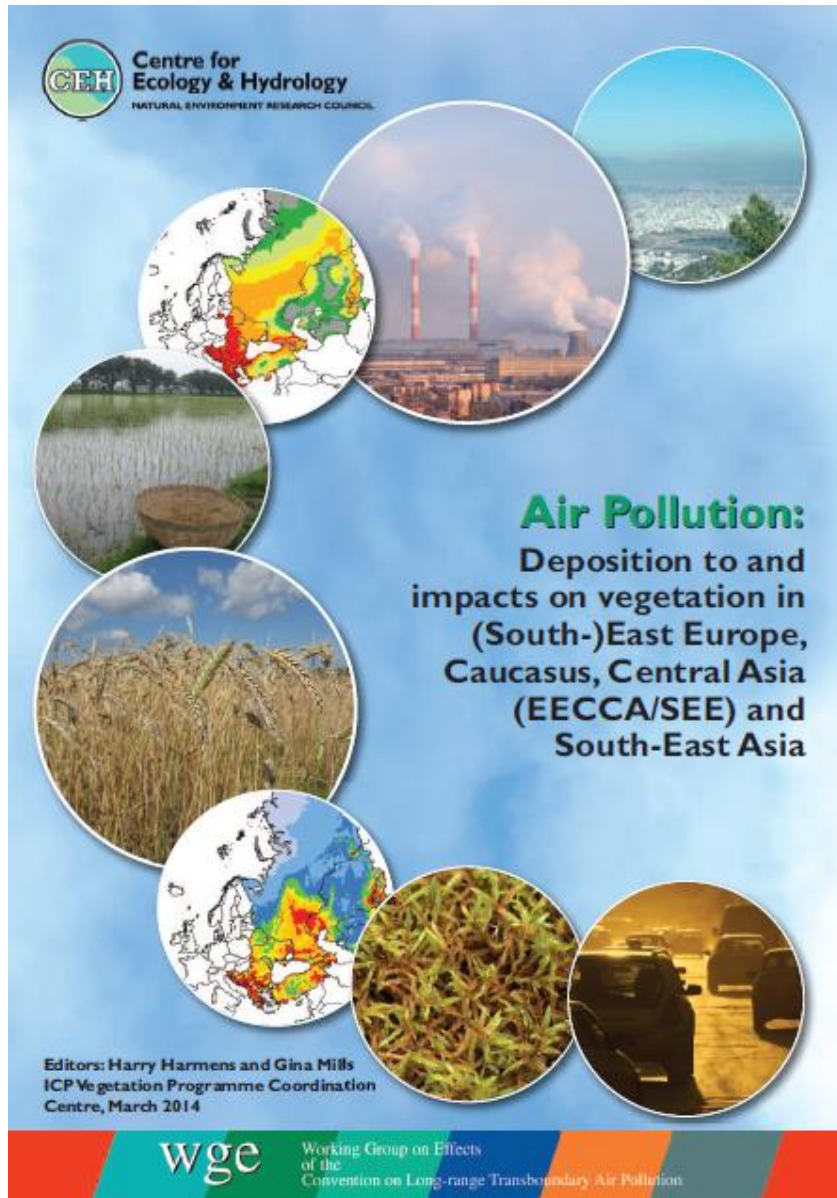


EECCA/SEE and South-East Asia report



ICP Vegetation, March 2014

With contributions from:

- ❑ CCE (critical loads data & maps)
- ❑ EMEP/MSC-West (ozone flux and concentration)
- ❑ EMEP/MSC-East (HM and POPs data and maps)
- ❑ SEI-York (South-East Asia)

Report will be translated into Russian too

Content

□ Air pollution deposition and impacts on vegetation in EECCA and SEE:

