



# FAIRMODE'S COMPOSITE MAPPING EXERCISE

STIJN JANSSEN & PHILIPPE THUNIS

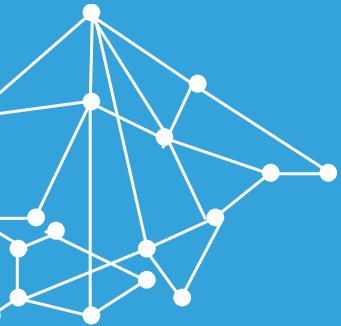
HARMO 17, BUDAPEST, MAY 9-12, 2016



**FAIRMODE**

Forum for air quality modelling in Europe

- » FAIRMODE
- » Objective
- » First prototype & contributions so far
- » The process: uploading data sets & processing maps
- » The platform
- » The future



# FAIRMODE

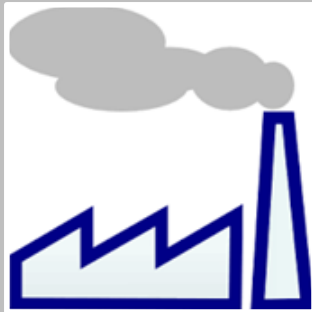
Forum for air quality modelling in Europe

# QUALITY ASSURANCE FOR AQ MODELLING: FAIRMODE

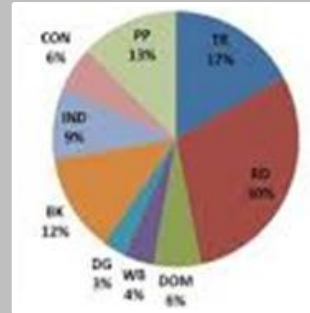
*Created for exchanging experience and results from AQ modeling in the context of the Air Quality Directive between Member States, chaired by the JRC*



WG1  
Assess



WG2  
Emissions



WG3  
Src. App.



WG4  
planning



## FAIRMODE



Harmonisation  
& QA/QC



Guidance  
to Member States and Regional Authorities

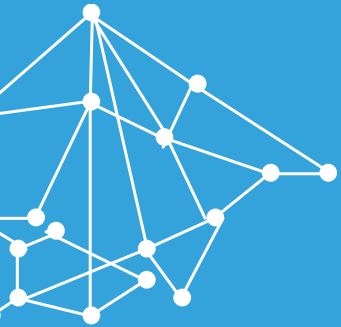


Training



Towards Standardisation



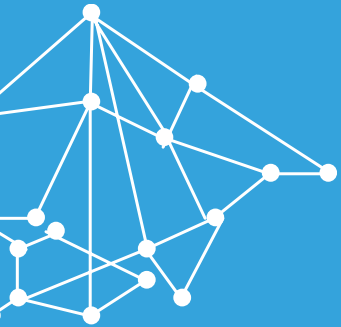


# Objective

## OBJECTIVE

### *EU Composite Mapping Exercise*

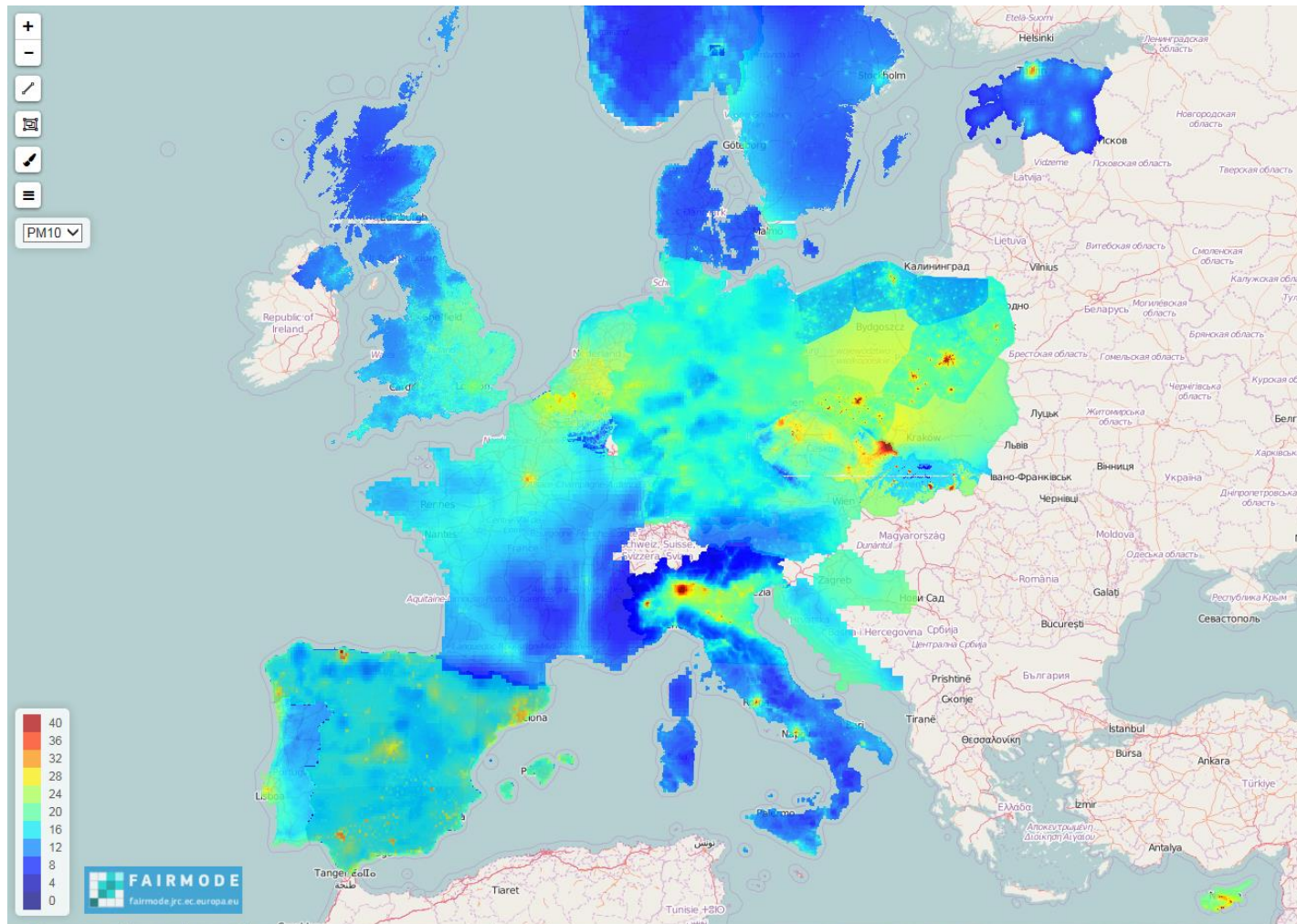
- » Collect national, regional or local air quality assessment maps
- » Compile an overall composite EU air quality map
- » Use the map and the process as support to provide guidelines on model QA/QC (MQO), emissions, data assimilation, e-Reporting...



