



Supplement of

Modeling ultrafine particle growth at a pine forest site influenced by anthropogenic pollution during BEACHON-RoMBAS 2011

Y. Y. Cui et al.

Correspondence to: A. Hodzic (alma@ucar.edu)

Supplementary Material

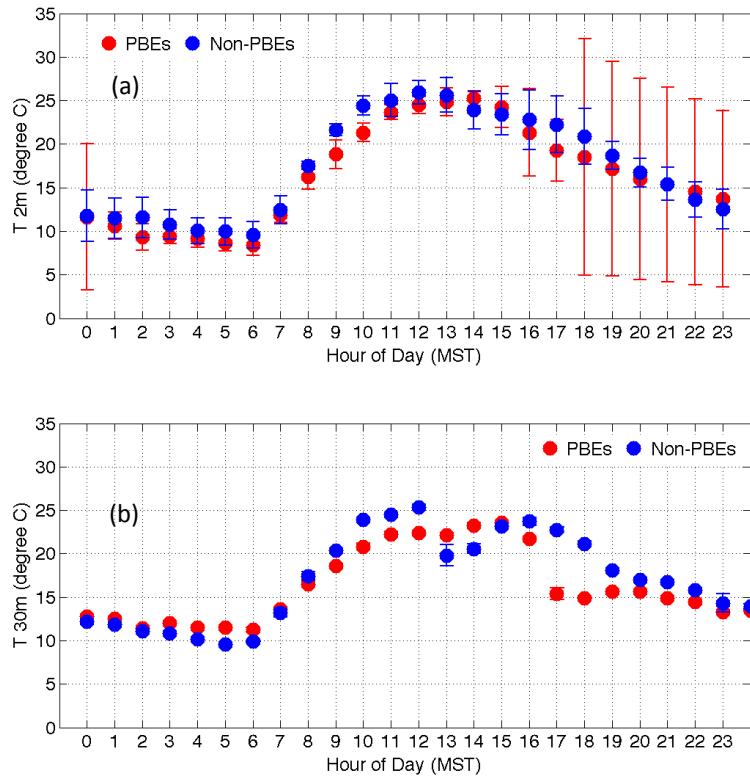


Figure S1: Diurnal variations of 2m and 30m temperatures during PBE days and Non-PBE days.

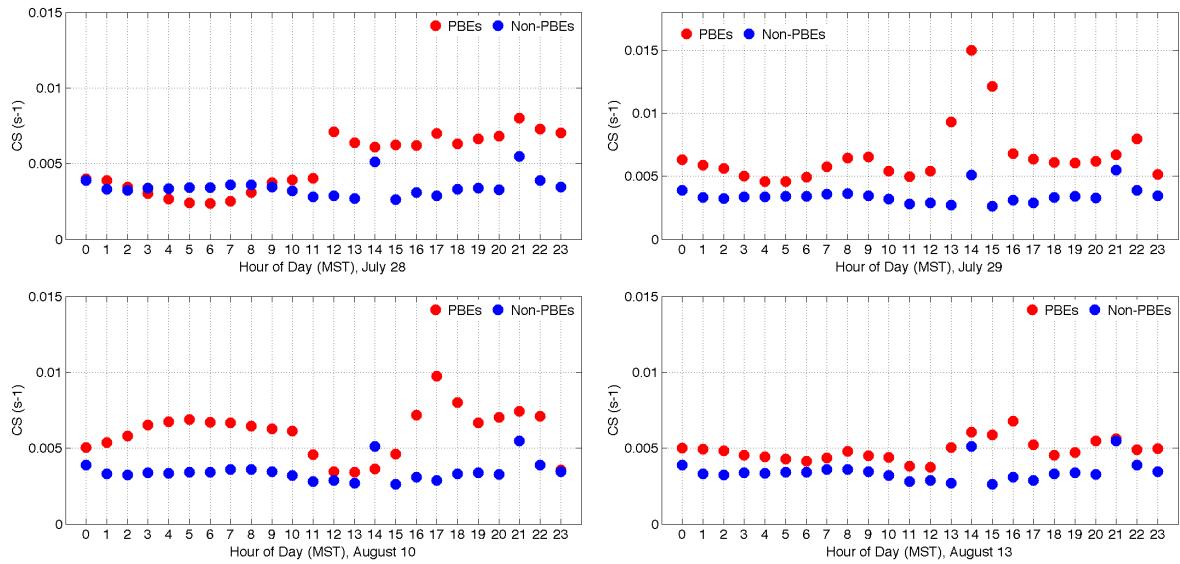


Figure S2: Condensation sinks for 28 July, 29 July, 10 August, and 13 August.

