



GOBIERNO
DE ESPAÑA

MINISTERIO
PARA LA TRANSICIÓN ECOLÓGICA

Wrap-up and conclusions

Nature of the problem:

- NO_x, VOC, CH₄, etc.
- Biogenic VOC
- Industry, Transport, energy generation, etc.
- Rural/urban areas/exposure
- Meteorology: relevant specially for O₃ peaks
- Internationally influence: relevant for O₃ average
- Climate change penalty: relevant and significant
- Combination of complex chemistry and complex atmospheric dynamics which changes depending on the place
- Non linear chemical relations

Trends:

- Reductions in peaks
- Averages stable and increasing

Challenges:

- International transport of pollution (EU/regional/local precursor emissions still relevant)
- Ozone climate change penalty
- Investigation on the nature of O₃, local conditions seems to be relevant
- Effective communication to public
- Interlinkages O₃/PM_{2,5} formation
- Quantification of influence of biogenic VOCs
- Changes in chemical regimes in Europe

Most effective approach:

- Scientific knowledge
- Abatement of antropogenic emissions of O₃ precursors
- Final common elements from several complexities of the problem
- Global monitoring strategy to be conceived

Impacts:

- New evidences for the update of WHOG
- Strong recommendation to develop a numerical guideline for long-term exposure
- Ozone is affecting vegetation and ecosystems
- Effects better related to dose absorbed than exposure
- Methodology based on fluxes available for ozone risk assessment (already in NECD)
- Interaction with other pollutants and other factors like climate

Models:

- Numerical models are matured to support enough policy decisions
- Simulating episodes remain a challenge
- Investigating model responses to local emission changes in urban areas are still necessary
- Simulating the impact of future dry summers

- There are uncertainties in emission inventories that need to be reduced
- Significant reductions in premature deaths attributable to ozone and also vegetation impact (2005-2030) expected according to the models
- NO_x and VOC have substantially declined and are expected to do it further. This will impact peaks but average will be counteracted by methane increase

Policy dimensión:

- Fitness check: Second workshop 15/01/2019
- Local/regional measures are relevant but AQ plans for O₃ need to be based on structural coordination with European/international measures. Country studies may be conducted to understand and take the good decisions
- Challenges:
 - Integrated approach
 - Transfer of knowledge
 - Development of models
 - It is essential interaction between policymakers and scientists.
 - Speciated VOC monitoring strategy is essential. It can be from supersites from research networks provided funding is available
 - Long term monitoring must be supported to assess control policies

Public info:

- Clear and effective information should be provided to public by using effective communications ways
- Improving cooperation with health authorities for increasing the awareness specially sensitive population
- Improvement knowledge on air quality problems in general and ozone on particular would be needed
- Develop communication strategies and tools and build up public confidence
- Coordination of the messages given at the various scales (AQI should be harmonized)
- EU information threshold for PM and other pollutants would be necessary

Strategies to solve problem

- Strengthen measures targeted at other policy objectives with co-benefits for ozone (further NO_x reductions/methane mitigation/further VOC cuts)
- Large scale reductions of background ozone requires large scale NO_x and methane mitigation
- Look for win win accounting for the nitrogen cycle
- VOC cuts may reduce local ozone peaks and urban plumes
- Revive ozone research because there are gaps in scientific understanding difficult to develop robust ozone strategies
- International/hemispheric coordination is essential
- Detailed analysis of modelled results are needed
- Shipping



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Thank you!



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