# Contribution of local and remote anthropogenic aerosols to intensification of a record-breaking torrential rainfall event in Guangdong Province

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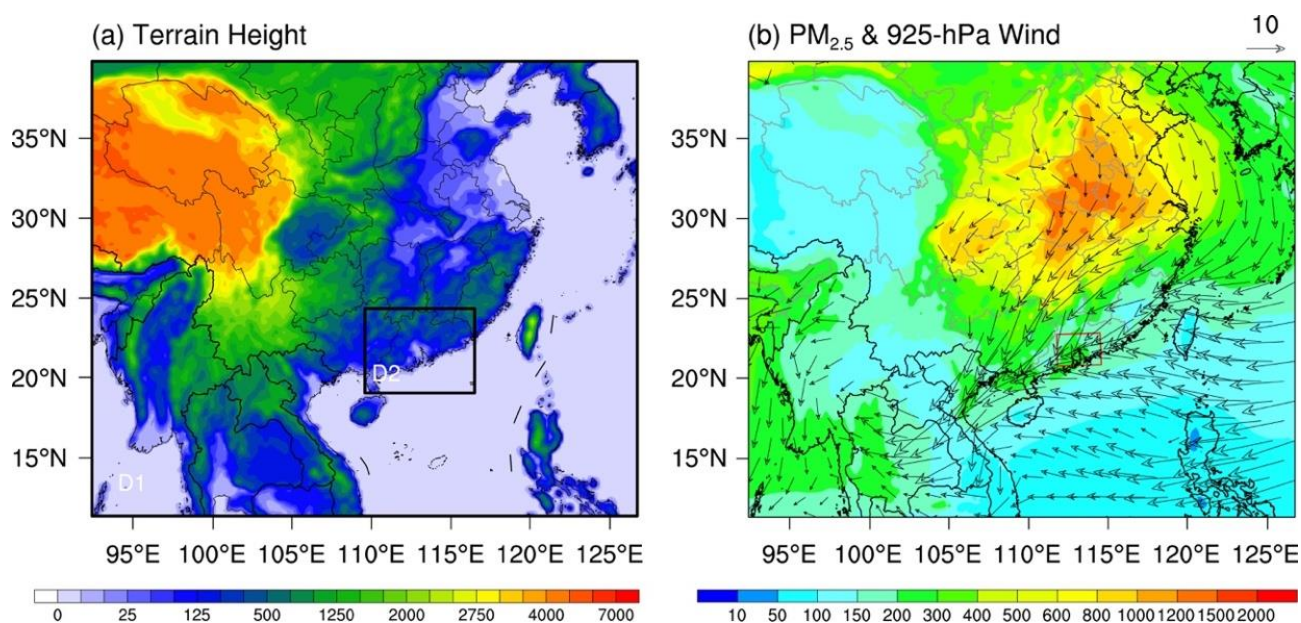
Figure S1. (a) WRF-Chem model two-nested domains with resolutions of 20 km and 4 km for domain 1 (D1) and domain 2 (D2), respectively. Shading represents terrain height (unit: m). **(b)** Spatial distribution of 3-day averaged column-integrated PM$_{2.5}$ concentrations (shading; unit: μg m^{-2}) and 925-hPa wind (vector; unit: m s^{-1}) during December 14–16, 2013, in control run. The red box denotes the analysis region.
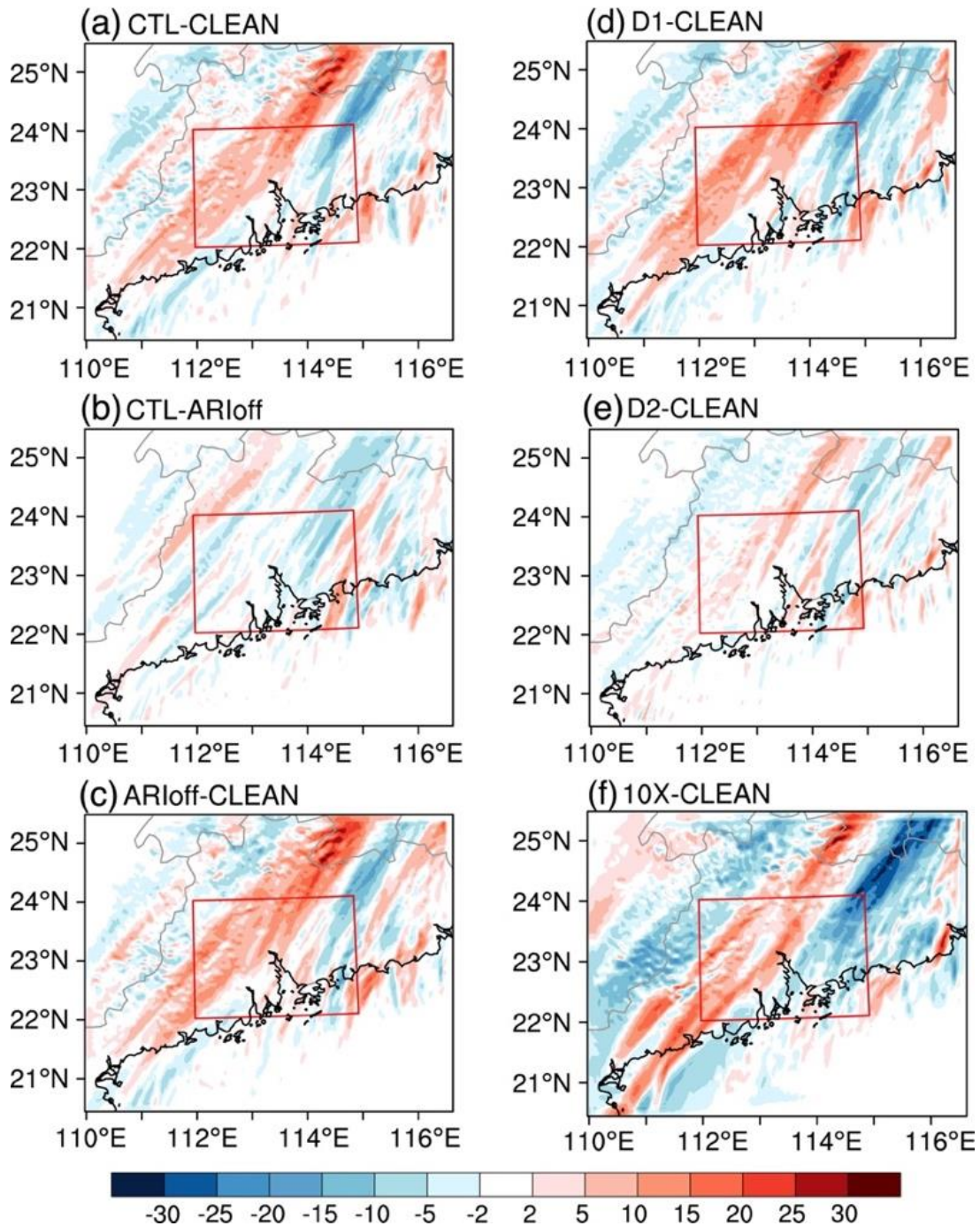
