AQMEII4 Activity 3 Participant Call March 26

Participants:

Donna Schwede, David Simpson, Johannes Flemming, Jon Pleim, Richard Kranenburg, Olivia Clifton, Chris Holmes, Paul Makar

Agenda

- Introductions
    - Donna Schwede - CMAQ model, member of activity 3 planning team
    - Paul Makar - GEM-MACH model, member of activity 3 planning team
    - Christian Hogrefe - CMAQ model, AQMEII4 co-coordinator
    - David Simpson - EMEP model
    - Chris Holmes - GEOS-Chem model, member of activity 3 planning team
    - Johannes Flemming - global CAMS model, member of activity 3 planning team
    - Jon Pleim - CMAQ model, M3DRY developer
    - Olivia Clifton - member of steering committee
    - Richard Kranenburg - LOTOS-EUROS model

- Overview of the project
    - Information on the AQMEII4 activity 3 will be shared through a github page dedicated to this activity: https://github.com/AQMEII4/Activity-3-Point-Intercomparison-runs
    - Donna provided a summary of the activity 3 description posted at https://github.com/AQMEII4/Activity-3-Point-Intercomparison-runs/blob/master/Documents/AQMEII4_Activity3Description.pdf
    - Participants will be asked to run their deposition velocity codes at a set of eight points for which observations have been collected and provide deposition velocity and its components
    - Observations are available for the driving meteorology, ozone flux, and ozone deposition velocity
    - Participants will also be asked to compute velocities for HNO3, SO2, and aerosols of three different sizes
    - In addition to the simulations performed for comparisons against observations, also plan to run sensitivity simulations (e.g. changing some aspects of site characteristics)
    - Action item: If your model needs an input variable not listed in Table 1, please contact Donna and Olivia
    - For outputs, participants are asked to provide not only deposition velocities but also effective conductances. For a description, see the following documents developed for activity 1:

        - https://github.com/AQMEII4/Activity-1-AQMEII-style-runs/blob/master/OverarchingDocuments/Clifton_diagnostics_AQMEII.pdf
        - https://github.com/AQMEII4/Activity-1-AQMEII-style-runs/blob/master/OverarchingDocuments/AQMEII-4_Reported_gas_phase_deposition_terms_guidance_July15_2019.pdf

- Instructions for the data site access
    - EPA has set up a "GoAnywhere" site for data distribution and sharing
    - Instructions for site access are provided in the activity 3 description document (https://github.com/AQMEII4/Activity-3-Point-Intercomparison-runs/blob/master/Documents/AQMEII4_Activity3Description.pdf)
    - The AQMEII4 folder contains subfolders 'Box Model Code' for model code, 'Results' for uploading results, and 'Flux Datasets' for the observational data
- Brief look at the draft wrapper code
    - Donna has created a draft 'wrapper code' for Linux systems, consisting of a c-shell script and Fortran code as an example for how to drive box models with the observed met data
    - Code will be revised further and shared with participants
- Questions / Discussion
    - David: Expected timeline for activity 3?
        - Donna: Hope is that groups run their own models. As an alternative, groups can provide code and planning team members may be able to run their code for them. Hope to have results by fall - the runs themselves wouldn't take that long, but some iterations may be needed. May start to coordinate on planned publications in fall. Hold monthly calls to check in and track progress, will need to decide whether to hold separate or combined calls for activities 1 and 3 (note: activity 2 is not at a stage yet to hold participant calls)
    - Jon: is root zone soil moisture available in the datasets (would want moisture at 1-2 cm and ~1m
        - Olivia: meaning of "near surface" varies between sites
    - Jon: in my experience, getting the soil moisture at the appropriate depth had a substantial impact.
        - Olivia: will need to check with data providers on what depth(s) soil moisture measurements are available at each site
    - David/Jon/Olivia/Paul: site characteristics like soil type, LAI, etc. may need to be obtained from data providers or at least be harmonized between models if not available at some sites (maybe perform sensitivity with different specifications if data isn't available from data providers). Paul started to compile this information in a table, this will eventually be added to the main document: Action item: circulate the table so participants can check if this covers all the information needed by their model or whether additional information is needed from data providers at some/all sites.
    - Olivia: Beware that the observational data isn't gap filled, so models need to be able to run on single time steps

- Donna: Action item: encourage participants to register for the "GoAnywhere" data site following the instructions in the Activity 3 description document, start to look at observational data, see what may be missing, and relay that information to Donna and Olivia. The goal is to bundle requests for additional information so that we don't have to go back to observation data providers multiple times.
- Paul: Suggest creating activity 3 FAQ document similar to activity 1 (see https://github.com/AQMEII4/Activity-1-AQMEII-style-runs/blob/master/OverarchingDocuments/AQMEII4%20FAQ%20version%205_20200213.pdf) and post on github site.