

# Participant Call March 14, 2024

Participants: Stefano Galmarini, Paul Makar, Annika Vogel, Christian Hogrefe, Richard Kranenburg, Olivia Clifton, Jesse Bash, Ummugulsum Alyuz, Colleen Baublitz, Rohit Mathur

## Grid intercomparison (Activity 1)

- Model data updates:
  - 10707: Richard uploaded new test files, there were some masking issues that affected the comparisons between resistances and deposition velocities. This has now been resolved. Also looking into how the Fnoveg/Fveg split is taken into account (if those are not just 0 and 1 for different LU categories).
  - 10708: Roberto has finished recalculating effective conductances and fluxes for all variables and cases using an approach proposed by Paul to overcome inconsistencies between the code in WRF/Chem and the post-processing code relating to limit values.
  - 10709: Several email exchanges occurred regarding the remaining issue, i.e. internal inconsistency between O3 Vd and sum of ECONC. For O3, the inconsistency was mainly caused by a resetting of the rac term to a maximum value of 100 in the WRF/Chem code that was not taken into account in the ECONC post-processing. Young-Hee is planning to reprocess ECONC and EFLUX values (both LU-specific and grid scale) for the four species reported by 10709, i.e. O3, HNO3, HCHO, and SO2. She is now checking whether the other inconsistencies between internal and post-processing calculations that affected 10708 also apply to 10709. If so, the goal would be to apply the same approach taken by Roberto to address this in the reprocessing.
- Data storage updates:
  - No updates since the last call
- Analysis updates:
  - Paul: updated figures that were affected by the CMAQ NH3 post-processing bug.
  - Christian looked at the effects of WRF/Chem using a dominant LU fraction approach while other models (GEM-MACH, CMAQ, and LOTOS-EUROS) use a fractional LU coverage approach. This is the last piece of analysis intended for the manuscript, writing is expected to start soon.
  - Iannis and Stefano: Working on operational analysis and variability apportionment for ozone diagnostics at selected common LU types.

## Point intercomparison (Activity 2)

- An Activity 2 call was held on March 5. Annika presented updates on her ongoing work. Call notes have been posted to the github site.

## Special issue - submission deadline previously extended to July 31, 2024

- 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/>)
- Active work:
  - Activity 1: Makar et al. – critical loads ensemble analysis - draft circulated to co-authors
  - Activity 1: Kioutsioukis et al. – multi-model operational evaluation and analysis of AQMEII4 grid models
  - 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 will start this analysis and Paul, Stefano and Christian will have monthly calls to review progress and scope out a draft manuscript. Target for draft manuscript: spring 2024
  - Activity 2: Khan, Clifton, et al. – observational constraints on stomatal conductance and point model sensitivity simulations - expect draft soon
  - Activity 2: Vogel et al. - error estimation analysis
  - Activity 2: Bash et al. – use of AQMEII4 flux measurement for optimization of selected STAGE resistances. Finished all calibration runs
  - Activity 2: Lee, Makar et al. – physics-informed machine learning for potentially refining point model parameter values
- No recent updates:
  - 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.
  - 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

Next call scheduled for April 11 will be rescheduled to April 18.