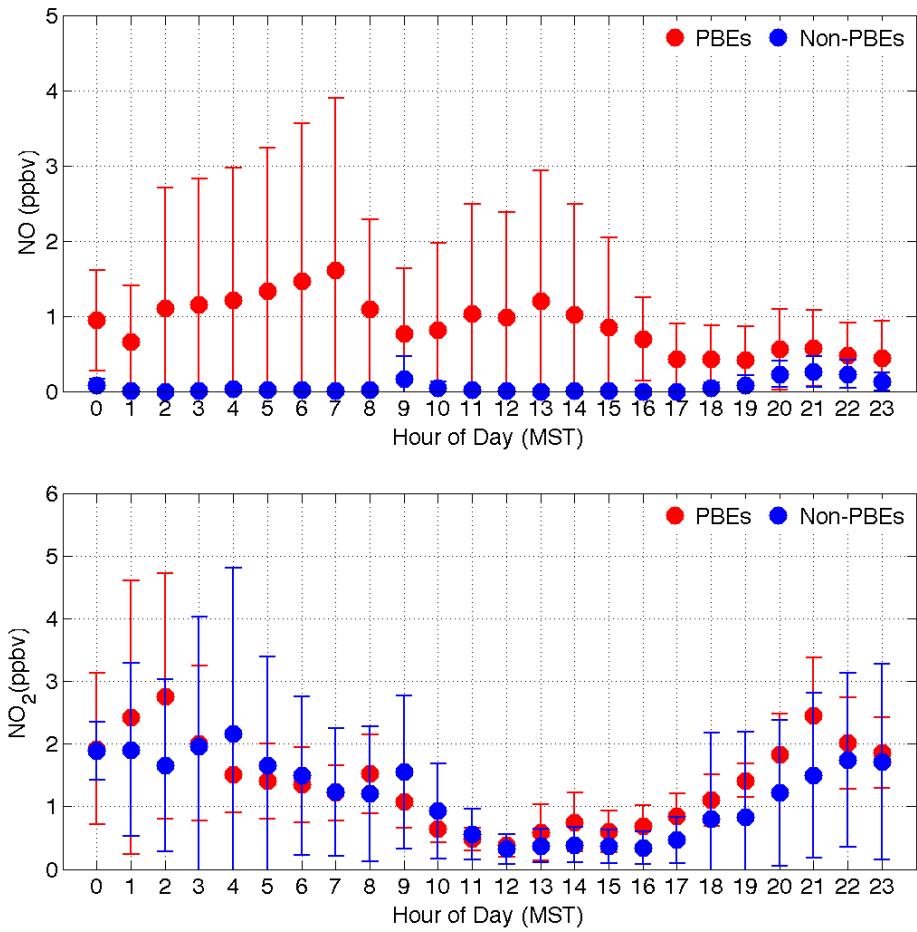


Figure S3: The diurnal variations of NO and NO_2 concentrations for PBE days and Non-PBE days.

