Supporting Information:

Modeling reactive ammonia uptake by secondary organic aerosol in a changing climate: a WRF-CMAQ evaluation

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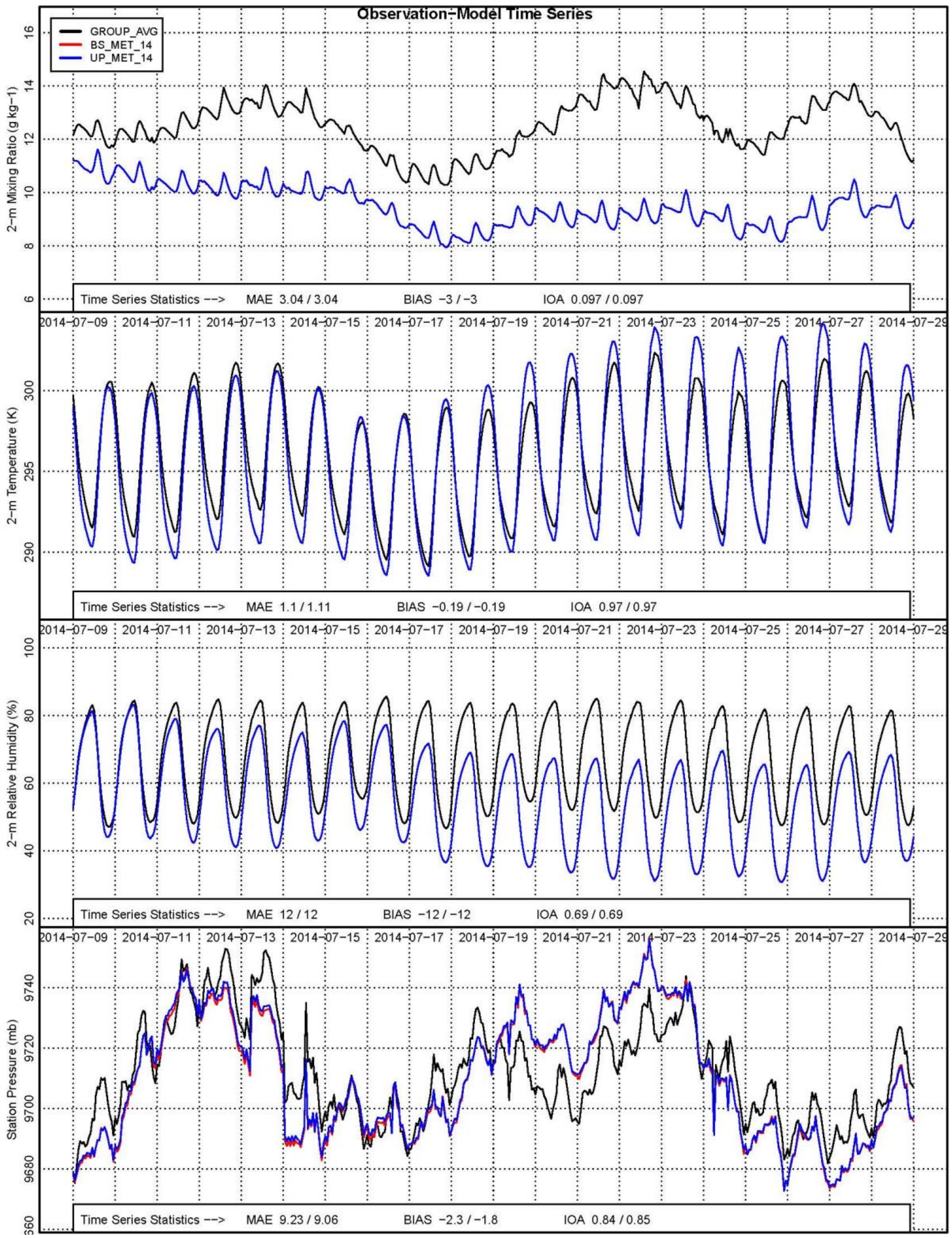

Figure S1. Time series comparison between averaged MADIS observation data (OBS: 2333 sites) and two simulations. Three model performance parameters are shown for each meteorological value evaluated: MAE - Mean Absolute Error; BIAS – Mean Bias; IOA – Index of Agreement[1]. The 2-m Mixing Ratio stands for the 2 meter mixing ratio of water vaper in the atmopshere.

