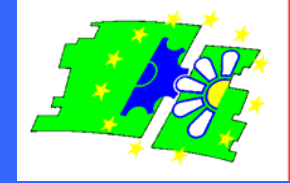




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Thematic Strategy on Air Pollution

NERAM Conference 31 January, Mexico

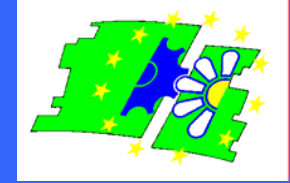
Matti Vainio (European Commission)
and Martin Williams (Defra)

<http://europa.eu.int/comm/environment/air/cape/index.htm>



Outline

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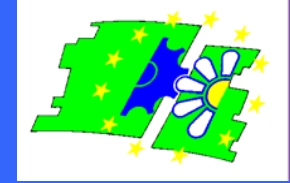


- **CAFE and the Thematic Strategy on Air Pollution**
- **What are the problems up to 2020?**
- **Preliminary thoughts about the Thematic Strategy on Air Pollution**
- **Institutional challenges**
- **Summary**



The Thematic Strategy

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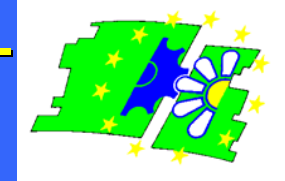


- It is a coherent and integrated policy and measures & consistent with other actions including climate, soil, urban and water protection.
- It assesses progress in addressing Health & Environment
- Objectives for Thematic Strategy on Air Pollution:
 - *'achieving levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment';
(Art 7.1. of 6th EAP)*
 - *'no exceedence of critical loads and levels for acidification or eutrophication'*
- **Thematic Strategy on air pollution is planned to be adopted in May 2005**



Clean Air For Europe (CAFE) process underpins the Thematic Strategy on Air Pollution

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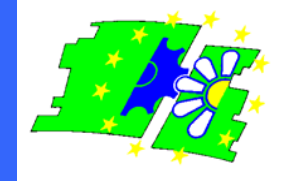


- **CAFE provides technical basis required for the strategy with a detailed scientific programme**
 - emissions, effects, forecasts, etc.
- **It's key principle is transparency and stakeholder participation**
 - the results are more robust & accepted
- **Launched May 2001 & still ongoing**
 - significant financial and human resources deployed



3 Pillars of CAFE

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- **Scientific knowledge**
 - Independent health advice from WHO
 - Atmospheric modelling from EMEP Centres
 - Latest scientific knowledge of ecosystem effects from Convention of Long Range Transboundary Air Pollution
- **Integrated Assessment Modelling (IAM)**
 - Cost-effective solutions for multi-pollutant/multi-effects (human health and environment) via RAINS model at IIASA
- **Cost-Benefit Analysis**
 - Peer-reviewed methodology



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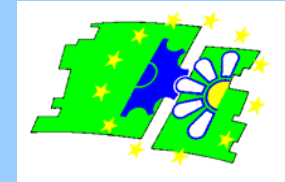


What are the problems up to 2020?

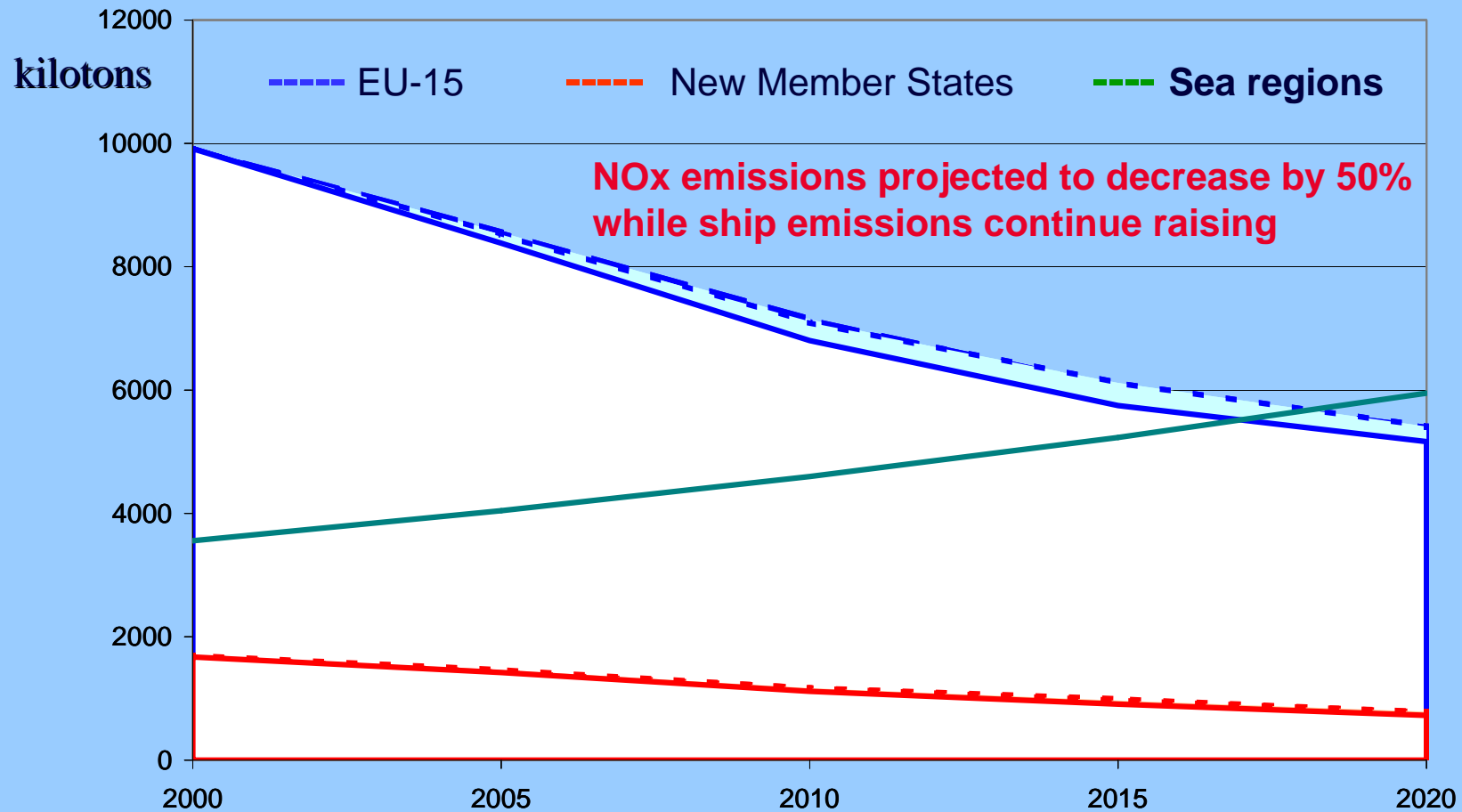
- **Some emission trends**
- **Health impacts**
- **Ecosystem impacts**



