Participant Call July 11, 2024

Participants: Paul Makar, Jon Pleim, Jesse Bash, Christian Hogrefe, Annika Vogel, Roberto San Jose

Special issue manuscript status

- **Active work:**
  - Activity 1: Makar et al. – critical loads ensemble analysis
    - Paul received co-author comments and internal reviews from ECCC and EPA
    - Paul went through the co-author comments and is currently going through the ECCC comments.
    - The goal is still to submit during July, probably within the next 1-2 weeks. Stefano and Christian will give Joshua Fu a heads up on the upcoming submission.
  - Activity 1: Kioutsioukis et al. – multi-model operational evaluation and analysis of AQMEII4 grid models
    - The plan is to expand upon the operational evaluation results presented at last year's ITM with an analysis of cross-variable variance (ozone concentrations, meteorology, deposition velocity, effective conductances) for selected subset of grid cells with common land use categories. This can provide a link to the manuscript on the multi-model analysis of ozone dry deposition diagnostics
    - Christian, Paul, Stefano and Iannis have monthly calls to review progress. During the last call, Iannis shared figures of variance distributions for additional LU types
  - Activity 1: Hogrefe, Galmarini, Makar, Kioutsioukis et al. - multi-model analysis of ozone dry deposition diagnostics (grid-scale and LU-specific) and LU information
    - Christian, Paul, Stefano and Iannis have monthly calls to review progress.
    - Christian continues writing the draft. The target for sending the draft manuscript to co-authors is August.
  - Activity 2: Khan, Clifton, et al. – observational constraints on stomatal conductance and point model sensitivity simulations
    - Anam shared a draft manuscript with Olivia who provided a set of initial comments.
    - A revised draft was recently shared with Olivia, Stefano, Christian, and Paul, i.e. the special issue co-organizers
    - After receiving initial feedback on the revised version from Olivia, Stefano, Christian, and Paul, the goal is to send the draft manuscript to all co-authors in July, with detailed comments from all co-authors (incl. Olivia, Stefano, Christian, and Paul) requested within about a month.
    - Paul stated that he will try to provide his initial feedback within a week or two from now, after finishing work on revising his manuscript.
  - Activity 2: Vogel et al. - error estimation analysis
    - No updates since the last call. Annika still plans to work on AQMEII4 analysis but currently is working on other projects.
  - Activity 2: Bash et al. – use of AQMEII4 flux measurement for optimization of selected STAGE resistances and application of revised STAGE formulation to hemispheric CMAQ simulations

- Jesse worked on other projects over the past month.
- In June, Anam's shared stomatal conductance estimates for some sites by uploading them to the GoAnywhere site. She will upload estimates at the remaining sites and documentation of all files at a later time. Jesse plans to add these datasets to his STAGE optimization approach.
  - 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 2 + Activity 1: Toyota et al. potential updates to GEM-MACH - how can results from Activity 2 be used to check/update the representation of dry deposition in regional modeling. The goal is to address negative ozone bias in GEM-MACH forecast system, looking at potential updates to dry deposition scheme (e.g. include VPD impacts on stomatal conductance which currently isn't included)
    - 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 1: Baublitz et al. - Colleen has started an 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.
    - Colleen submitted an abstract for the CMAS conference and aims to later expand this work into a draft manuscript intended for the special issue.

- **Potential work, currently lower priority:**
  - Activity 1: Lee, Soares, Makar, et al. – use of hierarchical cluster analysis for grid model intercomparison
  - Activity 2: Lee, Makar, et al. – use of meteorological cluster analysis for point model evaluation

- **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/)

Other Grid Intercomparison (Activity 1) Updates

- Model data updates:
  - No updates since the last call
- Data storage updates:
  - No updates since the last call

Other Point Intercomparison (Activity 2) Updates

- During the last call, Laurens noted that he may have a new student working on the AQMEII4 flux model dataset. Still need to define exact objectives to be complementary. Will probably focus on multi-layer canopy exchange model. May also look at potential constraints imposed by ground water. May look at this through a time scale lens (shorter-term VPD). No update since the last call.

Next Call

The next call is scheduled for September 12, the call currently scheduled for August 8 will be cancelled. During the September call, the group will decide whether to keep calls monthly or move them to bimonthly.