Supplementary material published together with the article

“Implementation of dust emission and chemistry into the Community Multiscale Air Quality modeling system and initial application to an Asian dust storm episode”

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Figure S-1. Spatial distribution of NMBs between observations and MM5 simulation (left panel) and WRF simulation (right panel) for temperature at 2 m (T2), water vapor mixing ratio at 2 m (Q2), 24 h total precipitation (Precip.), and wind speed at 10 m (WS10) over China for April 2001.
Figure S-2. Spatial distribution of NMBs between observations and MM5 simulation (left panel) and WRF simulation (right panel) for temperature at 2 m (T2), relative humidity at 2 m (RH2), weekly total precipitation (Precip.), and wind speed at 10 m (WS10) over the U.S. for April 2001.
Figure S-3. The predicted monthly-mean (a)-(b) fine-mode dust and (c)-(d) coarse-mode dust concentrations with \( E_F \) of 0.5 and 1.0 from the Zender scheme and (e)-(f) fine-mode and coarse-mode dust with \( E_F \) of 0.5 from the Westphal scheme at surface in CMAQ-Dust.
Figure S-4. Spatial distribution of column variables (from left to right: CO, TOR, NO2) from satellite observations (1st row), CMAQ v4.4 (2nd row), DEFAULT CMAQ v4.7 simulation (3rd row) and DUST simulation (4th row) in April 2001.
Figure S-5 Spatial distribution of differences between simulations DUST and CRUST_ONLY for surface layer HNO₃ in April 2001
Figure S-6. Spatial distribution of differences between simulations DUST and BASELINE_NO_DUST (left panel) and between simulations DUST_HIGH_EF and BASELINE_NO_DUST (right panel) at surface layer for PM$_{2.5}$ and PM$_{coarse}$ in April 2001.
Figure S-7. Spatial distribution of differences between simulations DUST and BASELINE_NO_DUST (left panel) and between simulations DUST_HIGH_EF and BASELINE_NO_DUST (right panel) at an altitude of ~5-km for PM$_{2.5}$ and PM$_{coarse}$ in April 2001.