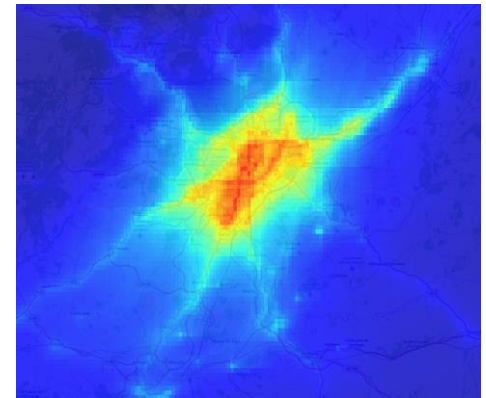
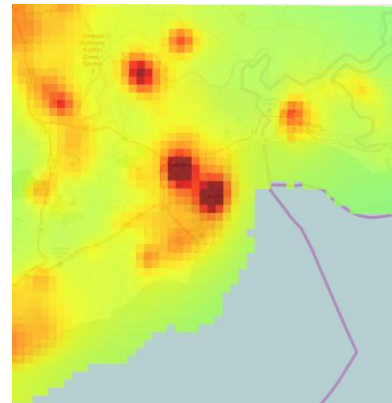
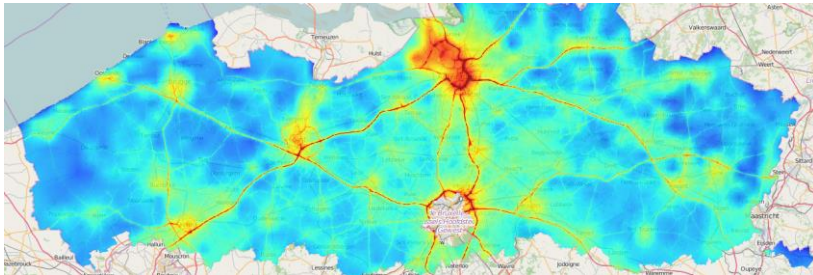
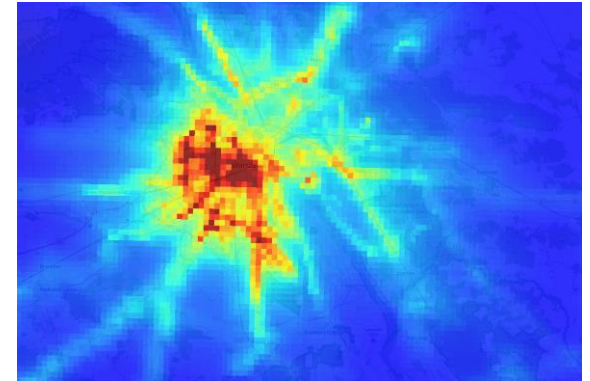
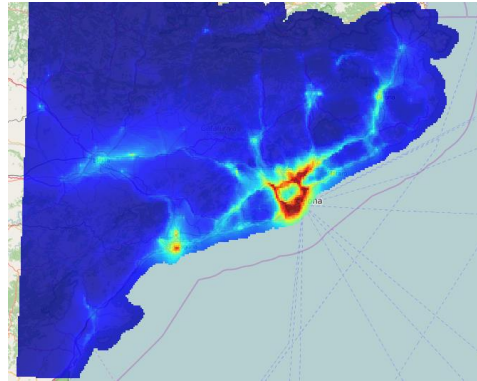
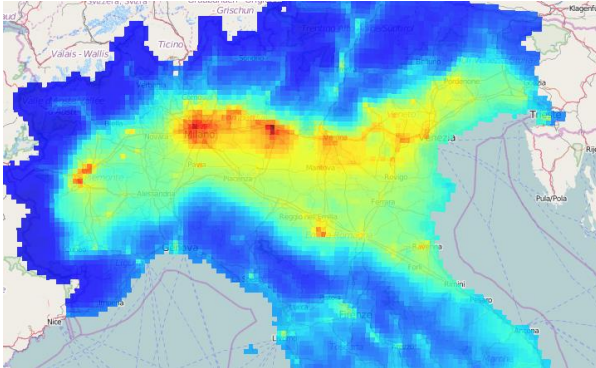
# First prototype



