

The following supplement accompanies the article

Parametric sensitivity and calibration for the Kain-Fritsch convective parameterization scheme in the WRF model

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Supplement 1. Additional data

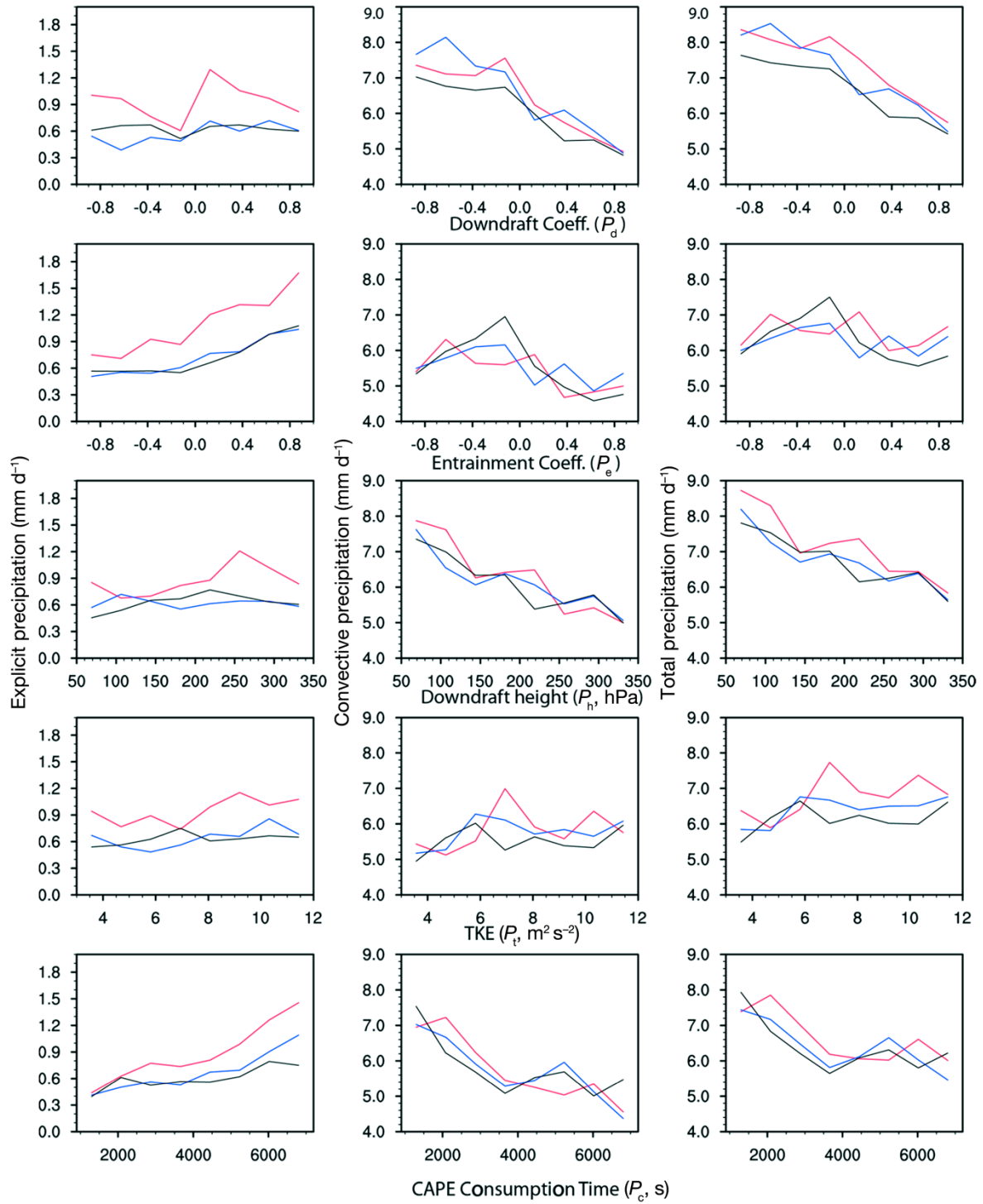


Fig. S1. Responses of simulated explicit (left), convective (middle), and total (right) precipitation averaged over the subdomain shown outlined (yellow box) in Fig. 1 to the 5 parameters in the KF scheme based on the three experiments (see Table 1 in the main article): SGP50 (black), SGP25 (blue) and SGP12 (red), with spatial resolutions of 50, 25 and 12 km, respectively. TKE: turbulent kinetic energy; CAPE: convective available potential energy

