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Modeling sensitivities of BVOCs to different versions of MEGAN emission schemes in WRF-Chem (v3.6) and its impacts over eastern China

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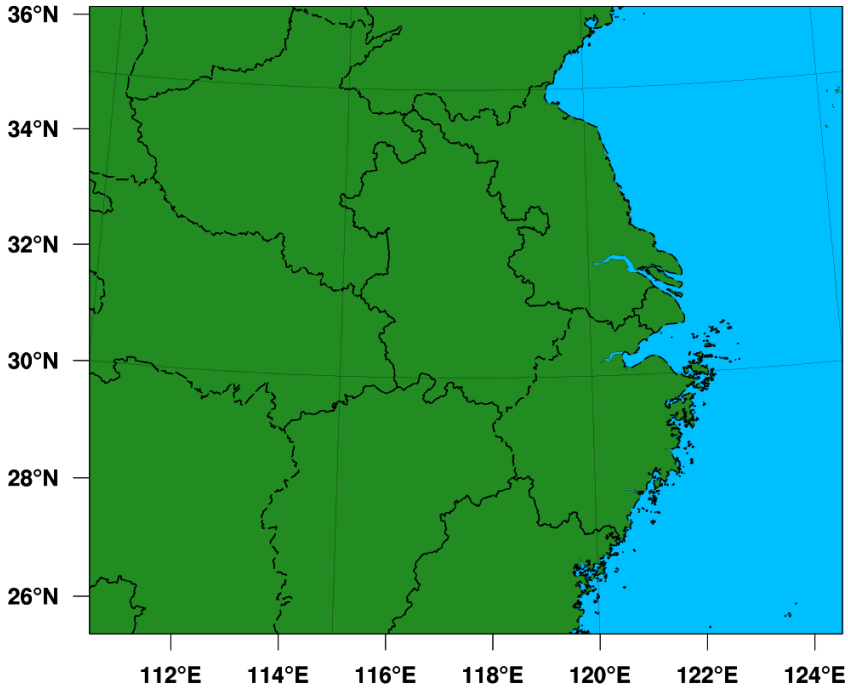

Figure S1. Model domain setup in this study.