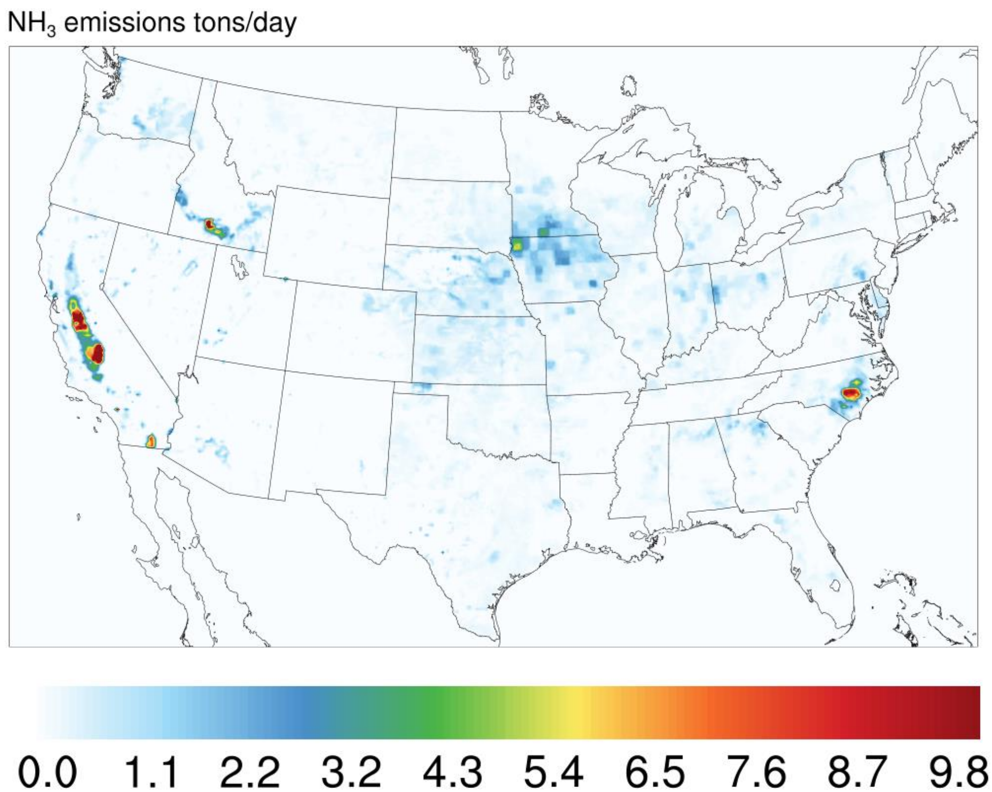

Figure S2. Spatial distribution of mean NH_3 emissions from the agricultural sector.