# EU COMPOSITE MAP



# REGIONAL MAPS

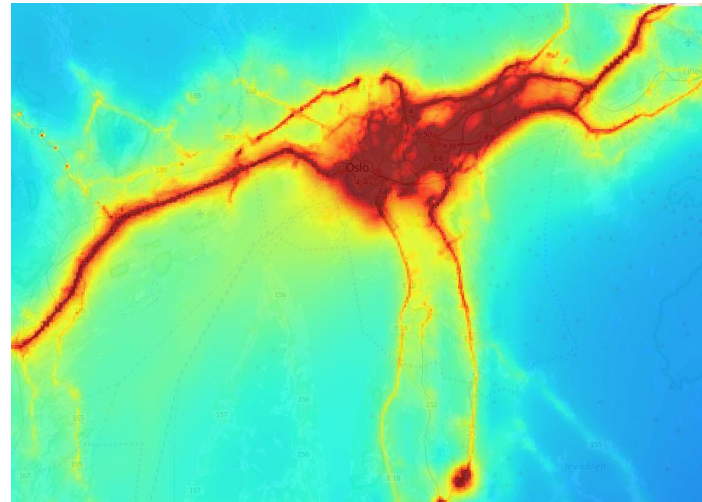
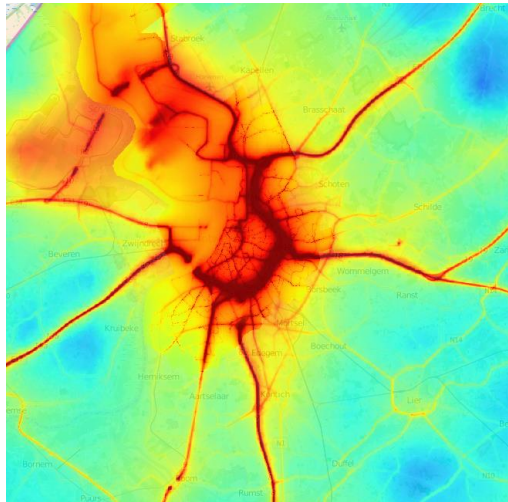
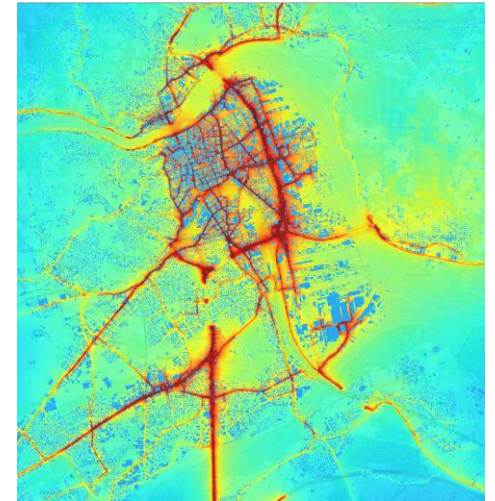
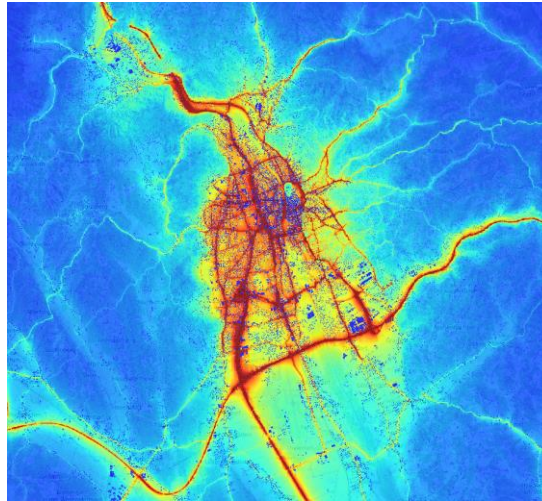
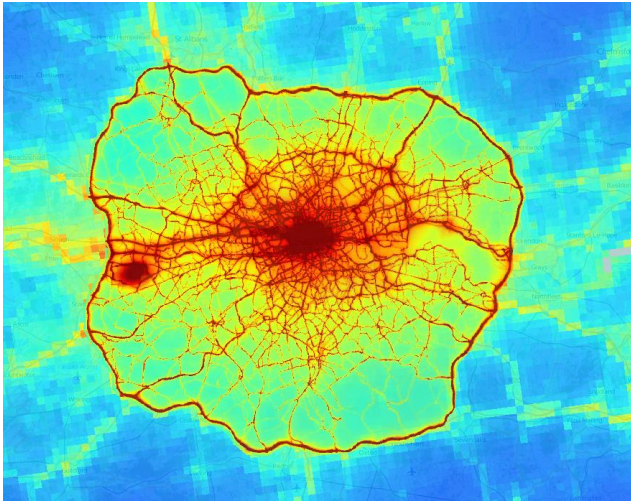


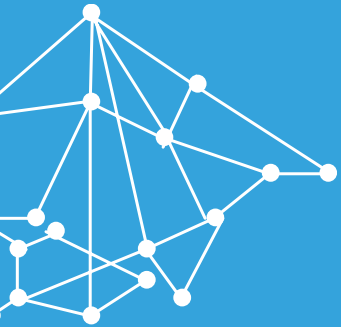
**FAIRMODE**

Forum for air quality modelling in Europe



# URBAN MAPS

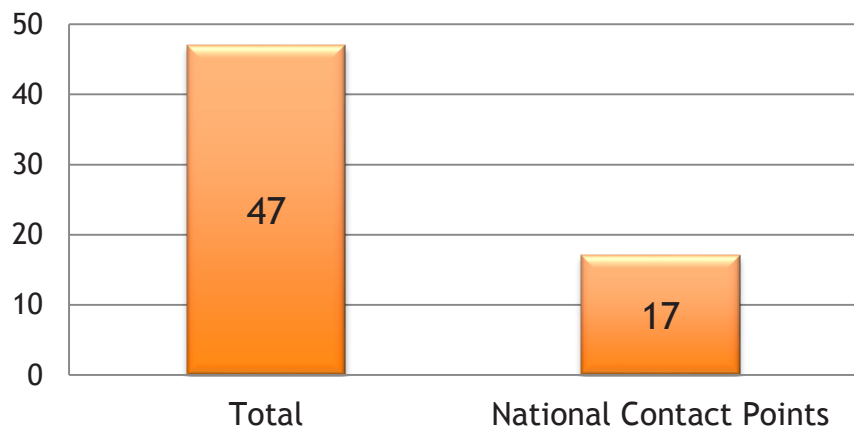




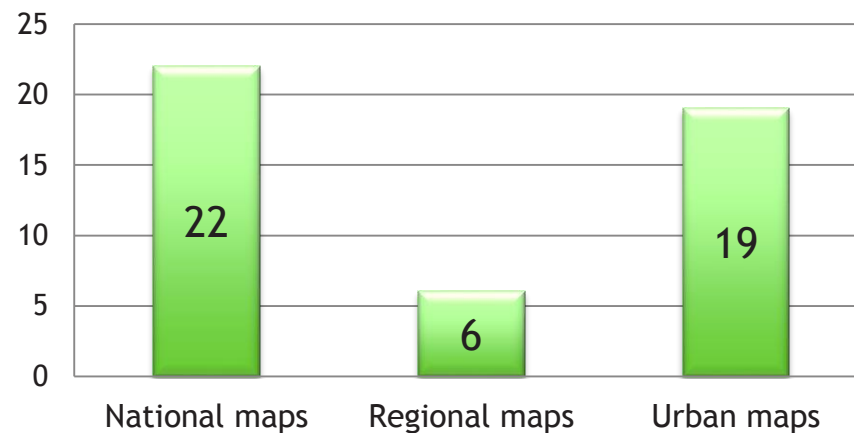
# Contributions

# CONTRIBUTIONS SO FAR

## Number of contributions

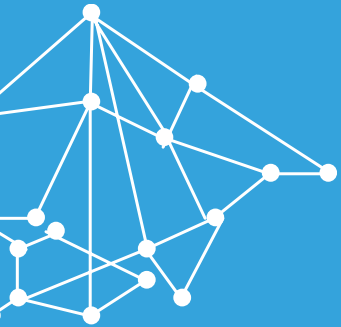


## Spatial scales



Country	Region/City	Institute	Contact person	Model
Austria	Austria	ZAMG	Hirtl Marcus	WRF-Chem
	Styria	Federal state government of styria	Payer Ingrid	Gral-Graz2
	Linz	Linz - Amt der Oö. Landesregierung	Oitzl Stefan	GRAL-Linz
Belgium	Belgium	IRCEL	Fierens Frans	RIO
	Flanders	IRCEL	Fierens Frans	RIO-IFDM
	Antwerp	VITO	Lefebvre Wouter	RIO-IFDM-OSPM
Croatia	Croatia	DHZ	Sonja Vidic	EMEP
Cyprus	Cyprus	University Thessaloniki	Tsegas Georgios	MARS-aero
	Nicosia	University Thessaloniki	Tsegas Georgios	MARS-aero
	Famagusta	University Thessaloniki	Tsegas Georgios	MARS-aero
	Limassol	University Thessaloniki	Tsegas Georgios	MARS-aero
	Larnaca	University Thessaloniki	Tsegas Georgios	MARS-aero
	Paphos	University Thessaloniki	Tsegas Georgios	MARS-aero
Czech Republic	Czech Republic	CHMI	Benešová Nina	RIMM
Denmark	Denmark	Ahrus University	Jesper Heile Christensen	DEHM
Estonia	Estonia	KLAB	Erik Teinema	SMHI Grid model
Finland	Finland	Finnish Meteorological Institute	Karppinen Ari	SILAM
France	France	INERIS	MELEUX Frederik	CHIMERE
Germany	Germany	Umweltbundesamt	Nordmann Stephan	RCG
	Germany	Research Center Juelich	Krajsek Kai	EURAD_IM
Italy	Italy	ENEA	Ciucci Alessandra	AMS-MINNI
	Emila Romagna	ARPA Emilia Romagna	stortini michele	NINFAPESCO
Netherlands	Netherlands	RIVM	Joost Wesseling	NL-OPS

