TFIAM progress

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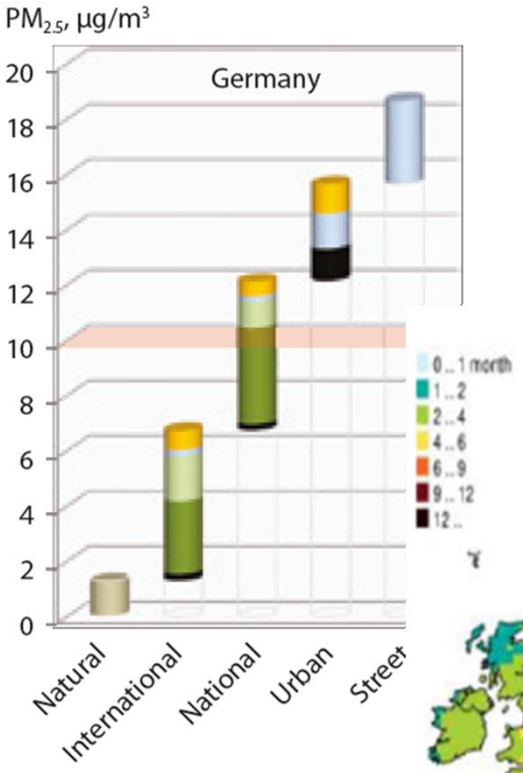
