WG4 – 2nd session agenda

- Cross-cutting activity with WG6/WG2 about how many samplers' data are needed for validation of microscale model applications estimating the long-term average concentrations in urban areas (40’)
  - Presentation by CIEMAT (Fernando Martín) (10’)
  - Presentation by RIVM (Joost Wesseling) (10’)
  - Discussion (20’)
- Discussion about status of the WG4 activities respect RoadMap and next steps (50’)

WG4. Microscale Modelling Future Work

Fernando Martín and José Luis Santiago (CIEMAT)

WG4 Microscale Modelling - FAIRMODE

FAIRMODE TECHNICAL MEETING, DUBLIN, 7-9 October

FAIRMODE
Forum for air quality modelling in Europe

GOBIERNO DE ESPAÑA · MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES · Ciemat

States
- Open
- Pending
- In Progress
- Completed
- Cancelled

WG4 2023-2025 roadmap

- How good are microscale models to estimate LV exceedances or spatial representativeness areas? (2nd paper revised May-July, new draft October, contribution to WG8)
- Test robustness of the wind sector approach for all AAQD indicators (annual avg, percentiles…) and check new approaches. (Percentiles study is pending)
- Understand differences between unsteady full-year simulations vs scenario (wind sector) approach.
- **Preparation of scientific papers for publishing** (1st published 2024, 2nd to be submitted)
- **Preparation of a Recommendations/Guidance Document** (First draft, feedbacks received by end September, discussion on FTM 2024 (October 7th), next hackathon late November or early December)
- Setup a new intercomparison exercise (IE) at a new location (e.g., Gyor, Madrid)? And/Or explore more deeply the Antwerp case?

Pending questions / Priority (1)

PENDING QUESTIONS (1)	Priority (High, Medium, Low)
Can the conclusions of the Antwerp IE be extrapolated to other scenarios? Can they be different for other urban morphology, meteorological conditions, pollutant, etc? New Intercomparison Exercise?	High?

Pending questions / Priority (2)

PENDING QUESTIONS (2)	Priority (High, Medium, Low)
Do the needed number of wind sectors or the CFD model/methodology results depend on urban morphology, meteorological conditions, pollutant, etc? New Intercomparison Exercise?	Low

Pending questions / Priority (3)

PENDING QUESTIONS (3)	Priority (High, Medium, Low)
How can we derive other AAQD indicators besides the annual average (percentiles related with the limit values) in a wind sector approach when using CFD model approaches? Explore more deeply the Antwerp case (hourly data from AQ stations)? New Intercomparison Exercise?	High?

Pending questions / Priority (4)

PENDING QUESTIONS (4)	Priority (High, Medium, Low)
Can the NO_X-O_3 chemistry be taken into account? How is the improvement of the model results (mainly CFD) when using the different approaches (NO2/NOx ratios, photostationary schemes, more complex schemes, etc)? Explore more deeply the Antwerp case (hourly data from AQ stations)? New Intercomparison Exercise?	Medium?

Pending questions / Priority (5)

PENDING QUESTIONS (5)	Priority (High, Medium, Low)
Are thermal effects relevant for AAQD indicators?	Medium?

Pending questions / Priority (6)

PENDING QUESTIONS (6)	Priority (High, Medium, Low)
Model uncertainty? Sources of uncertainties? Improvements vs other modelling approaches? MQI/MQO? Benchmarking data sets? How many stations do we need for a proper validation at micro scale? Passive samplers? Sensors? (Link with WG2/6) Explore more deeply the Antwerp case (hourly data from AQ stations)? New Intercomparison Exercise?	High?

Pending questions / Priority (7)

