AQMEII-4 Activity 3 Participant Call – March 31, 2021

Attendees: Jesse Bash, Dave Simpson, Bin Cheng, Paul Makar, Olivia Clifton, Kiran Alapaty, Jon Pleim, Johannes Flemming

- Technical Note update
  - Sam has developed a filtering technique for the deposition velocities which will be documented in the TN
    - We asked that data not be filtered except for instrument downtime but each data provider handled things a bit differently
    - Have values been filtered based on u*/stability? Screen out nighttime values?
      - Nighttime values should be considered as more uncertain
      - CO2 community uses a common threshold
    - Filtered Files on GoAnywhere; also R script
    - Plots in Technical Note
  - Meteorological data filtering
    - Iterate with modelers to identify outliers
    - Could script if someone has the time
    - Need wilting point data?
      - Use model specific values for that land use type for now based on the soil information given the soil types given in the technical note
      - Could gather information from all of the modelers for the parameters each model uses for each site
- Modeling results: Kiran
- Aerosols discussion
  - Do we want to include output for aerosols?
    - Worthwhile if people can do it
    - No observations, so just a model-model comparison
    - Aerosol models are different than gas phase model
  - What do we need to provide
    - Size distribution
    - Standard deviation for modal distribution
  - If so, output to request?
    - Plot of vd vs particle diameter (Emerson paper)
    - v_d,
    - v_g (gravitational settling),
    - r_a,
    - r_c (combined surface, quasilaminar resistance),
    - rho (aerosol density at ambient humidity),
    - fRH (ratio of ambient/dry particle radii)
    - Collection efficiencies of Brownian diffusion (E_B), interception (E_IN), impaction (E_IM)

These variables would allow comparisons among models that follow the structure of Slinn (1982), Zhang et al. (2001), Pleim and Ran (2011).

- Sensitivity tests (Table 3 in the TN)
    - Recap from last call
        - Perturbation magnitudes should be chosen to give equal change in v_d. Since we expect the response to vary across models, keep the current ad hoc perturbation magnitudes, but we are open to revising these magnitudes based on suggestions.
        - Run point models with met inputs from Activity 1 3-D models (e.g. temperature from CMAQ). I suggest that this is left as an optional, encouraged activity since it will require significant work from each participant and not all will have corresponding 3-D models.
        - Include interaction effects in sensitivity tests. We can add that later if someone can update the wrapper to do this (e.g. factorial design), but leave it out of the technical note because no one has committed to doing this yet.
- Several interesting journal articles were mentioned during the call and a folder will be added to the Teams site for sharing
- For next meeting
    - Aerosol decision
    - Sensitivity tests
    - April 27th, noon