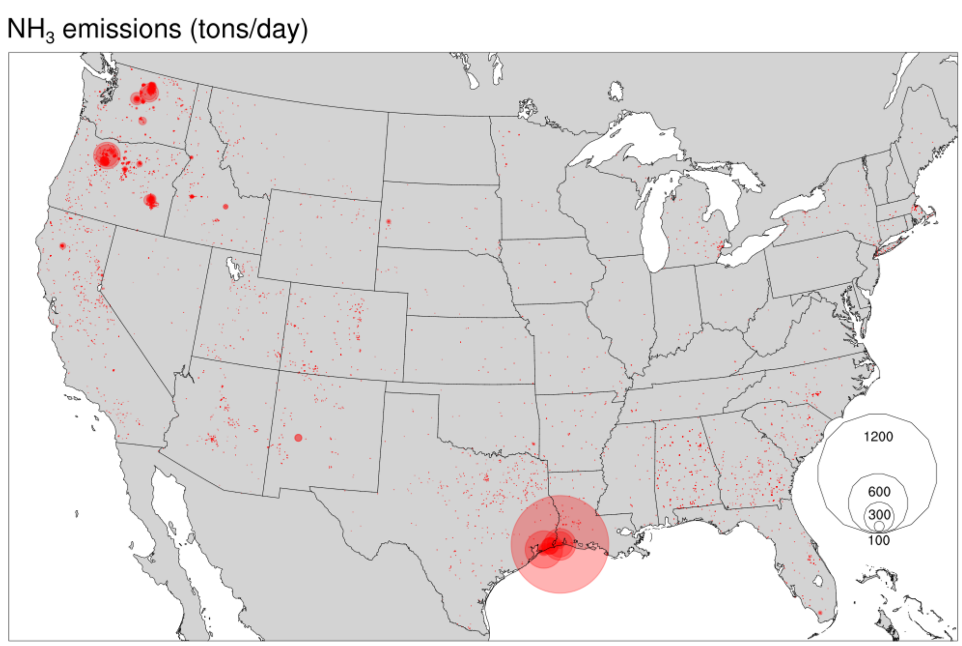

Figure S3. Spatial distribution of total NH_3 emissions from the wildfire, the size of circles represents the emission rate.

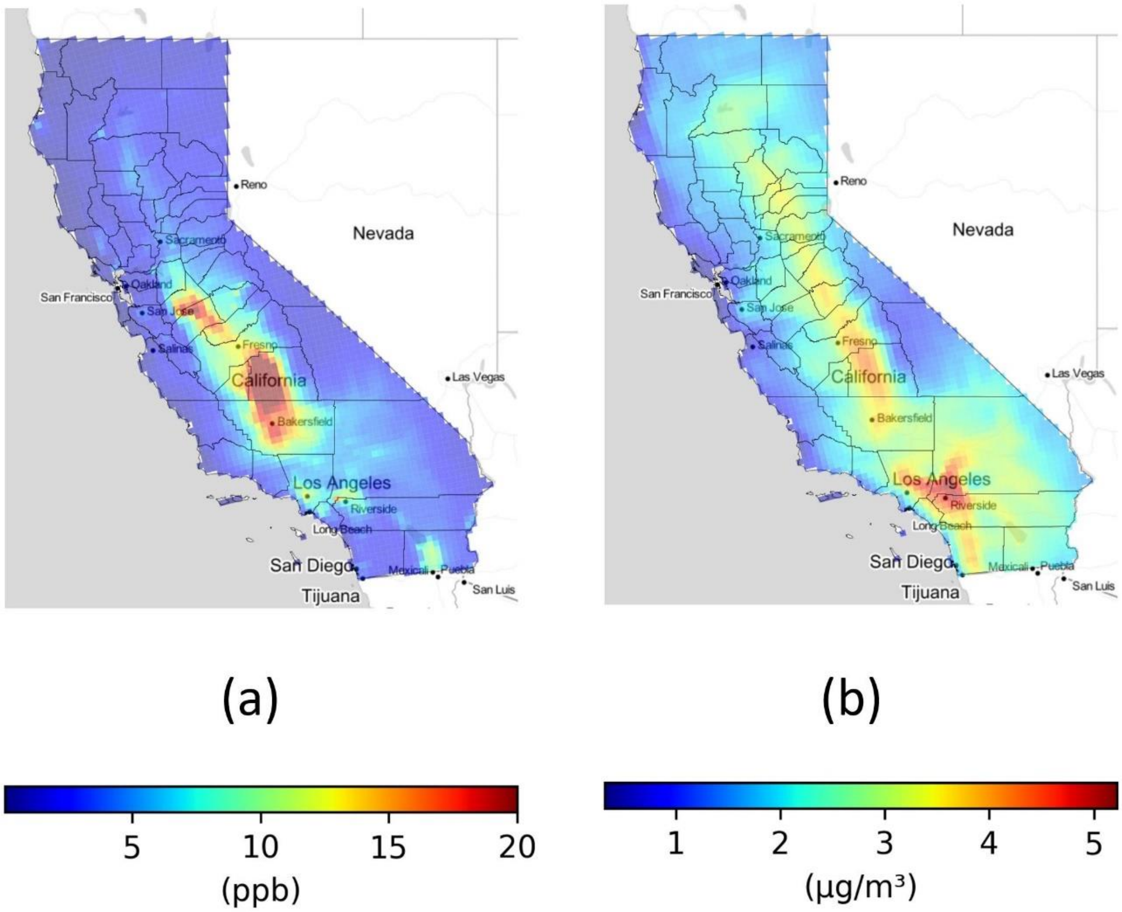

Figure S4. Spatial distribution of everaged concentrations from Base_14 for (a) NH_3 and (b) SOA.