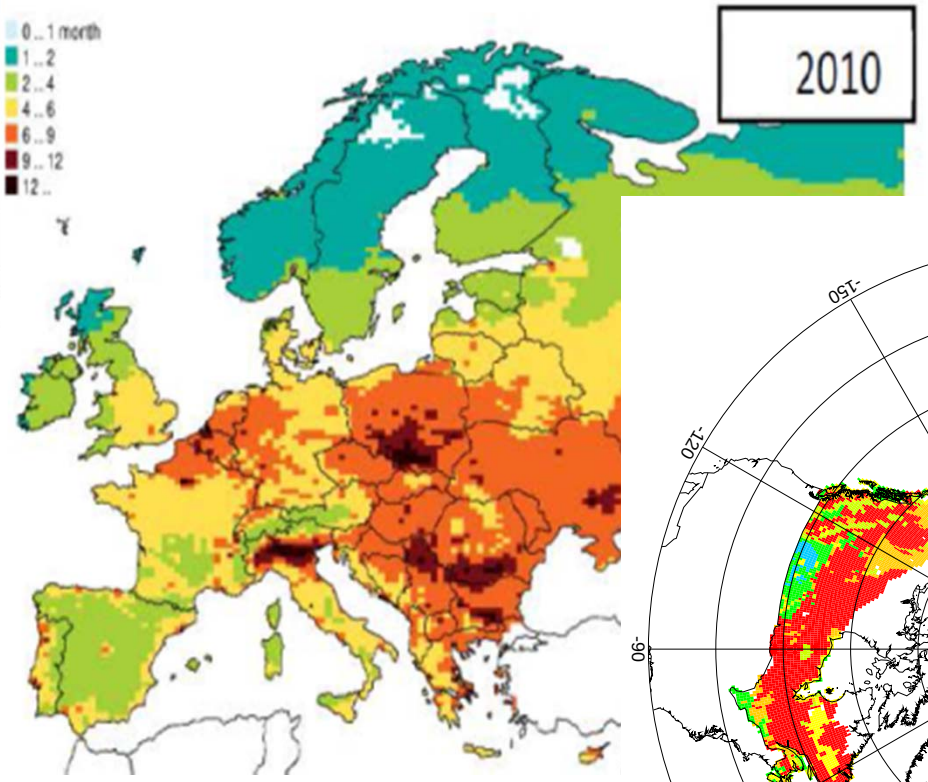
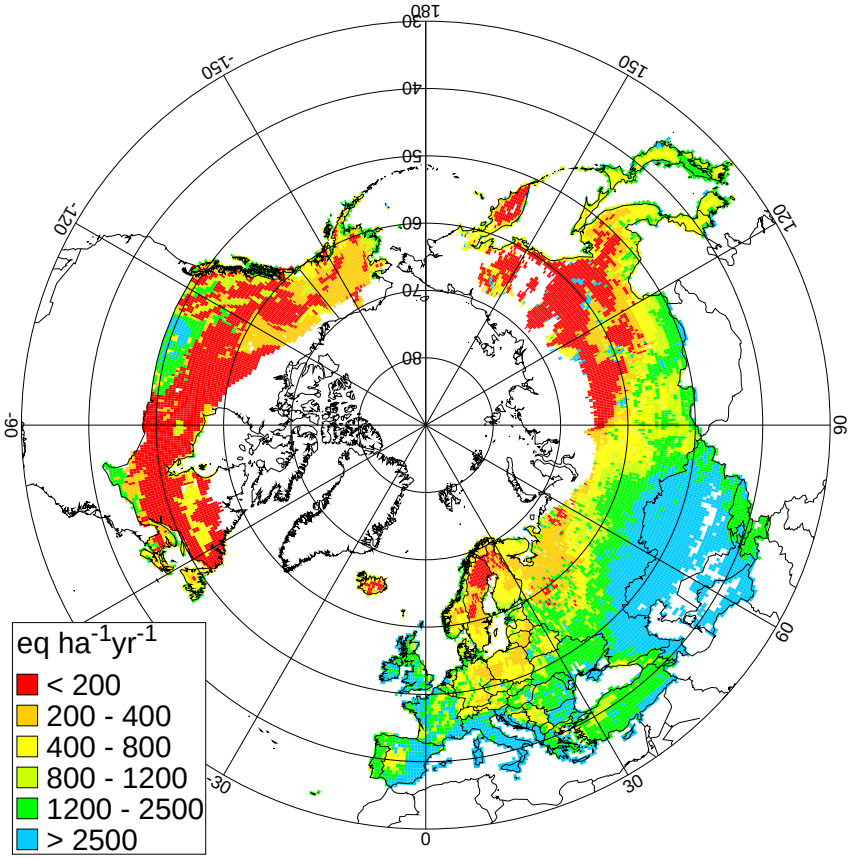
14 September 2017

