



# COST

**European Network on New Sensing Technologies for Air Pollution Control  
and Environmental Sustainability - *EuNetAir***  
**COST Action TD1105**

**Examples of guidelines/applications of environmental technologies for the  
Revision of the Air Quality Directive in Spain**

**WGs and MC Meeting at Rome, 4-6 December 2012**

**idaea<sup>a</sup>**

**CSIC**  
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

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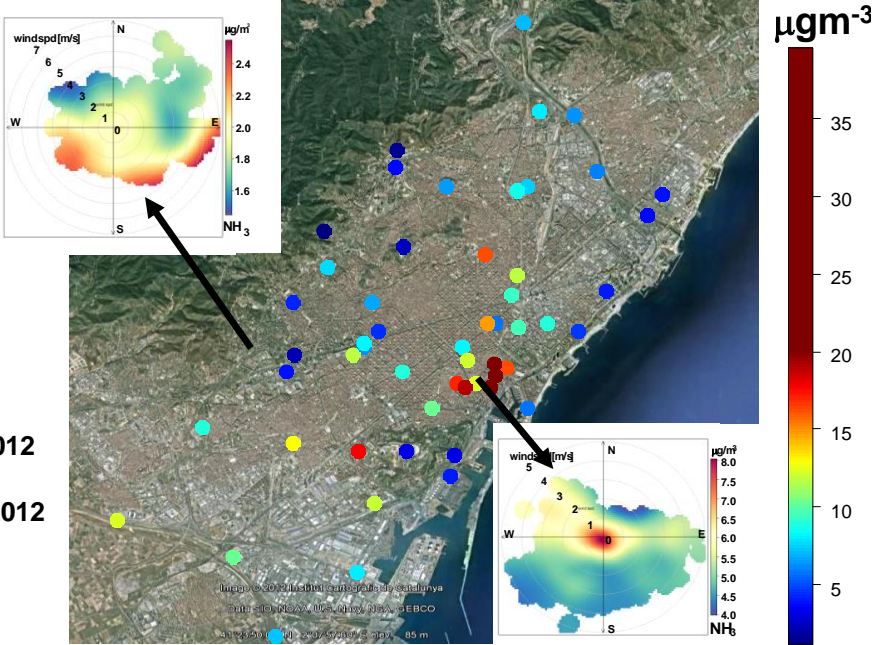


# Scientific context and objectives in the Action

- The new Air Quality Directive for 2018 needs some general advice as well as specific advice from countries with specific air quality characteristics
- **Brief reminder of MoU objectives:**
  - comments on Revision of air Quality Directive 2008/50/EC
  - suggestions: studies carried out in our group give support to some suggestions for the new Directive

# Current research activities of the Partner (1/3)

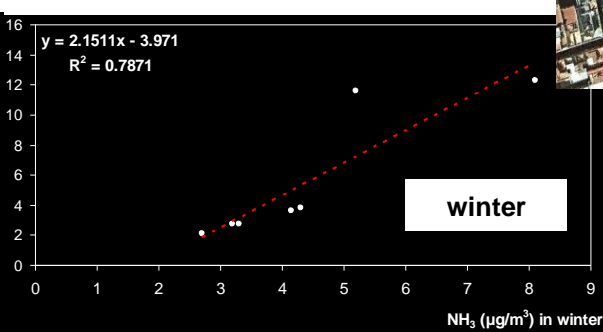
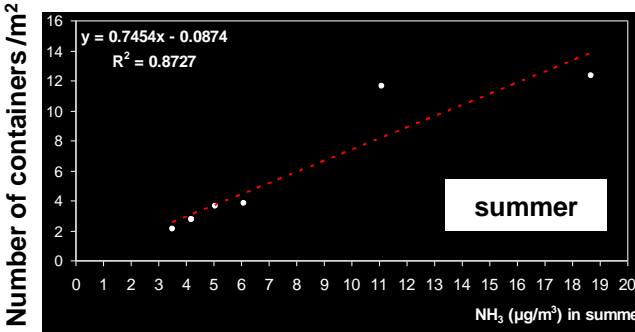
NH<sub>3</sub>



Reche et al., AE, 2012  
Pandolfi al., ACP, 2012



■ Open-air market   
 + Sewer  
◆ Garbage container



Reche et al., AE, 2012

Spanish legislation: mandatory to measure NH<sub>3</sub>, no limit established.

Limit for vegetation: 8 µg/m<sup>3</sup>, but effects can be seen at 3 µg/m<sup>3</sup>. No limit for persons.

