



**Task Force on Hemispheric
Transport of Air Pollution**

Introduction to the LRTAP Convention and this Workshop

**TF HTAP / TFMM Joint Workshop
Exploring Regional-Global Modeling
and Air Quality-Climate Linkages**

Paris, 17-19 June 2009

<http://www.htap.org>

Task Force Co-Chairs

Measurement and Modeling

Laurence Rouil, INERIS

Liisa Jalkanen, WMO

Hemispheric Transport of Air Pollution

André Zuber, European Commission

Terry Keating, U.S. EPA

CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

- Adopted in 1979, the first multi-lateral agreement on air pollution
- Created a framework on which has been built eight Protocols, all in force as of May 2005.
- The Protocols have aimed to increase ambition levels in a stepwise manner.
- Day to day activities supported by a Secretariat at the UN Economic Commission for Europe
- <http://www.unece.org/env/lrtap/>



Protocols to the Convention

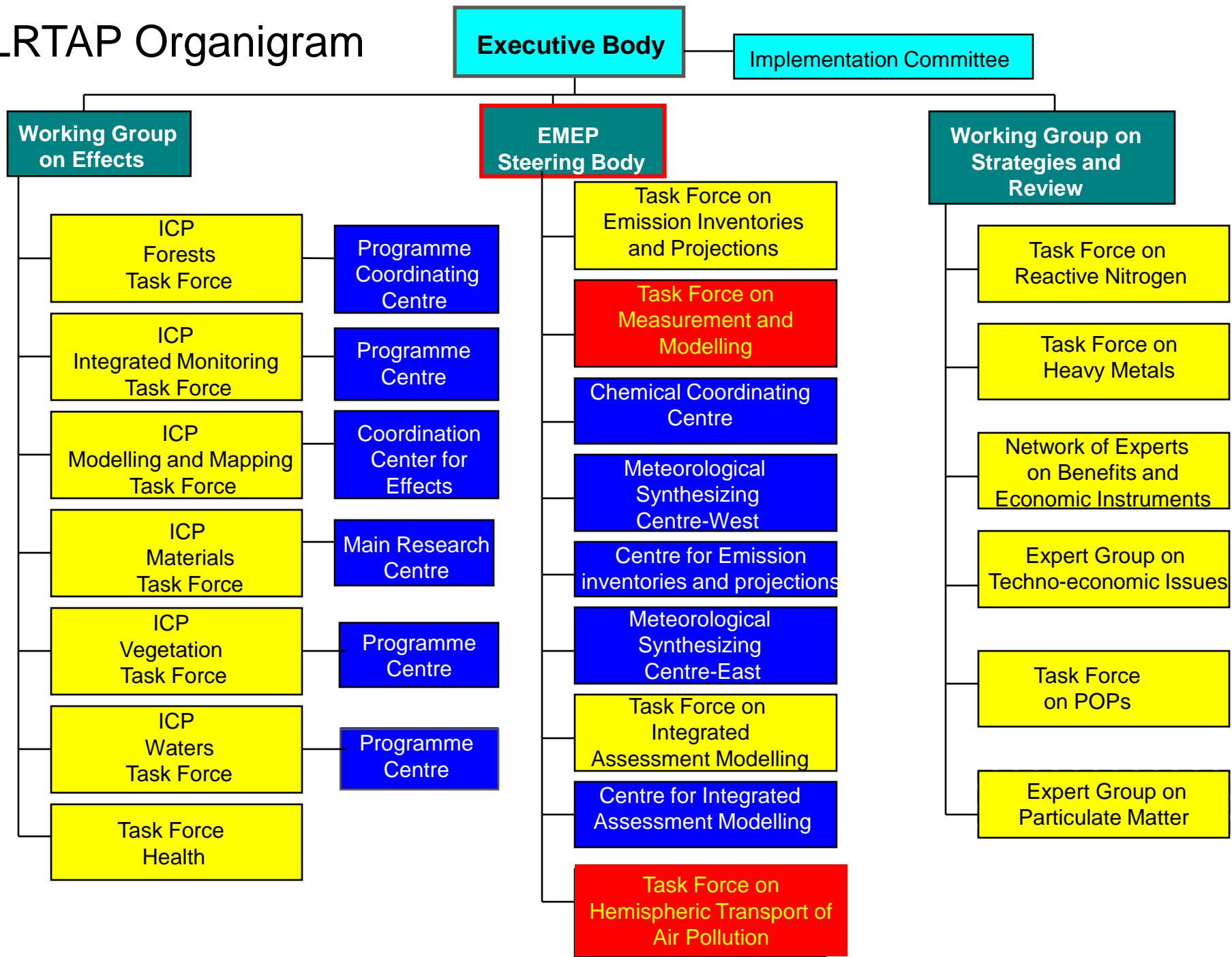
- **1984 EMEP Protocol**
 - Established permanent funding for monitoring and modeling program.
- **1985 Sulphur Protocol**
 - Reduce 1980 annual sulfur emissions by at least 30 percent
- **1988 NOx Protocol**
 - Reduce and hold NOx emissions below 1987 levels by 1993
- **1991 VOC Protocol**
 - Reduce 1984 annual VOC emissions by 30 percent by 1999
- **1994 Sulphur Protocol**
 - Reduce emissions by 50 to 80 percent by 2000/2005
- **1998 Protocol on Heavy Metals**
 - Cadmium, Lead and Mercury
- **1998 Protocol on Persistent Organic Pollutants (POPs)**
 - Pesticides, PCBs, Dioxins/Furans (16 compounds).
- **1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone**
 - NOx, VOCs, Sulphur, Ammonia

CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

51 Parties in Europe, North America and Central Asia



CLRTAP Organigram



Task Force on Measurements and Modeling

- Supports the EMEP Steering Body and its Bureau by:
 - Reviewing and assessing the scientific and operational activities of EMEP related to monitoring and modelling;
 - Evaluating their contribution and support to the effective implementation and further development of the Protocols;
 - Drawing up specific proposals for the EMEP work-plan;
- Provides for closer collaboration of Parties to the Convention, the EMEP centres, other bodies under the Convention, other international bodies and the scientific community in strengthening scientific communication and cooperation in air pollution monitoring and modelling.