TFIAM mandate: Integrated policy assessments across scales







Main requests to EMEP/WGE bodies

1. Guidance on how to include health impacts from NO_2 BC and LT-ozone exposure (TF Health)
2. Review existing urban AQ modelling methods to assess population exposure (TFMM, MSC-W, CIAM)
3. Continue to develop CL_{biodiv} (ICP M&M) and ozone damage estimates (ICP Vegetation)
4. Contribute to ammonia synthesis report (TFMM/MSC-W)
5. Global dispersion modelling of sectoral emission reduction strategies (HTAP, MSC-W & MSC-E)

Local air quality assessments

Workshop Utrecht, 15-16 February 2017

- Local experiences (e.g. Antwerp, Berlin, Birmingham, Copenhagen, Helsinki, Kassel, Lisbon, Madrid, Paris)
- Regional and national coordinated strategies (e.g. Emilia Romagna, Liguria, Lombardia, Flanders, Netherlands)
- European wide analyses (e.g. Urban Partnership/JRC, Urban pilot/EEA, Claircity, Icarus, Transphorm, GAINS/Chimere)
- Report: www.iiasa.ac.at/TFIAM-FAIRMODE.html

Main conclusions on local strategies

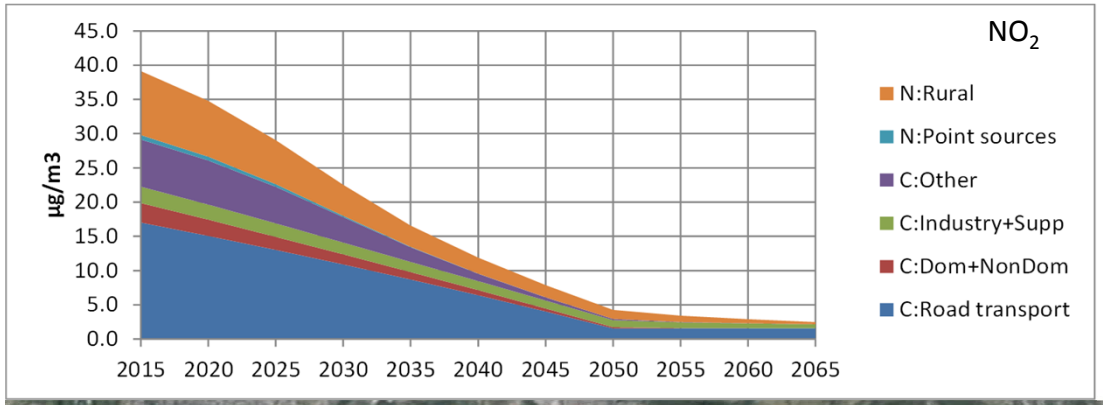
1. Regional and transboundary policy coordination remain needed (e.g. to reduce NH_3)

2. Cost-effectiveness of local measures can be increased if combined with energy, traffic, noise, health and urban planning policies

3. Focus local measures not only on exceedances of AQLVs, but also assess the cost-effectiveness for life years gained

4. Further development of multilevel strategies requires more local knowledge in international networks


Calle


NO2
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
µg/m3
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
N:Rural
N:Point sources
C:Other
C:Industry+Supp
C:Dom+NonDom
C:Road transport


Genova

Health effects of local measures

local share in NO_2-exposure is substantial

local share in PM2,5 exposure is small

1.	Less car traffic – more walking & cycling	+++
2.	Electric vehicles, electric busses & LDVs/HDVs	++
3.	Low emission zones (…diesel ban?)	+
4.	Speed limits	+
5.	Traffic circulation plans, (green) barriers	+/-
6.	Adaptation (photocatalytic paint, zoning, episode warning)	0
7.	Ammonia reduction at regional level	+++
8.	Other sources in the region (industry, transport)	++
9.	Other local sources (shipping, domestic heating)	++/+

Recommendations to EMEP/WGE/EB

In line with the PRG recommendation 23:

- Call upon parties to stimulate participation of local/regional experts in scientific Air Convention bodies
- Include follow-up workshop on local assessment models in the 2018-2019 work plan
- Organize a comparable workshop for agricultural measures and the protection of nature areas ?