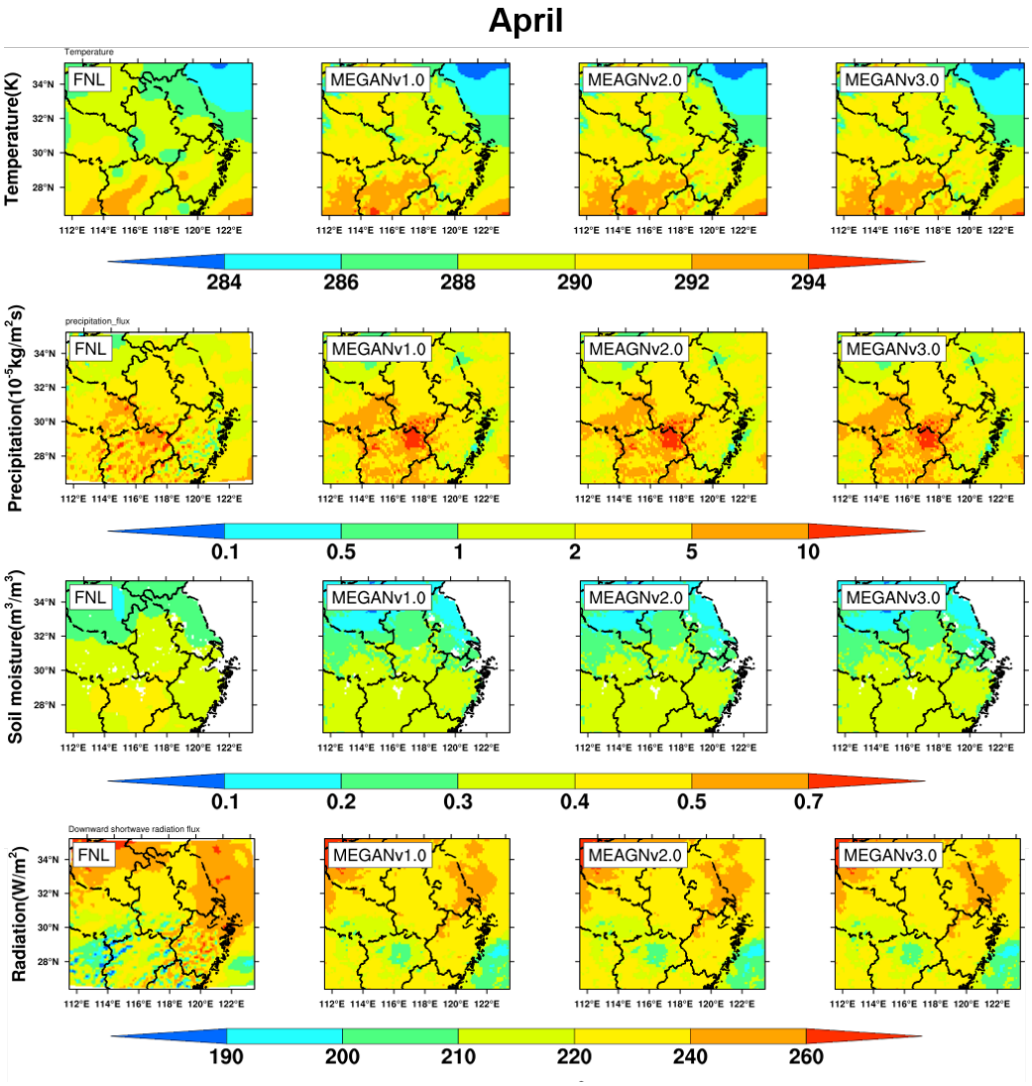

Figure S2. Monthly mean surface meteorological fields in April from the FNL reanalysis and different simulations with MEGANv1.0, MEGANv2.0 and MEGANv3.0. All of simulations are conducted with VEG-2015.