- Nitrogen
- Ozone
- Heavy metals
- POPs

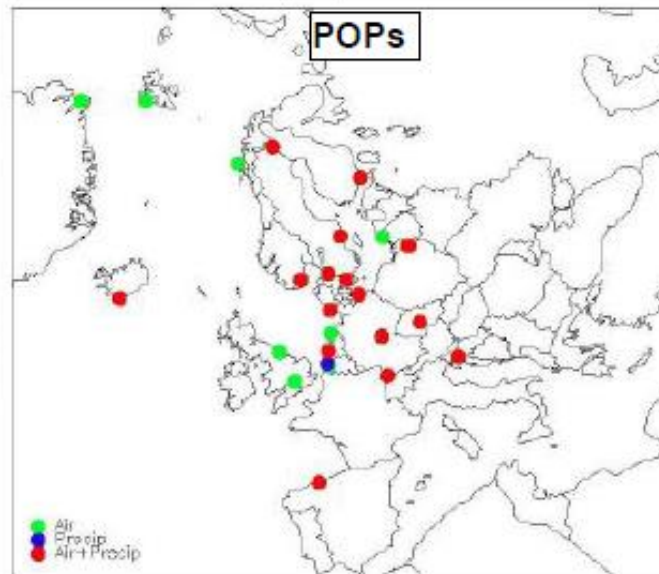
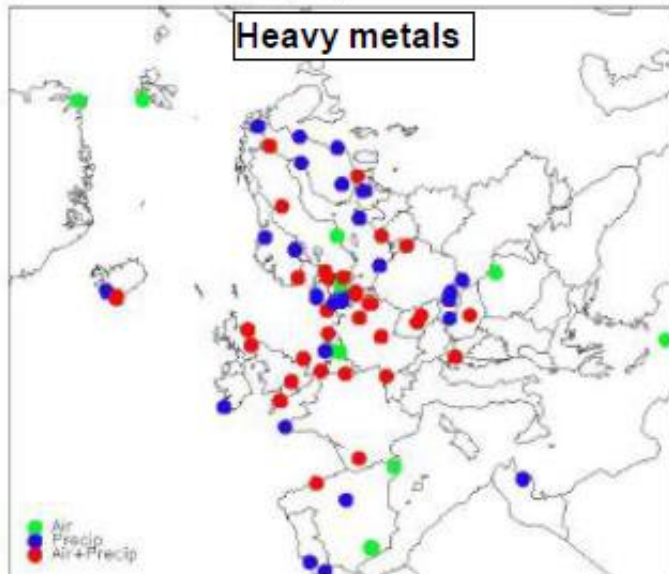
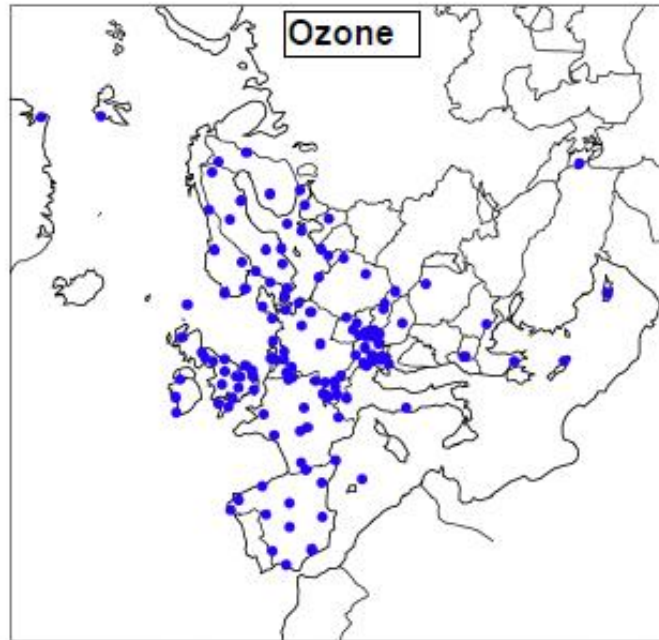
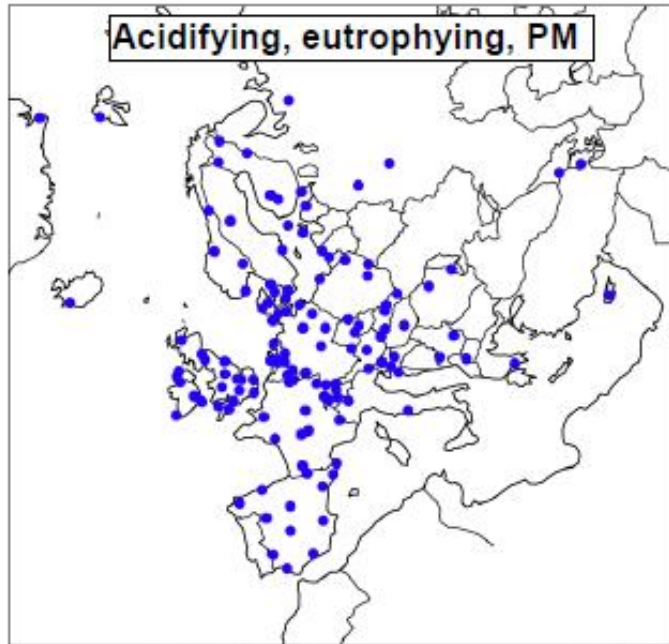
□ Concentrations and effects of air pollutants on vegetation in South-East Asia:

