



Supplement of

Mechanistic representation of soil nitrogen emissions in the Community Multiscale Air Quality (CMAQ) model v 5.1

Quazi Z. Rasool et al.

Correspondence to: Quazi Z. Rasool (qzr1@email.unc.edu)

The copyright of individual parts of the supplement might differ from the CC BY 4.0 License.

Figure S1 Percentage contribution of soil NO + HONO to Total NO_x (NO + NO₂) + HONO emissions on a monthly average basis for May (left) and July (right) 2011 for: a) YL scheme, b) Parametrized BDSNP scheme and c) Mechanistic scheme. Note: only the mechanistic scheme estimates HONO in addition to NO



Figure S2 Comparison of average monthly (May 2011) Mean Bias (MB) for CMAQ O_3 (ppb) using YL (a) and Mechanistic schemes (b) evaluated against AQS O_3 observations



Figure S3 Comparison of average monthly (May2011) MB for CMAQ NO_x (NO + NO₂) (ppb) using YL (a) and Mechanistic schemes (b) evaluated against AQS NO_x observations



Figure S4 Comparison of average monthly (May 2011) MB for CMAQ O_3 (ppb) using YL (a) and Mechanistic schemes (b) evaluated against CASTNET O_3 observations



Figure S5 Comparison of average monthly (May 2011) MB for CMAQ $PM_{2.5}$ NO₃ (µg/m³) using YL (a) and Mechanistic schemes (b) evaluated against IMPROVE $PM_{2.5}$ NO₃ observations



Figure S6 Comparison of average monthly (July 2011) MB for CMAQ $PM_{2.5}$ NO₃ (µg/m³) using YL (a) and Mechanistic schemes (b) evaluated against CSN $PM_{2.5}$ NO₃ observations





Figure S7 Soil moisture (m³/m³) on a monthly mean basis (May and July 2011) over the modeling domain

Min (201, 72) = 0.05, Max (2, 1) = 1.00