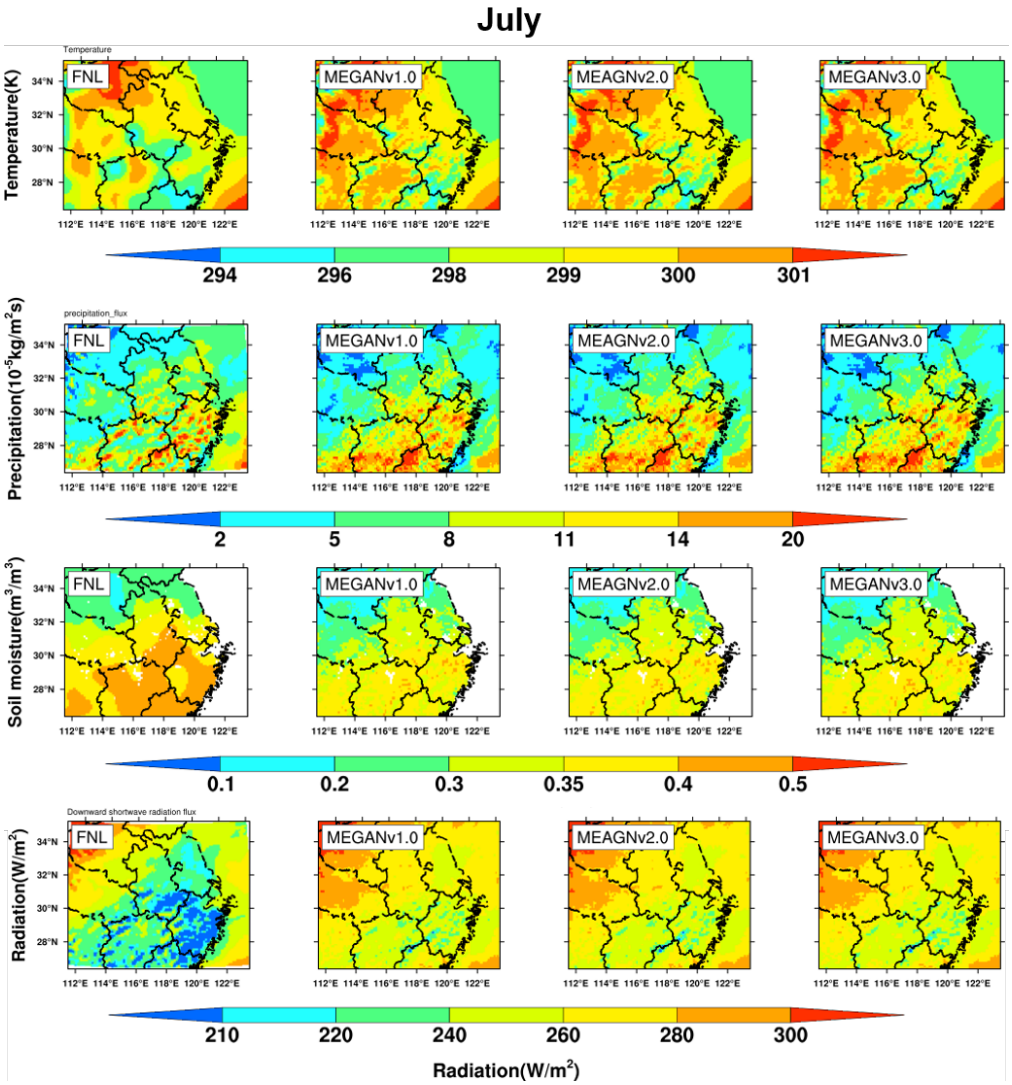

Figure S3. Same as Fig. S2, except for the period in July.