Emissions of NO_x are reducing



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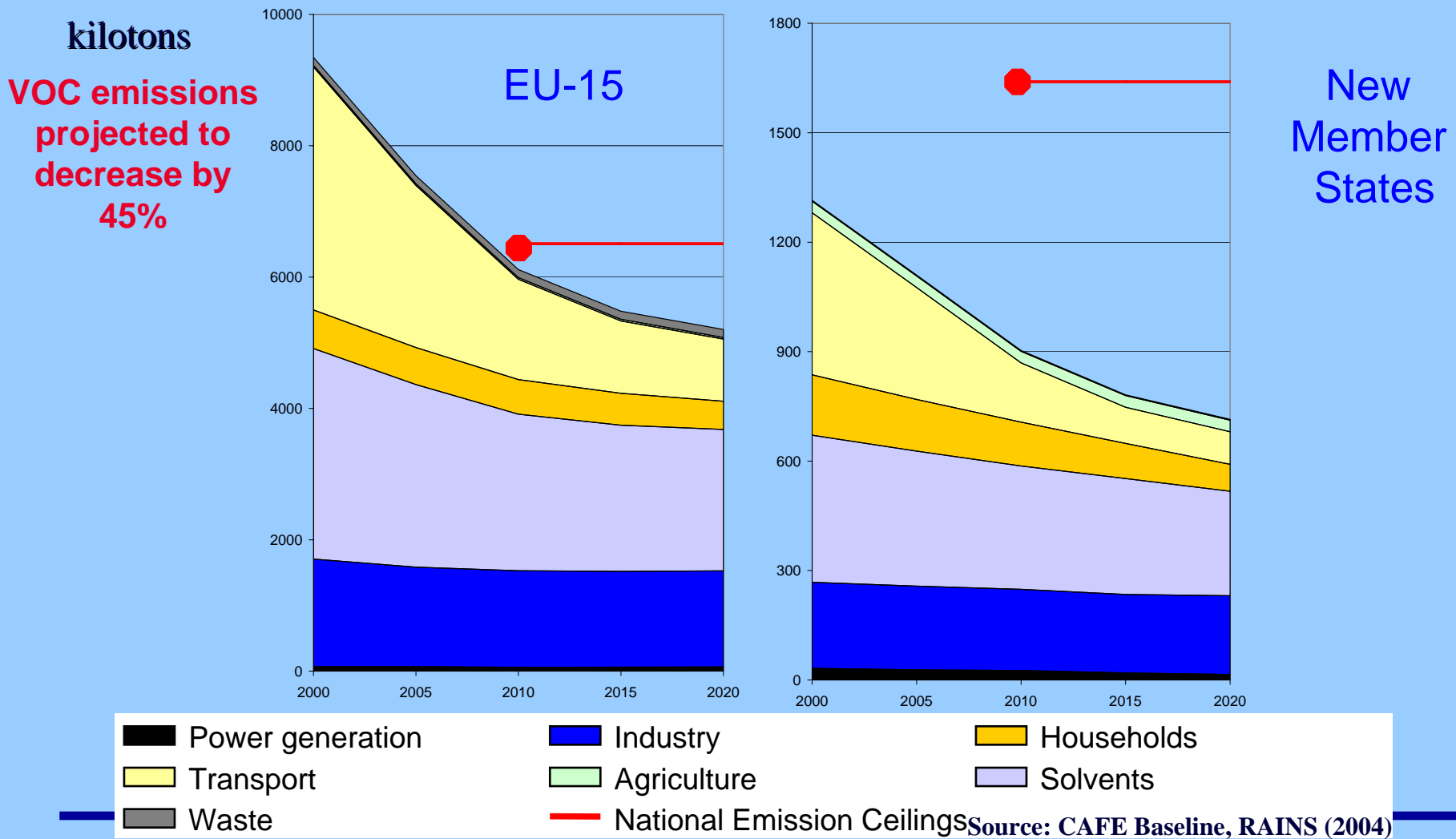
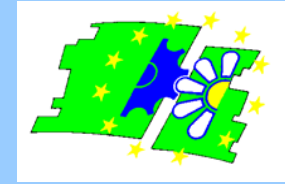


