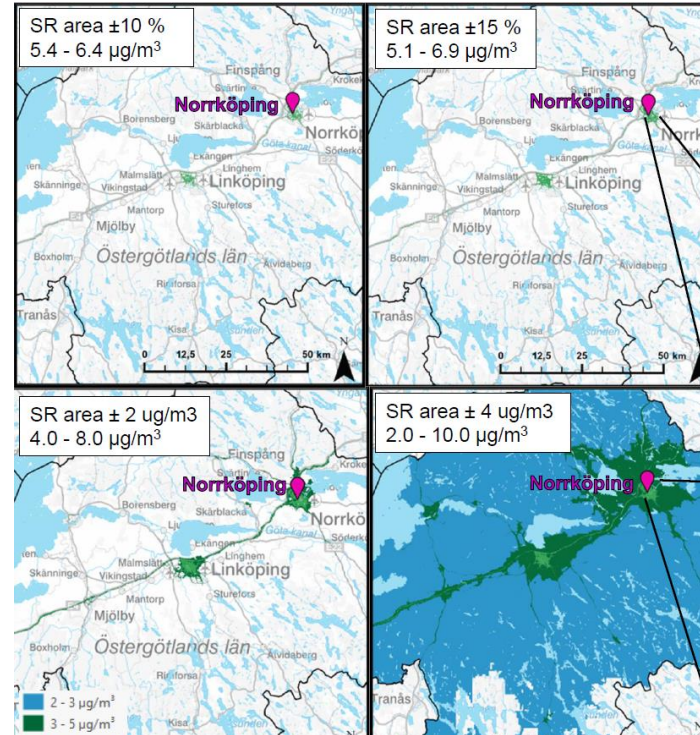
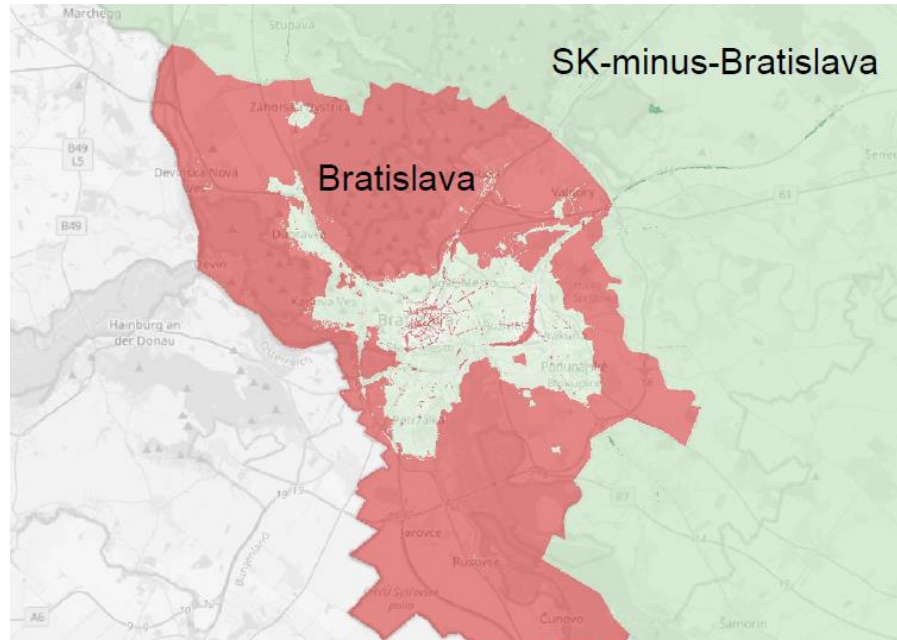


*Agenda*

- Country contributions:
  - » Wolfgang Spangl - Results from testing in Austria
  - » Stefan Feigenspan - Results from further testing of urban & rural background stations in Germany
  - » Andreas Kerschbaumer - Results from testing in Berlin with focus on traffic hot spots
  - » Jana Matejovicova - Results for B(a)P in Slovakia
- Discussion of key remaining issues
- Development of technical guidance document on monitoring network design

