



# Task Force on Hemispheric Transport of Air Pollution

## HTAP Intercomparison & Data Server Status

**F. Dentener, C. Cuvelier, M. Schultz  
and TF HTAP modellers**

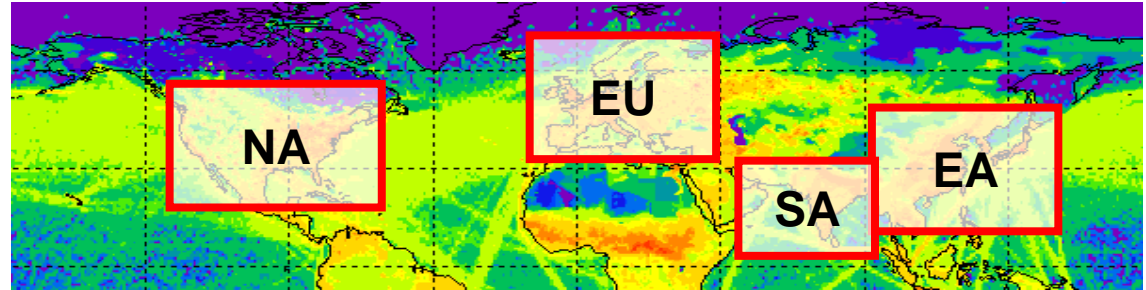
<http://www.htap.org>

# **Purpose of and Participation in TF HTAP**

- Created in December 2004 by the UNECE Convention on Long-Range Transboundary Air Pollution
- TF HTAP is organized under EMEP and engages with the EMEP Centres and other EMEP Task Forces.
- United States and European Community are the Lead Parties.
- To improve the scientific understanding of intercontinental transport and hemispheric air pollution in the Northern Hemisphere.
- Participation is open to all interested experts.
- **Focus on the “7 science questions”**
- **Coordinated model studies: provide harmonized information to the HTAP interim and final reports**

# Overview of experiment set 1

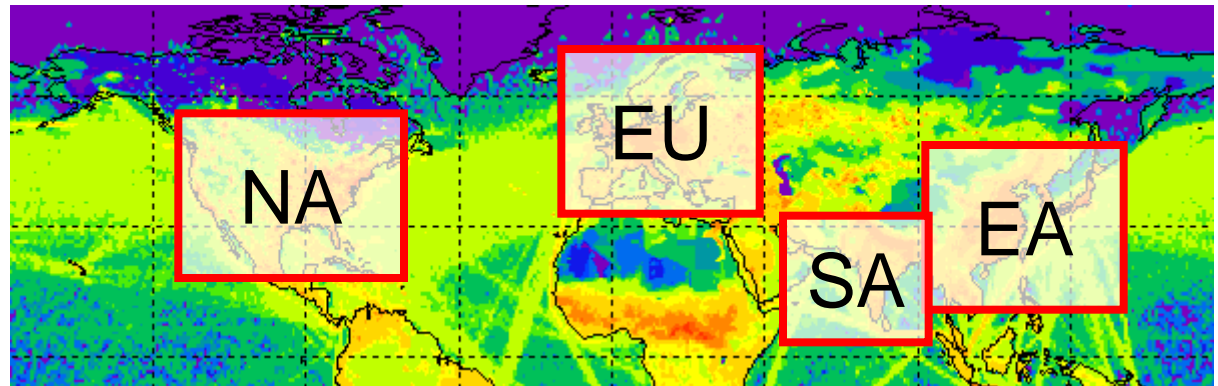
## Source Receptor Relationships



- Importance and uncertainties of hemispheric transport processes for **ozone and its precursors, particulate matter**
- Using ‘**best**’ **emission inventory and meteorological dataset** for 2001.
- Simulations consist of a reference simulation (2001), and simulations **with anthropogenic emissions decreased in each region by 20 %**.
- The four regions of interest for Source Receptor Relationships are **Europe (EU), North America (NA), East Asia (EA), South Asia (SA)**.
- **>25 models** participated in Experiment 1

# Overview of experiment set 1

[www.htap.org](http://www.htap.org)



1. SR1 = base case (methane prescribed 1760 ppb)
  2. SR2 = global methane reduction by 20% (1408 ppb)
  3. 4x SR3 = regional **NO<sub>x</sub>** anthropogenic emissions reduced by 20%
  4. 4x SR4 = regional **NMVOC** anthropogenic emissions reduced by 20%
  5. 4x SR5 = regional **CO** anthropogenic emissions reduced by 20%
  6. 4x SR6 = regional reduction of **all anthropogenic emissions** by 20%
- 18 experiments in total (each at least 18 months simulation time)**

# Coordinated Model Studies

Exp Set 1: Source Receptor Experiments (SR1-SR6)

Exp set 2: Tracer experiments that enhance understanding of the uncertainties (TP1, TP1x)

Exp Set 3: Parallel detailed experiments for mercury, ozone, aerosols, campaigns

Exp Set 4: Further assessment of uncertainties, and future scenarios.