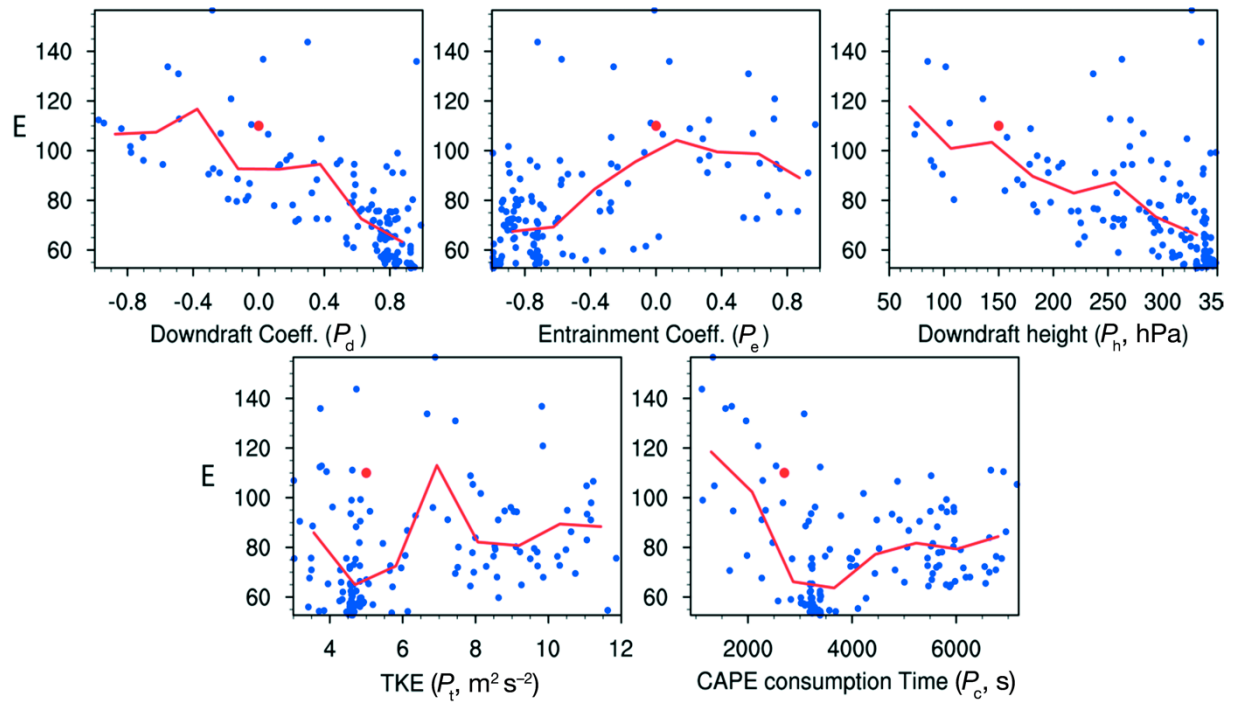


Fig. S2. Response of model performance to 5 input parameters (see Table 2 in the main article) based on the simulations with spatial resolutions of 25 km over the North America Monsoon (NAM) in July 1991. Scattered blue dots denote the 150 simulations. Red points indicate the cost function E of the simulation with the standard parameters. Red line: average of blue dots in each of 8 bins

