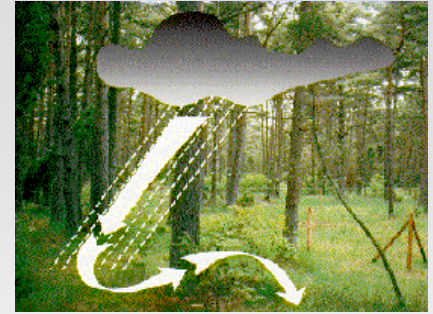


# *ICP Integrated Monitoring of Air Pollution Effects on Ecosystems -*



*ICP IM*

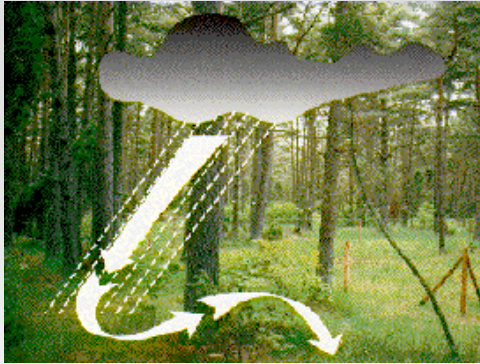
*Activities & Priorities  
2008-2009*

**24th ICP Waters Task Force Meeting  
October 6-8, 2008, Budapest, Hungary**

**Jussi Vuorenmaa**

**Finnish Environment Institute (SYKE)**





# ICP Integrated Monitoring of Air Pollution Effects on Ecosystems

Monitor state and changes with causative explanations

Develop and validate models

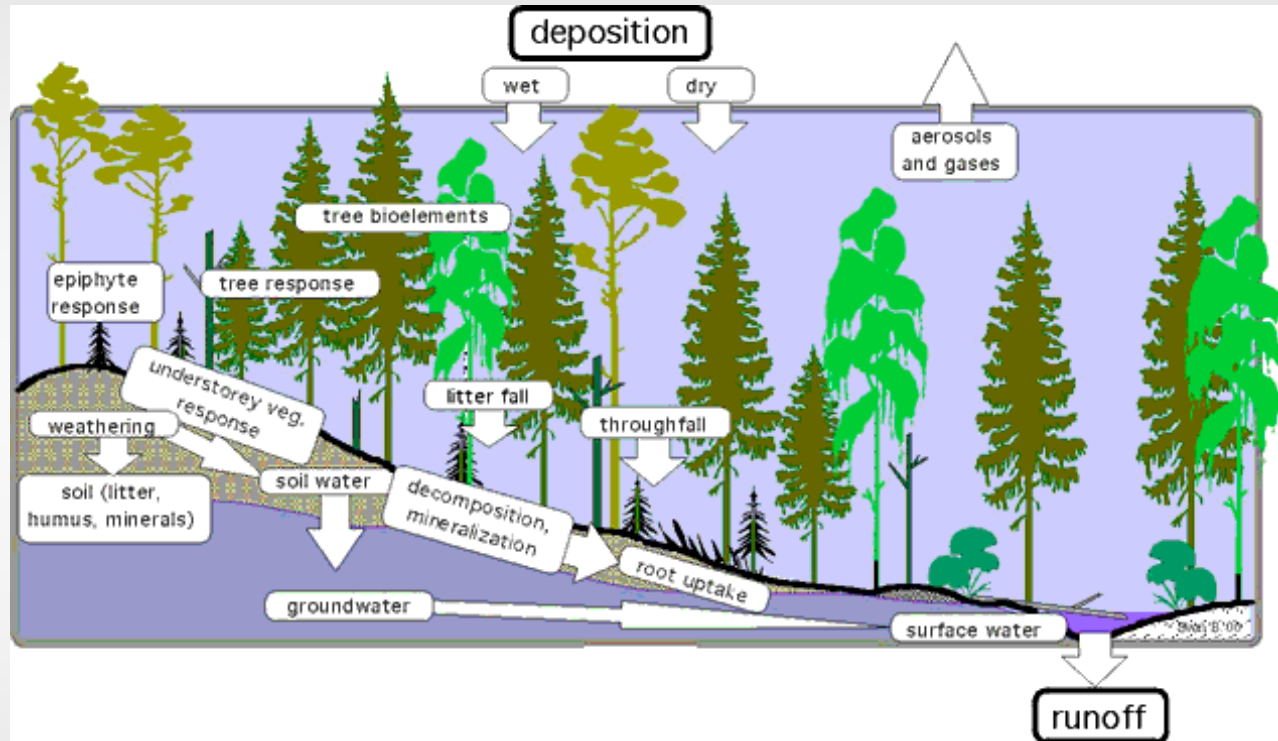
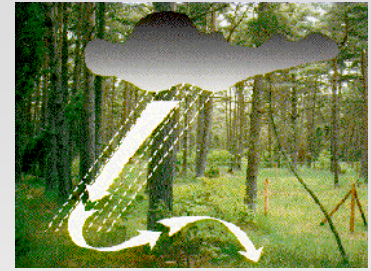
Detect changes by biomonitoring