# A Path to a 2009 Assessment

**Focused Workshops**

*Building Consensus*

**TF Meetings**

*Reviewing Results, Planning*

2005 June

Science Questions,  
*Brussels*

2006 Jan

New Research

Modeling, *Washington*

June

& Report Writing

Hg/POPs, CH<sub>4</sub>, *Moscow*

Oct

Emissions, *Beijing*

2007 Jan

Integrated Observations,  
*Geneva*

May-  
June

Interim Report to Protocol  
Review, Climate, *Reading*

Oct

*Modeling, Jülich*

2008 April

*Hg/POPs, Rome*

June

*U.S.*

Oct

[Tropics, *Asia*]

2009 Feb

[w/ TF MM, AC&C]

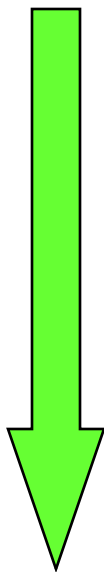
June

?

Oct

Assessment Report

?




# IT aspects

- Wiki
- Model descriptions
- CF conventions
- Julich dataserver
- Model participation and delivery of results







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## CF Standard Names - CF Standard Names - Submitted Atmospheric Chemistry and Aerosol Terms

Return to [Start page for Atmospheric Chemistry and Aerosol Names](#) PLEASE DO NOT USE THE NAVIGATION BAR ON THE LEFT HAND SIDE!

CF: a step to interoperability of model output  
 CMOR: a library ensuring CF conformant output

- Version 1: 20.12.2006  
 Version 2: 09.01.2007  
 Version 3: 13.03.2007  
 Version 4: 02.05.2007  
 Version 5: 08.05.2007  
 Version 6: 11.07.2007

This table gives a list of variables that have been almost accepted by the CF community [CF mailing list](#).

The standard\_names listed on this page are used within [model intercomparison](#) within the Task Force on Hemispheric Transport of Air Pollution [TF HTAP](#). However, as the simulations already started before the names have been officially approved by CF, some minor changes will be necessary.

### TABLE VERSION 6

CF Standard_name	Canonical unit	Explanation
<b>volume mixing ratios</b>		
mole_fraction_of_gaseous_elemental_mercury_in_air	1=mole mole-1	
mole_fraction_of_gaseous_divalent_mercury_in_air	1=mole mole-1	
<b>tendency of atmospheric mass content due to dry deposition</b>		
tendency_of_atmosphere_mass_content_of_all_nitrogen_oxides_expressed_as_nitrogen_due_to_dry_deposition	kg m-2 s-1	NOy is the sum of all simulated oxidized nitrogen species, out of NO, NO2, HNO3, HNO4, HONO, NO3aerosol, NO3(radical), N2O5, PAN, other organic nitrates. Dry deposition includes gravitational settling, impact scavenging, and turbulent deposition. Expressed as mass of N. Dry deposition includes gravitational

# Julich Dataserver

- All data on a unix server in Julich (M. Schultz) (R. Husar interoperability)
- First check by C. Cuvelier
- User directory and into public directory after several checks; backup at JRC
- Several tools available
  - HEMITAP tool
  - IDL tools via WIKI available

- HemiTap Tool is up-to-date (4/APR/2008), including the recent TP1x results
- Directories: DVS, DVS\_SEP2007  
HOURLY-DAILY\_SEP2007  
HOURLY-DAILY\_UPDATE
- 35 models: about half had a resolution better than 3 x2
- 19 from Europe, 14 from North America; 2 from Japan
- 144 Gb (in DVS)
- 353 + 35 Gb (in HOURLY-DAILY)

# Model results completeness

Experiment	# models
SR1	35
SR1-SR6 Complete	15 (about 10 a subset)
SR6 aerosol	Ca. 10
TP1	8
TP1x	12
SR7	3
SR8	2