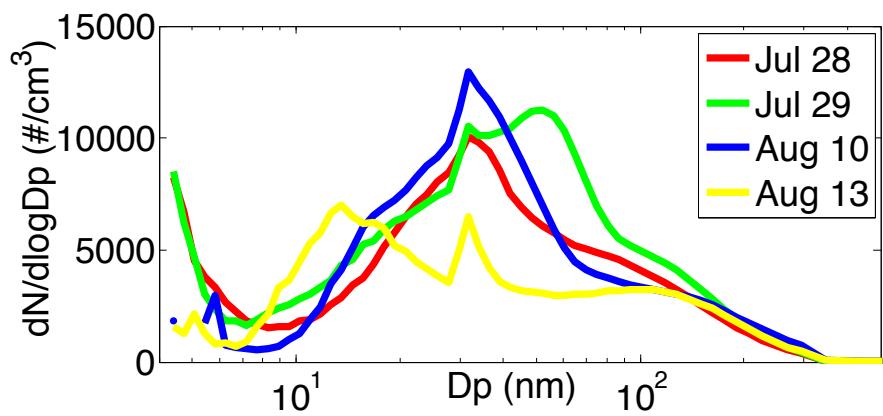


Figure S4: Average number size distributions of small particles during the PBE days.

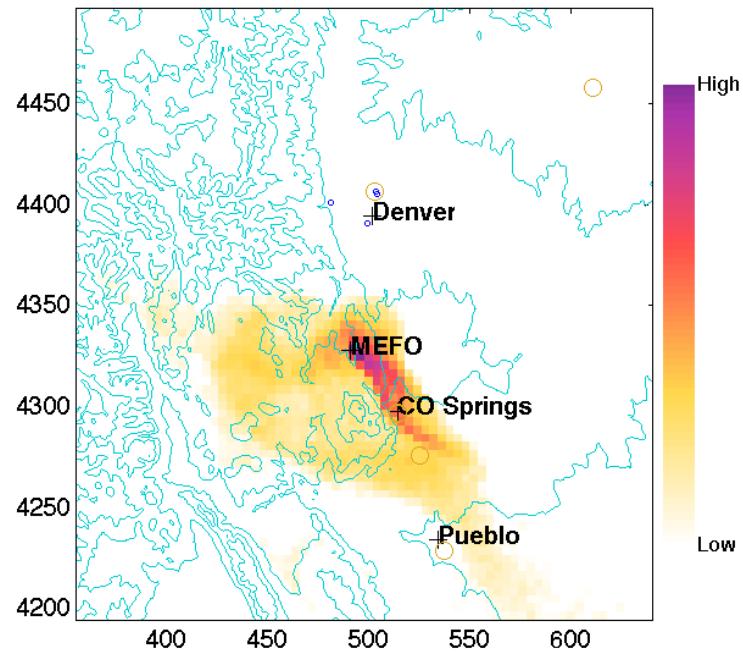


Figure S5: Back-trajectories during August 13, 2013, from 13-18 MST.

