



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

# ICP Modelling and Mapping Progress in activities in 2020

Alice James Casas (Chair)  
Christin Loran, Markus Geupel, Thomas Scheuschner (CCE)  
Filip Moldan, Sara Jutterström (CDM)

6th Joint EMEP / WGE meeting  
Web-Conference, 14 – 17<sup>th</sup> September 2020

# ICP M&M and designated centres – WHO IS WHO ?

## CCE – Coordination Centre for Effects

✉ [cce@uba.de](mailto:cce@uba.de)

German Environment Agency

Department II 4.3 Air Pollution Control and Terrestrial Ecosystems

Wörlitzer Platz 1 - 06844 Dessau

Germany

Umwelt  
Bundesamt

ICP M&M – International Cooperative Programme on  
Modelling and Mapping

Chair: Alice James Casas, ✉ [alice.james@ineris.fr](mailto:alice.james@ineris.fr)

French National Institute for Industrial Environment and Risks

Department of Hazards and Impact on Living Organisms

Parc Tech. ALATA, BP2 - 60550 Verneuil-en-Halatte

France

INERIS

controlling risks  
for sustainable development

ICP Modelling &  
Mapping Task Force

Coordination  
Centre for Effects

Centre for Dynamic  
Modelling

## CDM – Centre for Dynamic Modelling

✉ [filip.moldan@ivl.se](mailto:filip.moldan@ivl.se)

IVL Swedish Environmental Research Institute

Aschebergsgatan 44 – 411 33 Göteborg

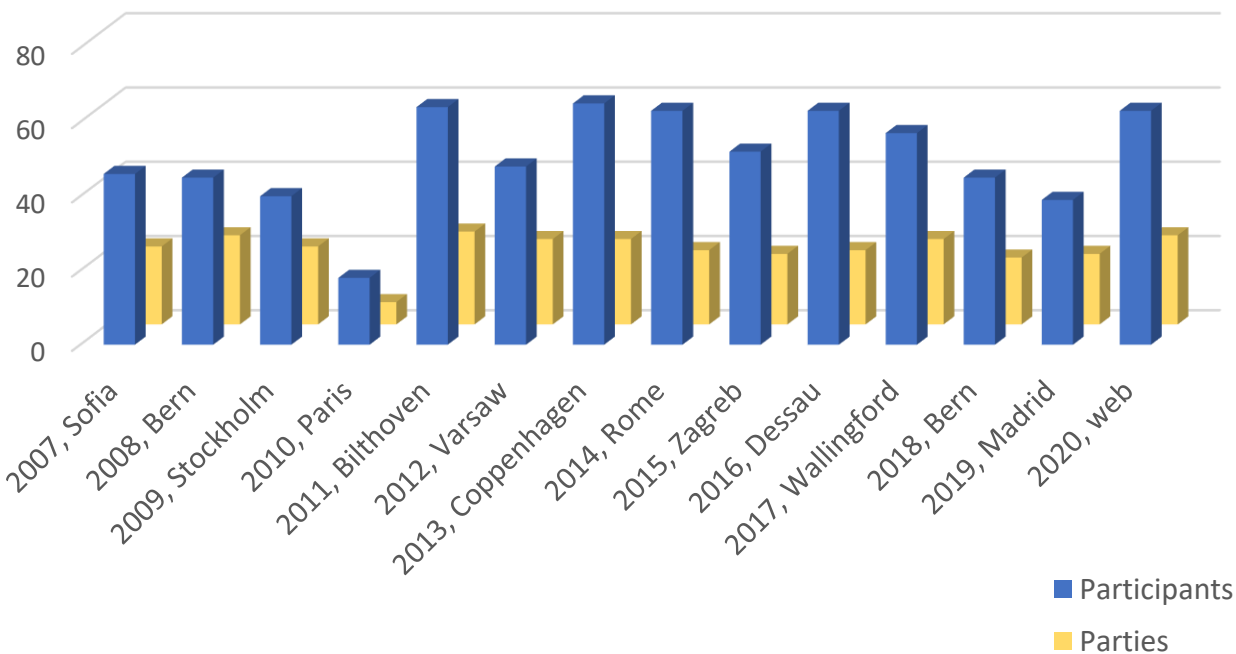
Sweden

ivl  
Swedish Environmental  
Research Institute

# ICP M&M TF & CCE – PAST WORKSHOPS & MEETINGS

Sharing knowledge on critical loads (CL) and modelling methodologies addressing the risk of impacts on terrestrial and aquatic ecosystems with all parties