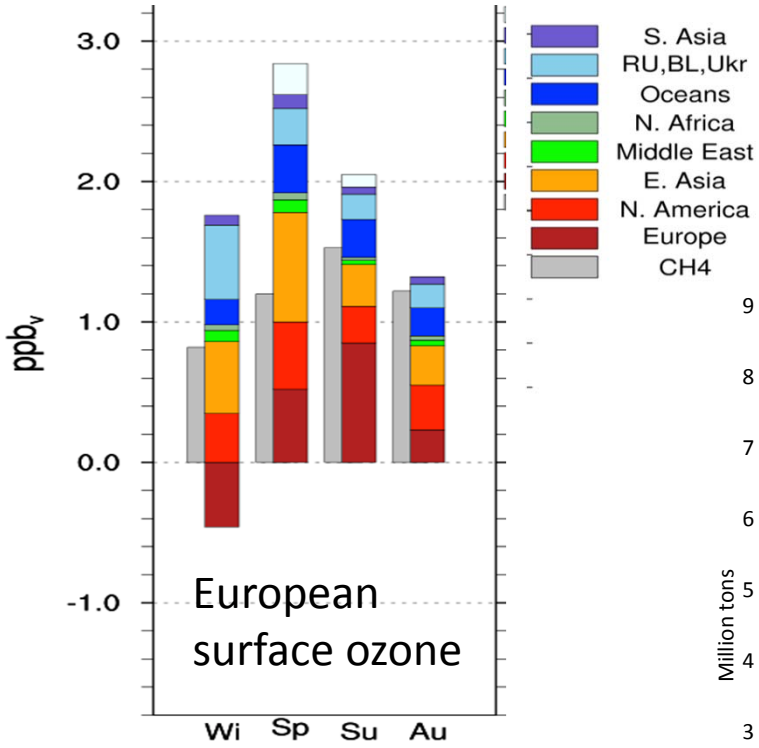
Global air quality strategies

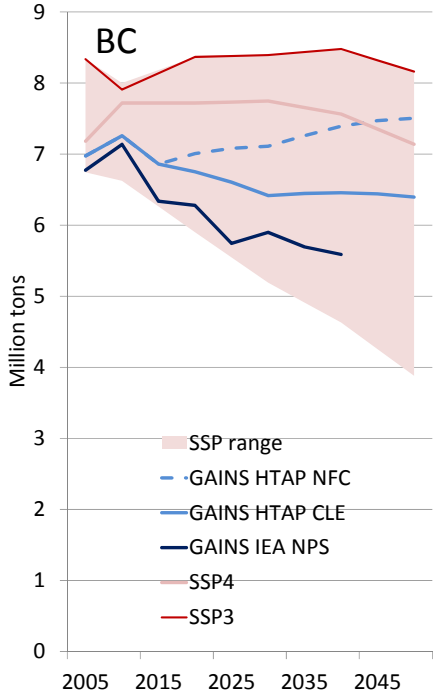
46th TFIAM session (Paris 2-3 May), including:
TF HTAP, CCAC, ICCT, IPCC, OECD, AMAP

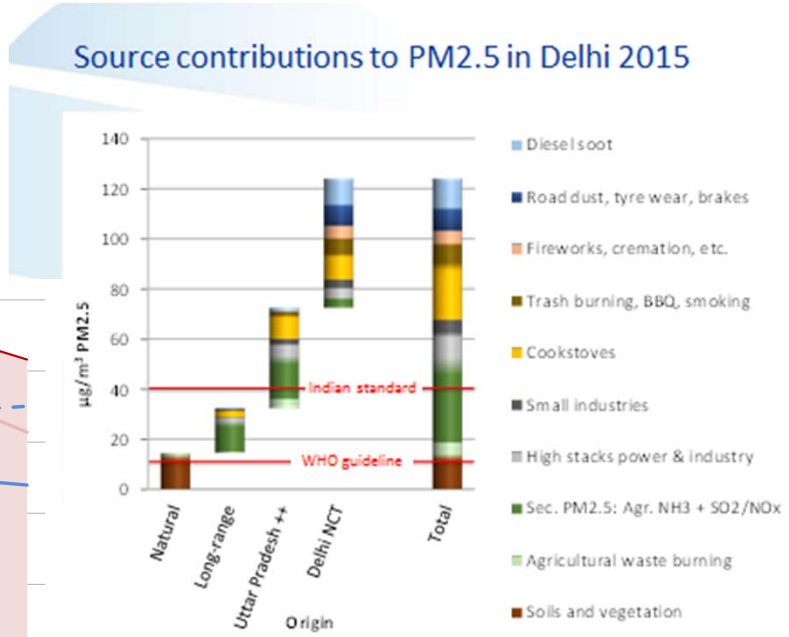
- Analyzed the available global scenarios of GAINS, IPCC, IEA
- Reconfirmed the **transcontinental** character of background ozone
- Identified NO_2 and PM2.5 as **universal** global air quality problems
- Identified options for co-operation and outreach: maintaining international collaboration beyond the UNECE domain is important for driving knowledge development