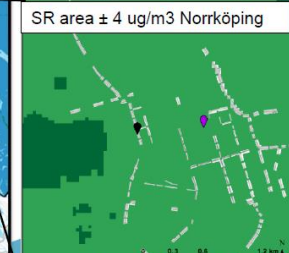
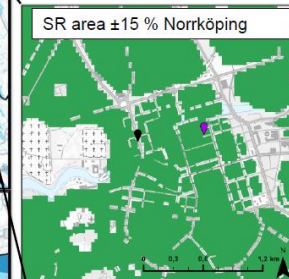
# WG8 WORKSHOP ON SPATIAL REPRESENTATIVENESS - 29<sup>TH</sup> JANUARY 2024

Recap from WS in Dec

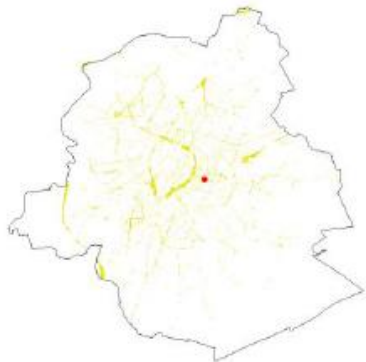


## NO<sub>2</sub> year urban background

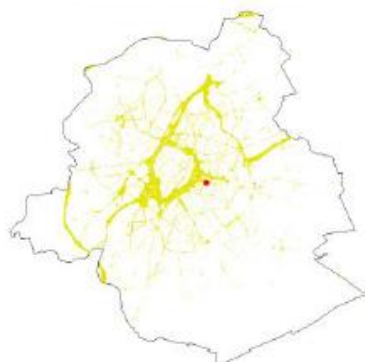
Trädgårdsgatan, Norrköping  
 • NO<sub>2</sub> model annual mean (2022): 6.0 µg/m<sup>3</sup>



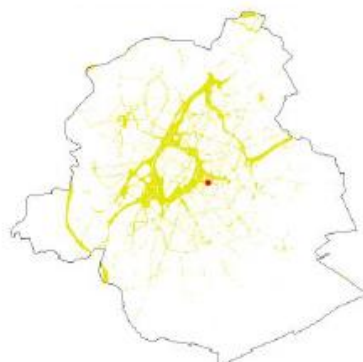
Spatial Rep. Area for NO<sub>2</sub> in 2015 of BETB008 41B008 - Brussel (Belliardstraat) in ZON-BEB10A Brussels-City



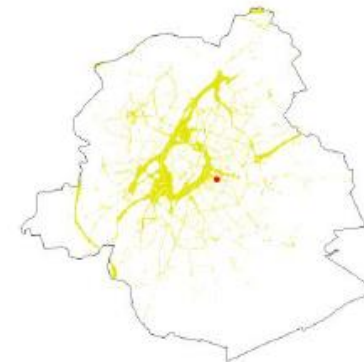
Spatial Rep. Area for NO<sub>2</sub> in 2016 of BETB008 41B008 - Brussel (Belliardstraat) in ZON-BEB10A Brussels-City



Spatial Rep. Area for NO<sub>2</sub> in 2019 of BETB008 41B008 - Brussel (Belliardstraat) in ZON-BEB10A Brussels-City



Spatial Rep. Area for NO<sub>2</sub> in 2020 of BETB008 41B008 - Brussel (Belliardstraat) in ZON-BEB10A Brussels-City

