Participant Call July 10, 2025

Participants: Stefano Galmarini, Paul Makar, Christian Hogrefe, Kenjiro Toyota

Special issue manuscript status

Stefano asked Copernicus to extend the submission deadline to December 31, 2025 and Copernicus approved that request on June 19.

- **Active work:**
  - Activity 2: Khan, Clifton, et al. – observational constraints on stomatal conductance and point model sensitivity simulations (https://egusphere.copernicus.org/preprints/2024/egusphere-2024-3038/)
    - This manuscript was accepted for publication on May 9. Typesetting and page proofs are expected in the coming months, Copernicus currently has a backlog of about 10 weeks for typesetting accepted articles.
  - Activity 1: Kioutsioukis, Galmarini et al. – multi-model operational, probabilistic, and diagnostic evaluation and analysis of AQMEII4 grid models (https://egusphere.copernicus.org/preprints/2025/egusphere-2025-1091/)
    - Stefano uploaded the revised manuscript and response to reviewer comments on July 9.
  - Activity 1: Hogrefe, Galmarini, Makar, Kioutsioukis et al. - multi-model analysis of ozone dry deposition diagnostics (grid-aggregated and LU-specific) and LU information (https://egusphere.copernicus.org/preprints/2025/egusphere-2025-225/)
    - This manuscript was accepted for publication on June 9. Typesetting and page proofs are expected in the coming months, Copernicus currently has a backlog of about 10 weeks for typesetting accepted articles.
  - Activity 2 + Activity 1: Toyota et al. - How can results from Activity 2 be used to update the representation of dry deposition in the operational version of GEM-MACH.
    - Kenjiro shared results from recent GEM-MACH sensitivity simulations correcting some aspects of the representation of cuticular lower canopy resistance and implementing the Makar et al. canopy shading effect.
    - Implementing all of these changes leads to generally improved ozone performance. Kenjiro still envisions writing a special issue manuscript describing this work.
  - Related deposition research by Paul's postdoc Stefan Miller: analysis and sensitivity of SO_2 deposition towards foliage pH and its dependence on the presence of base cations.
    - Paul shared highlights from a draft manuscript that has been sent to co-authors.
    - Once finalized and cleared for submission, the manuscript is intended for the special issue. Even though it does not utilize AQMEII4 datasets, the work is within the scope of the AQMEII4 research questions.
  - Activity 2: Paul is still considering proceeding with another potential manuscript. It would deal with answering the question what the effects of particle aerosol being captured by wet dep measurements but accounted for as dry deposition in the model are when comparing modeled wet deposition to observed wet deposition. During the call, Paul shared some preliminary results

applying this concept to existing GEM-MACH simulations, the manuscript would apply it to the AQMEII4 dataset.

- **No recent updates:**
  - Activity 1: Baublitz et al. - analysis of Activity 1 wet deposition fields by looking at multi-variable relationships between fluxes and meteorology / concentrations to identify communalities in spatio-temporal patterns of model spread.
    - No updates since the last call.
  - Activity 2: Vogel et al. - error estimation analysis
    - No updates since the last call
  - Activity 2: Lee, Makar et al. – physics-informed machine learning for potentially refining point model parameter values
    - No updates since the last call.
  - Activity 2 + Activity 1: Olivia's work with Nichole Ruiz on analyzing observed and modeled data at Bugacpuszta is expected to lead to a draft manuscript.
    - No updates since the last call.
  - Activity 1: Lee, Soares, Makar, et al. – use of hierarchical cluster analysis for grid model intercomparison
    - Paul shared that the revised manuscript describing the method (not with AQMEII4 data) is being finalized and would have to be finished before any potential application of the method to AQMEII4 data.
  - Activity 2: Potential manuscript based on Vladislavs' and Laurens' work with the MLC-Chem model using the Borden Forest data prepared for Olivia's AQMEII4 paper.
    - No updates since the last call.
- **Published articles:**
  - Galmarini et al. (2021) Activity 1 overview technical note (https://acp.copernicus.org/articles/21/15663/2021/)
  - Hogrefe et al. (2023) analysis of EPA CMAQ NA simulations (https://acp.copernicus.org/articles/23/8119/2023/)
  - Clifton et al. (2023) Activity 2 overview manuscript (https://acp.copernicus.org/articles/23/9911/2023/)
  - Makar et al. (2025) Critical loads ensemble manuscript (https://acp.copernicus.org/articles/25/3049/2025/

Other Grid Intercomparison (Activity 1) Updates

- Data storage updates:
  - The JRC sftp server has been decommissioned and the final gridded model data and receptor extractions have been transferred to https server

Next Call

The August call will be cancelled, the next call is scheduled for Thursday September 11.