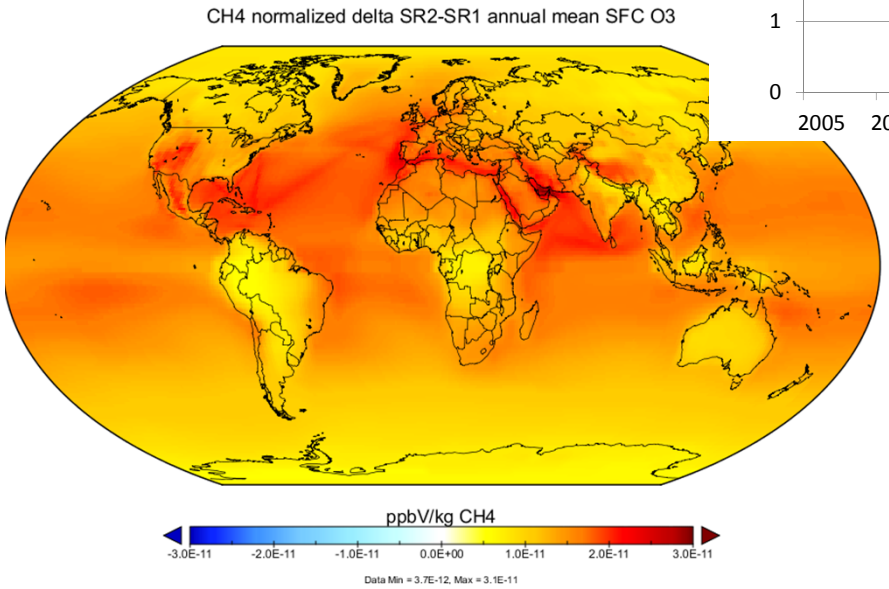
Main conclusions TFIAM46 /TF HTAP

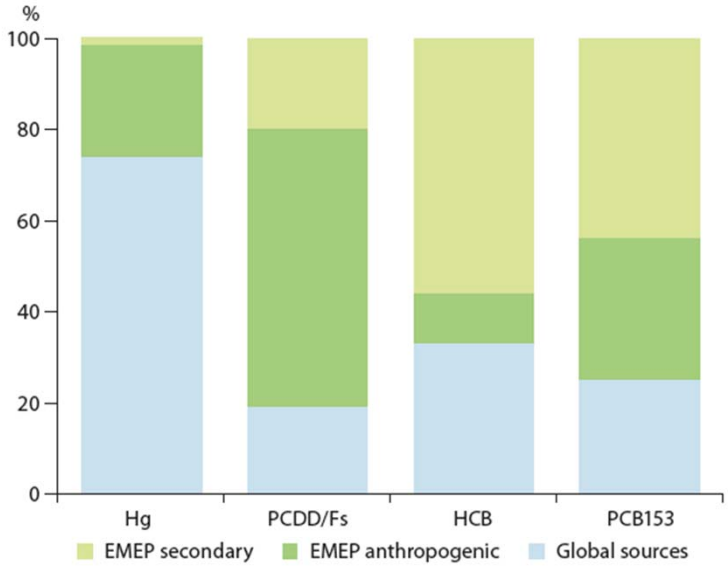
1. **Methane** is an important driver for future ozone trends
2. International **shipping** is a significant source of ozone formation in Europe
3. Emission reductions of NO_x and VOC outside Europe are effective to reduce ozone in Europe
4. Reducing urban PM2.5 exposure requires regional measures, even in megacities
5. Universal (global) solutions could reduce costs


3.0
2.0
1.0
0.0
-1.0
ppb$_v$
S. Asia
RU,BL,Ukr
Oceans
N. Africa
Middle East
E. Asia
N. America
Europe
CH4
European surface ozone
Wi
Sp
Su
Au


BC
Million tons
9
8
7
6
5
4
3
2
1
0
2005
2015
2025
2035
2045
SSP range
GAINS HTAP NFC
GAINS HTAP CLE
GAINS IEA NPS
SSP4
SSP3