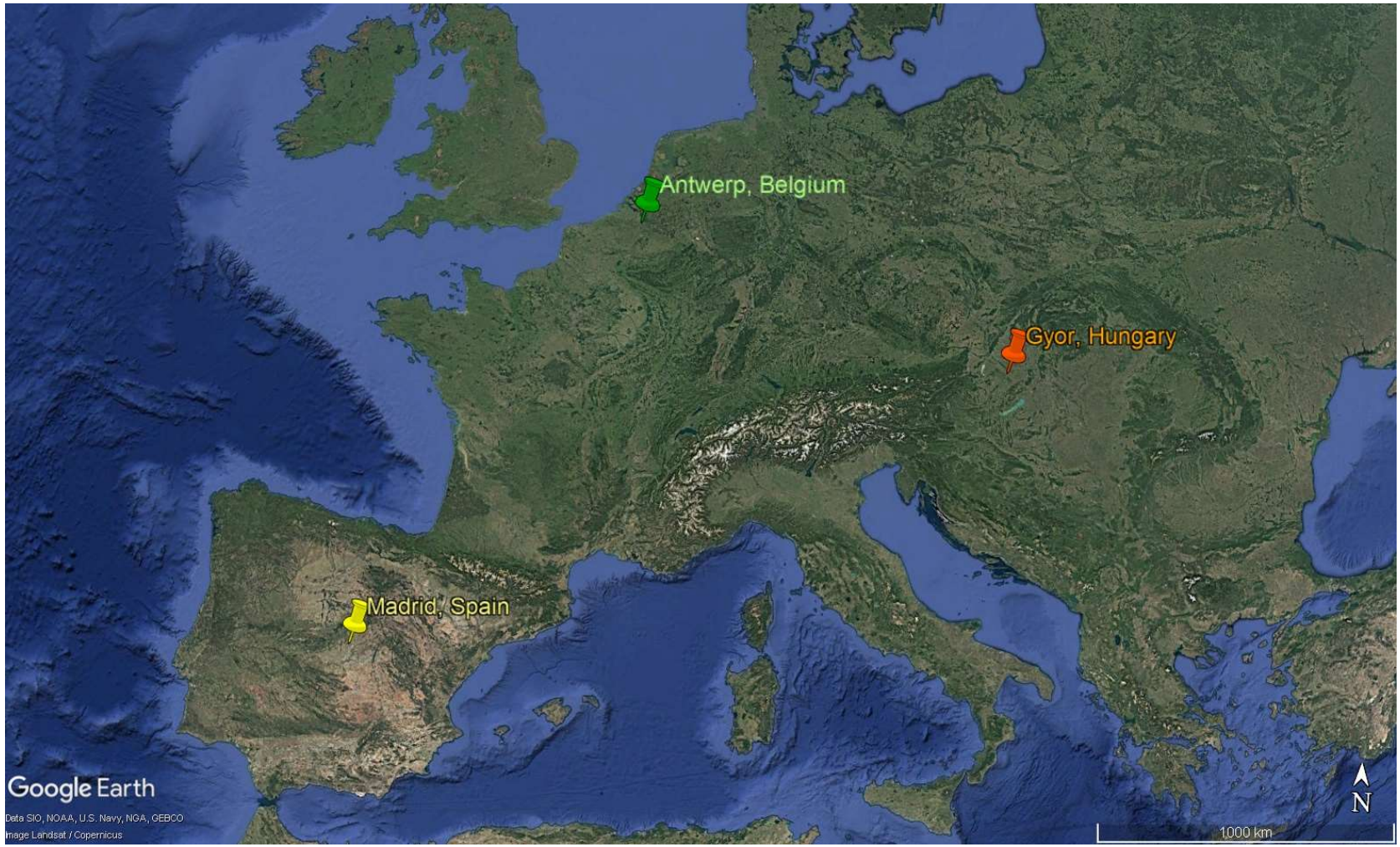
PENDING QUESTIONS (7)	Priority (High, Medium, Low)
Other questions?	

Pending questions / Need of new IE

PENDING QUESTIONS	NEED OF NEW IE?
1. Can the conclusions of the Antwerp IE be extrapolated to other scenarios? Can they be different for other urban morphology, meteorological conditions, pollutant, etc?	Yes
2. Do the needed number of wind sectors or the CFD model/methodology results depend on urban morphology, meteorological conditions, pollutant, etc?	Yes
3. How to derive other AAQD indicators besides the annual average (percentiles related with the limit values) in a wind sector approach when using CFD model approaches?	Useful
4. Can the NO_X-O_3 chemistry be taken into account? Improvement?	Useful
5. Are thermal effects relevant for AAQD indicators?	Useful
6. Model uncertainty? MQI/MQO? How many stations do we need for a proper validation at micro scale? Passive samplers? Sensors? (Link with WG2/6)	Yes
7. Other?	

