



Updates from the ICP Vegetation

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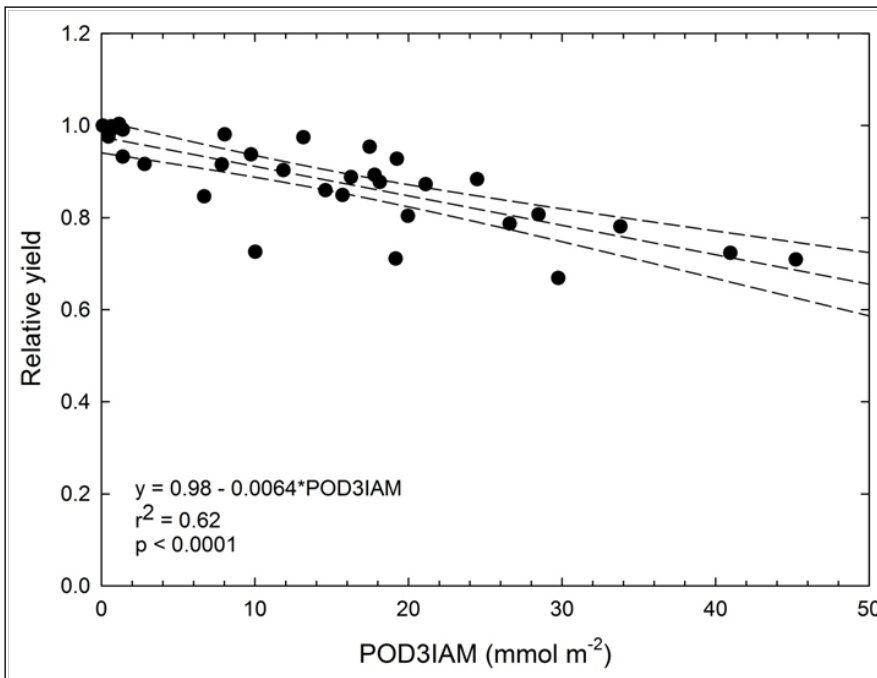
* Supported by Defra (UK), NERC (UK) & UNECE

Revision of Modelling and Mapping Manual, Chapter 3

The 27th TFM of the ICP Vegetation (Paris, January, 2014) agreed:

- No changes to the existing critical levels
- New references included where ozone response functions and supporting evidence for ozone critical levels have been published
- New flux model parameterisations for additional species to be added to Annex
- Text related to integrated assessment modelling (Section 3.5.2.6) updated:
 - New terminology for the simplified generic ozone flux – $POD_{\gamma}IAM$ will replace $POD_{\gamma}gen$ (POD_{γ} = Phytotoxic Ozone Dose above a flux threshold of $Y \text{ nmol m}^{-2} \text{ s}^{-1}$)
 - New critical level and dose-response function for $POD_{\gamma}IAM$ for integrated assessment modelling (see next slide)