Source: CAFE Baseline, RAINS (2004)



VOC emissions are also reducing

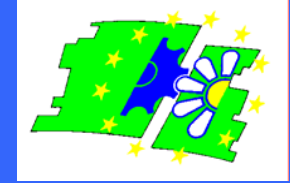
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However, health impacts of air pollution remain problematic

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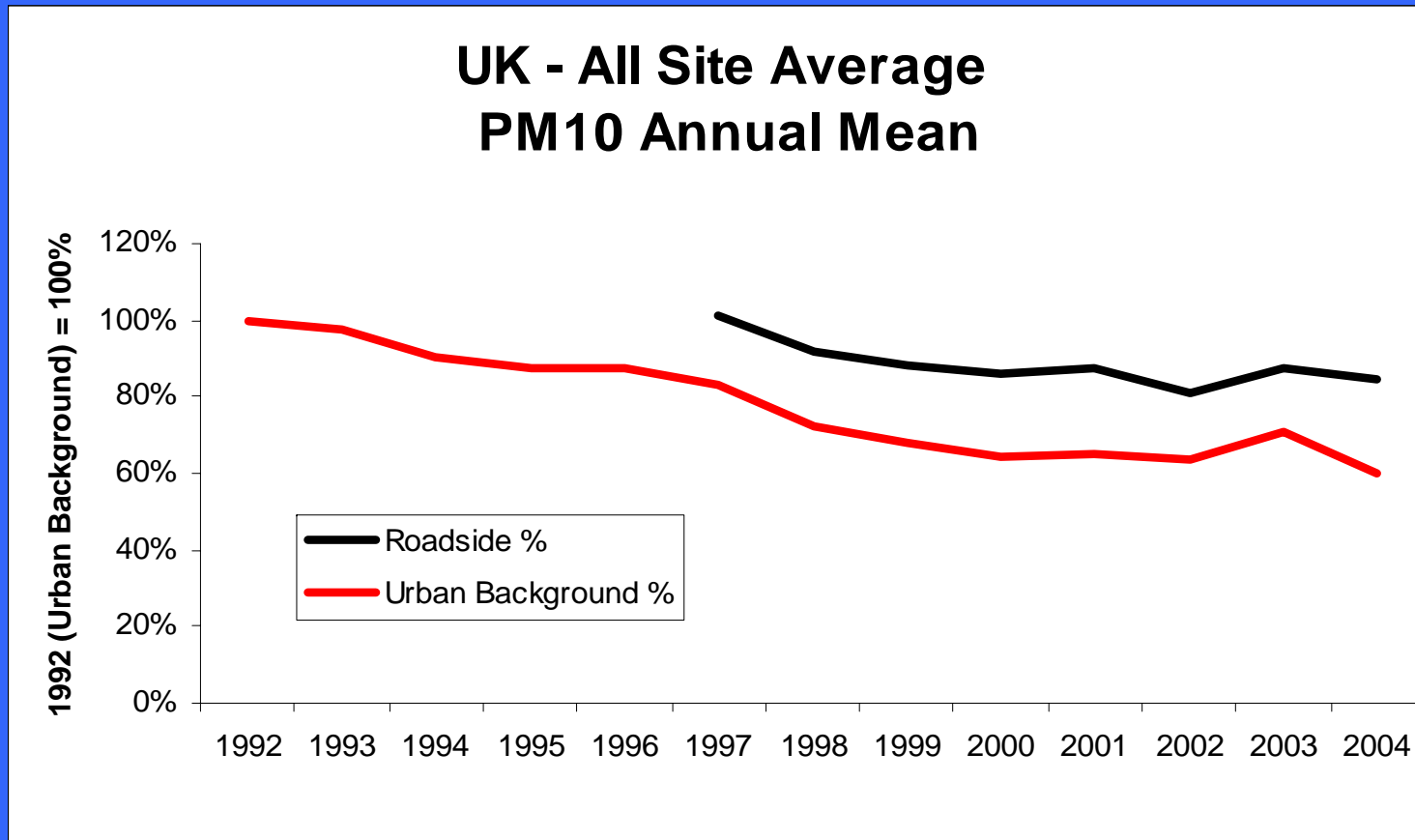
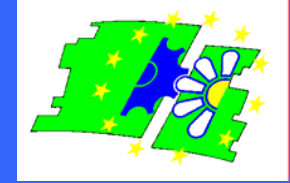