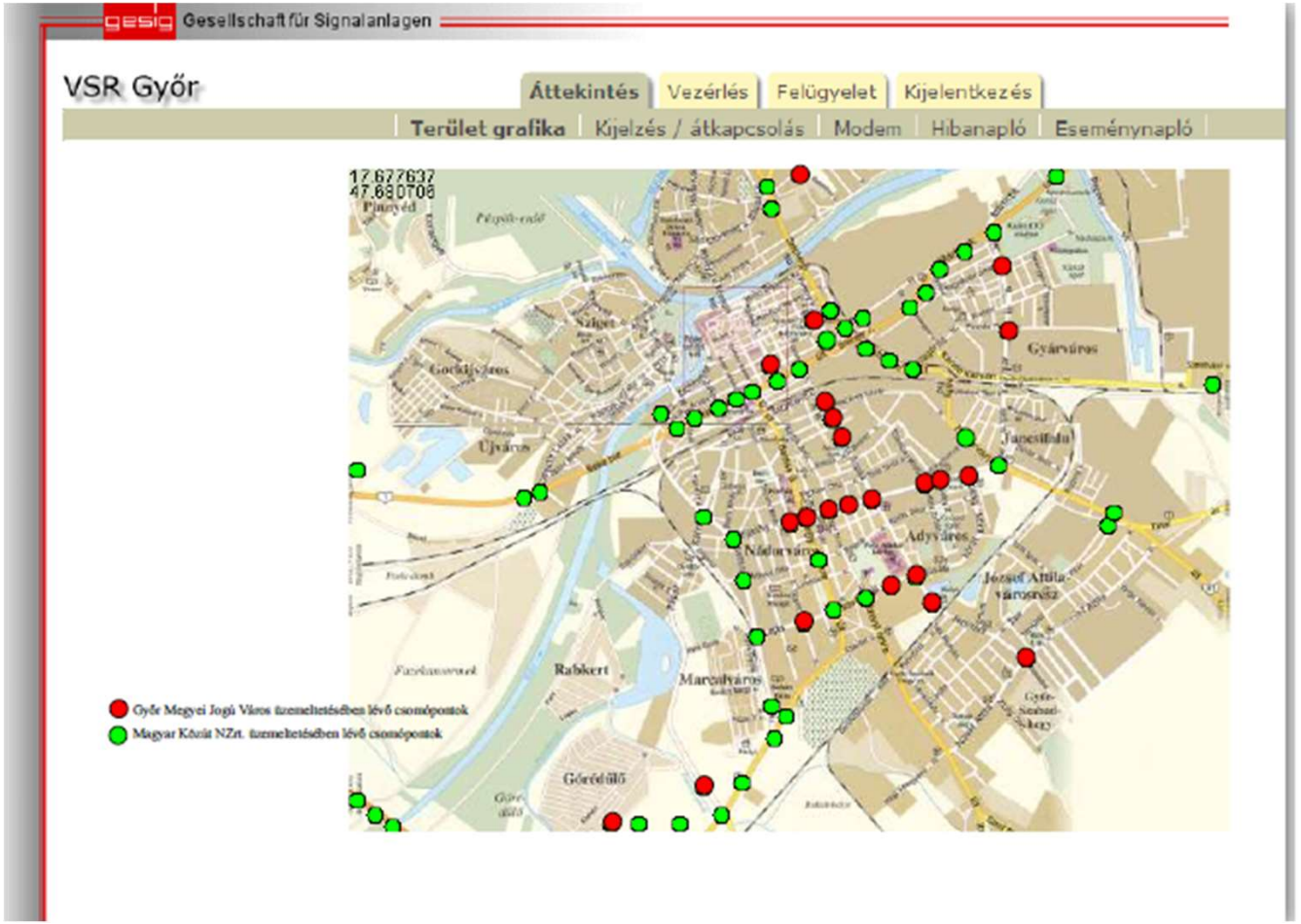
Candidates for new IE

- **Gyor, Hungary**
- **Madrid, Spain**
- **Other?**



Győr (Hungary)

- Proposed by Zoltán Horváth (SZE) (2021)
- Data from meteorological stations, AQ microsensors and AQ stations
- Real-time emission data for traffic.