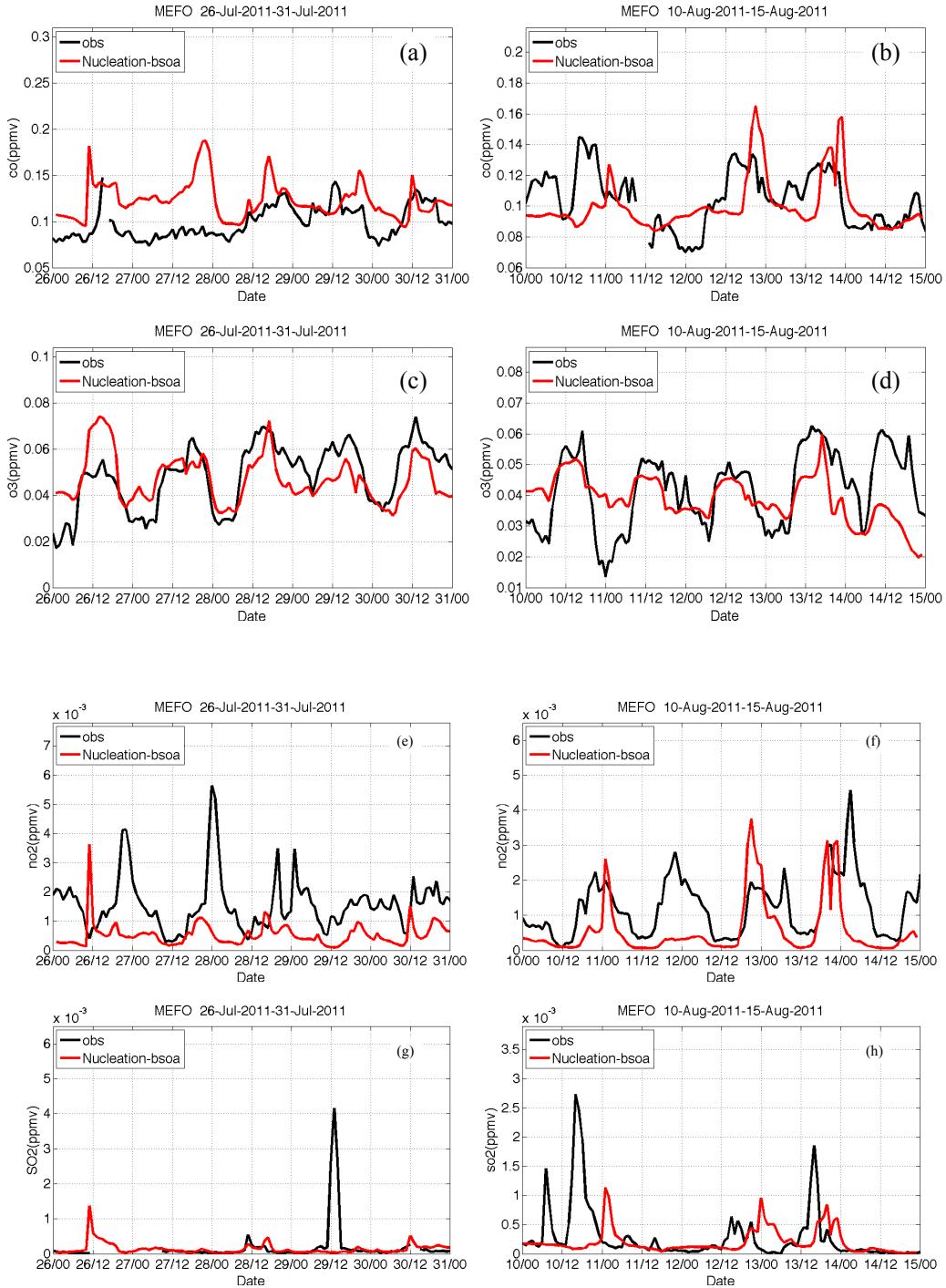


Figure S6: Time series comparison of CO, O₃, NO₂ and SO₂ mixing ratios between measurements and simulations (Nucleation-bsoa run) during two periods 26-30 July (left column) and 10-17 August (right column). The 2nd model layer (~34 m above the ground) is used for comparisons with the measurements.

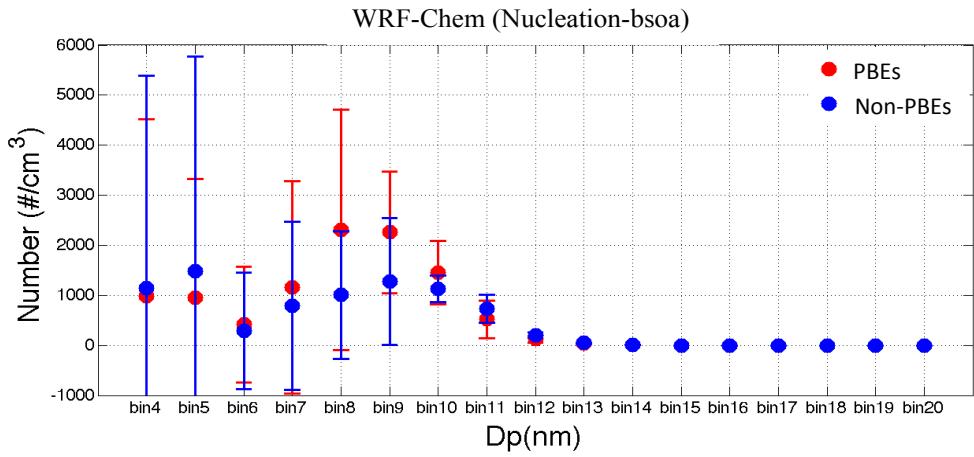


Figure S7: WRF-Chem simulations of the number size distribution (from 4.4-150 nm) during PBE days and Non-PBE days for the Nucleation-bsoa run.