- Ozone
- Nitrogen
- Atmospheric aerosols
- Heavy metals

Country reports

SEE:	- Albania - Croatia - FYR Macedonia - Greece - Romania - Serbia - Slovenia
EECCA:	- Russian Federation
Other:	- Egypt

EMEP monitoring stations

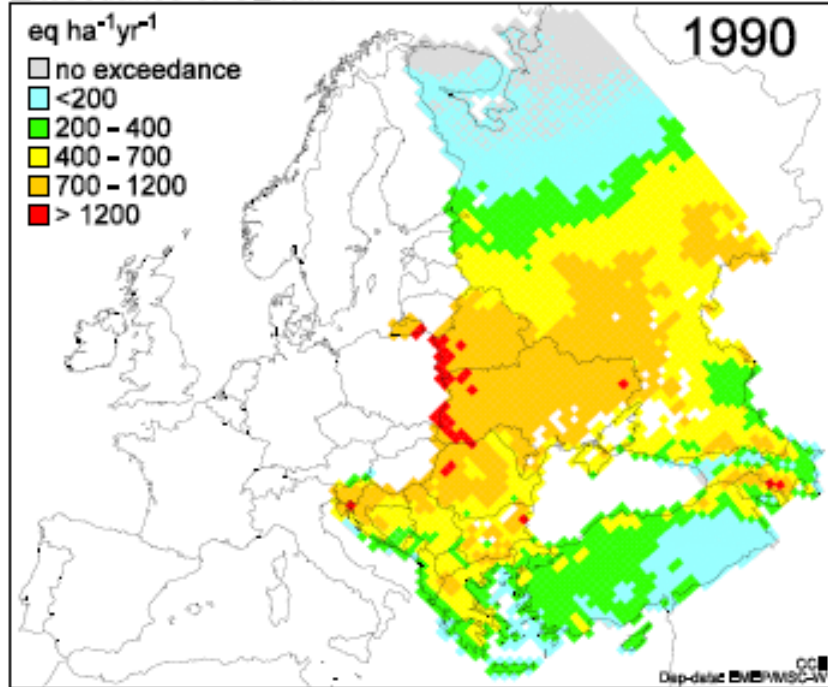


❑ Lack of stations in SEE and EECCA region

