Supplement

Differences in the vertical distribution of aerosols, nitrogen dioxide and formaldehyde between islands and inland areas: A case study in the Yangtze River Delta of China

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S1. WRF model configuration

The weather research and forecast (WRF) model is a tool widely used in the atmospheric science community. WRF version 4.0 was used to simulate the meteorological parameters from May 6 to July 18, 2019. The center of the model domain is 105°E, 38°N, and the grid resolution is 10 km×10 km. The initial conditions and boundary conditions of the simulated weather field use the 6-hour final global analysis data generated by National Environmental Prediction Center (NCEP) with a spatial resolution of 1°×1°. The detailed information of the model configuration options can be found in Table S1 and our previous research [**1, 2**].

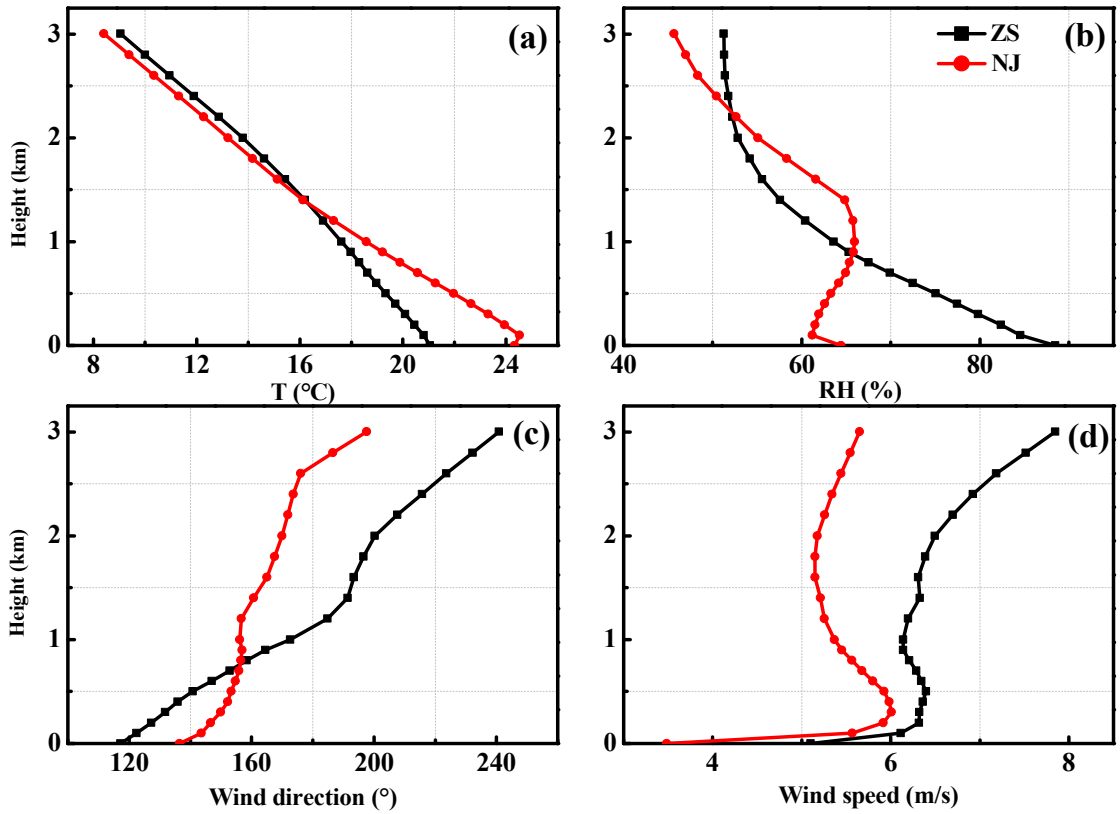

Figure. S1 The averaged vertical profiles of (a) T, (b) RH, (c) WD and (d) WS from May to July 2019.

Table S1 Parametric scheme of physical process in WRF model.

Option	Parameterization scheme
Microphysics	Lin et al. [**3**]
Long-wave radiation	RRTMG [**4**]
Short-wave radiation	RRTMG [**4**]
Land-surface	Noah [**5**]
Planetary boundary layer	YSU [**4**]
Cumulus parameterization	Grell–Deveny [**6**]

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