ICP M&M annual meetings attendance  
(2007 - 2019)



From 2011 and on,

- ca. 20 parties represented
- 40 – 60 attendants

Our 2020 TF, CCE and CDM annual meeting gathered **64 participants** at the most during **3 afternoons (21 – 23 April)**

## Improve information exchange within the ICP M&M community and towards National Focal Centres

#1 – July 2019

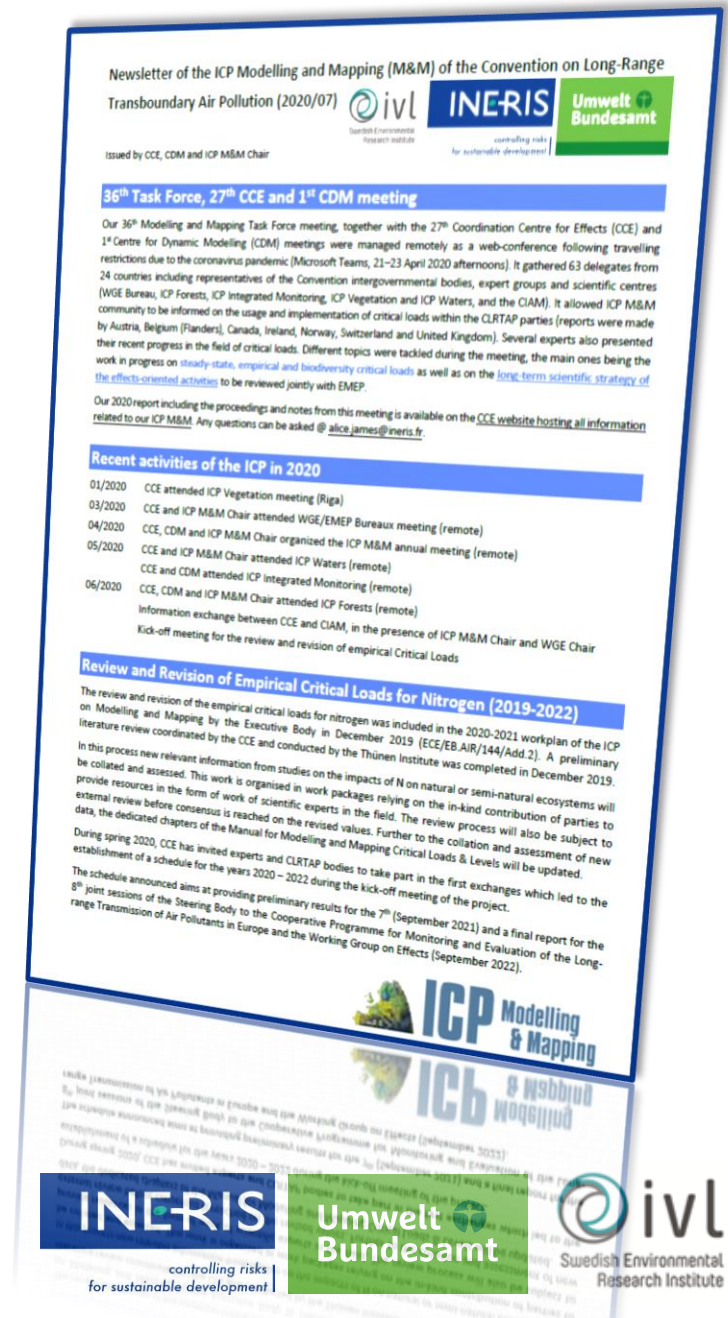
#2 – January 2020

#3 – July 2020

- Summarising main achievements
- Announcing main M&M relevant events
- Encouraging contribution to the on-going work

Newsletters are available online:

<https://www.umweltbundesamt.de/en/news-0?parent=67248>



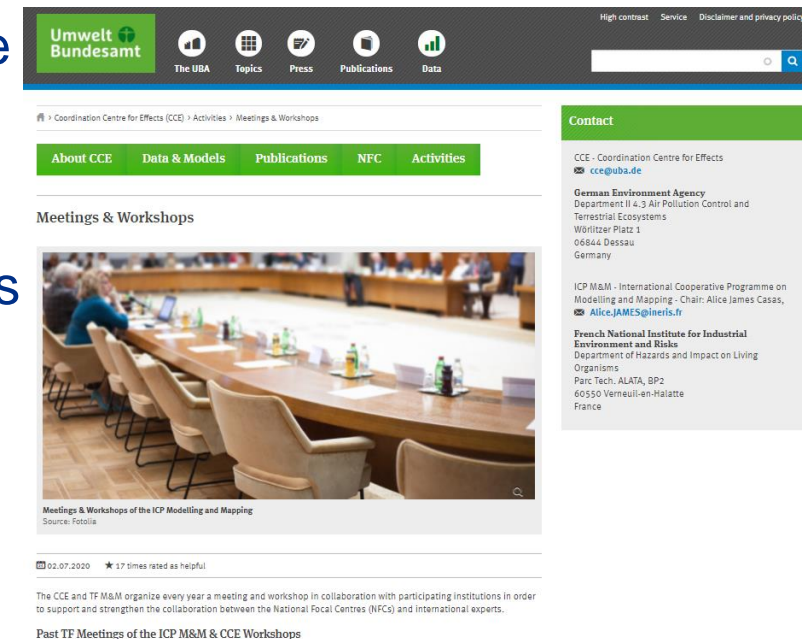


## 36th Modelling and Mapping Task Force meeting 27th Coordination Centre for Effects (CCE) meeting 1st Centre for Dynamic Modelling (CDM) meeting

- 21 – 23 April 2020 : 3 afternoons, web-conference
- 64 participants
- Active contributions from members & discussions
- Annual report including the proceedings and notes available on the [CCE website](https://www.umweltbundesamt.de/en/meetings-workshops-0?parent=69334)  
<https://www.umweltbundesamt.de/en/meetings-workshops-0?parent=69334>

- Main conclusions:

- **Steady-state CL and background database:** on-going developments by the CCE
- **Emp. CL :** on-going revision by a panel of experts, clear schedule of next steps
- **Dynamic modelling :** further work needed on modelling biodiversity CL



## Informing on ICP M&M, CCE and CDM work and encouraging the collaboration with other bodies of the Convention

- ICP Vegetation Annual Meeting (Riga, January)
- ICP Waters Annual Meeting (Web-conference, 11 – 12<sup>th</sup> May)
- ICP Integrated Monitoring Annual Meeting (Web-conference, 13 – 14<sup>th</sup> May)
- ICP Forests Annual Meeting (Web-conference, 11 – 12<sup>th</sup> June)

## Meeting other groups within and outside the Convention

- Refining collaboration with CIAM / IIASA regarding CL exceedances calculations (methods, documentation, and products) and heading to GP review
- CCE started cooperation with EEA European Topic Center on Air Pollution, Transport, Noise and Industrial Pollution (ETC/ATNI) calculating CL exceedances