FAIRMODE
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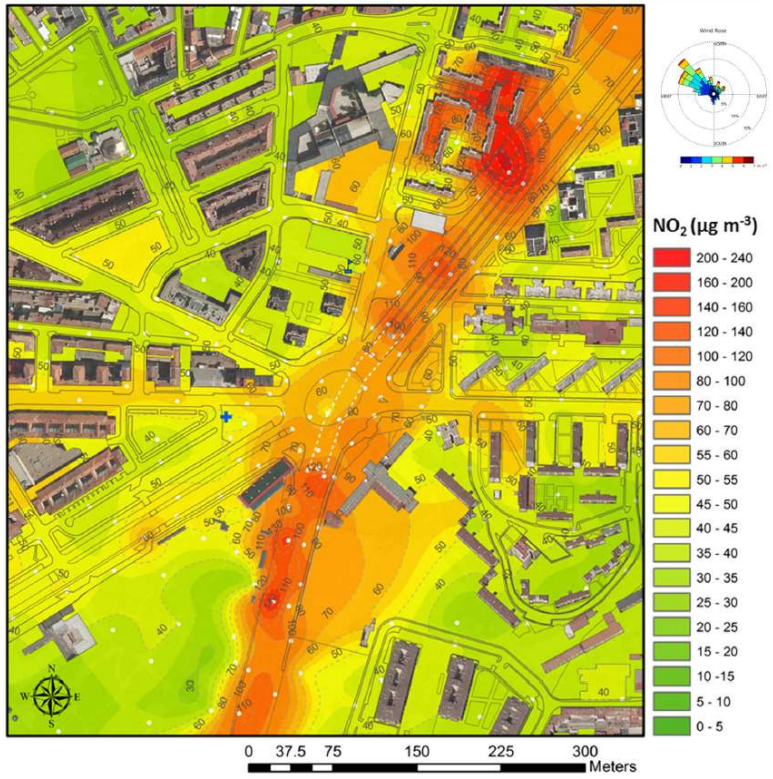
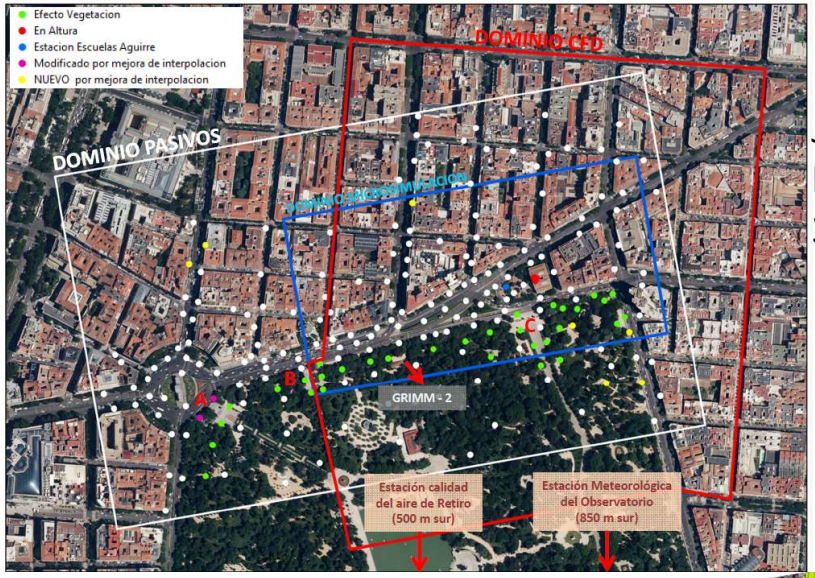
Madrid, Spain

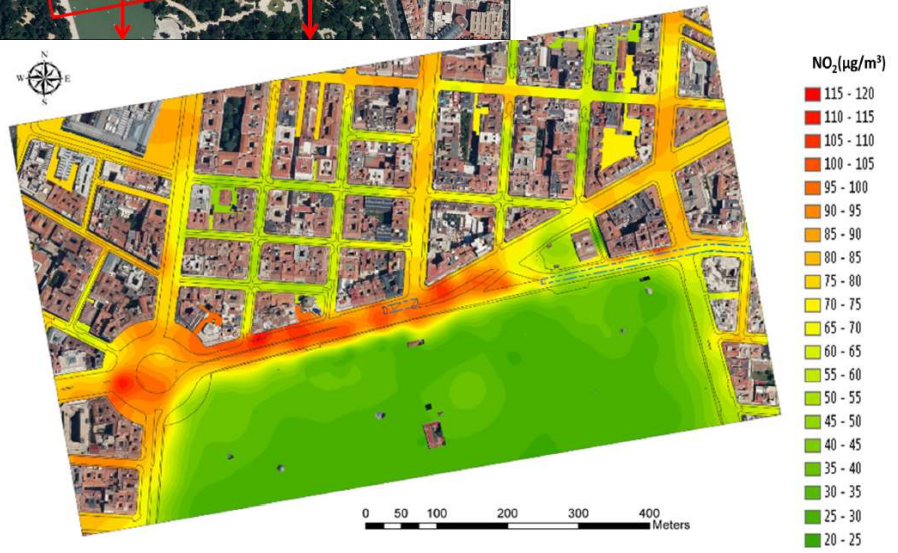
Campaigns carried out by ETSII-UPM, TECNAIRE-CM PROJECT



February 2015
July 2016
3 weeks each



June-July 2016
February- March 2017
3 weeks each



- About 200 passive samplers each campaign
- 1 AQ station in the domain and 1 background AQ station nearby
- Different urban morphology and meteorological conditions.

Next immediate actions

- Sending the last version of paper 2 for authors revision. Deadline for feedback, November 10th
- Sending an email notifying about a second opportunity to review the Guidelines Document. Deadline, November 1st
- Doodle for scheduling the hackathon
- Hackathon(November 20th-December 15th) to discuss:
  - Pending questions of the Guidelines Document
  - New IE and/or additional work with Antwerp data set