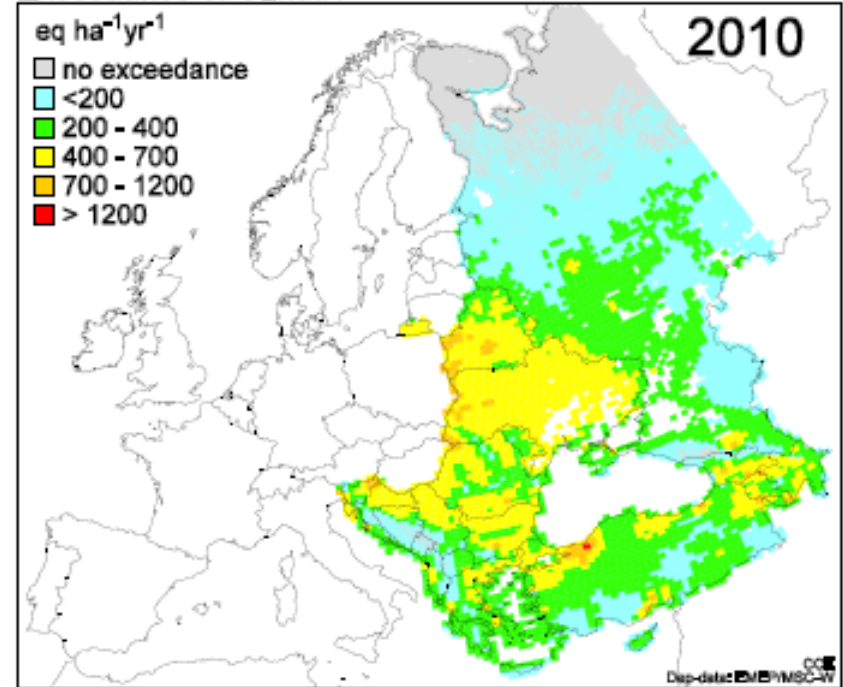
❑ Also true for effects monitoring

Nitrogen CLoad exceedance

Exceedance of CLnutN



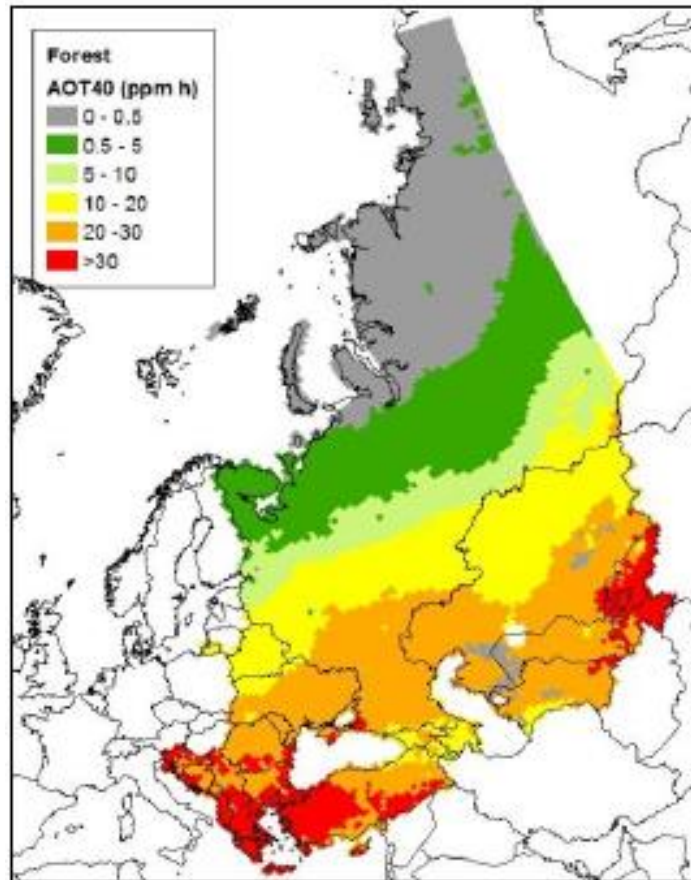
Exceedance of CLnutN



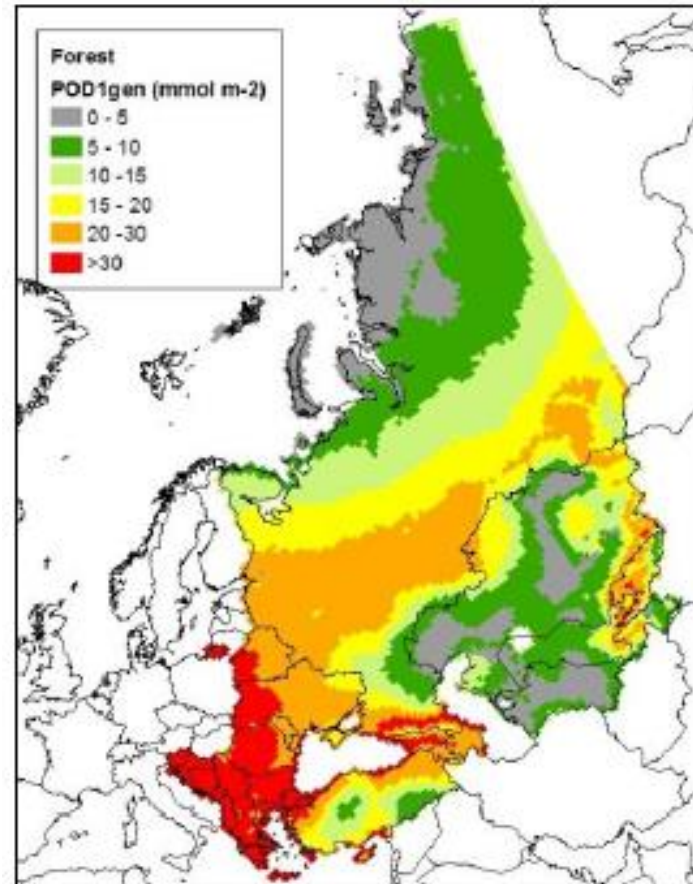
- N Cload exceedance generally higher in Western & Central Europe