- **Based on latest advice from WHO and emission projections it is evident that:**
 - **No safe level for human exposure to particulate matter**
 - Smaller particles may be more damaging
 - **Possibly no safe level for ozone effects either**
 - **Average life expectancy is shortened by about 9 months in the EU, in some Member States up to 1 to 2 years**
 - **By 2020 life average expectancy is shortened still by about 5 months**



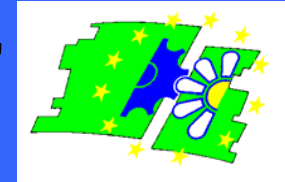
PM₁₀ levels have declined over the past ten years

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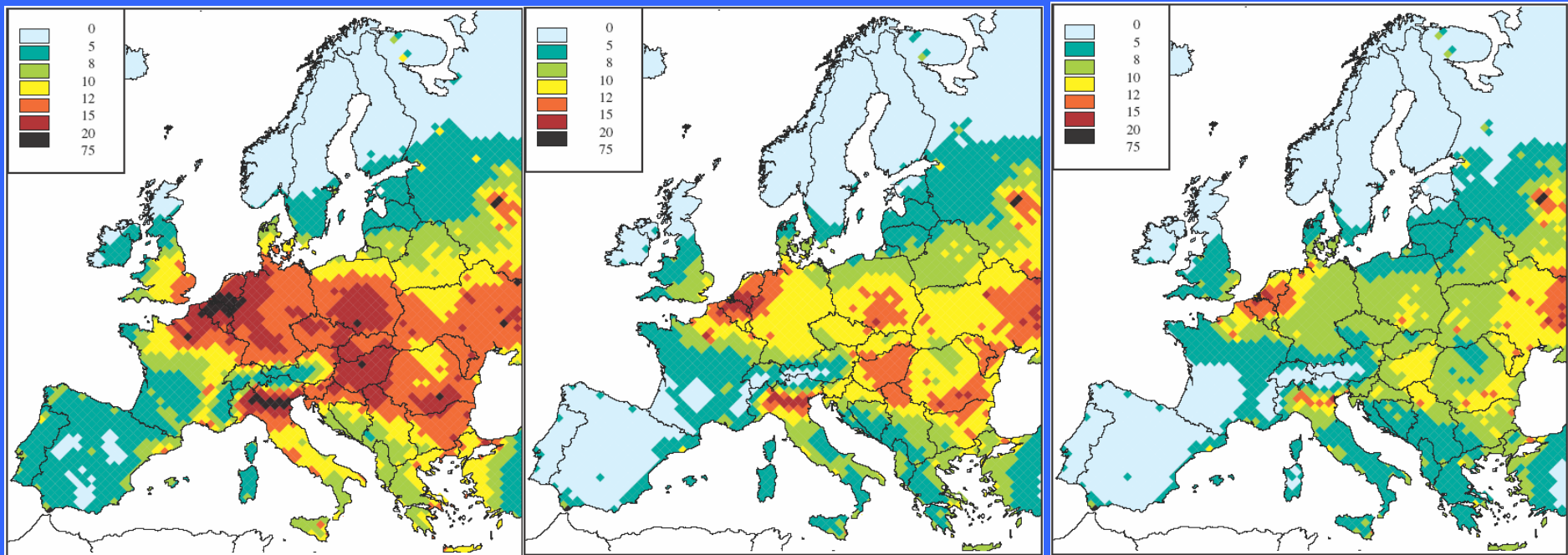




While concentration of PM 2.5 is improving, major problems remain up to 2020



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2000

2010

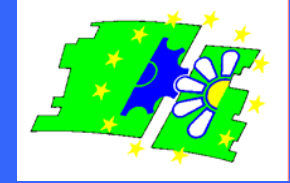
2020

Rural concentrations, annual mean [$\mu\text{g}/\text{m}^3$]
from known anthropogenic sources excluding sec. org. aerosols
Average of calculations for 1997, 1999, 2000 & 2003 meteorologies