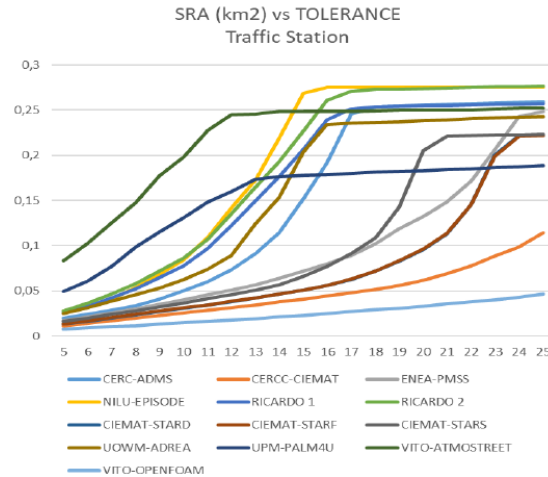
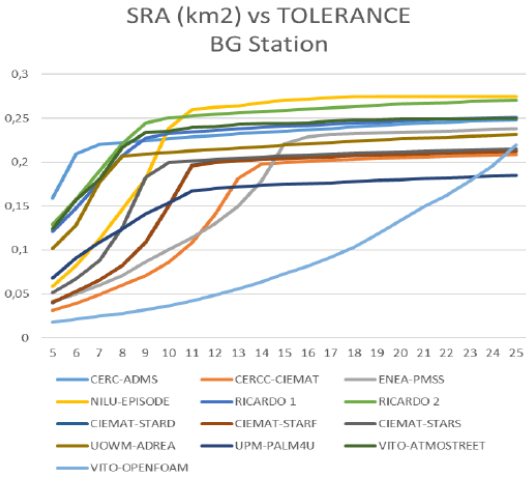


Spatial Rep. Area for NO<sub>2</sub> in 2021 of BETB008 41B008 - Brussel (Belliardstraat) in ZON-BEB10A Brussels-City



# WG8 WORKSHOP ON SPATIAL REPRESENTATIVENESS - 29<sup>TH</sup> JANUARY 2024

## Recap from WS in Dec



Station : FR25054  
(Petit-Quevilly Sud 3-Traffic)

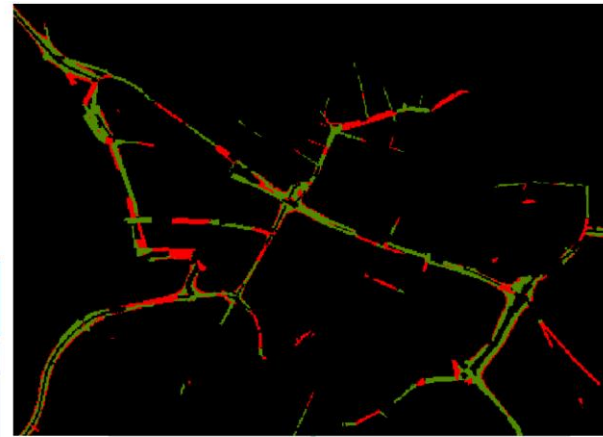
Annual mean in NO<sub>2</sub>: 41 µg/m<sup>3</sup>