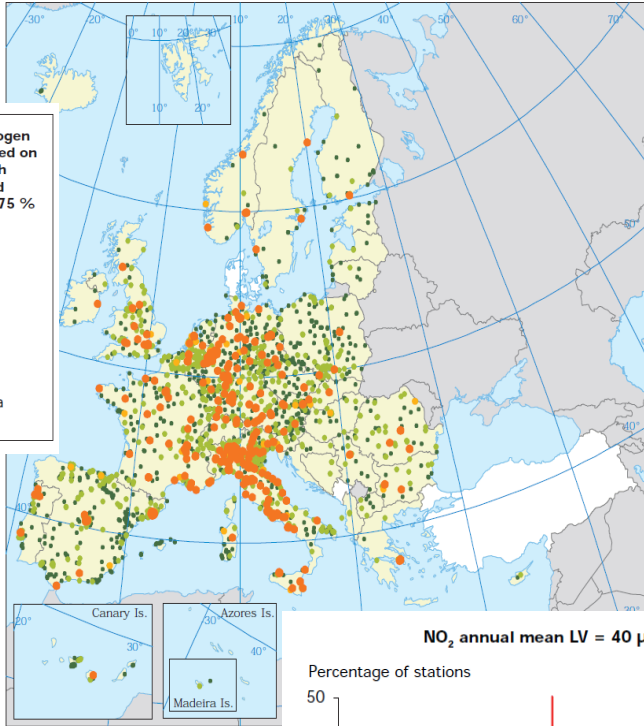


# Current research activities of the Partner (2/3)

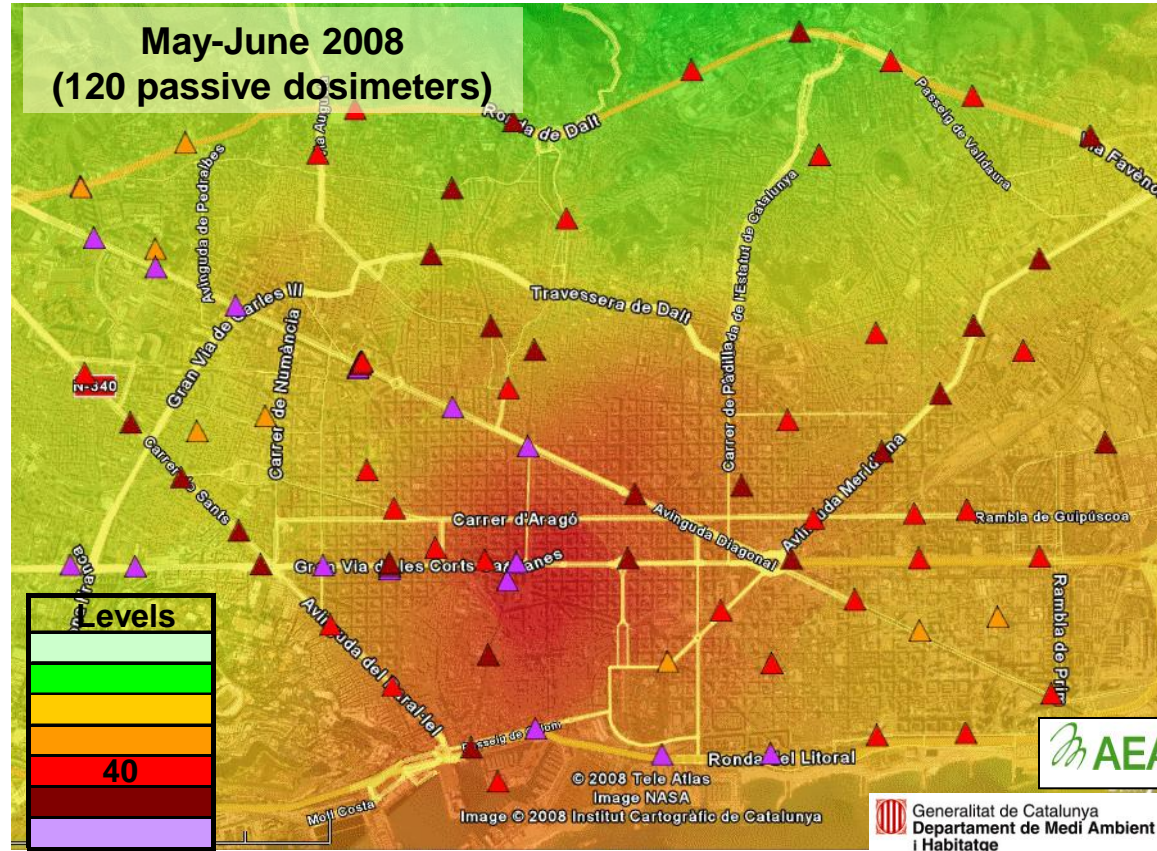
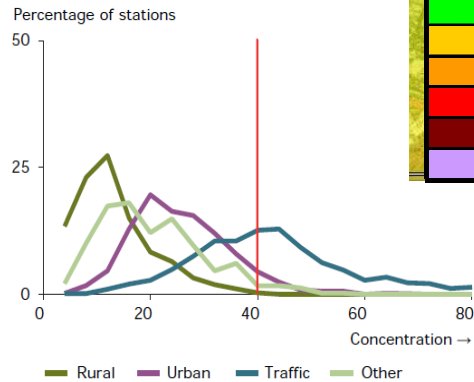
NO<sub>2</sub>