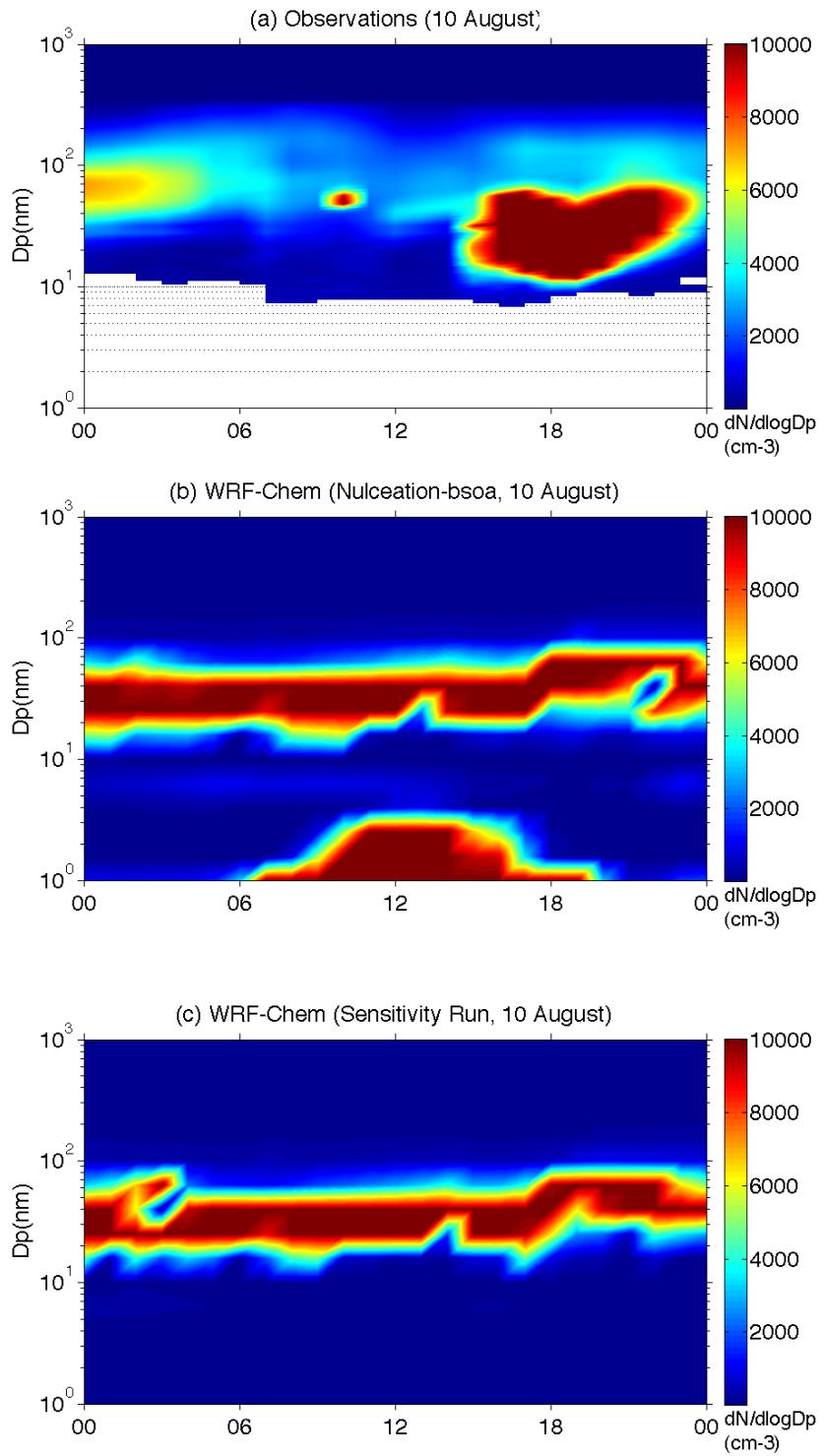


Figure S8: Temporal evolution of (a) observed and (b) simulated (Nucleation-bsoa) number size distributions. The results of the sensitivity study that includes binary nucleation parameterization above the PBL, and has no nucleation parameterization within the PBL, are shown in (c).