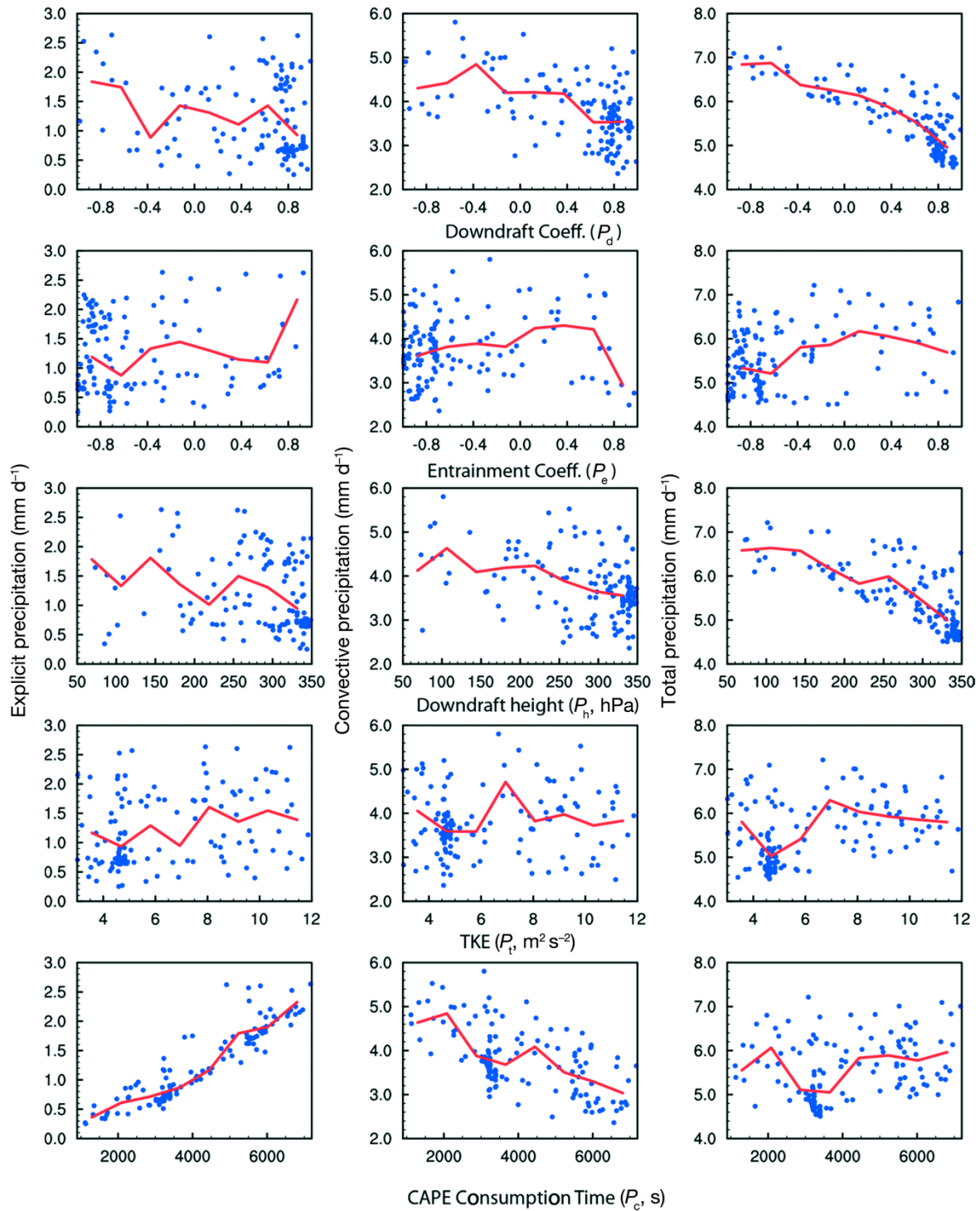


Fig. S3. Responses of simulated explicit (left), convective (middle), and total (right) precipitation to the 5 input parameters in the KF scheme (see Table 2 in the main article), based on the simulations with spatial resolutions of 25 km over NAM in July 1991. Red line: average of blue dots in each of 8 bins