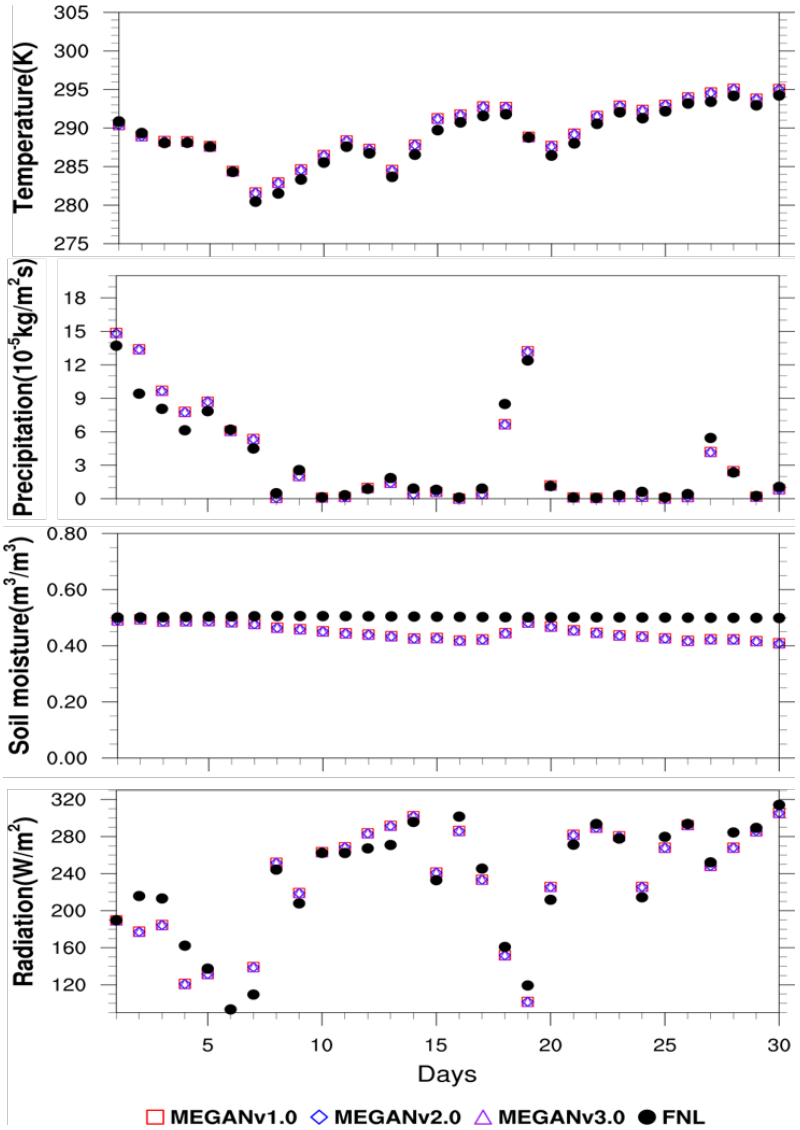

Figure S4. Daily variations of regional mean temperature, precipitation, soil moisture and surface net solar radiation in April from the FNL reanalysis and different simulations with MEGANv1.0, MEGANv2.0 and MEGANv3.0. All of simulations are conducted with VEG-2015.

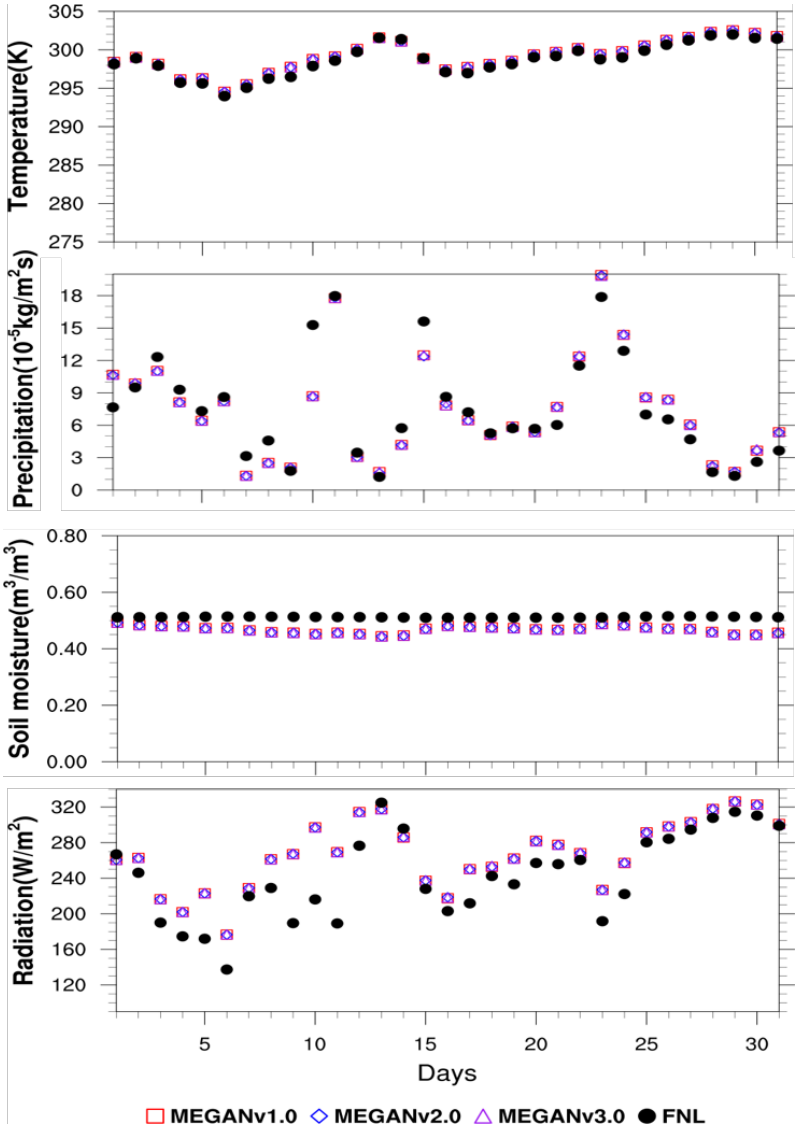

Figure S5. Same as Fig. S4, except for the simulation period in July.