Country	Region/City	Institute	Contact person	Model
Norway	Norway	NILU	Vogt Matthias	Basemap
	Oslo	NILU	Vogt Matthias	Episode
Poland	Poland	Ekometria	Malgorzata Paciorek	CAMx
	Dolnoslaskie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Lodzkie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Mazowieckie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Opolskie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Podlaskie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Pomorskie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Warminsko-mazurskie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
	Zachodniopomorskie Voivodship	Ekometria	Malgorzata Paciorek	CALPUFF
Portugal	Portugal	Universidade de Aveiro	Monteiro Alexandra	CHIMERE
Slovakia	Slovakia	SHMU	Matejovicova jana	IDWA
	Slovakia	SHMU	Matejovicova jana	CEMOD
Spain	Mainland Spain and the Balearic Islands	CIEMAT	Theobald Mark	CHIMERE
	Canary Islands	Barcelona Supercomputing Center	Pay Maria Teresa	CALIOPE
	Iberian Peninsula and Balearic Islands	Barcelona Supercomputing Center	Pay Maria Teresa	CALIOPE
	Madrid	Barcelona Supercomputing Center	Pay Maria Teresa	CALIOPE
	Andalucia	Barcelona Supercomputing Center	Pay Maria Teresa	CALIOPE
	Catalonia	Barcelona Supercomputing Center	Pay Maria Teresa	CALIOPE
	Spain	Technical University of Madrid (UPM)	Borge Rafael	CMAQ
Sweden	Sweden	SMHI	Backström Hans	SIMAIR
UK	UK	Ricardo-AEA	Brookes Daniel	PCMBK
	London	CERC	Kate Johnson	ADMS-Urban



# The process



# UPLOAD FUNCTIONALITY VIA FAIRMODE WEBSITE

*Upload & manage your own input data (MAP, DELTA input & Emissions)*

### Add new model

**Model meta tags**

Model name:

Release version:

Country:

Region/city:

Model type:

Map reference: EPSG-

Data assimilation:

Output frequency:

Pollutants:  O3  PM2.5  PM10  NO2

Documentation link:

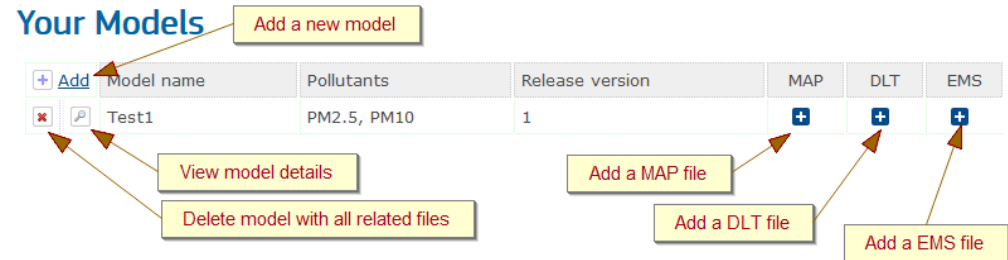
**Reference period** - DELTA dataset only

Day start:

Day end:


**Reference year**

Year:  (yyyy)



# UPLOAD FUNCTIONALITY VIA FAIRMODE WEBSITE

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The European Commission's in-house science service

European Commission > JRC Science Hub

**Δ DELTA Benchmarking**  
Fairmode Tools and Software

FAIRMODE

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HOME Δ-ASSESSMENT & PLANNING Δ-EMISSION

## Available downloads

Manage your datasets Help

Total: 53 Page: << 1 / 3 >>

DET	MAP	DELTA	EMIS	Country	City	Model
				Austria	Styria	<a href="#">Gral-Graz2</a>
				Austria	Linz	<a href="#">GRAL-Linz</a>
				Austria	Vienna	<a href="#">WRF-Chem</a>
				Austria	Vienna	<a href="#">WRF-Chem</a>
				Belgium	all Belgian regions	<a href="#">RIO_NO2</a>
				Belgium	all Belgian regions	<a href="#">RIO_PM10</a>
				Belgium	Flanders	<a href="#">RIO-IFDM_N</a>
				Belgium	Flanders	<a href="#">RIO-IFDM_P</a>
				Belgium	Antwerp	<a href="#">IFDM-OSPM</a>
				central Europe	central Europe	<a href="#">EURAD_5km</a>
				Czech Republic	Czech Republic	<a href="#">RIMM</a>

### Model details

**Name:** Gral-Graz2

**Release version:** 001

**Country:** Austria

**City | Region:** Styria

**Model type:** Lagrangian

**Map reference:** EPSG-32633

**Data assimilation:** None

**Frequency:** Yearly

**Pollutants:** PM2.5, PM10, NO2

**Time start:** 01/01/2010


**Time end:** 31/12/2010

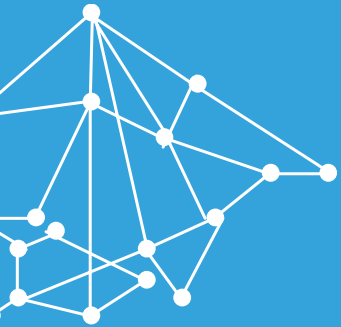
**Documentation:** [http://app.luis.steiermar\[...\]](http://app.luis.steiermar[...])