Ecosystems impacts are mixed

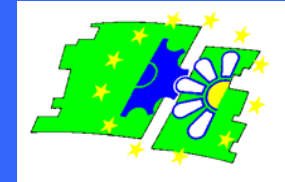
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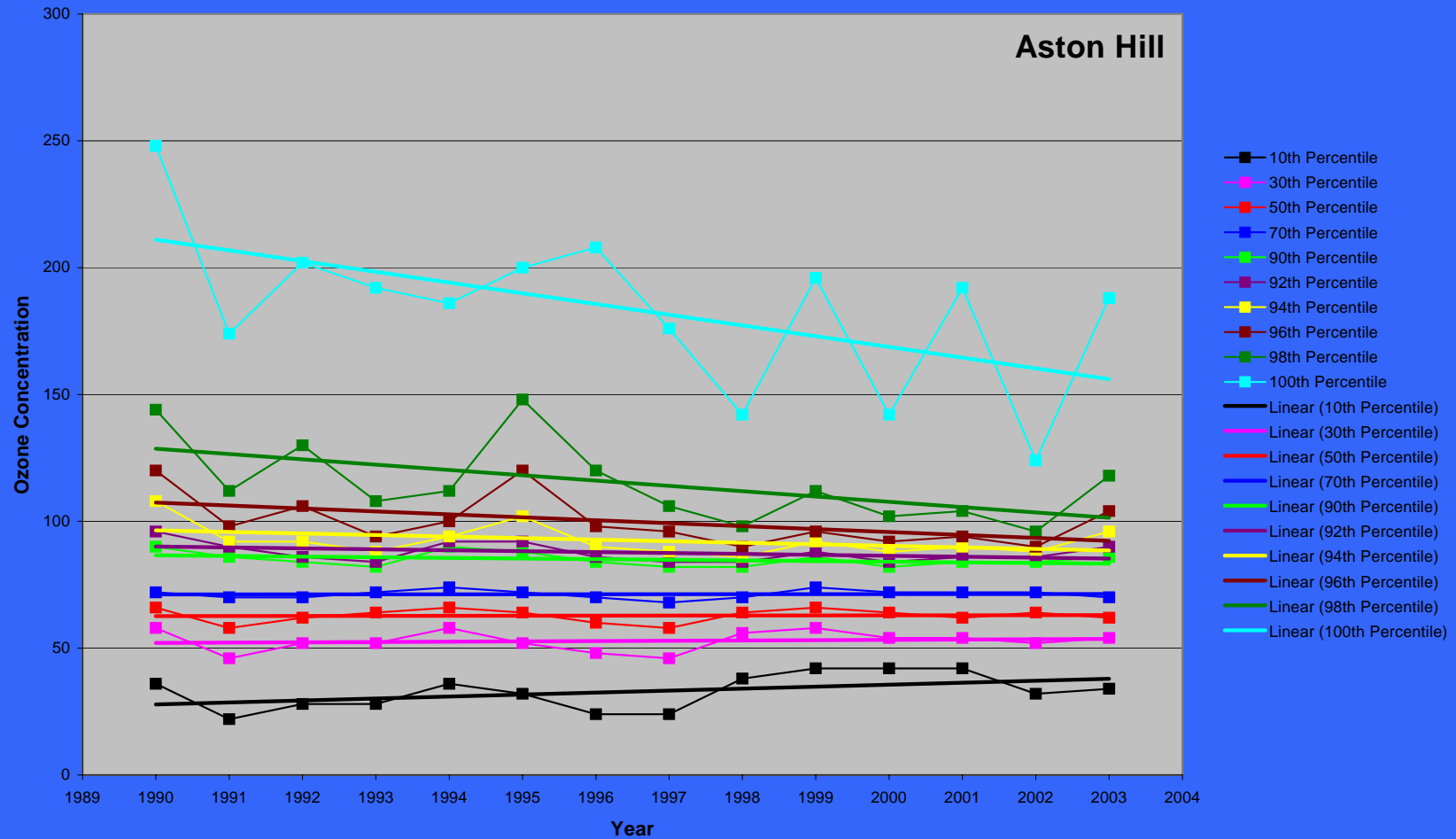
- **Acidification is improving**
 - But still half of the forest plots in Europe are at risk.
 - Still two-thirds of lakes in Southern Scandinavia at risk.
- **Eutrophication widespread**
 - Half of ecosystems will have unsustainable levels of nitrogen deposition up to 2020
- **Ozone exposure is reducing as peak levels decrease**
 - But significant areas of our forests at risk at levels up to six times the safe level.