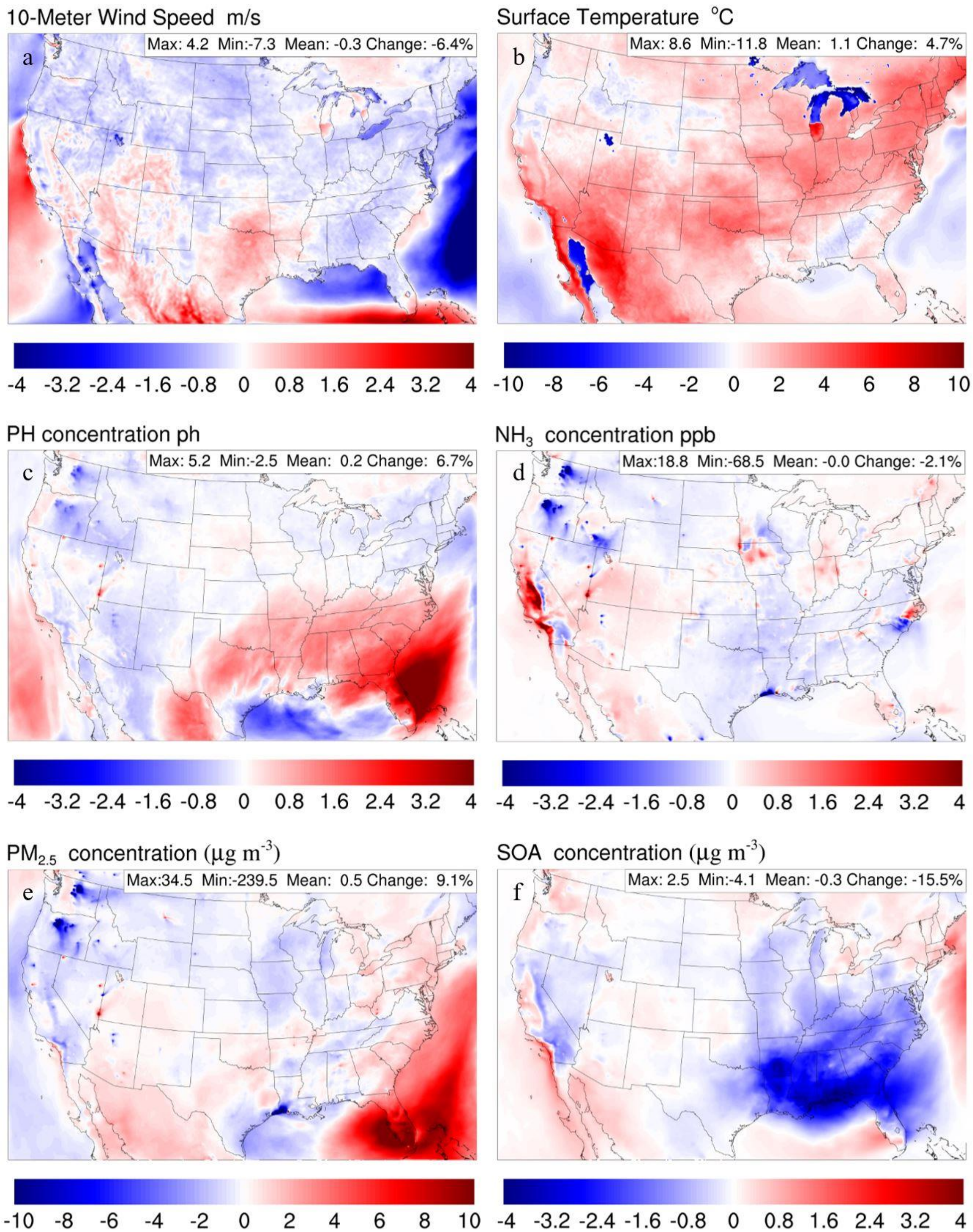

Figure S5. Spatial distribution of everaged difference between Base_50 and Base_14 for (a) 10-meter wind speed, (b) surface temperature, (c) pH, (d) NH_3, (e) $PM_{2.5}$ and (f) SOA.

References:

1. Willmott, C. J. On the validation of models. *Phys. Geogr.* **2**, 184–194 (1981).