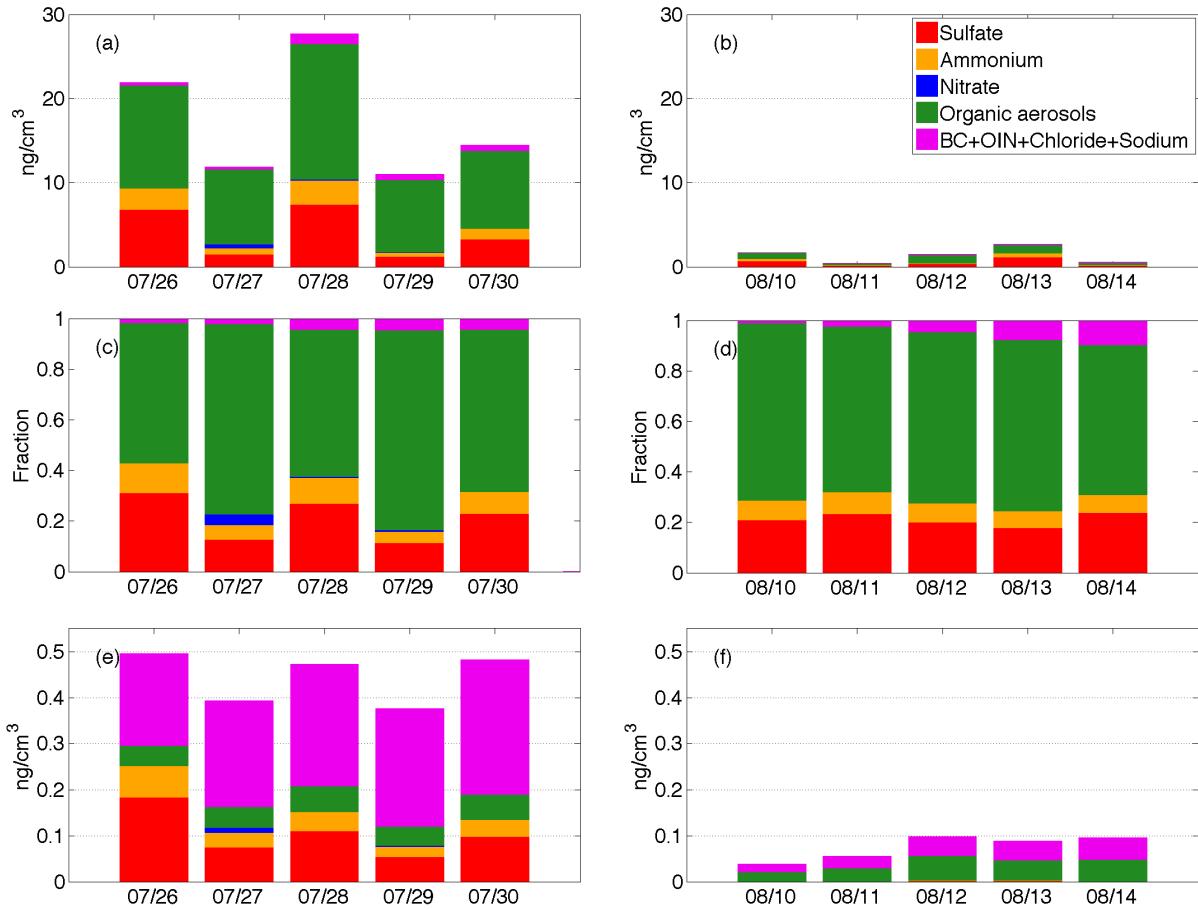


Figure S9. (a) and (b) are predicted surface mass concentrations, (b) and (d) composition fractions for 4-20 nm diameter particles during the field study period. From (a) to (d) are using the Nucleation-bsoa model run. (e) and (f) are predicted surface mass concentrations for 4-20 nm diameter particles based on the sensitivity Nucleation-off model run.