- Improvements generally lower in EECCA countries

Risk of ozone damage to forests

Concentration-based



Flux-based



☐ South-East Europe at highest risk

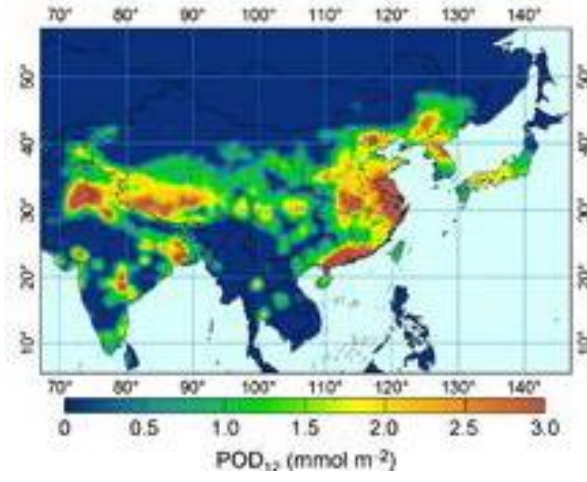
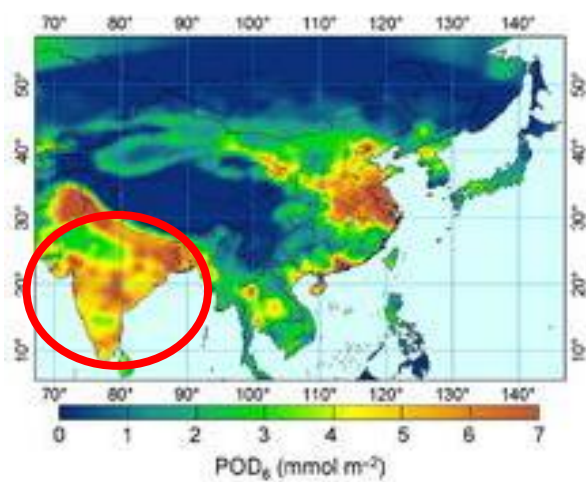
* Flux-based: assumes no water limitation

