Supplement of

Detecting critical $PM_{2.5}$ emission sources and their contributions to a heavy haze episode in Beijing, China by using an adjoint model

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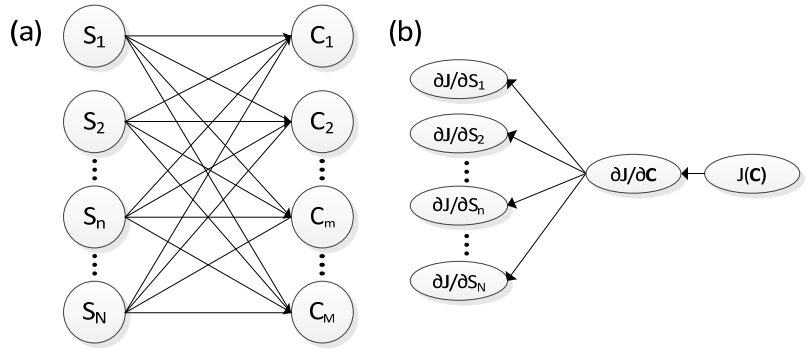

Figure S1. Schematic diagrams of the atmospheric chemistry forward (a) and adjoint (b) models. S_1, S_2, …, S_n, …, S_N are emission sources of different sectors, or of different species, at different locations etc., and S is the emission vector; C_1, C_2, …, C_m, …, C_M are pollutant concentrations at different sites, or of different species, and C is the concentration vector.

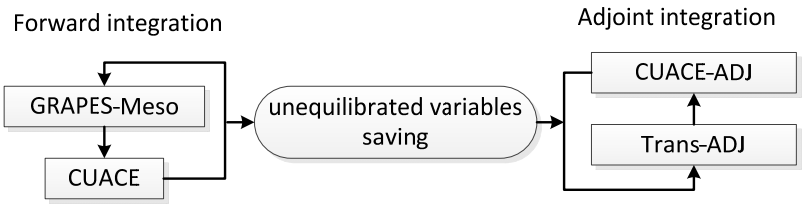

Figure S2. Operational processes of the GRAPES-CUACE aerosol adjoint