Peak Ozone levels have been decreasing



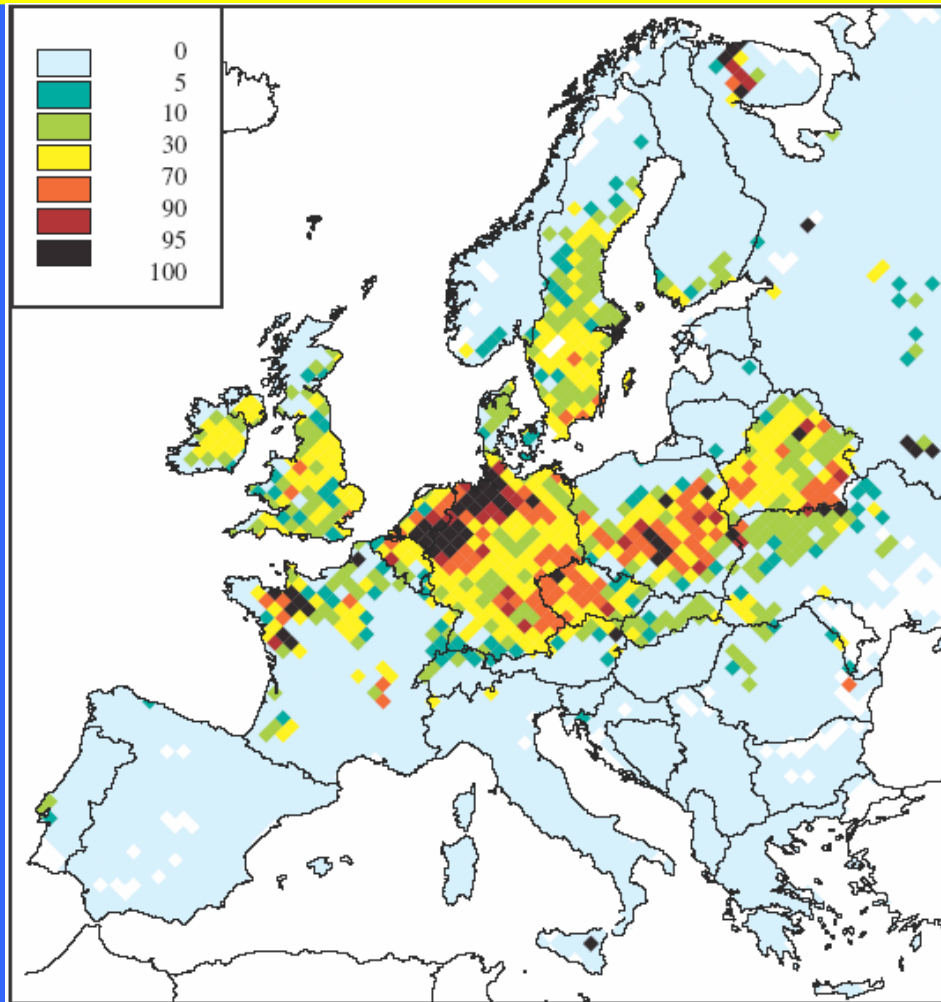
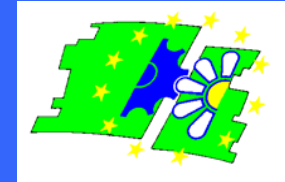
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Acid deposition to forests 2020

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Acidification of forests
continues ...

Percentage of forest area
with acid deposition above critical
loads, using ecosystem-specific
deposition.

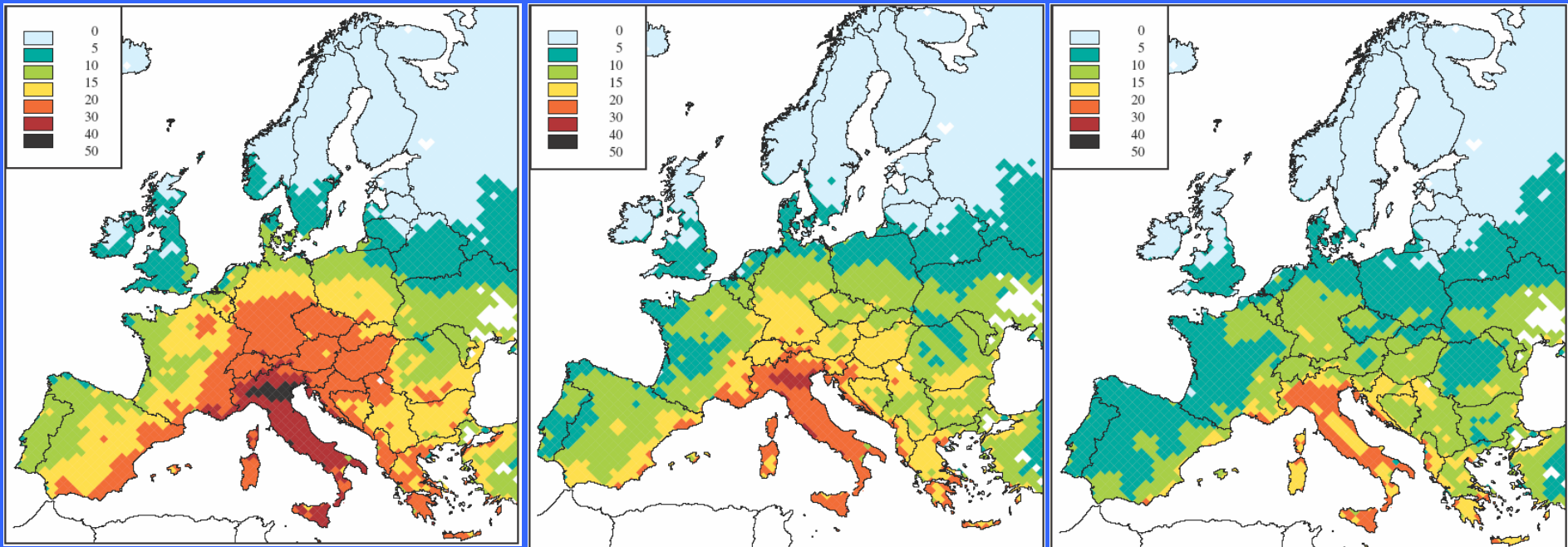
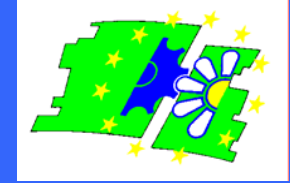
Average of calculations for 1997,
1999, 2000 & 2003 meteorologies