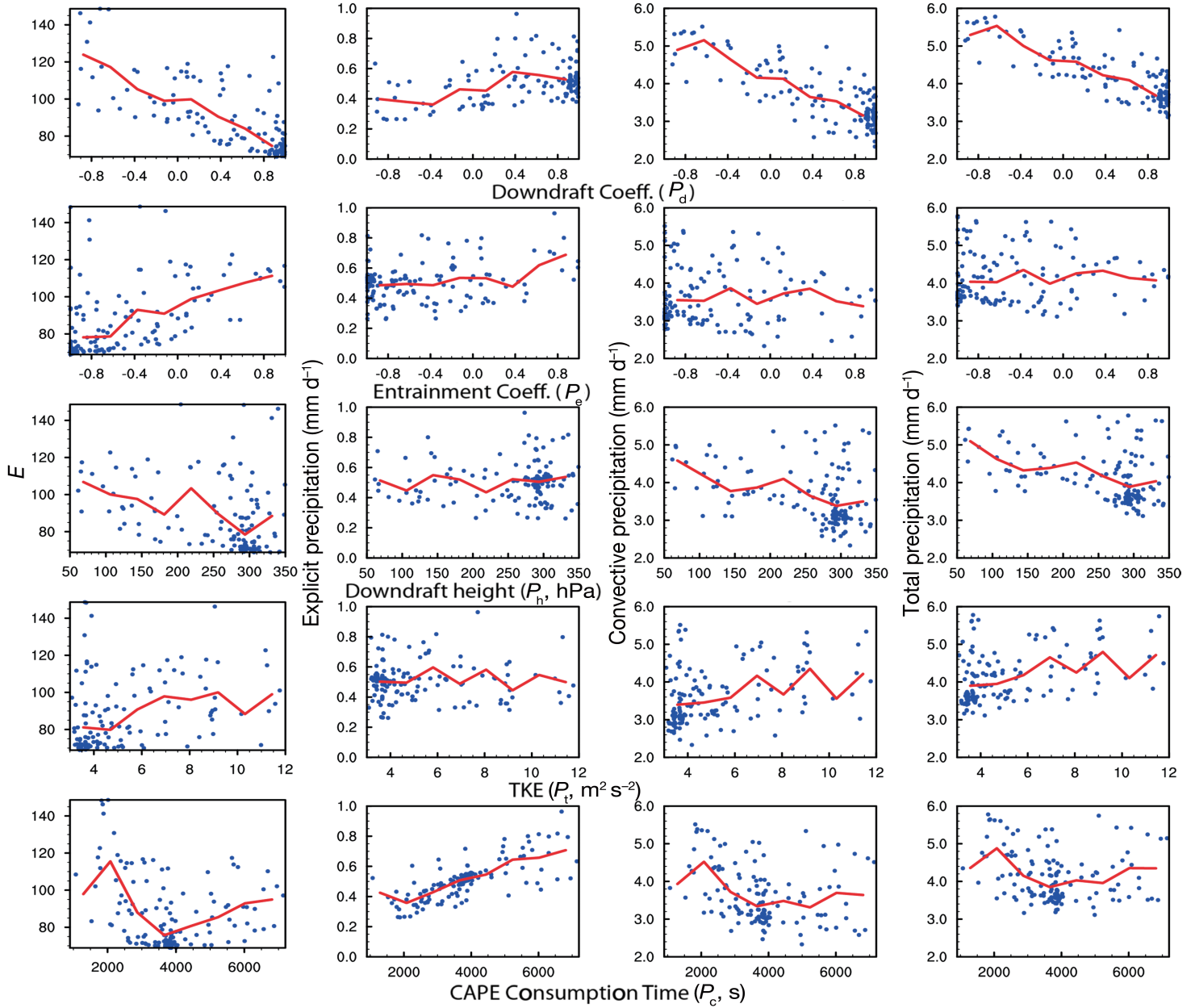


Fig. S4. Model responses to 5 input parameters (see Table 2 in the main article) based on the simulations over Southern Great Plains (SGP) region with the CAM radiation scheme, for July 1991. Left: responses of model performance (the cost function E). Right columns: responses of simulated explicit (left), convective (middle), and total (right) precipitation. Red line: average of blue dots in each of 8 bins