**Owner:** Payer Ingrid

**Affiliation:** Austria, federal state government of styria

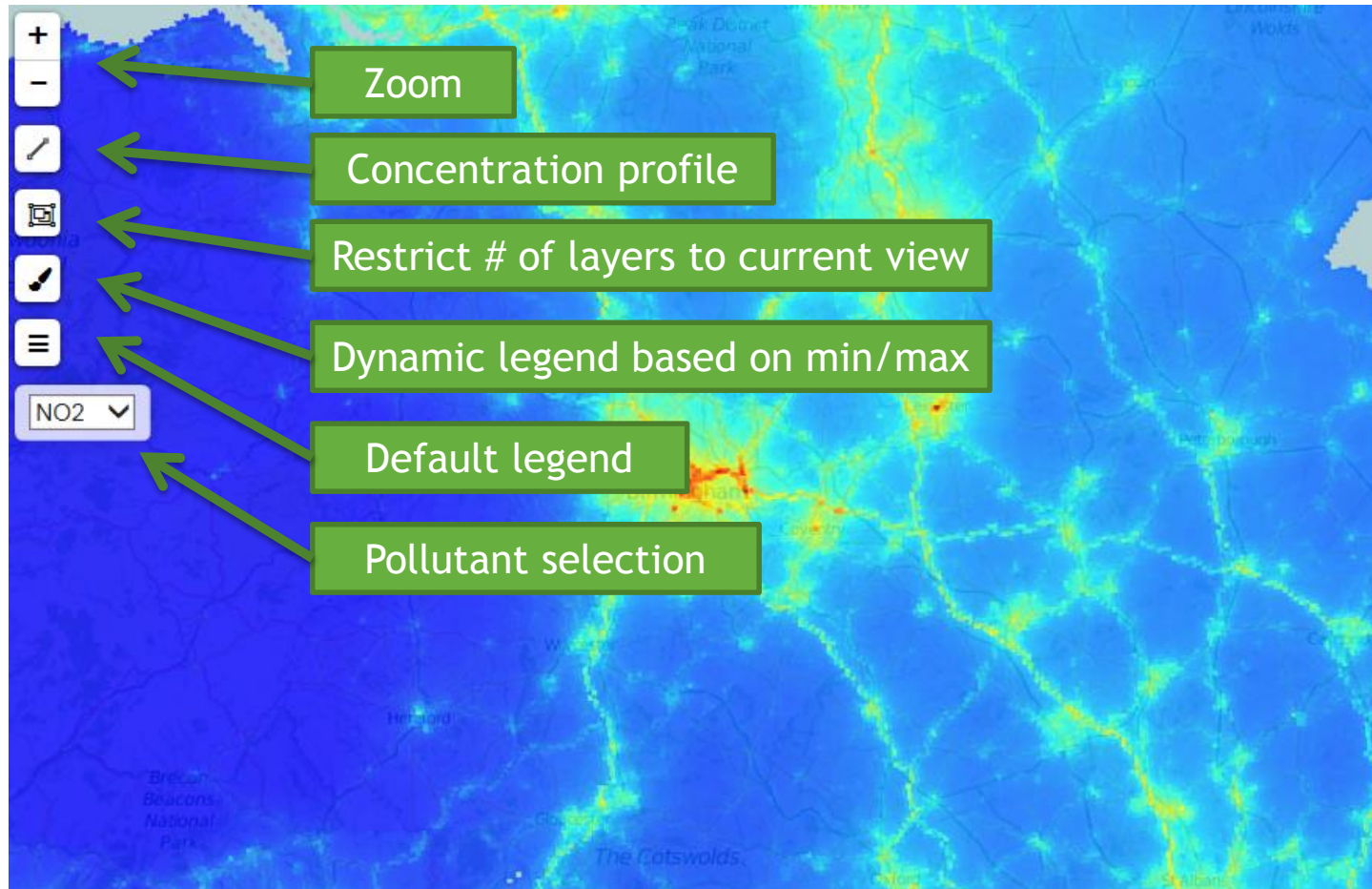
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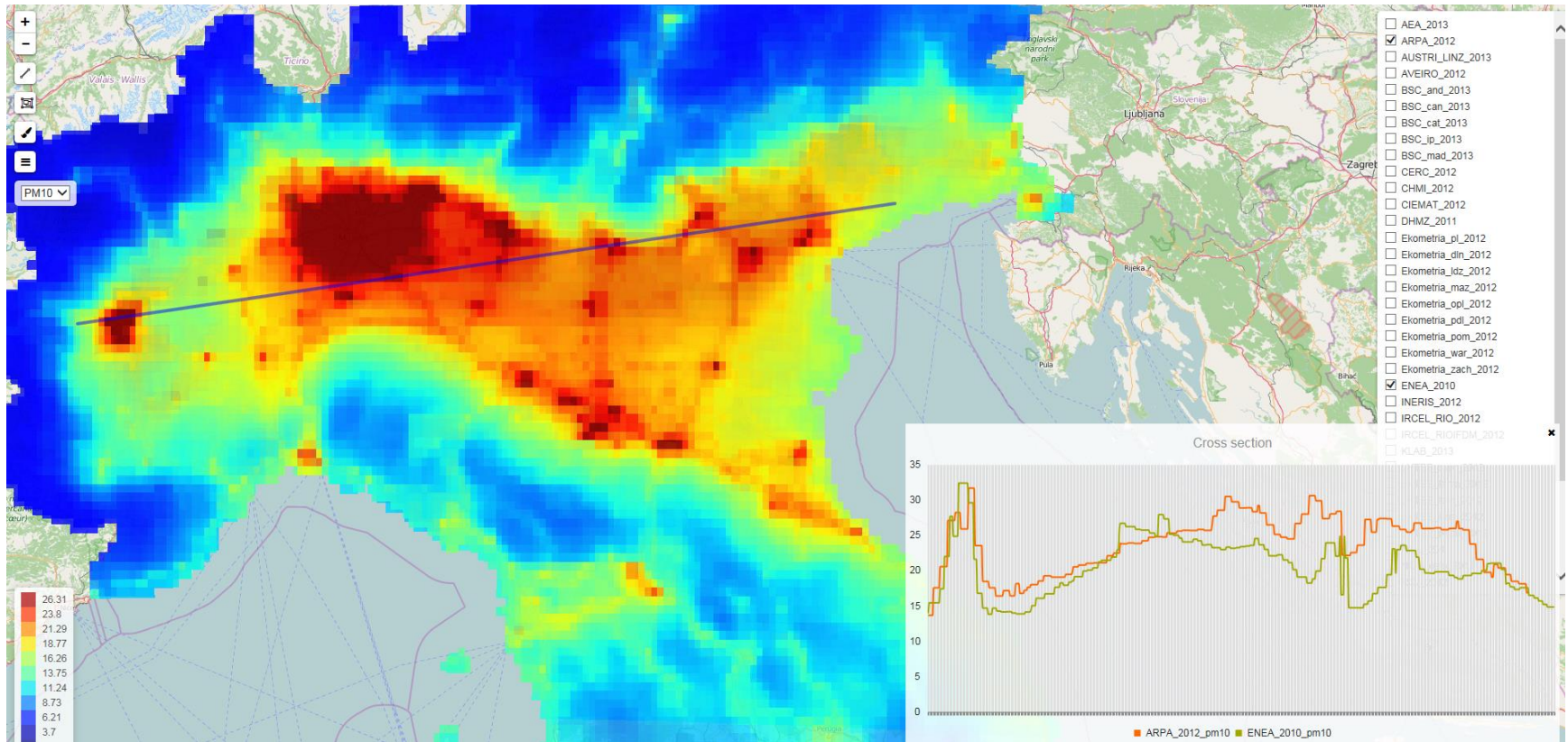