Ecosystem investigation

Cause-effect approach

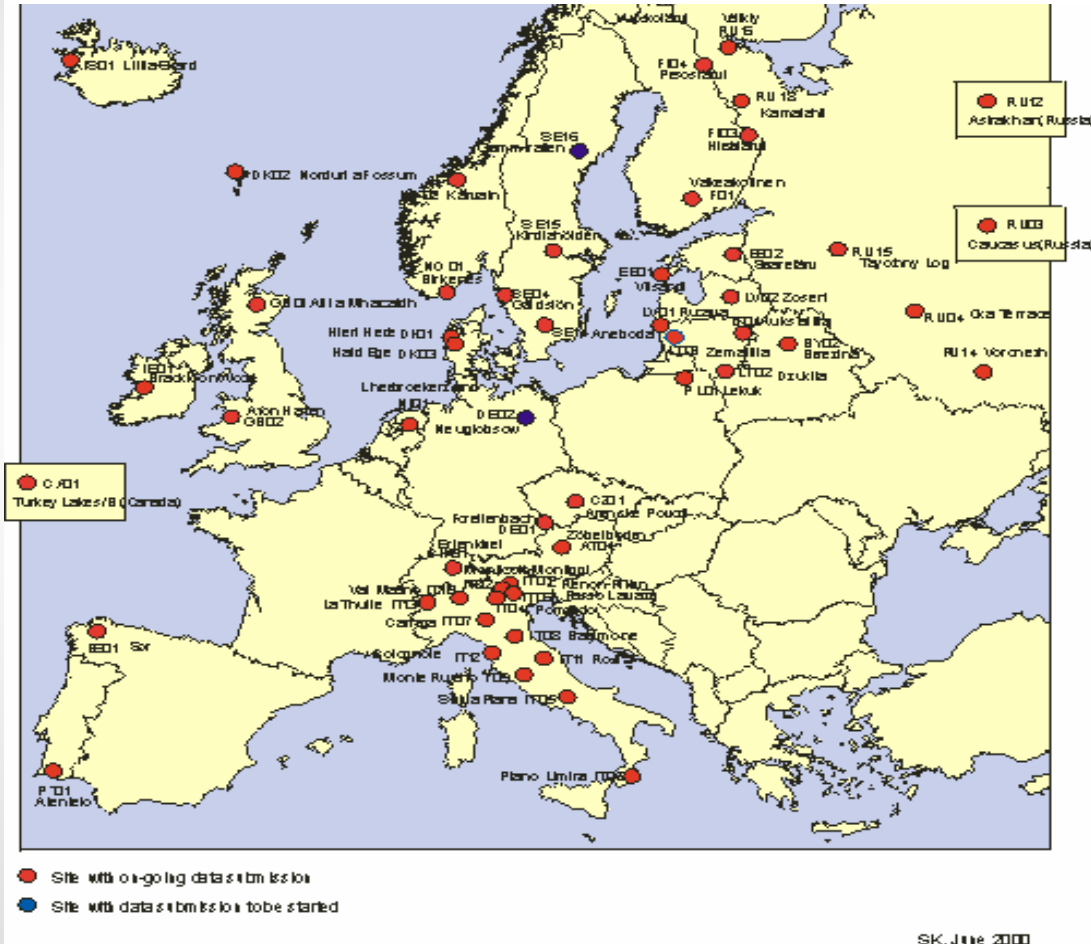
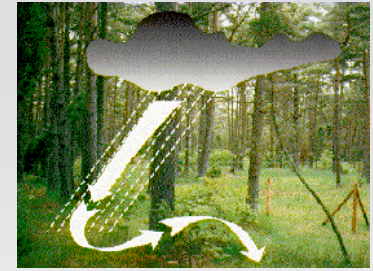
Cross-media flux approach