Asia: Losses in wheat yield due to ozone

Country	90 d AOT40 (European)	75 d AOT40 (Asian)	POD ₆ (European)	POD ₁₂ (Asian)
Relative wheat production loss 2000 (%)				
China	6.4	7.2	14.9	10.3
India	8.2	8.9	22.3	9.7
Increase wheat production loss 2000-2020 (%)				
China	8.4	9.4	8.1	8.9
India	7.1	7.7	5.4	6.4

POD₆

2020

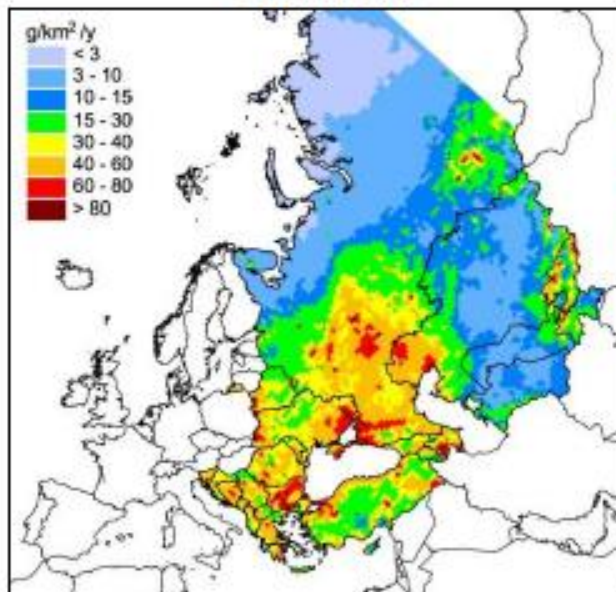


POD₁₂
(~ AOT40's)

