

Composite mapping tool:  
comparison of maps from  
Portugal, Spain, France and Italy

# Maps

- Spain: Two maps from BSC and CIEMAT.
  - BSC. HERMES emission model+CMAQ model (4x4 Km). 2013.
  - CIEMAT. National Emission Inventory (EMEP) + CHIMERE Model + data fusion (kriging). 2012. (10x10 km, improved for 2015 to 5x5 km).
- Portugal.
  - U. Aveiro. National Emission Inventory (EMEP) + CHIMERE Model
- France:
  - INERIS. EMEP emission inventory + CHIMERE Model (10x10 km) + Data assimilation for PM10 (5x5 km).
- Italy: Two maps from ENEA and ARPA.
  - ENEA. National emission inventory + FARM model. (5x5 km, whole Italy)
  - ARPA. Regional emission inventory composite + CHIMERE model..... (4x4 km, Northern Italy)

# Inconsistencies

- Spain: Two maps from BSC and CIEMAT.
  - Significant differences specially for PM10 (all domain, lower results for BSC), for NO2 in some cities.
  - CIEMAT overestimates NO2 at some rural background after comparing with AIRBASE.
  - **Different models (including data fusion), different year, different emissions, different resolution.**
- Italy: Two maps from ENEA and ARPA.
  - Differences in big cities like Milan
  - **Different models, different emissions.**

# Inconsistencies

- Portugal-Spain boundary:
  - PM10. BSC  $\ll$  Aveiro  $<$  CIEMAT
  - NO2. BSC  $\approx$  Aveiro  $<$  CIEMAT
- France-Spain boundary:
  - PM10. BSC  $<$  INERIS  $<$  CIEMAT
  - NO2. BSC  $<$  INERIS  $<$  CIEMAT
- Italy-France boundary:
  - PM10. ENEA  $\approx$  INERIS  $\approx$  ARPA
  - NO2. ENEA  $\approx$  INERIS  $<$  ARPA
- Causes:
  - **Different models (including data fusion), different year, different emissions, different resolution**

# Some suggestions for the composite mapping tool

- AIRBASE data. Remove traffic stations or option to switch them off.
- Maps. Color concentration scale range too narrow. Recommend to extend it.
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