# Model Overview (1)

NR	MODEL	RESOLUTION	RESPONSIBLE
01	GEOSChem-v07	144 x 91 x 30	Rokjin Park
02	MOZARTGFDL-v2	192 x 96 x 28	Arlene Fiore
03	STOCHEM-v02	96 x 72 x 20	Kirsty Pringle, Michael Sanderson
04	CAMCHEM-3311m13	144 x 96 x 28	Peter Hess
05	INCA-vSSz	96 x 72 x 19	Michael Schulz, Sophie Szopa
06	LLNL-IMPACT-T5a	144 x 91 x 48	Cynthia Atherton, Dan Bergmann
07	MSCE-HM-v4.5 (NH)	144 x 37 x 8	Oleg Travnikov
08	MSCE-POP-v2.2 (NH)	144 x 37 x 8	Alexey Gusev
09	EMEP-rv26 (NH)	360 x 90 x 20	Jan Eiof Jonson, Peter Wind
10	OsloCTM2	128 x 64 x 40	Michael Gauss
11	FRSGUCI-v01	128 x 64 x 37	Oliver Wild
12	UM-CAM-v01	96 x 73 x 19	Guang Zeng
13	TM5-JRC-cy2-ipcc-v1	360 x 180 x 25	Frank Dentener, Elina Marmer
14	MOZECH-v16	192 x 96 x 28	Martin Schultz, Sabine Schröder
15	GEOSChem-v45	72 x 46 x 30	Marta Garcia Vivanco

# Model Overview (2)

NR	MODEL	RESOLUTION	RESPONSIBLE
16	GOCART-v4p1	144 x 91 x 30	Thomas Diehl
17	GEMAQ-v1p0	180 x 90 x 28	Alex Lupu
18	GEMAQ-EC	96 x 72 x 20	Sunling Gong
19	ULAQ-v02 v03	64 x 37 x 28	Veronica Montanaro, Eva Mancini
20	SPRINTARS-v356	320 x 160 x 20	Toshihiko Takemura
21	ECHAM-HAMMOZ-v21	128 x 64 x 31	Gerd Folberth
22	STOC-HadAM3-v01	72 x 36 x 19	Ian MacKenzie
23	INCA-v2MS	96 x 73 x 19	Michael Schulz
24	GISS-PUCCINI-modelE	72 x 46 x 23	Drew Shindell
25	GISS-PUCCINI-modelA	72 x 46 x 23	Drew Shindell
26	GMI-v02a	144 x 91 x 42	Huisheng Bian
27	GOCART-v4p2	144 x 91 x 30	Thomas Diehl
28	GMI-v02f	144 x 91 x 42	Bryan Duncan
29	HADGEM-A-v01	192 x 145 x 38	Shekar Reddy



# Delivery Overview (1)

NR	MODEL	EXPERIMENTS SRx (All = EU+NA+SA+EA)	a o d	a e r o	b u d g	d e p m	e m i m	m e t m	s f c	t r a c	v e r t
01	GEOSChem-v07	1,2,3All,6EA,TP1x		X	X	X	X	X	X	X	
02	MOZARTGFDL-v2	1,2,3All,4All,5All,6All,TP1x		X	X	X	X	X	X	X	X
03	STOCHEM-v02	1,2,3All,4All,5All,6All,TP1		X	X	X	X	X		X	
04	CAMCHEM3311m13	1,2,3All,4All,5All,6All,TP1	X	X	X	X	X	X	X	X	X
05	INCA-vSSz	1,2,3All,4All,5All,6All			X	X	X	X	X	X	X
06	LLNL-IMPACT-T5a	1,2,3All,4All,5All,6All		X	X	X	X	X	X	X	
07	MSCE-HM-v4.5	1,7All,8All				X	X	X	X1	X	
08	MSCE-POP-v2.2	1,7All,8All				X	X	X		X	
09	EMEP-rv26 (NH)	1,2,3All,4All,5All,6All		X	X	X	X	X	X	X	
10	OsloCTM2	1,2,3All,4EU,5EU					X	X	X	X	
11	FRSGCUCI-v01	1,2,3All,4All,5All,6All,TP1x			X	X	X	X	X	X	X
12	UM-CAM-v01	1,2,3All,4All,5All,5All,6All,TP1,TP1x			X	X	X	X	X	X	
13	TM5-JRC-cy2-ipcc	1,2,3All,4All,5EU,6All,TP1		X		X	X	X	X	X	X
14	MOZECH-v16	1,2,3All,4All,5All,6All			X	X	X	X	X	X	
15	GEOSChem-v45	1,2			X			X	X	X	





# Perspectives/issues

- Server getting full-buying new equipment
- Redesign of web-pages
- Improving model description
- Data completeness
- TP1x running; TP2 regional study started
- Exp. Set 4 defined in summer; limited simulations in autumn