ICP Integrated Monitoring of Air Pollution Effects on Ecosystems -

ICP IM

Achievements & Priorities 2016-2017

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1. Scope of ICP IM
2. ICP IM TF 2016
3. Focus of work 2016/2017
4. Key results and achievements
5. Future plans; workplan 2016-2017
6. ICP IM TF 2017
ICP Integrated Monitoring

Ecosystem investigation

Monitor state and changes with causative explanations
Develop and validate models
Detect changes by biomonitoring

Cause-effect approach
Cross-media flux approach
Integrated Monitoring

Catchment approach
Budget calculations
Process oriented

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Database update – data from 2014
2015-12-01:
c. 13 countries
c. 40 countries for period 2009 – 2014
By 2014-12-01 data was reported for 2013
17 countries
41 active sites
Ukraine 1
Norway 2 new
Ireland and Switzerland new sites 2016
Poland suggest 9 new sites
IM Task Force meeting 24-26 May 2016

Asker Norge
49 participants from 13 countries and
Joint meeting with ICP Waters

Kind invitation from
Ministry of Climate and Environment, Norway
Norwegian Institute for Water Research (NIVA)

Workshop first and second day
Excursion to the Askerselva and boat trip on the Oslo fjord
Task Force third day
Ongoing priority work items

Biodiversity indicators and issues related to CL and modelling

Work on HM baseline, budgets and critical loads

Update results on mass balances for sulphur and nitrogen

Collaboration between IM, EU projects and LTER Europe

Common workplan items related to CLRTAP strategy (e.g. CLRTAP Assessment report).

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Planned ICP IM work and reports 2016-2017

ICP IM 25\textsuperscript{th} Annual Report 2016 and WGE Joint report

Dynamic vegetation modelling at ecosystem monitoring and research sites 2016 and Scientific paper in 2017

Report on assessing long-term trends of S and N effects and scientific paper


Progress report on mercury with ICP Waters

Report on connections between calculated CL exceedances and observed impacts of N (2017)

In 2016 the 24\textsuperscript{th} ICP IM Task Force meeting joint with ICP Waters
ICP IM Annual Report 2016

25th Annual Report
2016

CLRTAP
ICP Integrated Monitoring of Air Pollution Effects on Ecosystems
Sirpa Kleemola and Martin Forsius (eds.)

REPORTS OF THE FINNISH ENVIRONMENT INSTITUTE 29 | 2016
Dynamic vegetation modelling at ecosystem monitoring and research sites

Preprocessing
- MethHyd
- Climate: T, P
- Soil moisture
- Modifying factors: mineralisation, nitrification
- GrowUp
- Uptake of N and BC
- Input of C and N to soil

Calibrate VSD+ using observations, observed deposition and scaled historic deposition
- Observed:
  - Soil BS, C, N
  - Solution pH, ANC, SO4, Al, etc.
- Deposition:
  - S, NO3, NH4

Run VSD+ with calibrated soil parameters, scaled future deposition and climate
- Soil properties
  - pH
- C, N

Run PROPS in VSD+
- Using simulated soil properties
- Species occurrence probability
- Habitat suitability index

Schematic view of work flows in the application of VSD+ model chain including PROPS plant response functions to study impact of air pollution on habitat suitability.

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Dynamic vegetation modelling at ecosystem monitoring and research sites

Comparison of modelled to observed values of soil pH at 13 sites.
Iterim report and scientific paper

Trend assessment for deposition and runoff water chemistry and climatic variables at ICP IM sites in 1990-2013

Comparison of changes in SO₄, NO₃, NH₄ and H 1999-2000 and 2000-2013

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Publications using ICP IM data 2015 – 2016

23 scientific publications
Increased possibilities to deliver required science in the future

Intense collaboration between ICP:s:
- Increase the monitoring regions
- Increase policy oriented assessments

EC collaboration projects; New Horizon 2020

ICP IM relates to
ALTER-Net II
LTER Europe
LIFE Watch http://www.lifewatch.eu/
EnvEurope
EU Cost action FP0903
EU projects SoilTrEC, Expeer ...

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Main features of the EU Horizon 2020 eLTER project
Concluding remarks from ICP IM

With measured N deposition exceeding the empirical critical load (CL) has eutrophication effects on biota

Release of sulphur that had accumulated in the past with effects in surface waters

No widespread regional increases in nitrate concentrations in surface waters despite ongoing N accumulation in catchments

Mercury is increasing in the forest floor and mineral soil with hazardous effects on biological activity and also providing extended possibilities for methylation and releases to surface waters

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Thank You for attention!

The venue

Water and Forest

The hosts

Nature

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ICP IM TF 2017
again
Joint with ICP Waters

Uppsala, Sverige 9-11 maj 2017

Thank You for attention!