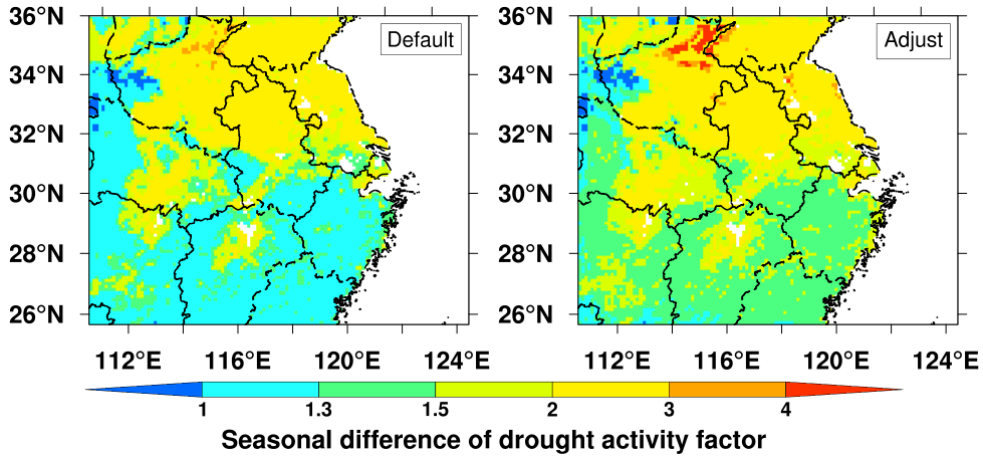

Figure S6. Spatial distribution of the quotient of drought activity factor between simulations in July and that in April (July divided by April) with α=37 (Default) and α=12 (Adjust) using VEG-2015 vegetation dataset.

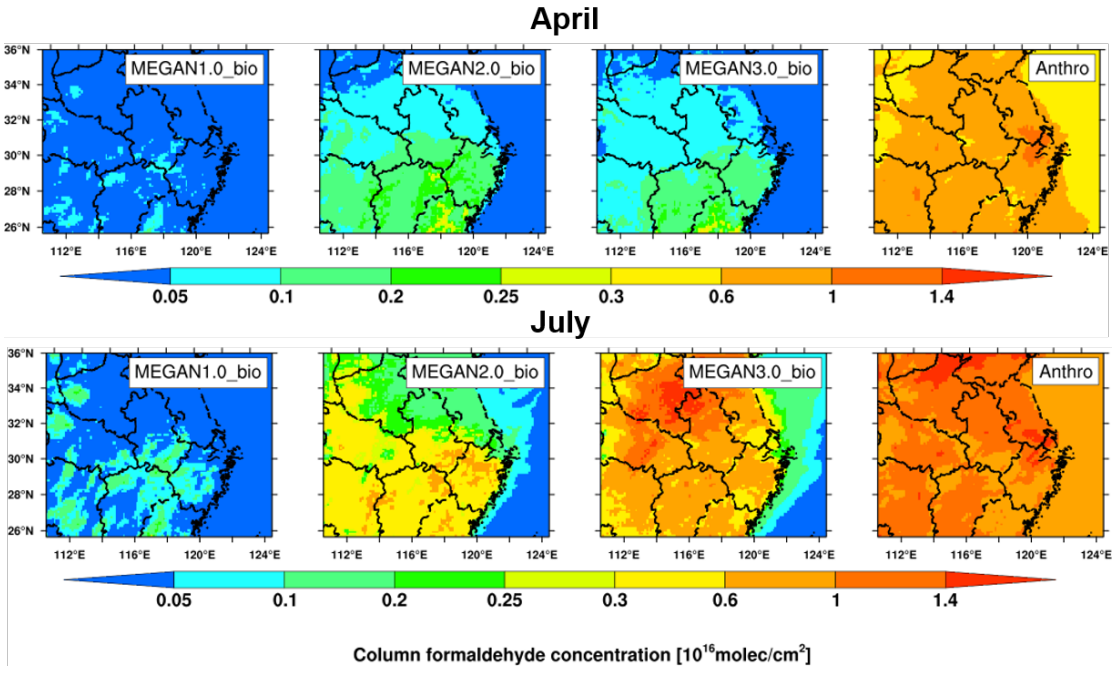

Figure S7. Spatial distribution of biogenic (minus anthropogenic emissions) and anthropogenic column formaldehyde concentration in April and July using the VEG-2015 vegetation dataset. MEGAN1.0_bio, MEGAN2.0_bio and MEGAN3.0_bio represent the column formaldehyde due to biogenic emissions in different versions, and Anthro represent the one due to anthropogenic emissions.