Model : SIRANE with data fusion



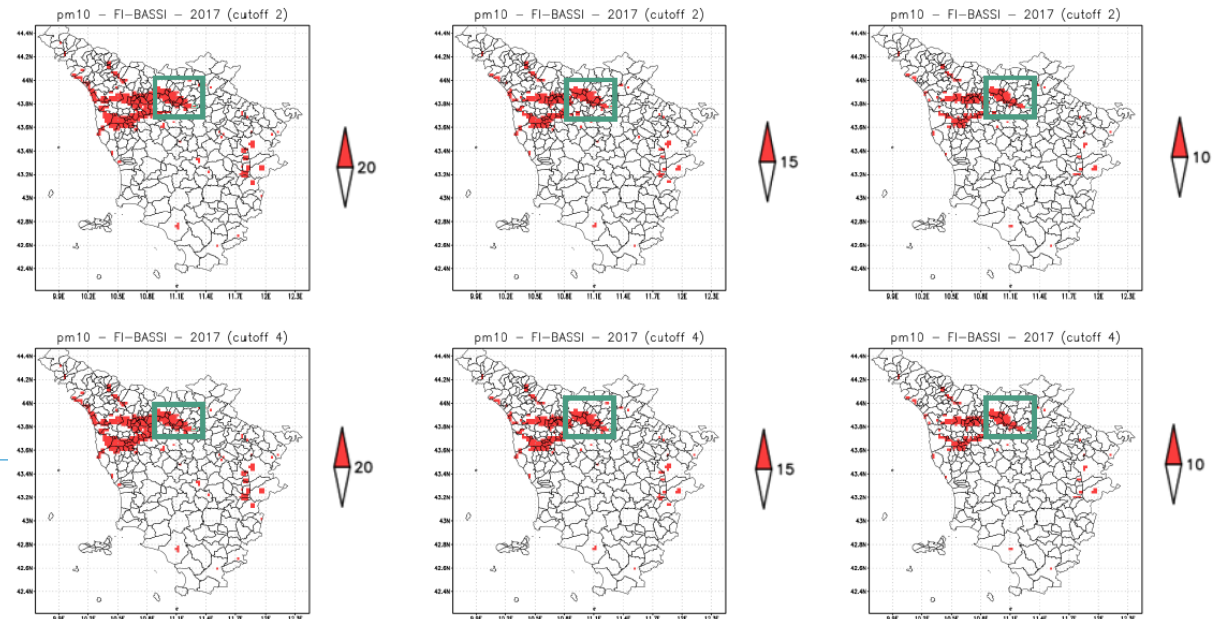
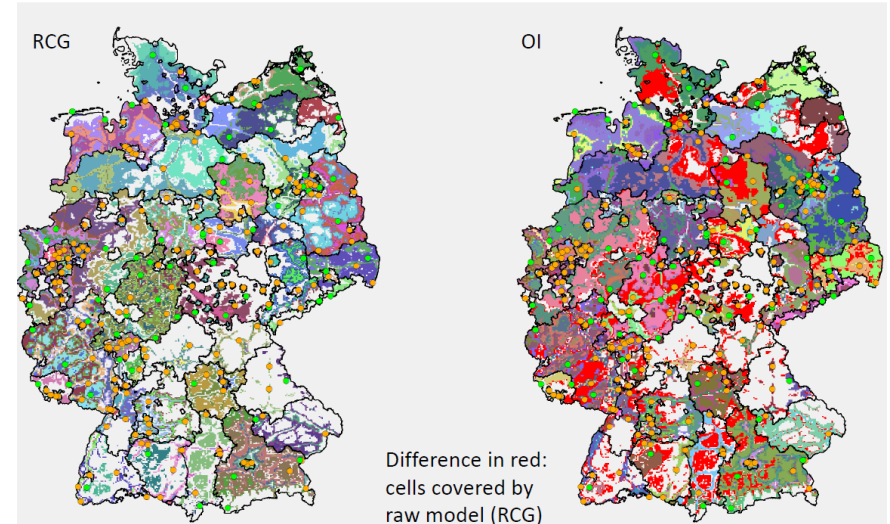
for a TL of 15 %, SR Range : 34.85 - 47.15 µg/m<sup>3</sup>  
for a TL of 20 %, SR Range : 32.8 - 49.2 µg/m<sup>3</sup>

	Surface in Exceedance (km <sup>2</sup> )	SRA at TL = 15 % (km <sup>2</sup> )	SRA at TL = 20 % (km <sup>2</sup> )
SE or SR	1.21	1.50	2.24
% of the assessment zone	0.17 %	0.21 %	0.31 %



