# AQMEII-4 Activity 3 Participant Call – April 26,2022

Attendees: Jesse Bash, Chris Holmes, Olivia Clifton, Johannes Fleming, Christian Hogrefe, Holly Nowell, Paul Makar, Jon Pleim, Limei Ran, Sun Shihan

- Work has been underway to examine the model descriptions and the data to identify potential needs for harmonization and to identify gaps for the paper
- New driving data set files are being prepared
- **Please don't make any changes to the driving met data for the base runs**
- Harmonization considerations
    - Harmonize LULC definitions for sites
    - Soil field capacity and wilting point will be specified/harmonized
    - Root zone and surface soil moisture and temperature depths will be specified (only the ones to use will be in the new files
    - Tmax, Tmin, Topt for plant
        - OC: Maybe we shouldn't harmonize them since they aren't field measured - more of a model parameter
            - Agreement from CH and PM
    - Photosynthetic parameters
        - Photosynthesis parameters not easily measured in field – so model parameter – rather than environmental input – so let people do what they want here.
    - Vegetation fraction
        - Only used by M3DRY and STAGE currently; based on grid model construct
            - M3DRY - Default is specified by land use type; Ramat Hanadiv is based on site specific info and is set to 0.7; others could be set to 1.0
            - STAGE also uses Fveg
            - STAGE will now use values that M3DRY is using
    - Soil wetness (different than soil moisture) - only used by M3DRY and STAGE
        - STAGE - soil is wet is soil moisture > field capacity
        - M3DRY - soil is wet if leaf is wet
    - Snow presence
        - snow is present if snow depth > some model dependent value currently
            - Harmonize the cutoff depth to indicate snow cover
                - M3DRY is using 1 mm (uncertain)
        - Move away from using albedo as a marker for snow cover
        - If snow is missing, assume there is none for now
            - Weekly data is available from national snow and ice
            - Harvard - missing data but there is probably snow; models are already less than obs in winter
    - Provide surface roughness with new data – based on Meyers et al (1998)
    - Set radiation less than 0 to zero

- Fill CO2 data
- Are all times LST? Yes

- Data changes
  - All sites
    - Add surface roughness
    - Fill CO2
    - Set radiation less than 0 to 0
  - Borden Forest
    - Error in averaging window discovered and corrected
    - Some miscellaneous date time issues corrected
    - Reduced variables output (e.g. fewer temperatures) to avoid confusion
      - Leaf wetness
        - Use 18 m wetness for leaf and surface
      - Air Temperature - provide 3 - use these
        - Tcanopy = air temperature = 19.6 m ht
        - Tsonic = use for MO length
        - Tsfc = 1.7 m
      - Soil
        - 2 cm , 50 cm for moisture
        - 5, 50 for temperature
        - Provide one value - use site B value if valid and fill with site A if not
  - Bugacpuszta
    - Relative humidity now fraction not % to match other sites
  - Harvard Forest
    - Fill leaf wetness using CMAQ formula rather than RH cutoff; slightly different cutoff
  - Hyytiala
    - Reduce soil data - use A and B1 horizons
      - There isn't a lot of information - lots of NaNs
      - Could replicate 30 min for 00 hour as well. Could also interpolate.
      - Soil T column from base file has values - not sure what depth this is for -check with Pasi Kolari? - it doesn't match any in the soil T file
      - Soil M in base file seems to be from the A horizon
      - SoilT file is for 2006-2012; base is 2002 -2012
    - Fill leaf wetness from surface wetness sensor wet/dry split is at 920
  - Ispra
    - Reduced the number of soil variables
      - Soil temp – 10 and 30 cm
      - Soil moisture 10 and 30 cm
  - Ramat Hanadiv
    - Fill leaf wetness using CMAQ formula rather than RH cutoff; slightly different cutoff

        - Soil – use 60 cm for root zone soil temperature
- Paper
    - Olivia working on harmonizing and completing the model descriptions
    - Will also be asking for units and values of parameters used where those are lacking
    - Need to ask for floor values