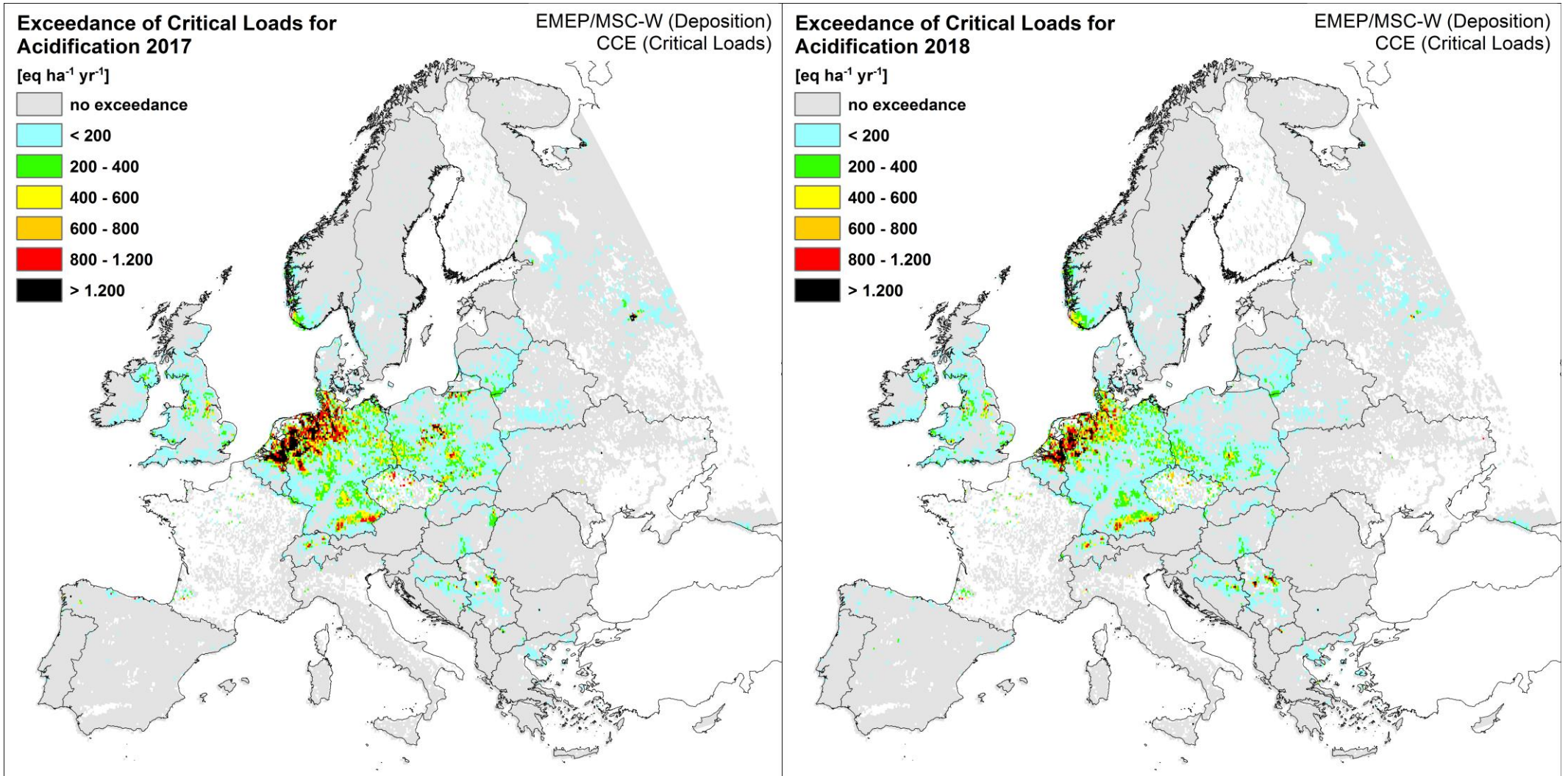
# ICP M&M TF & CCE – WORKPLAN 2020 – 2021

ECE/EB.AIR/144/Add.2

<i>Workplan item</i>	<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Lead body(ies)</i>	<i>Resource requirements and/or funding source</i>
1.1.1.13	<p>Call for data and contributions Steady-state Critical Loads:</p> <p>(a) update of National Critical Loads by National Focal Centres</p> <p>(b) establishment of European Background Database by CCE</p>	<p>Database (2020/2021) for Critical Loads for acidification and eutrophication; Report</p>	<p>ICP Modelling and Mapping/CCE</p>	<p>National Focal Centres and Germany</p>
1.1.1.14	<p>Empirical Critical Loads: Review and revision of the empirical Critical Loads on nitrogen published in 2011</p>	<p>Report on empirical Critical Loads in Europe (2021)</p>	<p>ICP Modelling and Mapping/CCE</p>	<p>National Focal Centres and recommended contributions</p>