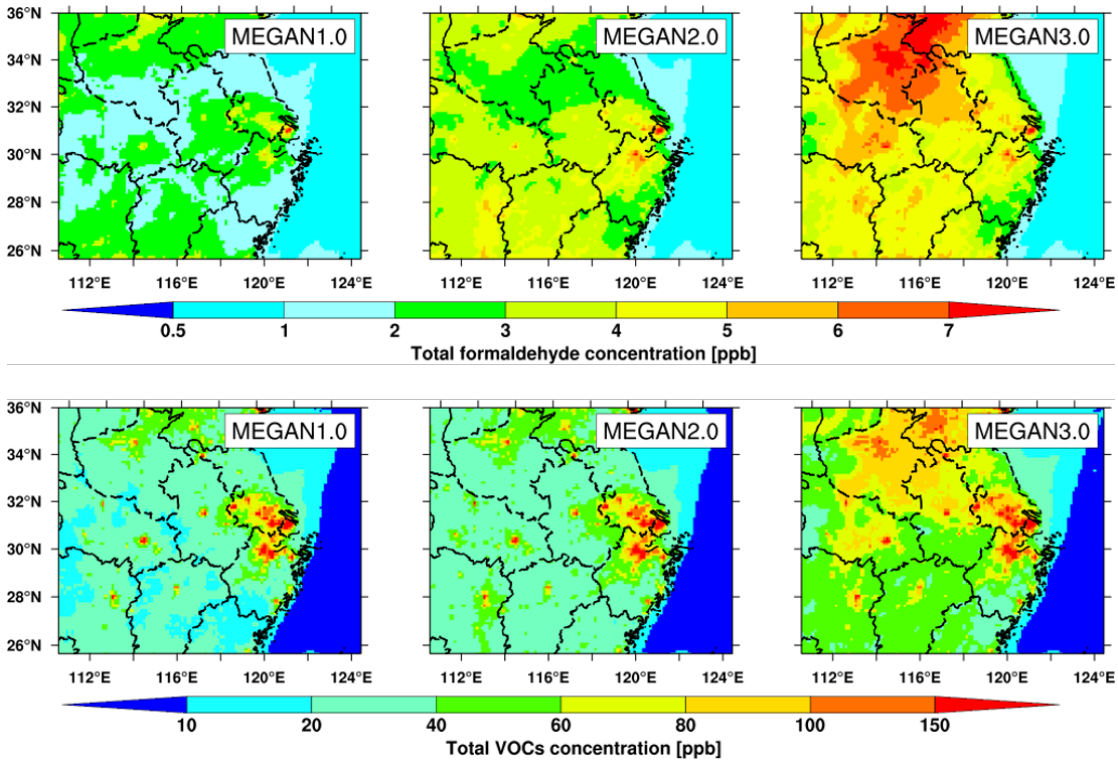

Figure S8. Spatial distribution of total VOCs and formaldehyde concentration near the surface in July using the VEG-2015 vegetation date set.