New response function for use in IAM

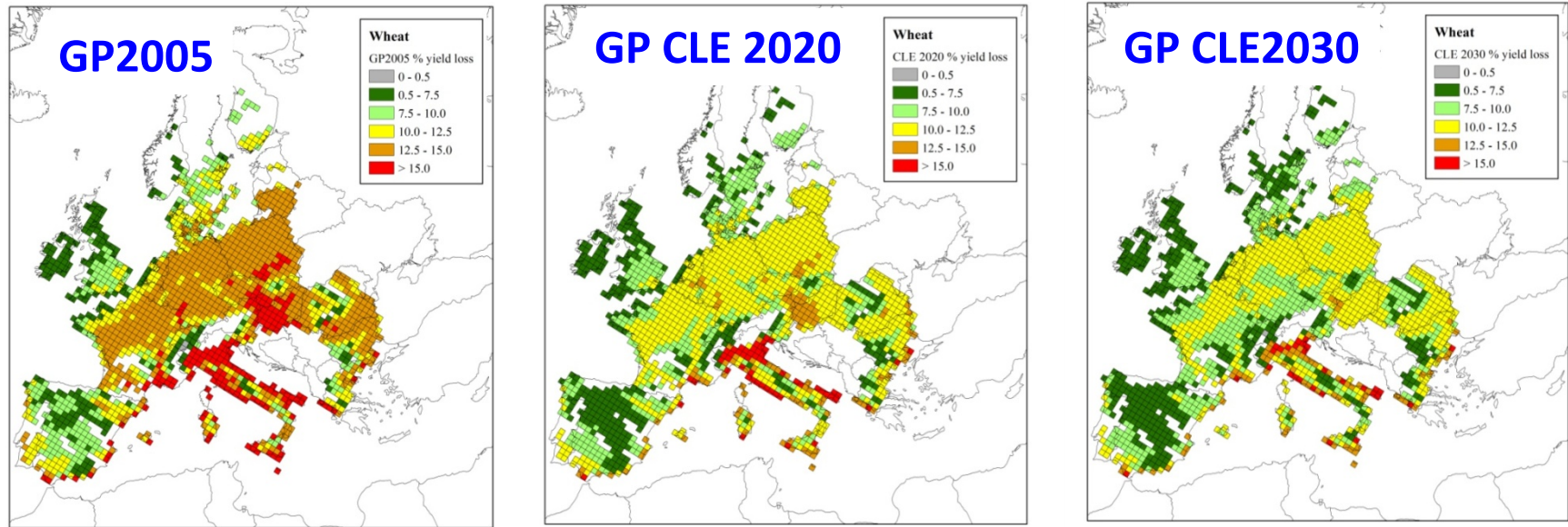


- ❑ **New POD₃IAM – effect relationship** for use in integrated assessment modelling at European scale only (for effects of ozone on wheat, 90 d exposure period)
- ❑ **Critical level: 8 mmol m⁻²** (representing 5% yield decline)

- ❑ For use in scenario analysis and optimisation runs within GAINS to provide indication of potential effects on wheat yield under non-limiting water availability
- ❑ Two parameterisations flux model: 1) Northern & Central Europe, 2) Mediterranean areas (as defined in the M&M Manual)

Ozone and food security

Application of POD₃IAM response function to GP scenarios

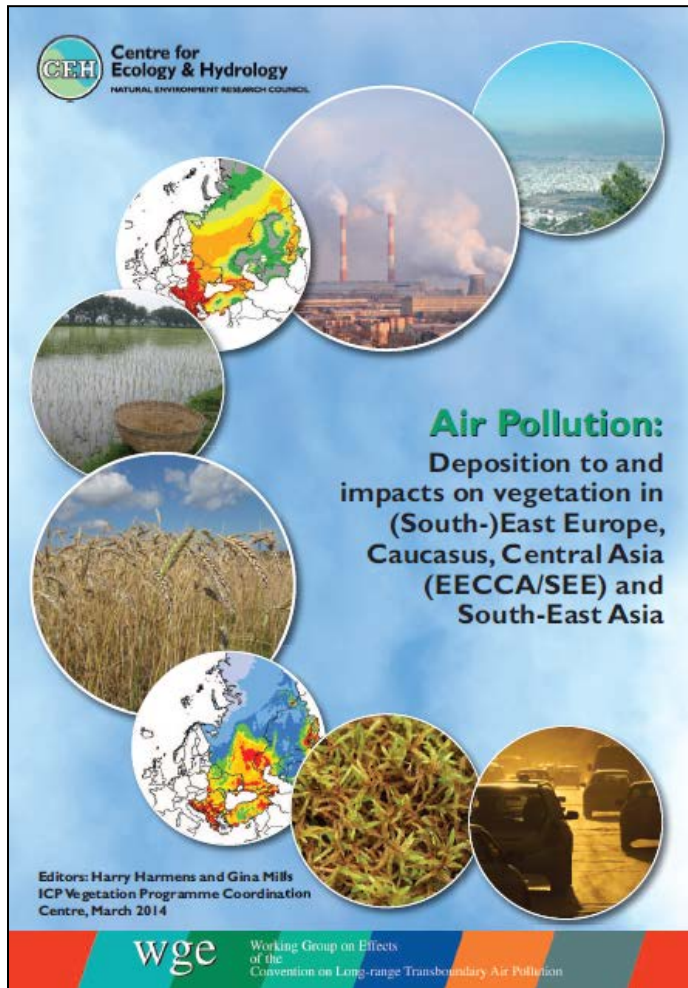


☐ Revised Gothenburg Protocol: **Mean yield loss* (%) for 27+NO+CH:**
12.4% for GP2005, **10.3%** for GP CLE2020

Note:

- * Generic crop flux model (IAM), assumes no water limitation, one parameterisation used for all Europe
- * Data included in Guidance Document for Environmental Improvements ([ECE/EB.AIR/2013/8](http://ec.europa.eu/environment/air/guide.htm))

EECCA/SEE and South-East Asia report



Content

- Air Pollution deposition and impacts in EECCA and SEE (N, O₃, heavy metals, POPs)
- Concentrations and effects on vegetation in SE Asia
- Conclusions and recommendations
- Annex: Country reports (9 countries)