# The platform

# ANALYSIS FUNCTIONALITY



# CONCENTRATION PROFILES

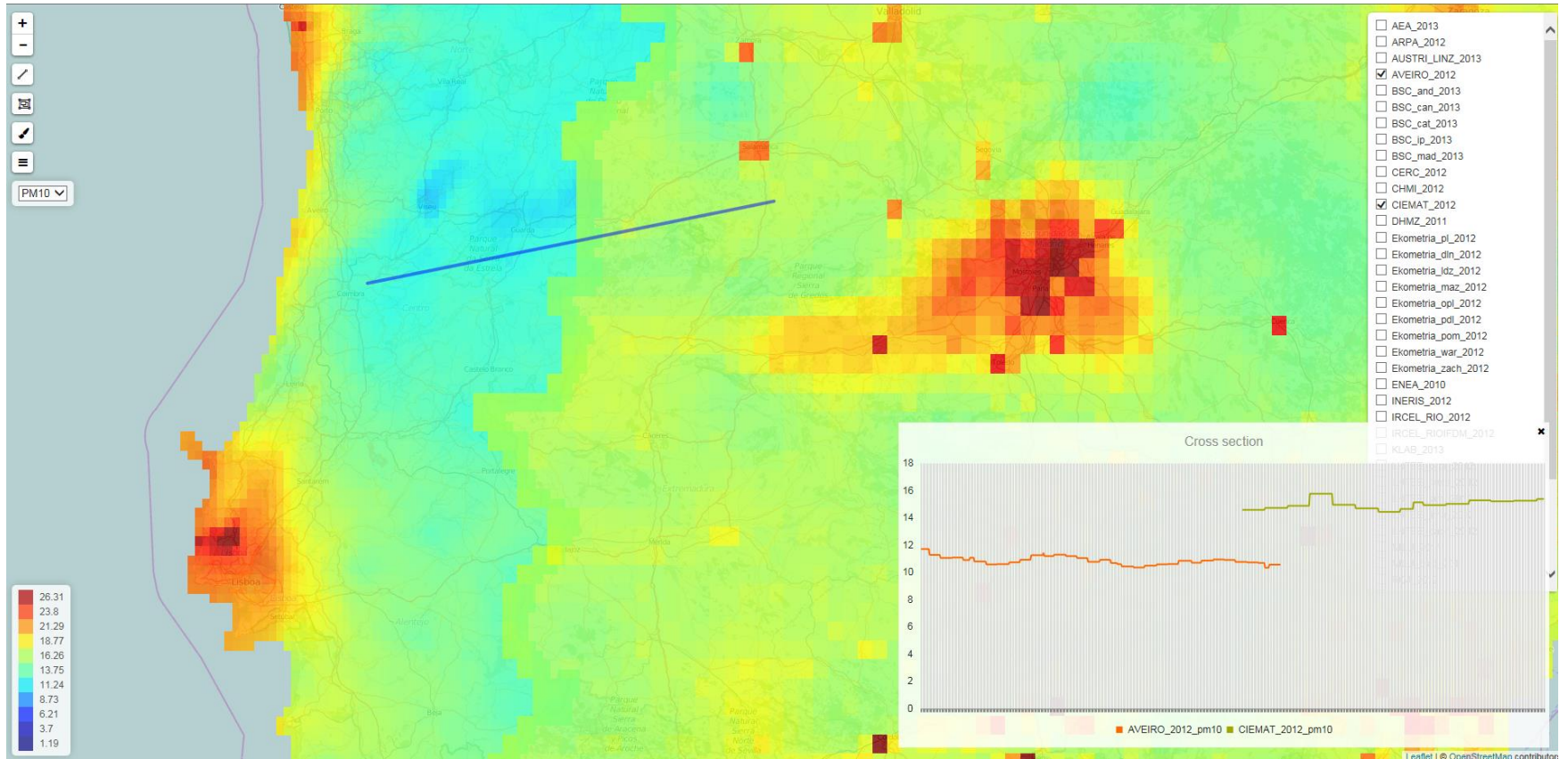


**FAIRMODE**

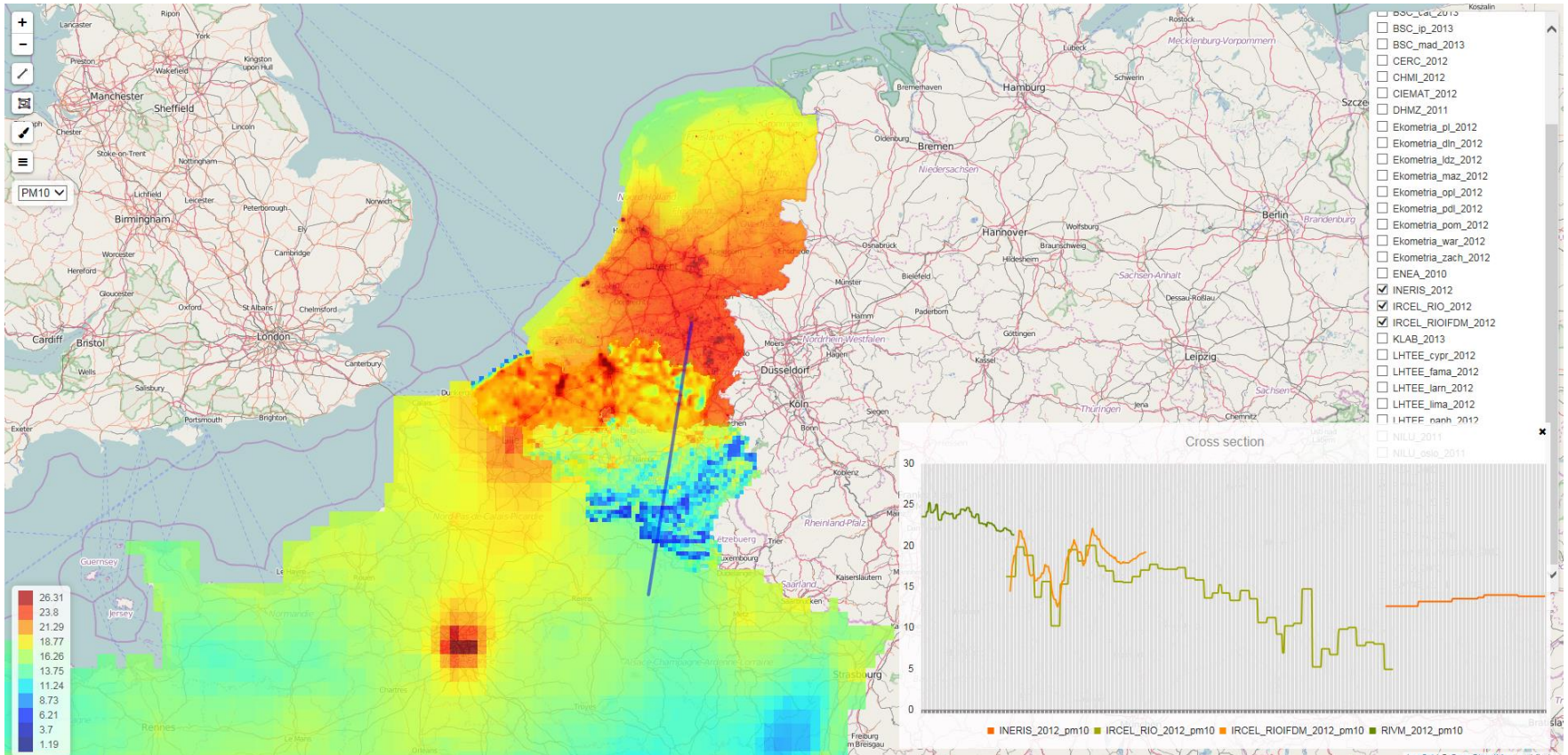
Forum for air quality modelling in Europe