Annual mean, nitrogen dioxide, 2009, based on daily averages with percentage of valid measurements 75 % in µg/m<sup>3</sup>

- ≤ 20
- 20-40
- 40-42
- ≥ 42
- No data
- Outside data coverage

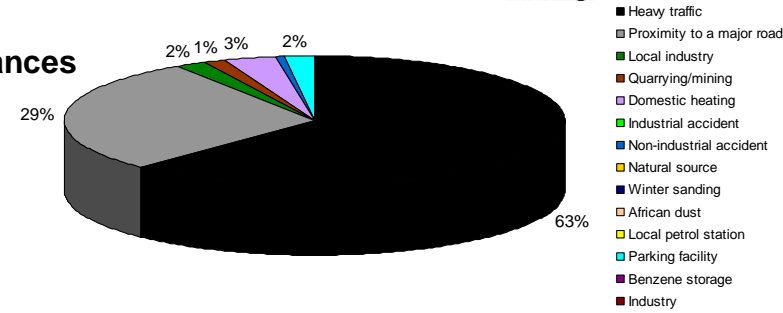


NO<sub>2</sub> annual mean LV = 40 µg/m<sup>3</sup>



Causes of exceedances of NO<sub>2</sub> limit (2001-2009)

53 sites



European Environment Agency 

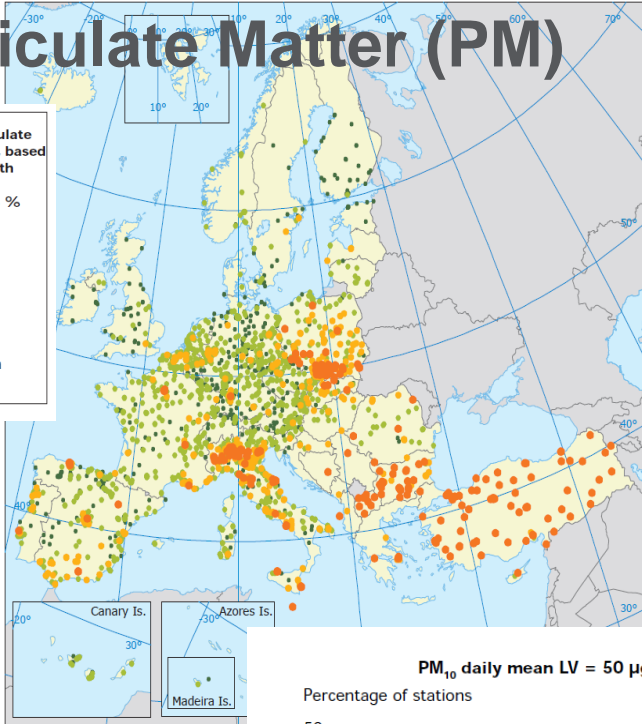
EEA Technical report No 12/2011

# Current research activities of the Partner (3/3)

## Particulate Matter (PM)

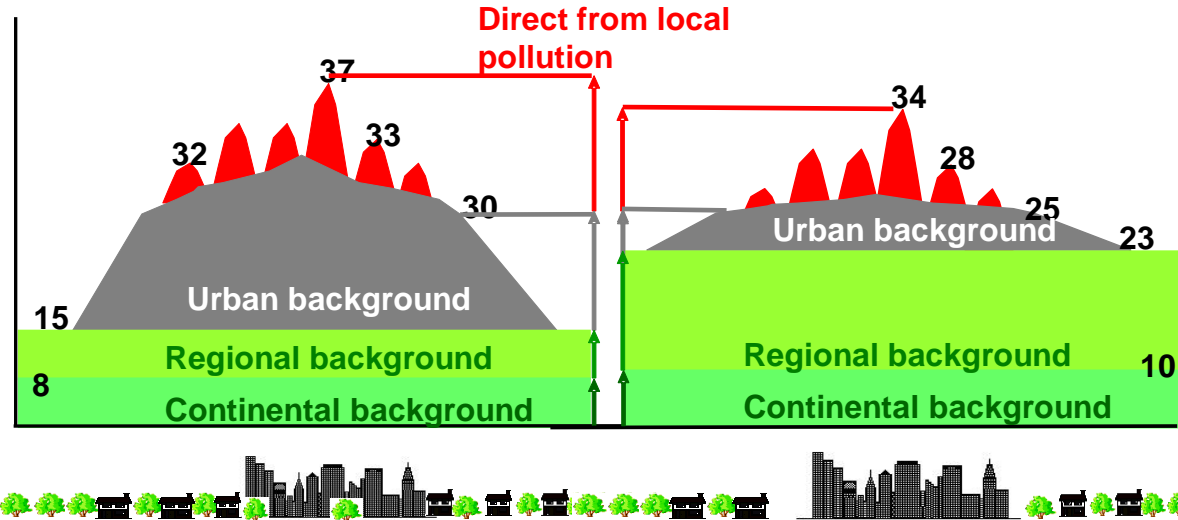
Annual mean, particulate matter (PM<sub>10</sub>), 2009, based on daily averages with percentage of valid measurements 75 % in µg/m<sup>3</sup>