## NO<sub>2</sub> – tolerance level 15 %

- rural background
- urban background
- suburban background



Surface in exceedance lower than SR values

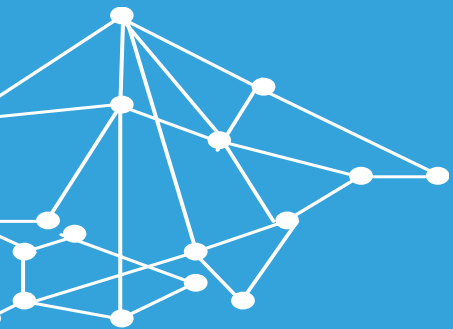
- TL 15 - 20 %
- TL 0 - 15 %

# TEAMS PAGE OPEN

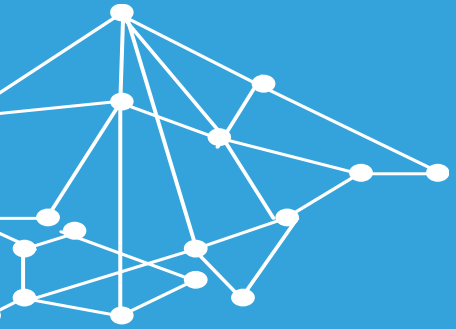
The screenshot shows the Microsoft Teams interface. On the left is the navigation pane with 'Team' selected. The main area displays the 'WG8 - Station Representativensess' document library. The library view is set to 'Spatial Representativensess' and shows a table of documents.

Namn	Ändrat	Ändrades av	+ Lägg till kolumn
WG8 SR Workshop - 14 dec 2023	den 21 december 2...	Ross-Jones, Matthew	
FAIRMODE WG8_key issues for contribution...	den 21 december 2...	Ross-Jones, Matthew	
WG8 Guidance Document - vs3.docx	den 21 december 2...	Ross-Jones, Matthew	





# Country Contributions



# Discussion

*Key issues for the discussion*

- Remove AQ zone limitation for rural background stations?
  - Remove this limitation entirely?
  - Replace with max area?
    - 10 000 km<sup>2</sup>, 20 000 km<sup>2</sup>, 25 000 km<sup>2</sup>, 40 000 km<sup>2</sup>, 50 000 km<sup>2</sup> or 100 000 km<sup>2</sup>
- Choice of tolerance levels
  - ±10 % for background stations,
  - ±15 % or ±20 % for hotspot stations, or
  - ±15 % for all station types?





*Key issues for the discussion*

- Definition of the lower cut-off
  - $2 \mu\text{g}/\text{m}^3$  or  $\pm 2 \mu\text{g}/\text{m}^3$  ( $\pm 2$  gives a concentration interval of  $4 \mu\text{g}/\text{m}^3$ )
  - Can we make some decisions on the relevant cut-offs for different pollutants?
    - $\pm 1, 2, 3$  or  $4$  for  $\text{NO}_2$ ?
    - $\pm 2 \mu\text{g}/\text{m}^3$  for  $\text{O}_3$
    - $\pm 1$  or  $2 \mu\text{g}/\text{m}^3$  for  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$
    - $\pm ? \mu\text{g}/\text{m}^3$  for  $\text{SO}_2$ , benzene, (Pb?)
    - $\pm ? \text{mg}/\text{m}^3$  for CO?
    - $\pm ? \text{ng}/\text{m}^3$  for B(a)P, As, Cd, Ni, (Pb?)
  - Is a lower cut-off necessary as obligatory criteria or should it be optional?
  - Express as a “maximum lower cut-off value” to give some flexibility?
  - Recommend a lower value, but give some flexibility to use a higher value, where justified in specific circumstances?

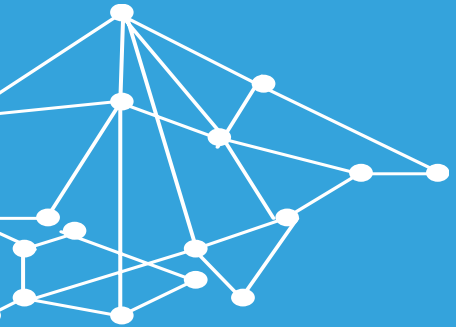


*Key issues for the discussion*

- Handling of overlapping SR areas
  - Proximity to sampling points?
  - Sampling point with the most similar concentration?
  - Use of source-based criteria?
  - Other ideas?
- Bias correction / use of observed or modelled values
  - OK to recommend use of “best available AQ map”, which can include use of data assimilation and data fusion?
  - Always use modelled value or OK to use observed value if significant bias remains?



# Thank you!



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