Participant Call August 11, 2022

Participants: Rohit Mathur, Christian Hogrefe, Holly Nowell, Richard Kranenburg, Jesse Bash, Lisa Emberson, Jon Pleim, Paul Makar, Roberto San Jose

Grid intercomparison (Activity 1)

- Participant updates on reruns, postprocessing, data upload, and analysis (also see table and notes on pages 3 – 4)
    - Richard: found issues in stability calculations of LOTOS-EUROS. Now assessing impacts on post-processed fields. May need to re-upload not only some of the diagnostic fields but all fields, will keep Stefano and Christian informed of progress.
    - Holly: expect 2010 to finish in the next 2-3 weeks, another 2 months for 2016 (currently competing with other project for computational resources, may speed up a little once that finishes). Still working on setting up post-processing.
    - Paul: started evaluating GEM-MACH runs using internal runs. Doing this for both the AQMEII common grid and the larger native 10 km grid. Relative differences between the three different configurations are similar to the earlier runs with the insufficient spin-up affecting rain. LAI appears to be a key driver of differences between configurations. Box model runs are generally consistent with grid model runs
    - Roberto: NA 2010 is finished, now post-processing. EU grid model runs - resistances will be recalculated using different minimum value setting in enform code for consistency with other groups.
    - Hertfordshire – Ummugulsum wasn't able to join and provided the following email update prior to the call: “we are expecting to submit old-2009 outputs next week. 2010 outputs are also being processed currently. So, 2010 outputs will be uploaded after old 2009, lately on the week of 22nd of August”
- No recent work on common analysis by Iannis
- Uploaded data is still available for download from https://ensemble.jrc.ec.europa.eu/ensemble/pvt/aqmeii4/

Point intercomparison (Activity 2)

- Activity 2 call held July 26.
    - Jon noted that leaf wetness for the Ramat dataset very rarely dropped below 0.5 which he considered unrealistic given the Rh values. Olivia and Christian investigated this after the call and discovered that the CMAQ-based equation to estimate leaf wetness at Ramat, Harvard, Ispra, and Hyytiala had been implemented incorrectly in the R processing code. Corrected datasets for these four sites were distributed to modelers later on July 26.
- Status of uploads:
    - Paul: uploaded reruns for these four sites, other groups have already rerun
    - Roberto: no rerun was necessary because leaf wetness is not being used explicitly, instead the representation of wetness effects in the WRF/Chem Wesely scheme depends on Rh and rain

    - Lisa: just obtained data after solving GoAnywhere access issues, hopes to submit results during week of August 15.
- Next steps:
    - Goal was to get a draft of the revised technical note to co-authors by mid-August. May then resubmit in September.

Paul shared initial results of grid and point model analysis performed internally at ECCC. LAI appears to be a key driver of O3 vd differences between "base" and "ops" configurations. Jon and Paul had a discussion on advantages and pitfalls of different approaches (lookup table vs. satellite-based). Jon also raised the issue of incorporating satellite-based estimates of "brown vegetation" affecting aerosol deposition (and dust emissions).

Roberto noted that vegetation-related resistances (within-canopy and cuticular) are parameterized in the WRF-Chem approach using only two seasons while the original Wesely approach used five. This affects results - WRF-Chem may look more like a step function while other models may show more gradual seasonal changes.

Next call September 8, 9:00 EDST / 15:00 CEST

Upload Status August 11, 2022.

	Continent / Year	001 (gases + aerosols)	002 (grid-scale wet and dry dep fluxes)	005 (meteorology)	012 – 122 (grid-scale dry dep diagnostics	132 -442 (LU-specific dry dep diagnostics)	452 (NH3 bi-directional)	462 (AQMEII4 LU fractions)	472 (native LU fractions)
10700 (EPA CMAQ M3DRY)	NA 2010	x	x	x	x	x	x	x	x
	NA 2016	x	x	x	x	x	x	x	x
10701 (EPA CMAQ STAGE)	NA 2010	x	x	x	x	x	x	x	x
	NA 2016	x	x	x	x	x	x	x	x
10702 (IASS WRF-Chem)	EU 2009	x	x	x	x	x		x	x
	EU 2010	x	x	x	x	x			
	NA 2010	x	x	x	x	x		x	x
	NA 2016	x	x	x	x	x		x	x
10703 (ECCC GEM-MACH BASE)	NA 2010	x	x	x	x	x	x	x	x
	NA 2016	x	x	x	x	x	x	x	x
10704 (ECCC GEM-MACH ZHANG)	NA 2010	x	x	x	x	x	x	x	x
	NA 2016	x	x	x	x	x	x	x	x
10705 (ECCC GEM-MACH OPS)	NA 2010	x	x	x	x	x		x	x
	NA 2016	x	x	x	x	x		x	x
~~10706 (TROPOS COSMO-MUSCAT)~~	~~EU 2009~~	~~x~~	~~x~~						
	~~EU 2010~~	~~x~~	~~x~~						
10707 (TNO LOTOS-EUROS)	EU 2009	x	x	x	x	x		x	
	EU 2010	x	x	x	x	x		x	
10708 (UPM WRF-Chem)	EU 2009	x	x	x	x	x		x	x
	EU 2010	x	x	x	x	x		x	x
	NA2010								
	NA 2016	x	x	x	x	x		x	x
10709 (UCAR WRF-Chem)	NA 2010	x	x	x	x	x		x	x
	NA 2016	x	x	x	x	x		x	x
10710 Hertfordshire CMAQ	EU 2009								
	EU2010								
~~10711 Hertfordshire WRF-Chem~~	~~EU2009~~								
	~~EU2010~~								
10712 FSU GeosChem	NA 2010								
	NA 2016								

Notes:

- 10702 (IASS WRF-Chem) occasional spikes and overall very low values of SO4, NO3, and NH4 wet deposition fields. Likely will need to exclude these wet deposition fields from the common analysis.
- 10706 (TROPOS COSMO-MUSCAT) – uploaded partial fields are bad, no recent updates on potential new model simulations. Drop model from analysis
- 10707 (TNO LOTOS EUROS) questionable values for some LU-specific deposition diagnostics. After investigating, Richard found problems with the stability calculations in the LOTOS-EUROS simulations and reran LOTOS-EUROS. He is now investigating which fields need to be re-processed and re-uploaded, in addition to the questionable diagnostics. There is a good chance that most of the currently uploaded fields will need to be updated.
- 10708 (UPM WRF-Chem)
    - reprocessing diagnostic resistances for EU2009 and EU2010, expect to upload revised files by …
    - Finished simulations for NA2010 (not originally planned). Expect to upload results by end of October
- 10710 (Hertfordshire CMAQ STAGE) finished EU2010 reruns and running EU2009.
- 10711 (Hertfordshire WRF-Chem) runs not initiated and no longer expected.
- 10712 (FSU GEOS-Chem) – Running both NA2010 and NA2016. Expect that it'll be several months before data will be uploaded, i.e. August - September

Until further notice: browse and download uploaded files and receptor extractions at https://ensemble.jrc.ec.europa.eu/ensemble/pvt/aqmeii4/ - no login required