- ≤ 20
- 20-31
- 31-40
- ≥ 40
- Outside data coverage



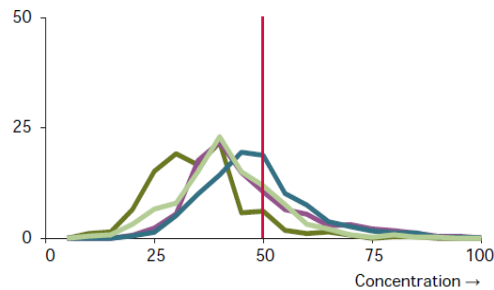
Madrid / Barcelona

Amsterdam



PM<sub>10</sub> daily mean LV = 50 µg/m<sup>3</sup>

Percentage of stations



— Rural — Urban — Traffic — Other



EEA Technical report  
No 12/2011

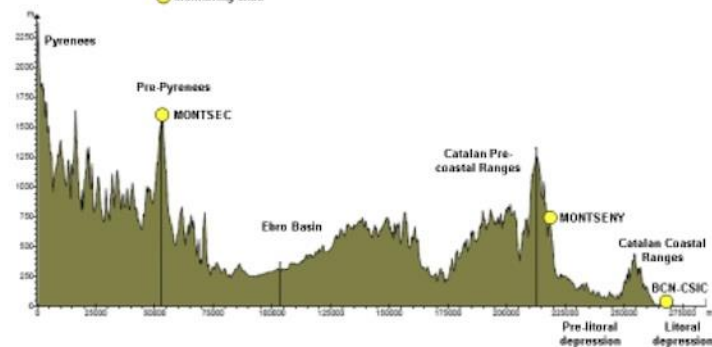
# Research Facilities available for the Partner (1/1)

- **Air quality monitoring network**, 3 sampling sites: urban, regional and continental/remote.



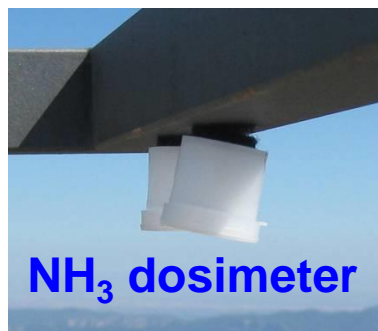
- **Instruments:**

- High and low volume samplers for PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>1</sub>
- Optical particle counters
- Absorption photometers, Aethalometers, Nephelometers
- Condensation particle counters (CPC)
- Scanning mobility particle sizers (SMPS)
- Aerosol chemical speciation monitor (ACSM)

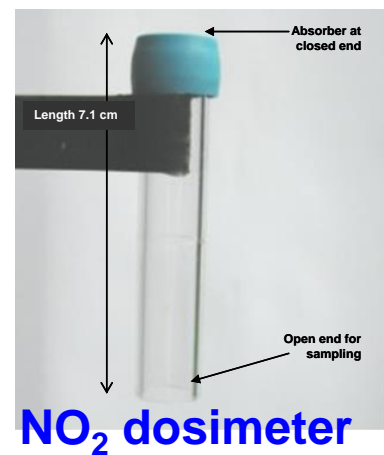


- **Laboratories/analysis techniques:**

- ICP-AES and ICP-MS
- Liquid chromatography
- Gravimetric analysis
- OC and EC (thermo-optical)



**NH<sub>3</sub> dosimeter**



**NO<sub>2</sub> dosimeter**



**NH<sub>3</sub> real time (rented)**



# Suggested **Priorities** for future research

Development of sensors for:

- NH<sub>3</sub>
- NO<sub>2</sub>
- PM