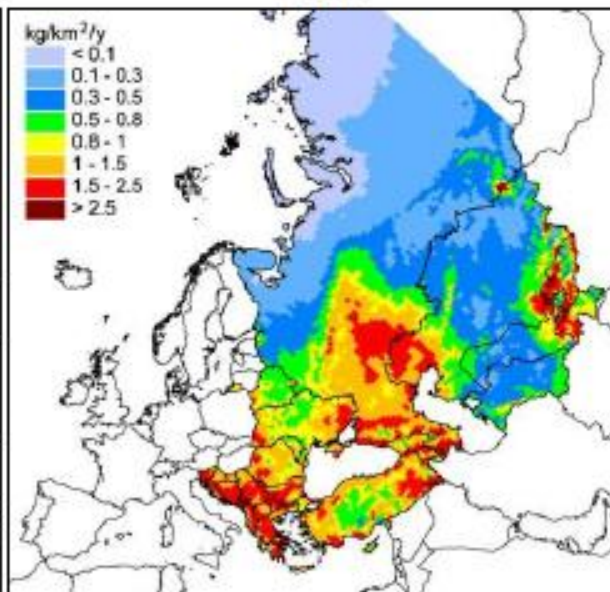
2020

HM: Modelled deposition and CLoad exceedance

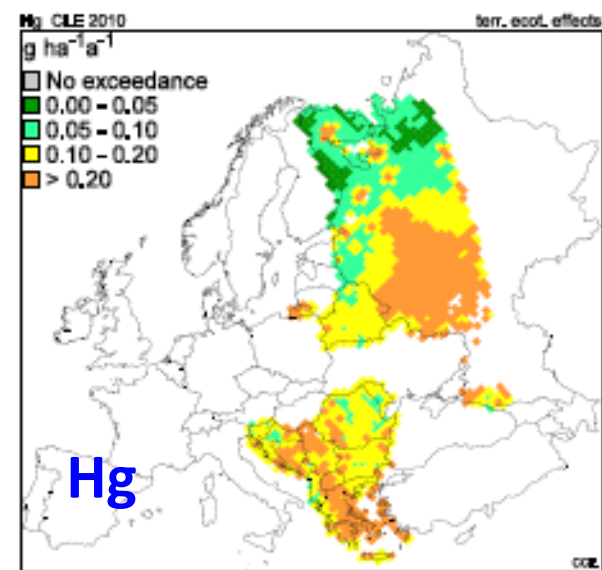
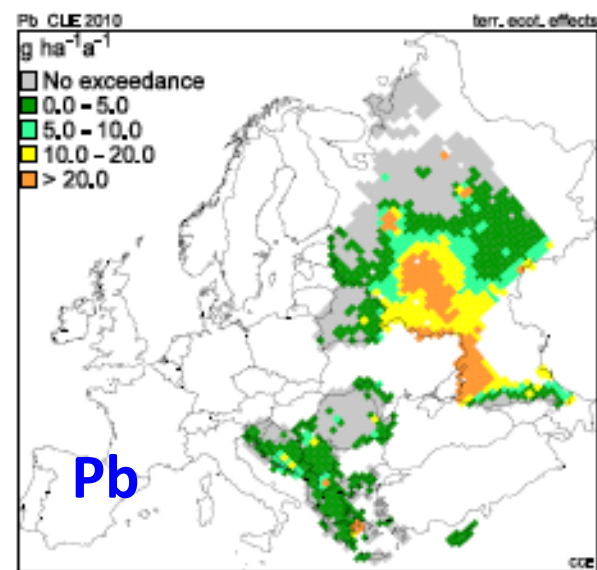
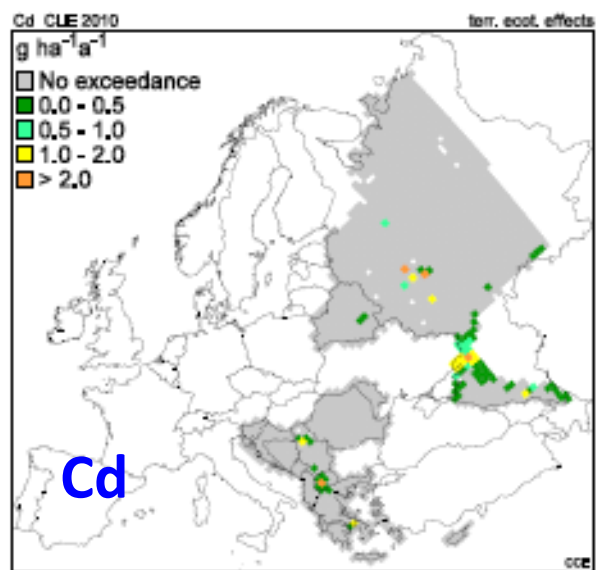
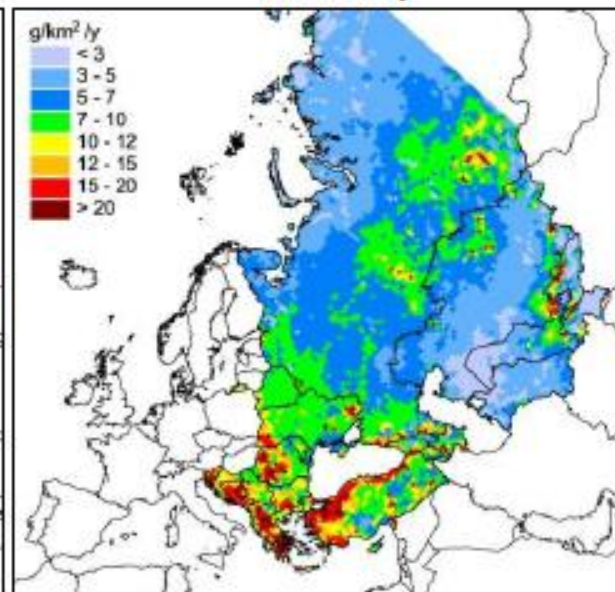
Cadmium