Focused on the European Region

Task Force on Hemispheric Transport of Air Pollution

The Task Force is charged to “plan and conduct the technical work necessary to:

- develop a fuller understanding of the hemispheric transport of air pollution ...
- estimate the hemispheric transport of specific air pollutants for the use in reviews of protocols to the Convention
- prepare technical reviews thereon for submission to the Steering Body of EMEP”
- The chair(s) are encouraged to invite individuals with expertise relevant to the work of the Task Force and experts from non-Convention countries in the northern hemisphere.

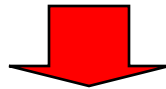
Focused on the Northern Hemisphere

Participation in the TF HTAP

- Participation is open to all interested experts
- All countries in the Northern Hemisphere have been invited to nominate “National Focal Points”
- Task Force reports are developed by consensus, but are official reports of the Co-Chairs to the LRTAP Convention.
- Experts from 22 countries outside the UNECE have participated in at least one of the Task Force’s past meetings.

Relationship to Other Regional and Global Initiatives

- TF HTAP seeks to build upon the work of the EMEP centres and Task Forces
- Engage experts from other regional initiatives: AMAP, EANET, Malé Declaration, ASEAN, ABC-Asia, ...
- Engage experts from the global atmospheric science community and leverage joint efforts: IGAC, Atmospheric Chemistry & Climate Initiative, IPCC
- Engage experts and leverage activities under other global forums: Stockholm Convention on POPs, UNEP Mercury Program and Associated Partnerships, GEO



- To build a common understanding of intercontinental transport of air pollution in the Northern Hemisphere

TF HTAP Major Work Areas

- Global Emissions and Projections
- Compilation of Relevant Observational Evidence
- HTAP Multi-Model Experiments
- HTAP Data Network
- Assessment Reports
 - HTAP 2007: focused on O₃ and Aerosols
 - **HTAP 2010: O₃, Aerosols, Hg, and POPs**

Exploring Linkages

- **Methodological Issues in Linking Regional and Global Scale Air Quality Models**
 - *Greg Carmichael, University of Iowa, Chair*
 - What methodological challenges have been encountered in linking regional and global scale models that may include different processes and have different structures and parameterizations?
 - How have these challenges been addressed?
 - How do the results of downscaling or one-way nesting compare to the results from multi-scale, two-way nested models?
 - What lessons are available to be learned about the processes and resolution needed in models to quantify intercontinental transport?

Exploring Linkages

- **Methodological Issues in Linking Regional and Global Scale Air Quality Models**
- **The Impacts of Climate Change on Air Quality**
 - *Keith Puckett, Environment Canada, Chair*
 - How will expected meteorological changes (including changes in temperature, precipitation, mixing heights, ...) affect air quality on regional and global scales?
 - How will climate change affect synoptic transport patterns and the frequency of stagnation events?
 - How will expected changes in global atmospheric composition affect air quality and long-range transport?
 - How will climate change affect the magnitude of emission reductions needed to achieve air quality objectives?

Exploring Linkages

- **Methodological Issues in Linking Regional and Global Scale Air Quality Models**
- **The Impacts of Climate Change on Air Quality**
- **The Impacts of Air Pollutants on Climate Change**
 - *Frank Dentener, JRC, Chair*
 - How do traditional air pollutants, such as ozone and fine particle precursors, contribute to climate change?
 - How do changes in the emissions of these pollutants on a regional scale affect climate on regional and global scales?
 - What air pollution control strategies can have benefits for both air quality and climate change?

Exploring Linkages

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- **The Impacts of Air Pollutants on Climate Change**
- **The Impacts of Air Pollutants on Climate Change: Further Focus on Ozone**

– *David Stevenson, University of Edinburgh, Chair*

Exploring Linkages

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- **The Impacts of Air Pollutants on Climate Change**
- **The Impacts of Air Pollutants on Climate Change: Further Focus on Ozone**
- **Discussion of Implications and Messages**
 - What should TF HTAP and TFMM address in future work plans?
 - What messages should be communicated back to the EMEP Steering Body and LRTAP Executive Body?

Exploring Linkages

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- **Discussion of Implications and Messages**
- **Status and Planning of Future Cooperative Work**
 - Recent Progress and Findings
 - Plans for Analysis to be Completed for *HTAP 2010*
 - *HTAP 2010* Writing Process and Meeting Schedule

Some Practical Notes

- Presenters are asked to keep presentations to **15 min** to allow for some questions and transitions.
- Presenters are asked to provide any revisions to their presentations by next **Wednesday, 24 June**.
- Presentations will be posted in PDF form at **www.htap.org** as soon as possible