# The Integrated IM

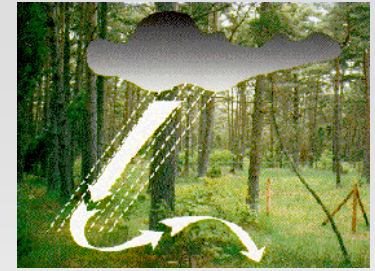


Catchment approach  
Budget calculations  
Process oriented

# The Integrated Monitoring sites



*TF 14*  
*countries*  
*44*  
*participants*  
*Data 17*  
*countries*  
*4 missing*  
*50 sites*  
*43 active*



# ICP Integrated Monitoring of Air Pollution Effects on Ecosystems

IM TF 14 - 16 May 2008 -  
Pamplona, Spain

Workshop

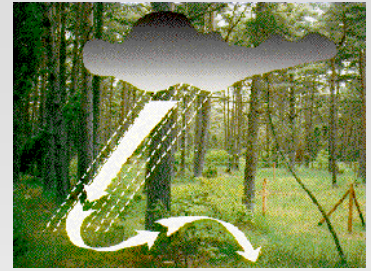
Task Force

Excursion

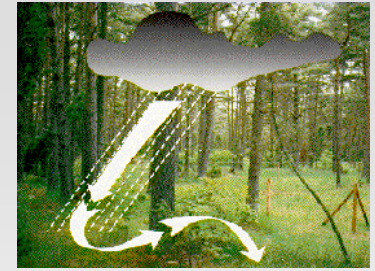
44 participants

14 countries

# IM programme 2008/2009



- Maintaining IM site activities
- Harmonisation of the network
- Network improvements
- Updating the database
- Annual report
- Task Force
- Co-operation with other ICPs
- Continuing scientific work



# Scientific priorities

Heavy metals

Nitrogen loads and effects

IM biodiversity indicators

Budgets and trends in S, N, H and BC

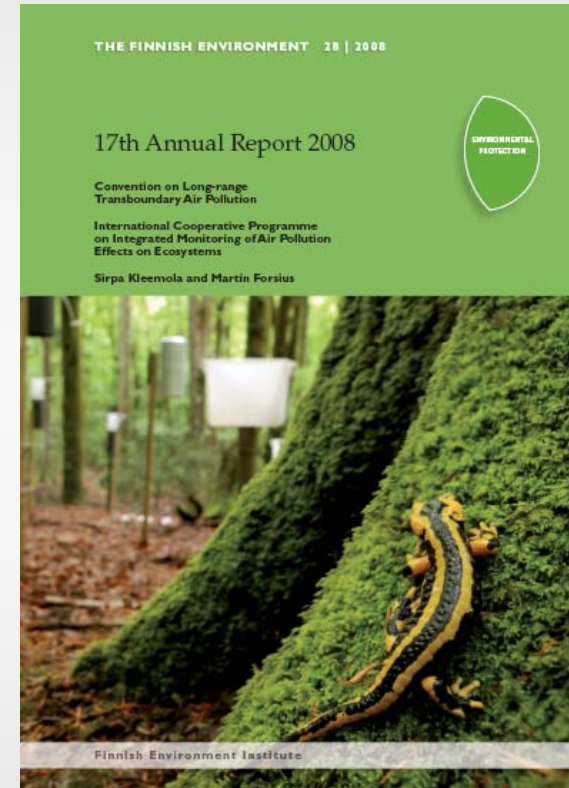
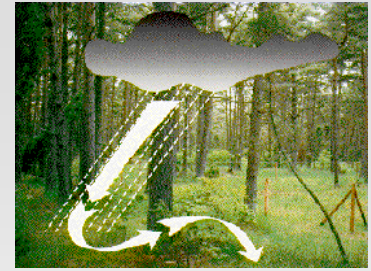
Dynamic modelling