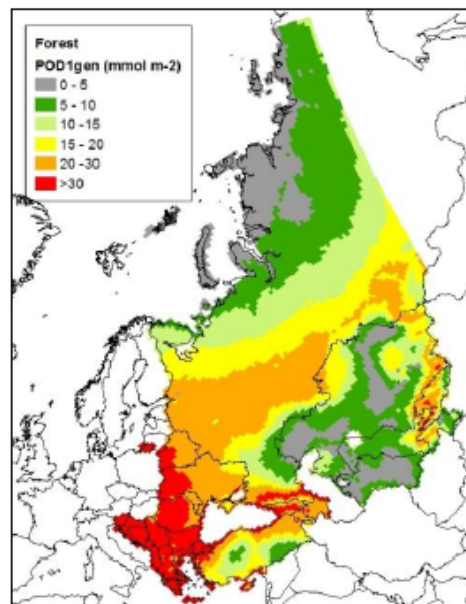
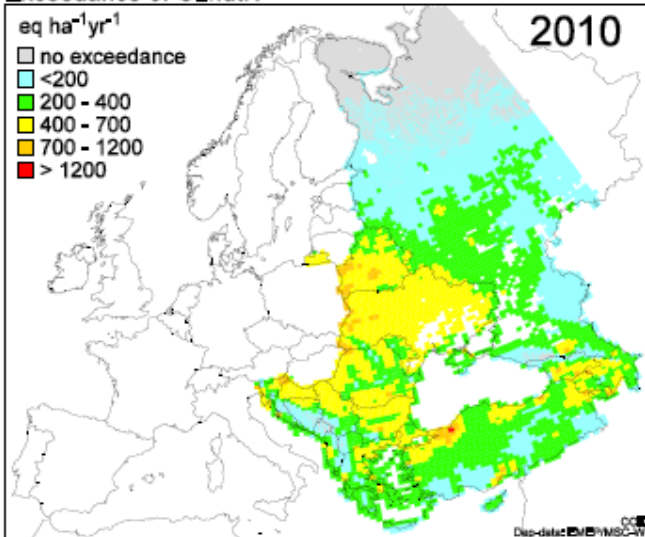
* Copies available at this meeting