Source: CAFE Baseline, RAINS (2004)



Vegetation-relevant ozone concentrations remains problematic up to 2020

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2000

AOT40 [ppm.hours]

2010

2020

Critical level for forests = 5 ppm.hours

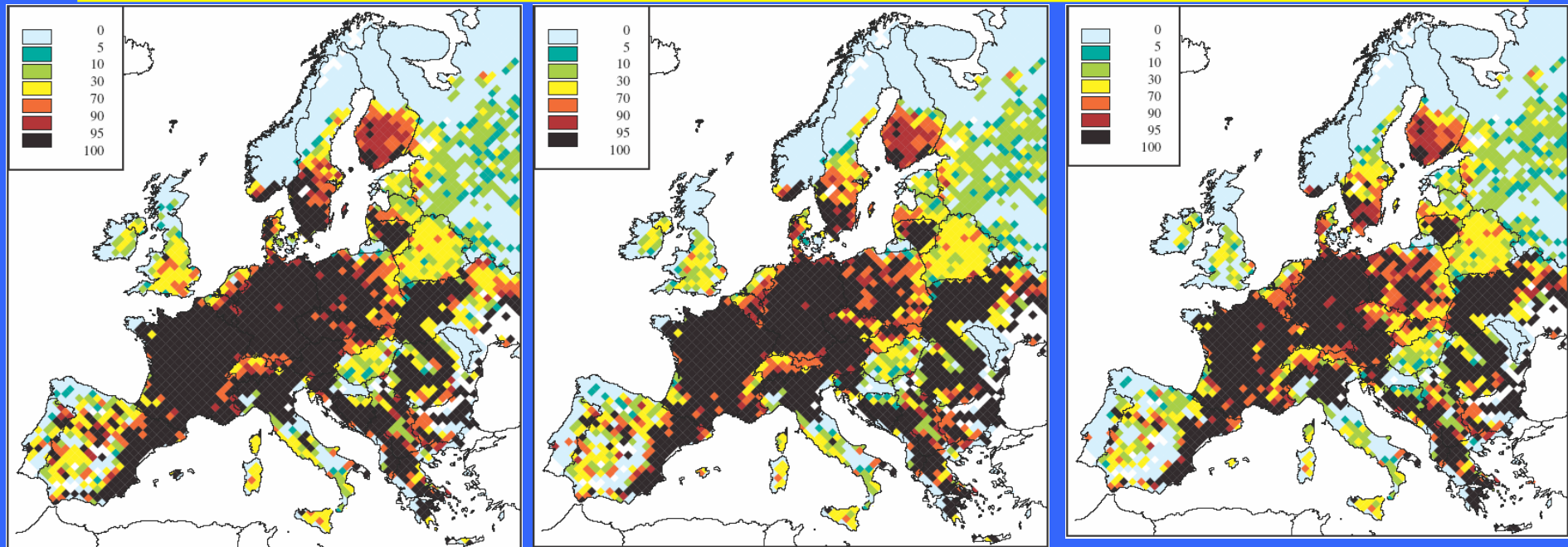
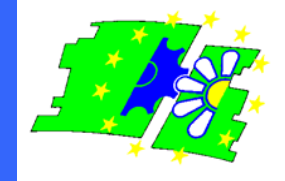
Average of calculations for 1997, 1999, 2000 & 2003 meteorologies

Source: CAFE Baseline, RAINS (2004)



Eutrophication of ecosystems remains a major problem

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2000

2010

2020

Percentage of ecosystems area with nitrogen deposition above critical loads, using grid-average deposition.

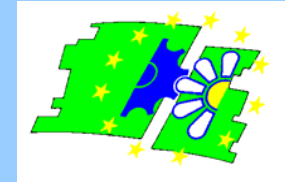
Average of calculations for 1997, 1999, 2000 & 2003 meteorologies

Source: CAFE Baseline, RAINS (2004)