Source contributions to PM2.5 in Delhi 2015
µg/m³ PM2.5
140
120
100
80
60
40
20
0
Indian standard
WHO guideline
Natural
Long-range
Uttar Pradesh +
Delhi NCT
Total
Origin
Diesel soot
Road dust, tyre wear, brakes
Fireworks, cremation, etc.
Trash burning, BBQ, smoking
Cookstoves
Small industries
High stacks power & industry
Sec. PM2.5: Agr. NH3 + SO2/NOx
Agricultural waste burning
Soils and vegetation


CH4 normalized delta SR2-SR1 annual mean SFC O3
ppbV/kg CH4
-3.0E-11
-2.0E-11
-1.0E-11
0.0E+00
1.0E-11
2.0E-11
3.0E-11
Data Min = 3.7E-12, Max = 3.1E-11


%
100
80
60
40
20
0
Hg
PCDD/Fs
HCB
PCB153
EMEP secondary
EMEP anthropogenic
Global sources

Recommendations for EMEP/WGE/EB

1. Tackling background ozone requires hemispheric policy coordination …. further assess potential **costs & benefits**

2. Because urban exposure to PM2.5 and NO_2 is a **universal** global problem, share assessment methods as developed under the Air Convention and reconfirm the TFIAM mandate to **outreach** to countries and organizations beyond the UNECE-domain

3. Cooperate with e.g. AMAP, CCAC via **special workshops & assessment reports**, e.g. on ozone, shipping, wood burning/black carbon/BaP, agriculture/CH4/N, ….

4. Extend integrated assessments with abatement of combustion related emissions of POPs (BaP) and heavy metals (Hg)

Work plan 2018-2019

1. **TFIAM47-meeting 8-9 May 2018 in Brescia (Italy)**
   1. Guide and review further development and application of the GAINS model
   2. Exchange experiences by national integrated assessment modellers, e.g. on the development of national air quality plans
   3. Prepare contribution to 2019 reports on:

WGSR 3.10	Review of cost data (lead TFTEI)
WGSR 3.11	Costs of inaction (lead TFTEI)
1.1.3.2	Ammonia (lead TFIAM , with TFMM/MSC-W/ country experts, TFRN)
1.1.4.3	Intercontinental ozone & aerosols (lead TFHTAP)
1.1.4.6	Sectoral strategies (lead TFHTAP/scoping workshop 2018)
1.1.3.1	Evaluation POP/BaP measures (lead MSC-E, TFTEI) ?

2. **Workshop on local assessment modelling 2018**
3. **Outreach activities (UNEP, CCAC, FCCC, …)** (tbd)

Work plan 2018-2019

Item	Activity	Deliverable	Who
	OLD TEXT		
1.1.3.2	Ammonia: Contribute to improve understanding of expected benefit of ammonia mitigation in terms of wet and dry nitrogen deposition (including at high spatial resolution), long term trends, chemical regimes of secondary inorganic aerosol formation.	Report in 2019	TFIAM with support from TFMM and countries experts (France and Netherlands)
	NEW TEXT		
	Ammonia: Improve understanding of cost effectiveness of local vs regional agricultural emission control for protection of human health and ecosystems in Europe.	Synthesis report focussing on agriculture in 2019 Presentation of TFMM at TFIAM47	TFIAM with support from TFMM and countries experts (France, Netherlands a.o.) TFRN?
Item	**Activity**	**Deliverable**	**Who**
	NEW TEXT		
1.1.3.3	Local assessment modelling of measures to reduce population exposure	Workshop in 2018	TFIAM with support from local and national experts

From workplan WGSR-TF TEI

3.10 In cooperation with TFIAM undertake a review of the control costs currently used, and to improve, on an ongoing basis, the cost-effectiveness analyses produced by the GAINS model. This would include a comparison of cost estimates from different models and the improvement of the cost estimates of impacts of air pollution on health and ecosystems (rec. #21, subject to discussion on priorities within EMEP-SB)

3.11. In cooperation with TFIAM produce a report for policy-makers that clearly sets out the costs of controls versus costs of inaction to encourage ratification and implementation of the Protocols

(rec. #22, subject to discussion on priorities within EMEP-SB)