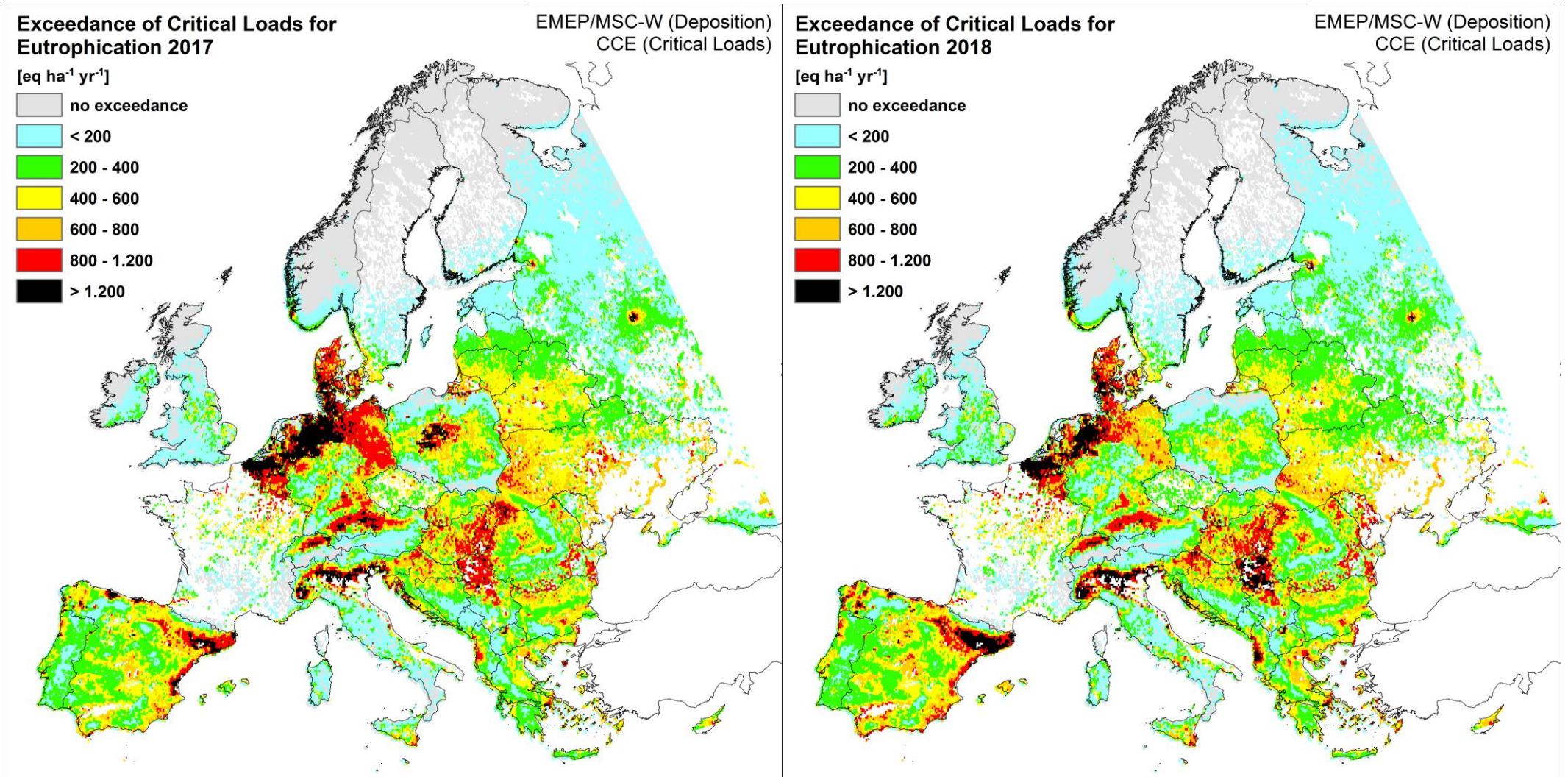


## Contribution to EMEP/MSC-W Status Report 2020 – CL exceedances





## Contribution to EMEP/MSC-W Status Report 2020 – CL exceedances



## Review and revision of Empirical Critical Loads (CLempN)

- Process coordinated by CCE
- Duration: 2020 – 2022; Funding: CCE / NFCs
- Completed tasks
  - Preliminary literature review (2019)
  - First strategic meeting at UBA (December 2019)
  - Kick-off meeting (June 2020)
- Ongoing tasks
  - Expert groups are updating CLempN (till June 2021)
- Upcoming tasks
  - Review of the results by external experts (July – September 2021)
  - Progress report to WGE (August 2021)
  - Expert workshop: determination of revised CLempN (October or November 2021)