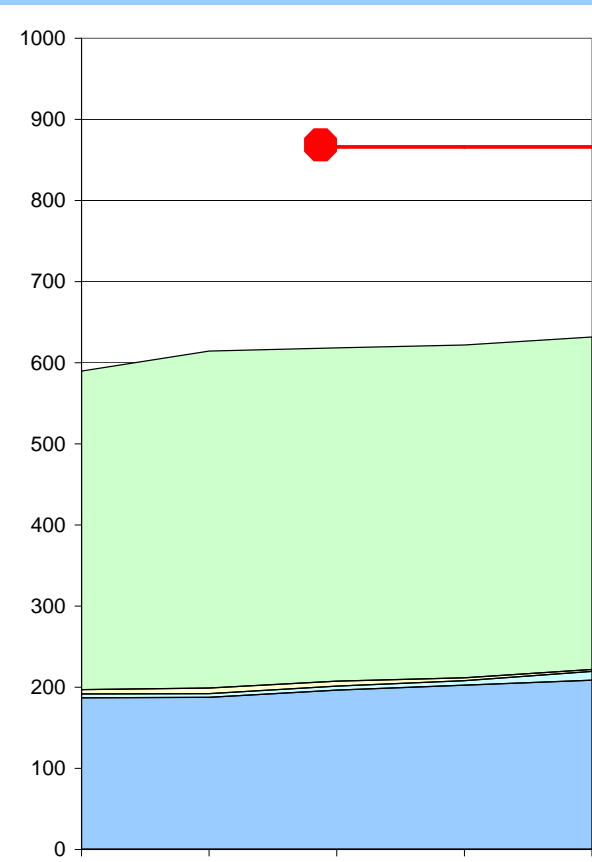
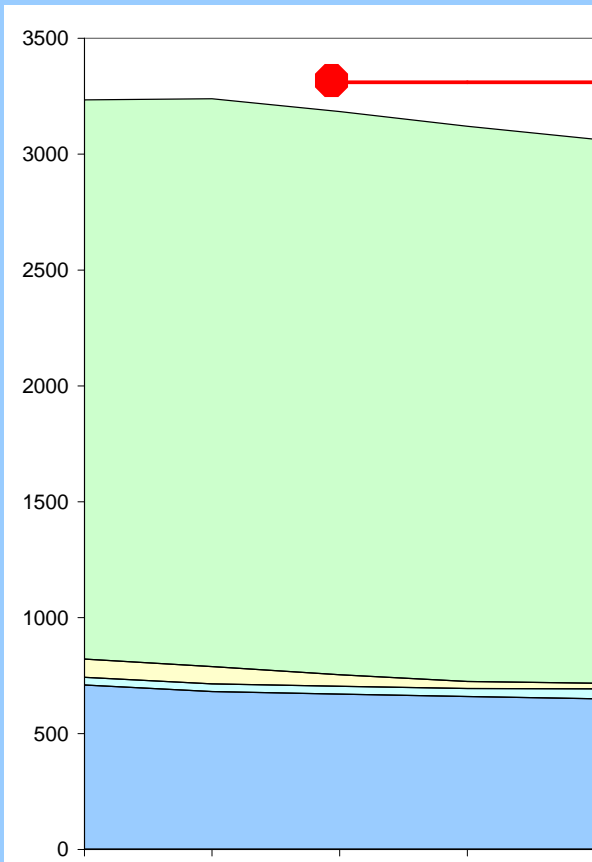


Reason for problems partly due to no change in ammonia emissions

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kilotons
“Pre-CAP reform” scenario
EU-15



New Member States

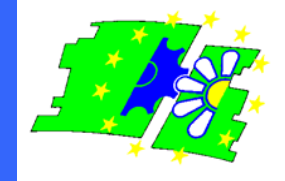
■ Power generation ■ Industry ■ Domestic ■ Transport ■ Agriculture ■ Industrial processes
 ● NEC emission ceiling

Source: CAFE Baseline, RAINS (2004)



Thematic Strategy will improve existing legislation with some new measures

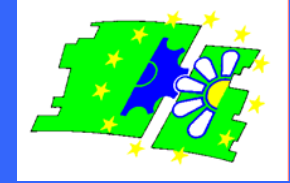
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- **Improved implementation of existing legislation**
 - Revision of air quality legislation
- **Reduction of emissions from vehicles, trucks, small scale combustion etc.**
- **Integration measures**
 - Agriculture
 - Transport
 - Ship emissions
- **Institutional challenges**



Institutional challenges



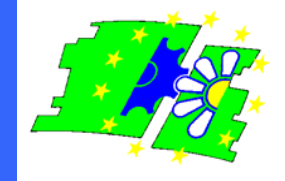
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- **Safeguarding scientific work essential**
 - **EU's enlargement poses a challenge and an opportunity**
- **Hemispheric Transport of Air Pollution**
 - **EU and US co-chair the new EMEP Task Force on Hemispheric Transport on Air Pollution**
 - First meeting 2-3 June 2005
 - Science is important
 - Wider outreach in due course beyond Europe & North America?



Summary

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- **Most emissions are decreasing though there are exceptions (e.g. ammonia)**
- **Air quality is improving for all pollutants**
 - But still significant problems to be addressed (e.g. particulate matter & ozone)
- **Impacts on the natural environment (acidification & damage from ozone) are reducing**
 - But still significant problems, particularly eutrophication.
- **Thematic Strategy will be mainly about making existing policies work better with some new measures as well**
- **Enlargement of the EU poses opportunities**
- **Hemispheric transport air pollution will be important**