AQMEII-4 Activity 3 Participant Call – December 21, 2021

Attendees: Olivia, Christian, Roberto, Paul, Chris, Colleen, Vincent, Laurens, Limei, Jon, Donna

- Olivia has shared a Google doc for discussions https://docs.google.com/document/d/18XqJEHWl4lGdOPFk8wUkOACtw3V-8qe_I4ZMdmZHnJA
    - Please email the group if you add a new topic of discussion here, otherwise this doc is meant to save us from long email chains that are hard to follow!
- Go Anywhere/driving datasets
    - Olivia uploaded a copy of the technical note that was rejected
        - Please look at this when defining details about sites in your models!
    - Use data sets that are in the Flux Dataset folder and be sure to use the most recent file
    - Reminder that there is a change to the login. The switch to needing a login.gov account happens on 12/31. As long as people use the same email for the login.gov as they used for the GoAnywhere, it should be pretty seamless.
    - Harvard Forest
        - The winter LAI had NaNs. Olivia replaced these NaNs with the minimum value but also did some interpolation because some missing LAI values were corresponding to missing wind direction data, and 1999 needed a smoother decline in LAI at the end of the season.
        - Harvard data now has a sequence number at the beginning - wrapper needs to be updated for this
- Olivia's paper
    - Olivia highlighted updates from previous version
        - sensitivity simulation info has been cut
        - retaining 'Technical Note' status but adding low hanging fruit results
        - need to describe each dry dep scheme in the intercomparison
    - need to add modelers as co-authors
        - Jesse Bash, Jon Pleim, Limei Ran, Roberto San Jose
            - **Send Olivia affiliations**
        - Philip Cheung Philip.cheung@ec.gc.ca, same affiliation as Paul
        - Juan L. Pérez-Camanyo (jlperez@fi.upm.es)
            - **Send Olivia affiliation**
        - Other co-authors? Send to Olivia w/ email and affiliation
    - Olivia will show:
        - intermodel variation in multiyear monthly mean seasonal cycles of ozone deposition velocity
        - effective conductance variation across models in multiyear seasonal daily means for winter and summer
    - Contributions from different pathways

        - Need to revisit some of the pathway definitions as the models may be interpreting it differently - lower canopy vs soil
        - We said in Galmarini et al.:
            - Note that models that include a single deposition pathway to soil that incorporates rdc are requested to report that path- way as "lower canopy" not "soil".
                - Problem is this is vague and doesn't specify how to account for vegetated vs. bare soil differences. Current definitions are model specific which negates the resistance-framework independent aspect of the effective conductances and may overemphasize differences across models
        - See Paul's presentation on this in Findings!!/Makar_soil_v_lower_canopy_12212021.pptx on Go Anywhere
        - Olivia likely to aggregate lower canopy and soil into one for Technical Note; another paper can get into these details
    - Timeline - draft to all by beginning of February and then meet with all in late February, submit mid-March
    - Barring strange model results & unavailability of modelers, it should be straightforward to incorporate additional models into the analysis fairly last minute (by end of Jan, please).
    - Major needs
        - modelers need to submit model descriptions **(BY MID JAN)**
            - upload to Go Anywhere/Box Model Code/*your model*/
            - email Olivia when it's up there
            - need equations (Microsoft word format), assumptions, and site-specific configurations
        - Ispra LAI needs to be filled during winter which will require rerunning
- Future papers
    - Papers on single-point model Intercomparison
        - Needed topics (**please volunteer**!)
            - diel cycles (there is a lot here!)
            - interannual variability
            - sensitivity testing
                - Chris Holmes
            - joint Activity 1 + 2 effort -- contextualize spread in Activity 1 models
        - Who is leading what so far:
            - Paul - effective conductance vs effective flux - both regional models and single point models; this could touch on joint Activity 1 + 2 effort
            - Chris Holmes – sensitivity testing, issue of bare vs. vegetated soil/lower canopy vs. soil deposition
    - Papers on individual models

        - Jesse (STAGE ONLY)
            - This publication will detail the evaluation of STAGE O3 deposition estimates at the AQMEII 4 sites and use subsets of these data to develop revised empirical cuticular and soil resistance algorithms. These new parameterizations were estimated using 2000 random samples from each dataset, represented from approximately 80% to 5% of the observations in each long-term flux dataset, and optimizing the fluxes from these samples using a Nelder-Mead minimization of a non-parametric estimate of the model's absolute bias. The optimized cuticular and soil resistances will then be evaluated against the remaining AQMEII 4 data and employed in the CMAQ modeling system and evaluated against routine network observations. Preliminary results show both reductions in bias and error in the evaluation against AQMEII 4 field data and CMAQ estimates compared to AQS, CASTNET and SEARCH O_3 observations. Publication timeline: To be submitted by the end of 2022
        - Pleim (M3DRY only)
            - analyzing performance over the sites looking at vd and latent heat flux
        - Ran (M3DRY and M3DRY-psm only)
            - photosynthesis approach vs Jarvis, large differences at noon
    - Evaluate LE, CO2, and O3 fluxes together - if data are available - Laurens and Jon are both interested in this
        - if you want data variables that are not in the current driving datasets, then showing the observationalists relevant results on the planned calls may help
    - Reminder that all observationalists need to be invited to be co-authors on papers that make use of their data! (Thank you!)

- Early-spring meetings
    - 4-hour meeting over 2 days in late February for meeting #1
        - all sites but split over the 2 days (4 sites first day, 4 sites second day)
        - each person gives 1-2 slides on results for a single site
        - observationalists give feedback
        - aim here is to really get questions to observationalists and coherency in what we're finding/understanding for each site
        - Donna will send out Doodle
    - 2-hour meeting in April for meeting #2
        - AQMEII papers
        - each person who wants to lead a paper gives 20 min talk on their results
        - observationalists invited to this as well