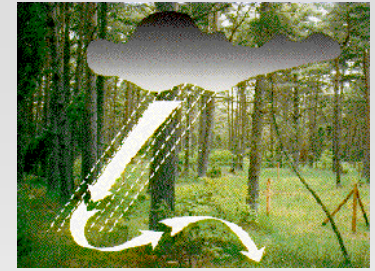
Air pollution and climate interactions

# *ICP IM 17th Annual Report 2008*

<http://www.environment.fi/syke/im>

- *Executive summary*
- *Activities and monitoring*
- *Progress report on biodiversity issues*
- *Report on links between climate change and air pollution effects*
- *Climate change and Air pollution: a model framework*
- *Report on Heavy Metals fluxes and budgets in Finland*
- *Runoff characteristics in the Bohemian Massif*
- *13 National reports*





*Reports prepared 2008*

*ICP IM 17th Annual Report 2008*

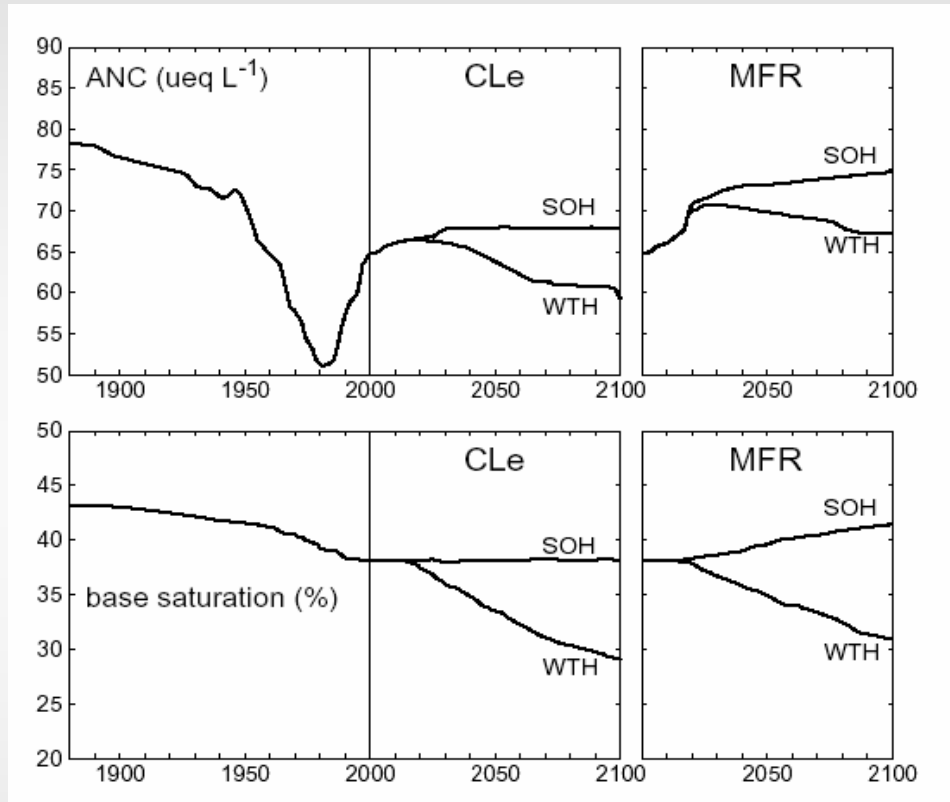
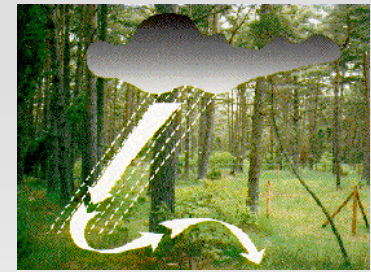
*Report on heavy metal fluxes and CL*