## Establish European Background Database for Critical Loads

- Project coordinated by CCE
- Duration: November 2019 – February 2021
- Partner: Wageningen Environmental Research
- Review of results by National Focal Centres (NFCs) / expert groups

## Steady-state Critical Loads

- Update of national Critical Loads by NFCs
- Call for Data 2020/2021 (published November 2019)
- Potential extension of the deadline of the call for data (till mid 2022) in order to be in line with the update of the empirical Critical Loads (CLempN)

## Updating the harmonized CLRTAP receptor map

The map is the basis for several calculations and modelling activities, e.g. the calculation of critical loads (CCE), for deposition modelling (MSC-West), ozone-effects modelling (ICP Vegetation).

- Project will be coordinated by CCE & financed by German Environment Agency (UBA)
- Planned duration: 2021 - 2023
- Contractor: CCE will prepare a call for tenders

➤ The CCE invites other users of this map to discuss and determine required updates (before the end of 2020).



# ICP M&M TF & CDM – WORKPLAN 2020 – 2021

ECE/EB.AIR/144/Add.2

<i>Workplan item</i>	<i>Activity description/objective</i>	<i>Expected outcome/deliverable</i>	<i>Lead body(ies)</i>	<i>Resource requirements and/or funding source</i>
1.1.1.22	Review of the dynamic modelling work under the Convention; identification of areas of common interest and potential gaps	Final report 2020	ICP Modelling and Mapping	Recommended contributions
1.1.1.23	Development of metrics for quantifying damage to biodiversity due to air pollution and of biodiversity damage indicators suitable as a criterion for calculating critical loads for nitrogen as a nutrient	Report on indicators of damage to biodiversity (2021)	ICP Modelling and Mapping	Recommended contributions

## The team at the hosting institute (IVL, Sweden):

- Filip Moldan, Chair
- Sara Jutterström
- Johanna Stadmark
- Biodiversity expert has been recruited, will start in October

IT & Communication departments involved and contribute with their resources

*Biodiversity is an important issue for IVL, the institute has allocated internal resources in 2019 and 2020 for developing and strengthening the work in this area (ca 70 000 USD).*

**Organised the financing and contracts from UNECE and from Swedish EPA in place** (almost)

**Developed a home page at [www.unece-wge.org](http://www.unece-wge.org)**

**Informed all involved**

**Review of the dynamic modelling work under the convention, identification of areas of common interest and potential gaps.**

**Litterature search ICPs webpages – cutoff year 2015**

**~ 340 reports and peer-reviewed papers**

- 40 contained «model» in the title
- Models mentioned: VSD, VSD+, MetHyd, GrowUp, CENTURY, Yasso, 3-PG, ROMULv, EcH2O-iso, HD-MINTEQ
- More thorough search in the abstracts is ongoing
- NEXT STEP: Contact ICPs
  - What have we missed?
  - What modelling teams/constellations are they aware of?

## **2021: Development of metrics for quantifying damage to biodiversity due to air pollution and of biodiversity damage indicators suitable as a criterion for calculating critical loads for N as a nutrient.**

- Metrics and indicators are of utmost importance!
- Deliverable: Report on indicators of damage to biodiversity (2021)
- Responsible: CDM in co-operation with Coordination Centre for Effects
- Expected contribution from “extended JEG DM network” i.e. all groups involved in dynamic modelling of air pollution effects within the Convention





## Main messages you are inviting to take back home or proposals to discuss now

- Review and Revision of Empirical CL : ongoing till June 2021
- Steady-state CL : if any extension of the deadline of the call for data in order to be in line with the update of the CLempN, **what needs to be considered?**
- Updating the harmonized CLRTAP receptor map: beginning end 2020-early 2021
  - Please indicate if you would like to be closer to the processes (e.g. receptor maps, emp. CL)
- CDM is a further development of JEG DM
  - we encourage, welcome and hope for participation on biodiversity modelling (and other modelling work)

*Thank you for your attention*



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