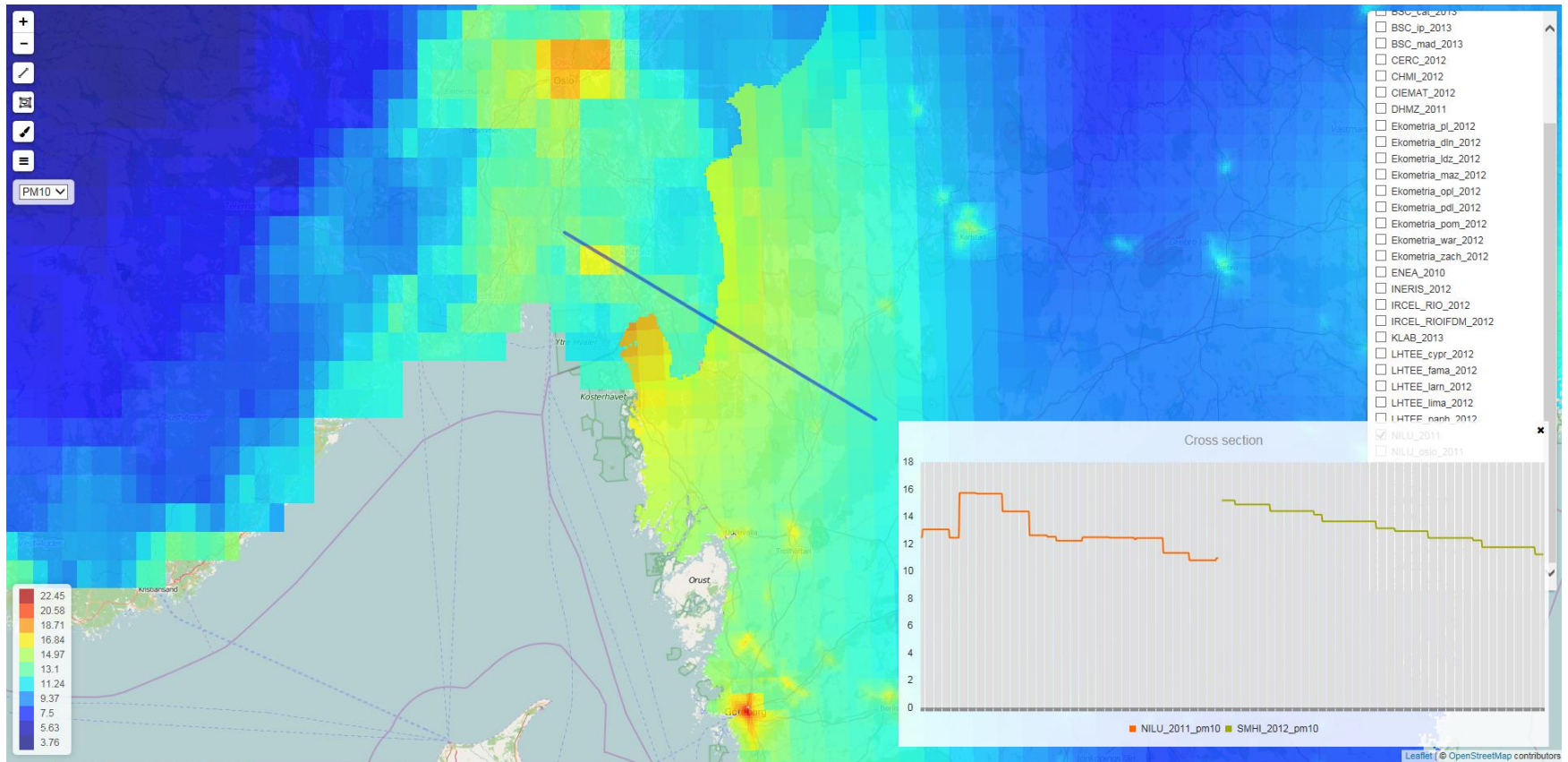
# BOARDER EFFECTS



# BOARDER EFFECTS

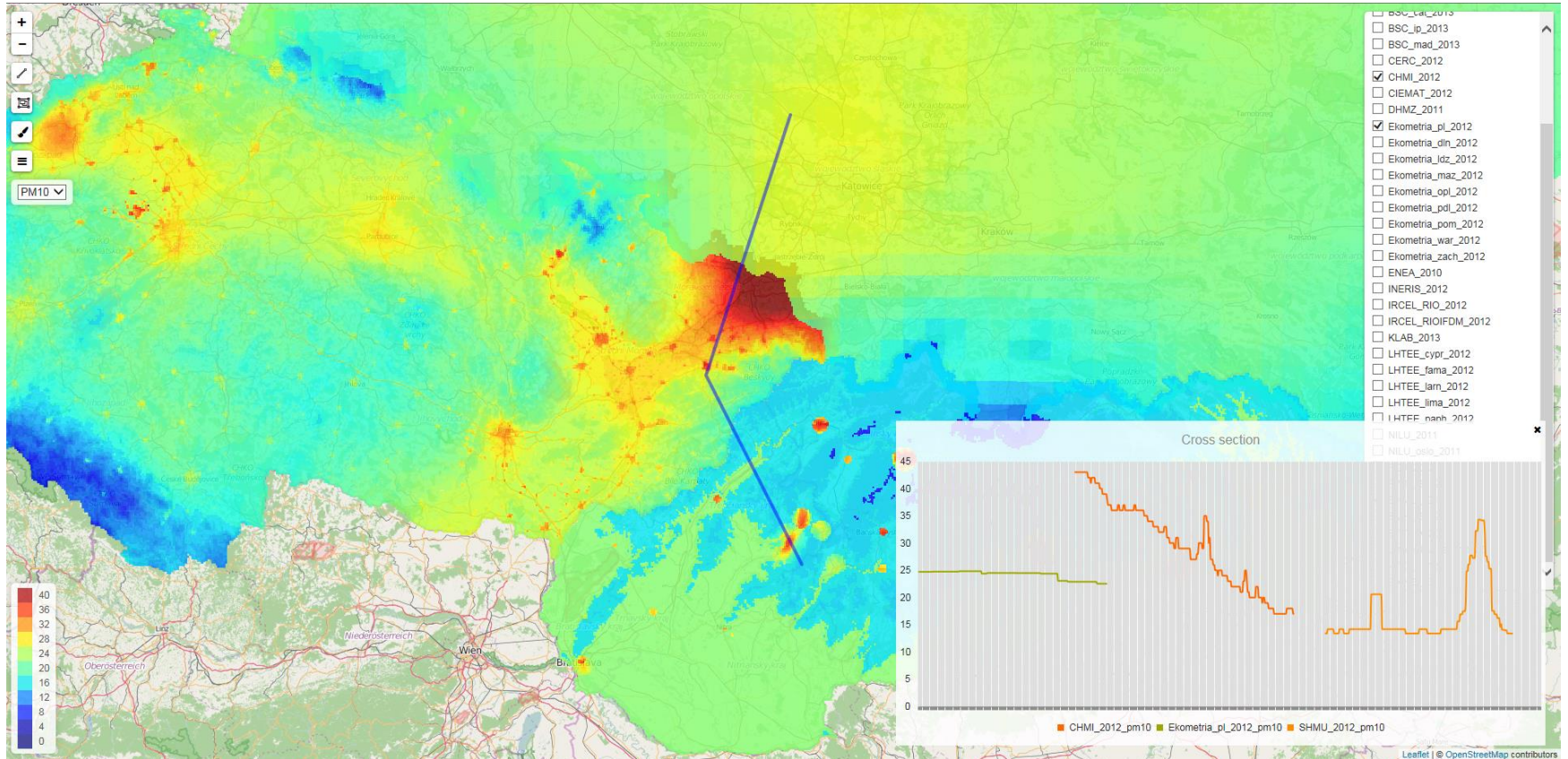


# BOARDER EFFECTS





# BOARDER EFFECTS





# JOINT RESEARCH CENTRE

The European Commission's in-house science service

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# FAIRMODE

Forum for air quality modelling in Europe

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## EU Composite Mapping Exercise

For registered users only, a bottom-up composition map of air quality over Europe is open for discussion:

[EU Composite Mapping Platform](#)

Interested members of FAIRMODE can view the results or request to participate to this exercise by registering at the [DELTA Benchmarking website](#)

### How to contribute

Members of FAIRMODE can upload their data through the [DELTA Benchmarking website](#). Before uploading, you need to [register](#) as a "Database contributor".

If you already have a username and password, you can login and proceed to [your profile page](#) where a dedicated area for database contributors is available.

### Background

One of the aims of FAIRMODE is to harmonize modelling practices and provide guidance to EU Member States (MS) on the use of models in the

### Current Activities

[EU Composite Maps](#)

[Source App. Intercomp.](#)

[Spat. Repr. Intercomp.](#)

### About FAIRMODE

### Working groups

[WG1 - Assessment](#)