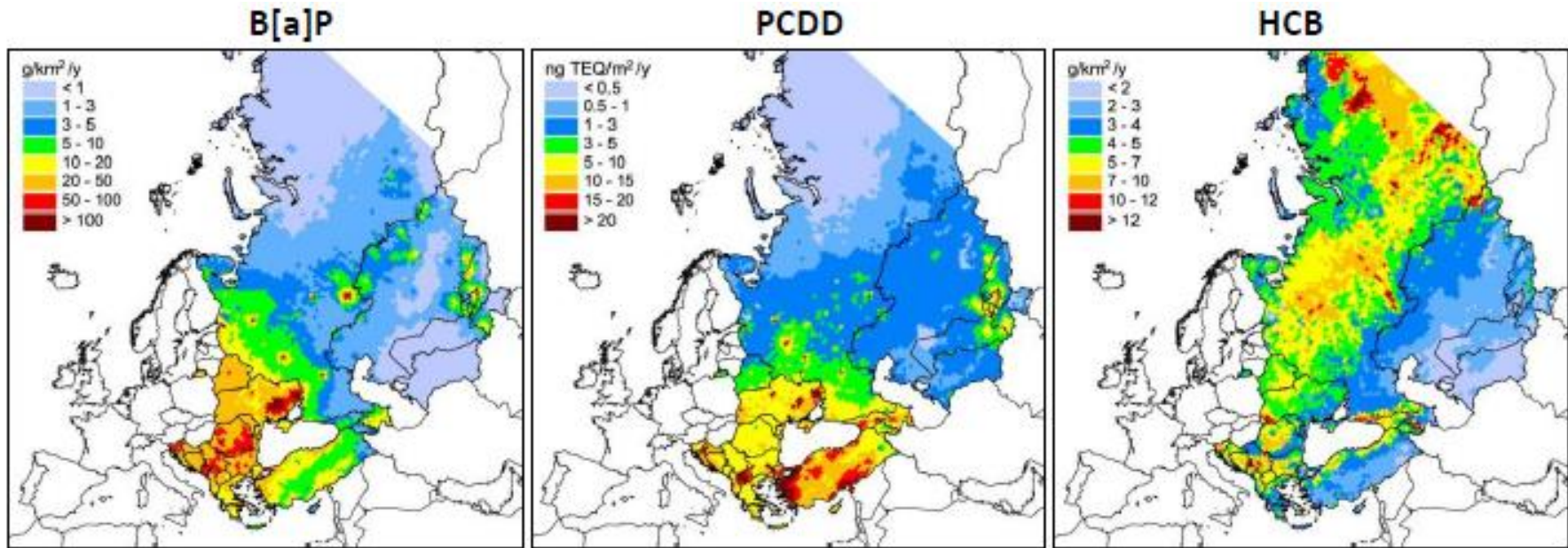
Lead



Mercury



Modelled deposition selected POPs in 2011



- ❑ B[a]P and PCDD depositions higher in SEE than EECCA, highest levels of HCB deposition in large part of EECCA and SEE region
- ❑ However, deposition of HCB has dropped by more than 87% since 1990
- ❑ Relatively small decline B[a]P and PCDD in EECCA countries since 1990 compared to the rest of Europe

Conclusions and recommendations

- ❑ Lack of monitoring data on deposition of air pollutants to and impacts on vegetation particularly in EECCA and South-East Asia
- ❑ More measurement data needed to validate model outputs regarding air concentrations, deposition and impacts on vegetation
- ❑ Slower progress implementation air pollution abatement policies in EECCA and South-East Asia compared to rest of Europe

Thank you for your attention!