Precipitation

Figure S2. Differences in accumulated precipitation (unit: mm) on December 16 between (a) CTL and CLEAN (i.e., CTL minus CLEAN), (b) CTL and ARIoff (i.e., CTL minus ARIoff), (c) ARIoff and CLEAN (i.e., ARIoff minus CLEAN), (d) D1 and CLEAN (i.e., D1 minus CLEAN), (e) D2 and CLEAN (D2 minus CLEAN), and (f) 10X and CLEAN (10X minus CLEAN). Red boxes (22°–24° N, 112°–115° E) denote the analysis region. ARIoff run refers to simulation with aerosol-radiation interactions off.
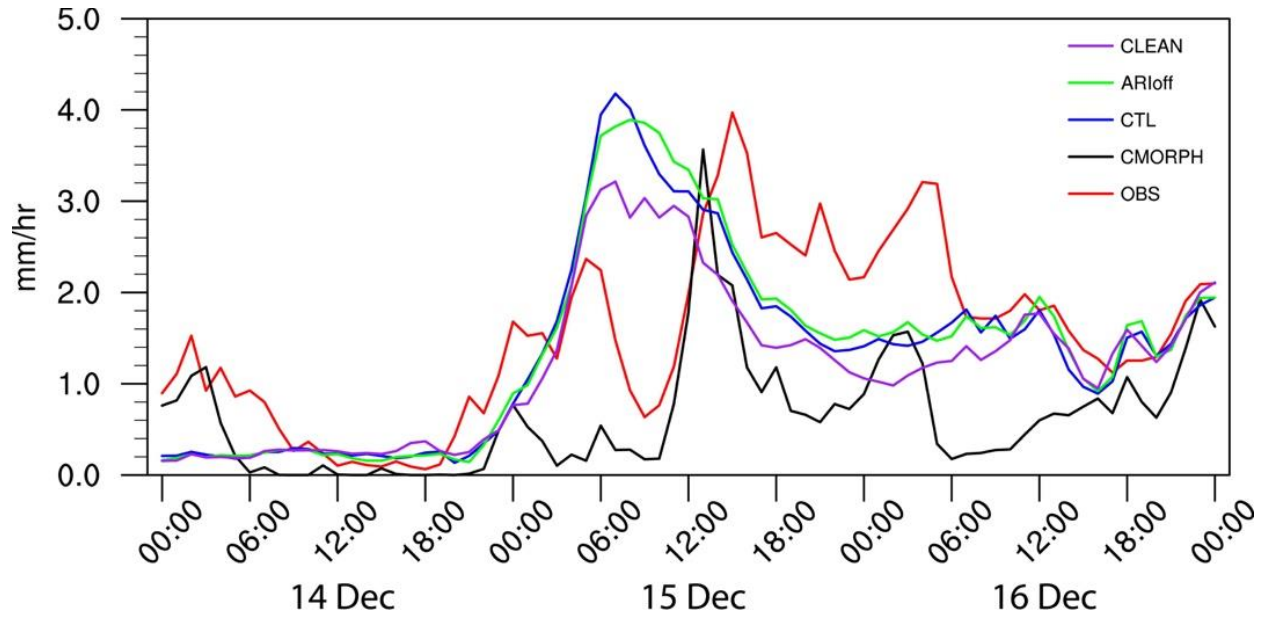
Figure S3. Time series of station average rain rate (unit: mm h^{-1}) over 22°–24° N, 112°–115° E (a) for OBS (red), CMORPH (black), CTL (blue), ARIoff (green), and CLEAN (purple).