*Report on links between climate change  
and air pollution*

*Report on biodiversity data in IM*

*Contribution to WGE Consolidated report*

# Interactions between air pollution and climate change related processes



ANC and BS at 163 Finnish lakes for two emission scenarios (CLE and MFR) and two forest harvesting (biomass energy) scenarios (SOH and WTH) (Aherne et al., 2008)

ECE/EB.AIR/WG.1/2008/10

# Conclusions from modelling study

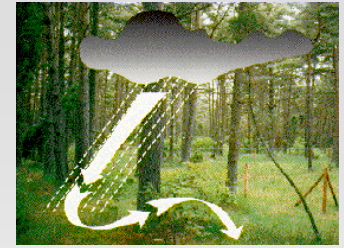
- Only the maximum feasible emission reduction scenario would return soil and water quality close to pre-acidification values at the studied catchments.
- The direct influence of climate change (temperature and runoff) had little impact on model simulations for the sites, based on current process descriptions.
- However: increases in organic carbon concentrations may potentially offset the recovery in surface pH due to reductions in S and N depositions.
- The increased use of forest harvest residues for biofuel production (WTH scenario) was predicted to have a significant negative influence on the base cation budgets causing re-acidification at the study catchments.
- Sustainable forestry management policies need to consider the combined impact of air pollution and harvesting practices.

# *HM - Cd Pb Hg*

## *- assessments in ICP-IM*



- input / output balance for small catchments
- input / output balance for upper soil layers
- soil store vs mass balance
- total metal deposition to forests
- concentrations in foliage and upper soil layers, the biological receptors



## *ICP IM interactions with LTER Europe*

*Long-Term Ecological Research site network*

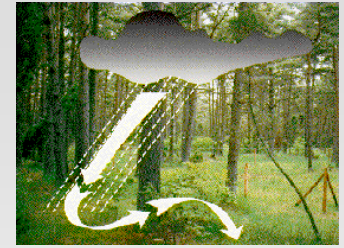
<http://www.lter-europe.ceh.ac.uk/>

*ICP IM sites benchmarking in LTER*

*Strategic note for WGE*

*Synergies in ecosystem/environmental research*

# *EC collaboration projects*



*EURO-LIMPACS*

*ALTER-Net (Europe-LTER)*

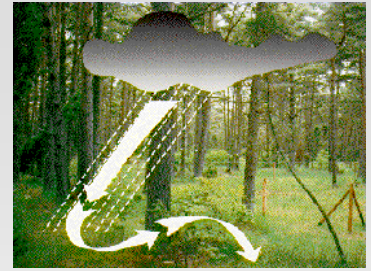
*LIFE Watch*

*FutMon*

*FutDiv*

*CEFES*

# *ICP Integrated monitoring*



*Thank you for your attention*

*and*

*Welcome to the next Task Force in  
Tallinn, Estonia - May 6-8, 2009*

*ICP IM TF 2009*

*But some advertising is following:*



# BIOGEOMON 2009

BIOGEOMON  
2009

6th International Symposium  
on Ecosystem Behaviour



June 29-July 3, 2009  
The University of Helsinki, Finland



[www.environment.fi](http://www.environment.fi)

METLA

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[www.helsinki.fi/university](http://www.helsinki.fi/university)

[www.environment.fi/syke/biogeomon2009](http://www.environment.fi/syke/biogeomon2009)