<http://icpvegetation.ceh.ac.uk/>

Examples of maps from the ICP Vegetation EECCA/SEE/SEA report

Nitrogen

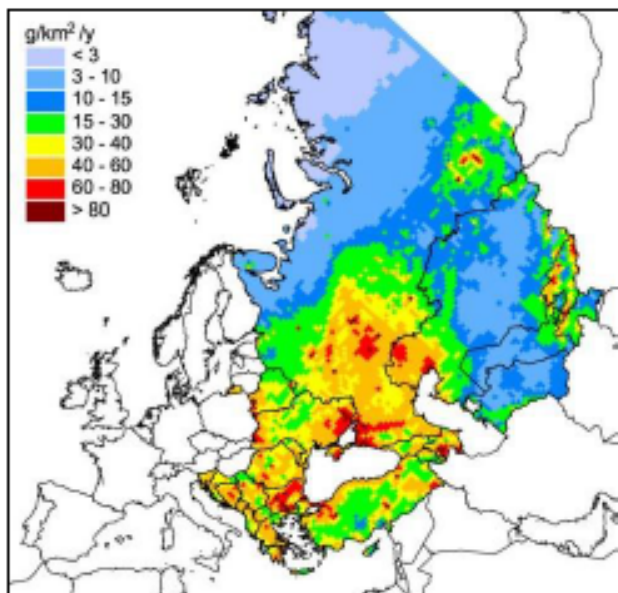
Exceedance of CLnutN



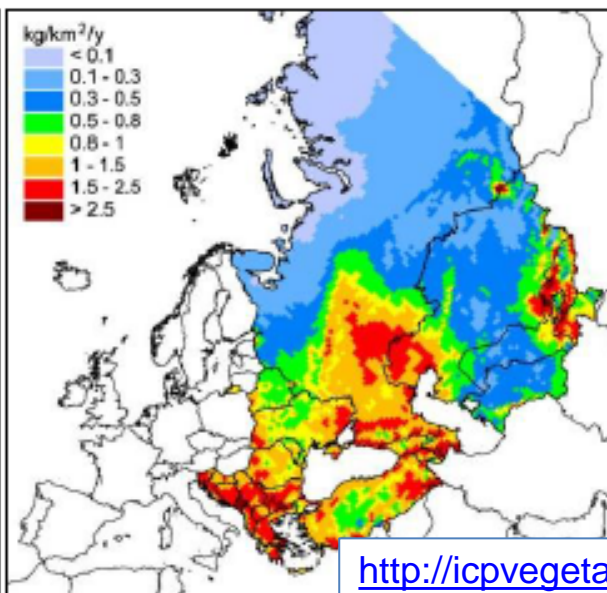
Ozone

POD₁IAM for forest trees, mean of 2007 – 2011

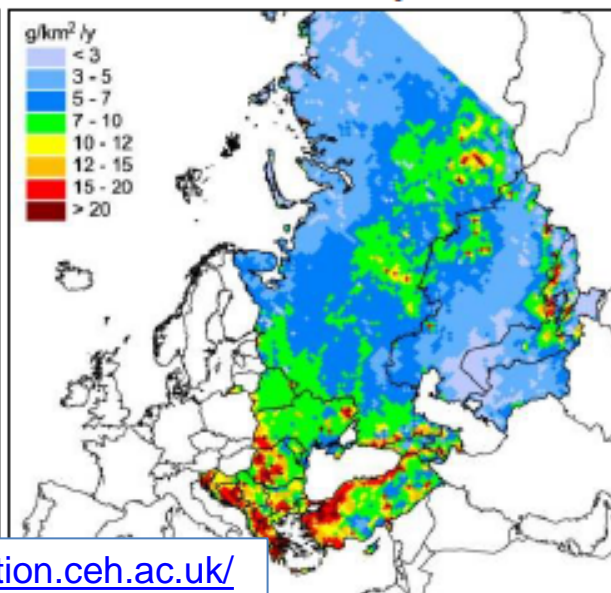
Cadmium



Lead



Mercury



New Smart phone App

Recording incidences of leaf ozone injury



Smart-phone App
linked to ICP
Vegetation web site



Location on interactive map



Spring/summer 2014: Testing by experts and interested scientists
Spring/summer 2015: European (and Global) roll out to scientists and public
To test the App this year, please email Gina Mills (gmi@ceh.ac.uk)

ICP Vegetation ozone injury brochure



CEH Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL

LRTAP
Long-Range Transport Air Pollution

Have you seen these ozone injury symptoms?

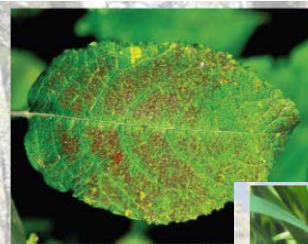
If you have, let us know using our new smart-phone App and website
<http://icpvegetation.ceh.ac.uk>

wge Working Group on Effects of the Convention on Long-range Transboundary Air Pollution

The brochure cover features a grid of six images showing various plants with ozone injury symptoms, such as yellowing and necrotic spots on leaves. A smartphone is shown displaying the ICP Vegetation app interface.



Eastern white pine (*Pinus strobus*)



Goat willow (*Salix caprea* L.)



Wayfaring tree (*Viburnum lantana*)



Ash (*Fraxinus excelsior*)



Wheat (*Triticum aestivum*)



Soybean (*Glycine max*)



Sycamore (*Acer pseudoplatanus*)



Common Alder (*Alnus glutinosa*)



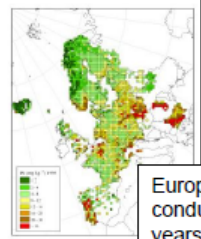

Potato (*Solanum tuberosum*)



Grape (*Vitis vinifera*)

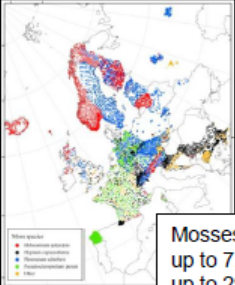
*** Available in English (now) and Russian (very soon!)**

European moss survey




European surveys conducted every five years since 1990

Mosses as biomonitors of atmospheric heavy metal and nitrogen pollution in Europe



Mosses sampled at up to 7,300 sites in up to 29 countries

ICP Vegetation Programme Coordination Centre



Одновременные сборы мха в Европе проводятся каждые 5 лет

Мхи как биомониторы атмосферного загрязнения Европы тяжелыми металлами и азотом



Мхи собирают примерно в 7,300 точках. Число стран-участниц достигает 29.

ICP Vegetation Programme Coordination Centre



- ❑ Coordination European Moss Survey transferred to the Russian Federation: Marina Frontasyeva, JINR, Dubna: [Extending participation EECCA countries](#)
- ❑ Next European moss survey in 2015/16

ICP Vegetation Medium-term workplan

Annual activities:

- Report on supporting evidence for ozone impacts on vegetation
- Report on progress with the moss survey 2015/2016
- Contributions to common workplan items of the WGE

2015:

- Report on implications of rising background ozone for vegetation in Europe
- Report on the interacting effects ozone and N and climatic stresses on vegetation

Tentatively for 2016:

- Report on field-based evidence of ozone impacts on vegetation
- Report on ozone impacts on biodiversity
- Ozone critical levels workshop