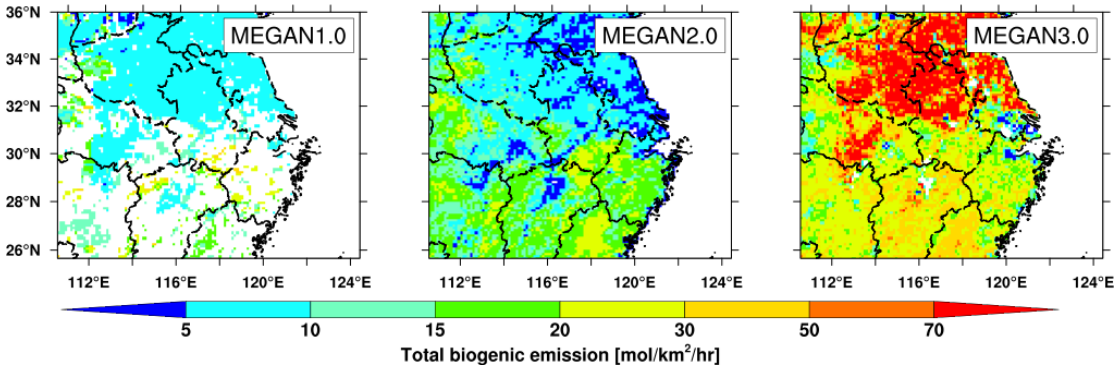

Figure S9. Spatial distribution of total biogenic emissions in July using the VEG-2015 vegetation date set.

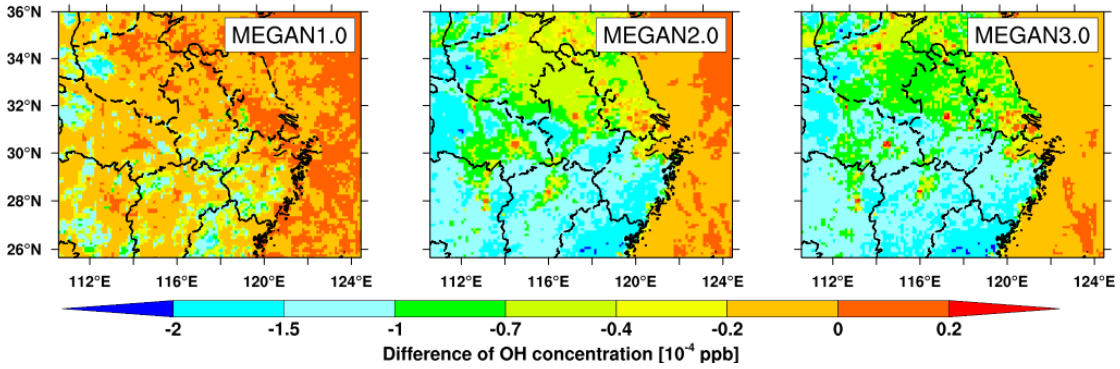

Figure S10. Spatial distribution of OH concentration due to the biogenic emissions near the surface in July using the VEG-2015 vegetation dataset.

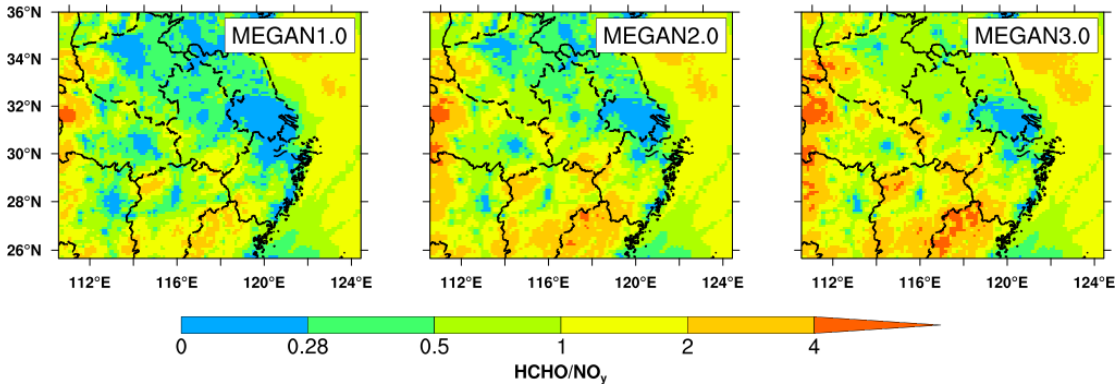

Figure S11. The ratio of monthly mean CH_2O and NOy concentration for July 2015 over the simulation domain. The ozone production sensitivity can be roughly determined by the ratio of CH_2O and NO_y, where NO_y represent for total reactive nitrogen. Ozone production is sensitive to NO_x concentrations in NO_x sensitive region if the ratio is large, otherwise, ozone production is more sensitive to VOCs concentrations.