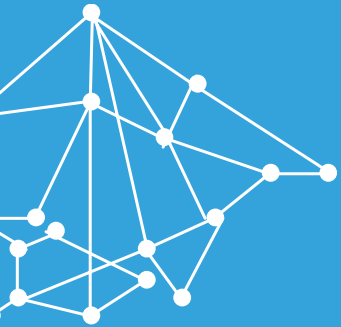
[WG2 - Emissions](#)

[WG3 - Source App.](#)

[WG4 - Planning](#)

### Tools

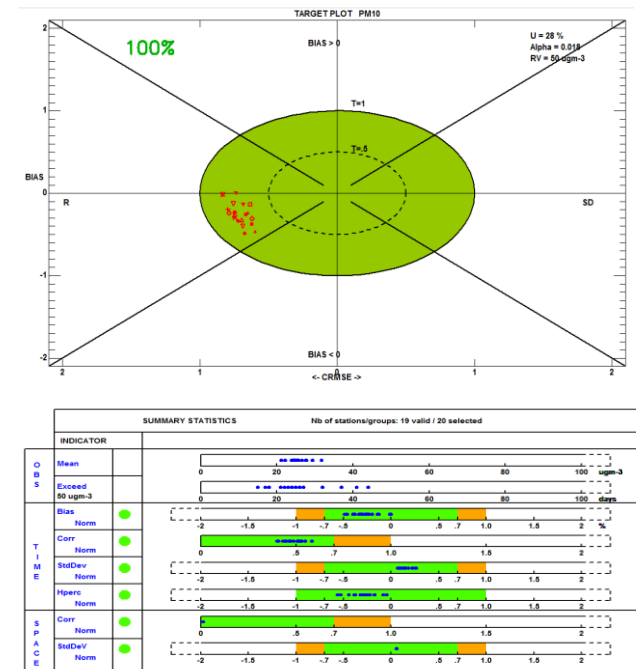
[DELTA - Benchmarking Tool](#)



**The future**

# WHAT WILL FAIRMODE DO WITH THIS EXERCISE

- » Use platform to solve **inter-regional** or **inter-national** discrepancies
- » Use composite map in combination with FAIRMODE's Benchmarking report to **analyze quality** of the AQ maps
- » Trigger discussions on:
  - » Use of **data assimilation** or data fusion techniques to produce air quality maps
  - » Quality and **consistency** of underlying **emission inventories**
  - » Choice of an adequate **spatial resolution** for a particular application
  - » ...
  - » Provide guidance for **e-Reporting**
- » Contribute (over time) to a **unique data set** for AQ assessment in Europe
- » Possibly extent the exercise toward a **Composite Emission map**



## NEW CONTRIBUTIONS

### *Interested to participate?*

- » All maps used in a “**policy context**” are welcome
- » Contributions are limited to the national, regional or local scale
- » Interested?
  - » Register at the FAIRMODE website
  - » Upload your map
  - » Participate in the discussions via FAIRMODE
  
- » Next upload deadline is **Wednesday 8 June 2016**
  
- » Further questions?
  - » Contact [stijn.janssen@vito.be](mailto:stijn.janssen@vito.be)