

Clean air in cities: bridging the scales

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Context

- **December 2018** : the Convention on Long Range Transboundary Air Pollution adopted its long term strategy (2020-2030) - <http://www.unece.org/env/lrtap/welcome.html.html>

38. At the same time, it is increasingly evident that local air pollution, including in cities, is heavily influenced by the long-range and transboundary transport of pollutants. Improved multi-scale models and increased cooperation between different levels of government are needed.

65. Given that urban air quality is influenced by local, national and transboundary pollution and regional air quality by urban emissions abatement, the Task Force on Integrated Assessment Modelling should assess the health, materials and ecosystem impacts of measures taken on various geographical scales in order to identify appropriate multi-scale abatement strategies.

- For 40 years the convention focused on transboundary air pollution fluxes tracking their impact on background level
- For the first time, the need to better account for interlinkages between the scales (from the hemispheric to the urban scales) to develop efficient air pollution control strategies was clearly set

PM2.5 episodes : a good illustration

Episodes and high concentrations result from local sources in the cities (traffic and residential heating) and re influenced by regional sources (agriculture)

→ **Development of local/national/sectoral action plans is essential**

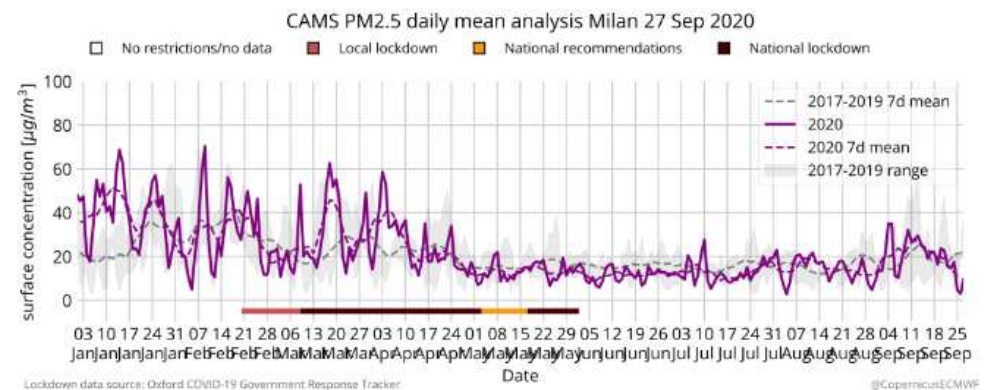
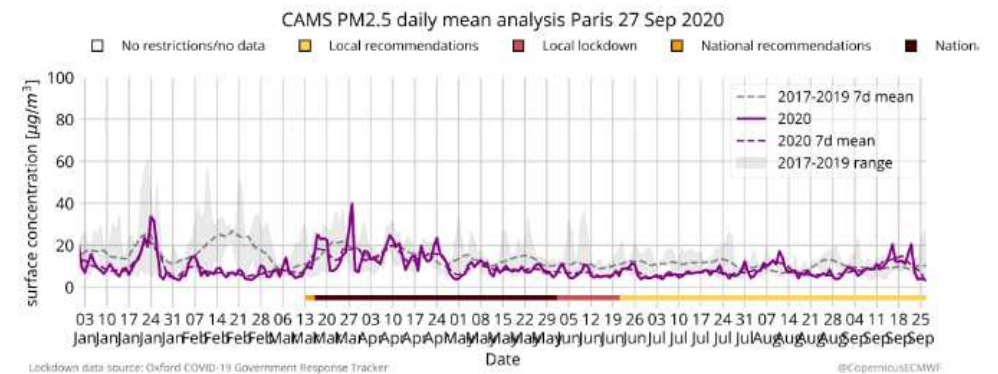


High resolution (7km) CHIMERE runs in March 2014
(ammonium nitrate episode in Europe)

Other evidences : AQ impacts of the Covid-19 lockdown

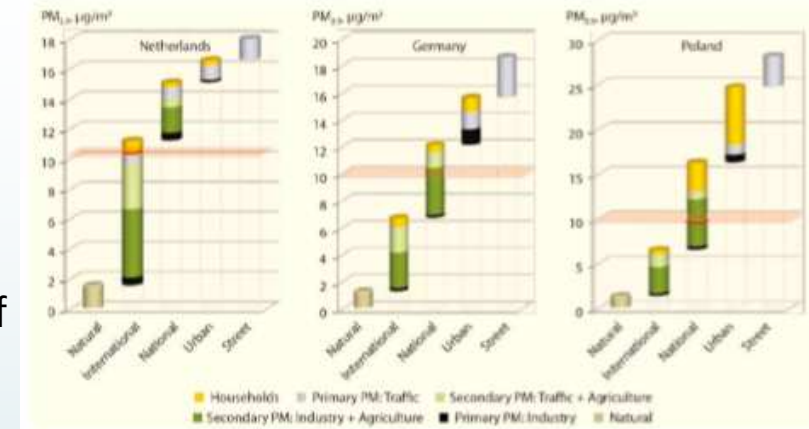
- Lockdown stated in most of the European countries led to dramatic reductions in road traffic emissions in concerned cities
- Consequently reductions in NO₂ concentrations were quickly observed everywhere (By 50-60% in some cities)
- But situation for PM was much more complex with more limited decreases in concentrations
 - Influence of multiple sources (residential heating)
 - Influence of long range transport of secondary compounds

-  Also more on <https://www.eea.europa.eu/themes/air/air-quality-and-covid19/air-quality-and-covid19>



Bridging the scales: a challenge and a need

- Cities can be considered as air pollution sources (the largest ones) that have local and regional impacts (export to regional background)
- On the other side, in some city areas, contribution of transboundary fluxes exceeds 50% of PM concentrations
- Effects of local measures such as speed limits, LEZ, episode warnings are generally weak if taken alone
- And local policies benefit from sectoral and national measures : energy policies, ammonia emission reductions, public transport policies, shipping control measures ..
- Cities are major actors for the implementation of national/sectoral policies
- Bridging towards the international scale can even be required : the ozone issue





CLRTAP strategy: the expert panel on clean Air in Cities (EPCAC)

- To go a step further in air quality management, multi-scale actions plans are required but how to define them....
 - Pollutant oriented, need to understand changes in chemical regimes that drive air pollution patterns
 - Raises governance and legal issues with a large variety of situations in the UNECE region
- The Convention looks for good practices at the different scales and benefits from interlinkages and synergies :
 - with urban planning strategies : reducing not only air pollutant concentrations but also exposure
 - with other policy frameworks : climate, energy, agriculture

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- ▶ **The EPCAC has been established in 2018 under the EMEP task force on Integrated Assessment Modelling (TFIAM) to:**
 - ▶ gather a community and develop dialogue between the scales,
 - ▶ raise the need for bridging strategies,
 - ▶ develop new tools
 - ▶ and share good practises and objective analysis of their impacts
 - ▶ Additional perspective for the Convention : **the review of the Gothenburg Protocol !**

Thank you for your attention !

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