

THE LATE SPRING DROUGHT OF 2018 IN SOUTH CHINA

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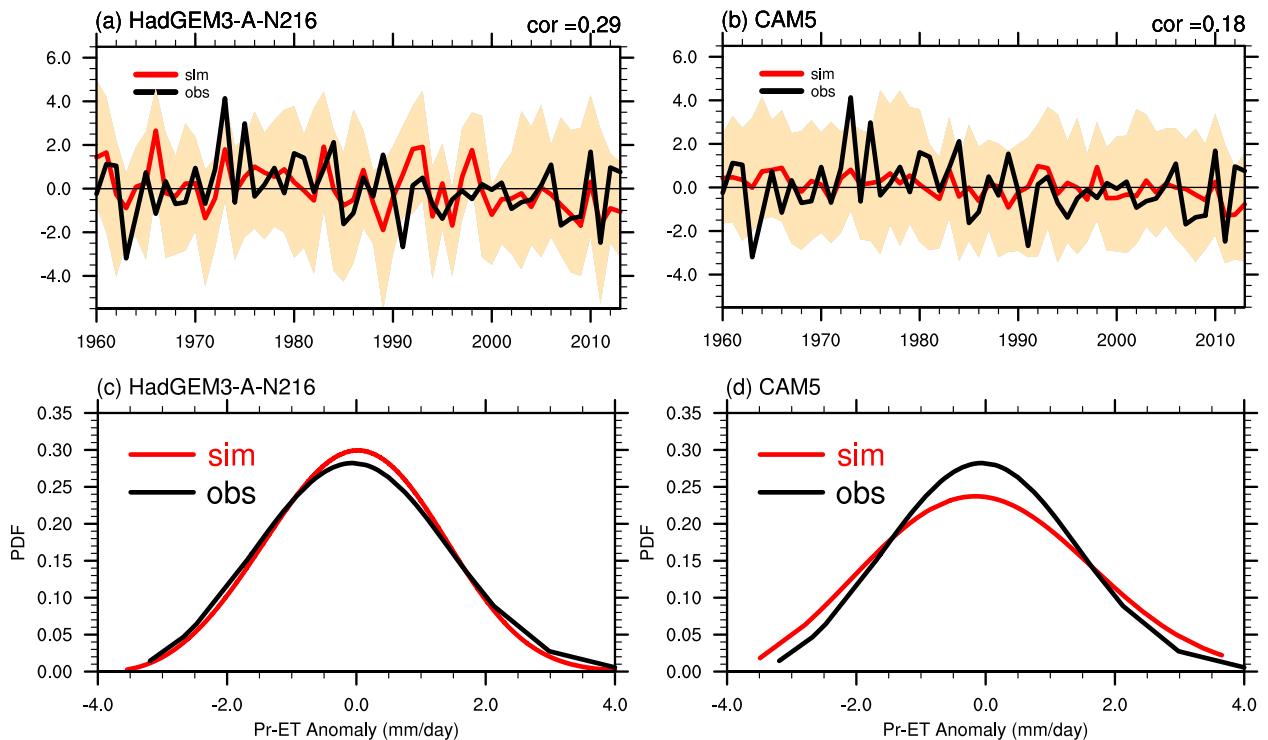


FIG. ES1. April–May mean Pr-ET (mm day^{-1}) anomalies regional averaged over South China (red box in Figs. 1a–c) for the period 1961–2013 in observation (black) and multimember ensemble (MME, red) of the Factual experiment for (a) HadGEM-A-N216, (b) CAM5. The shading shows the spread among members. GEV distributions of the April–May mean Pr-ET anomalies (mm day^{-1}) averaged over South China in observation (black) and all members of the Factual experiment (red) for 1961–2013 from (c) HadGEM-A-N216 and (d) CAM5.

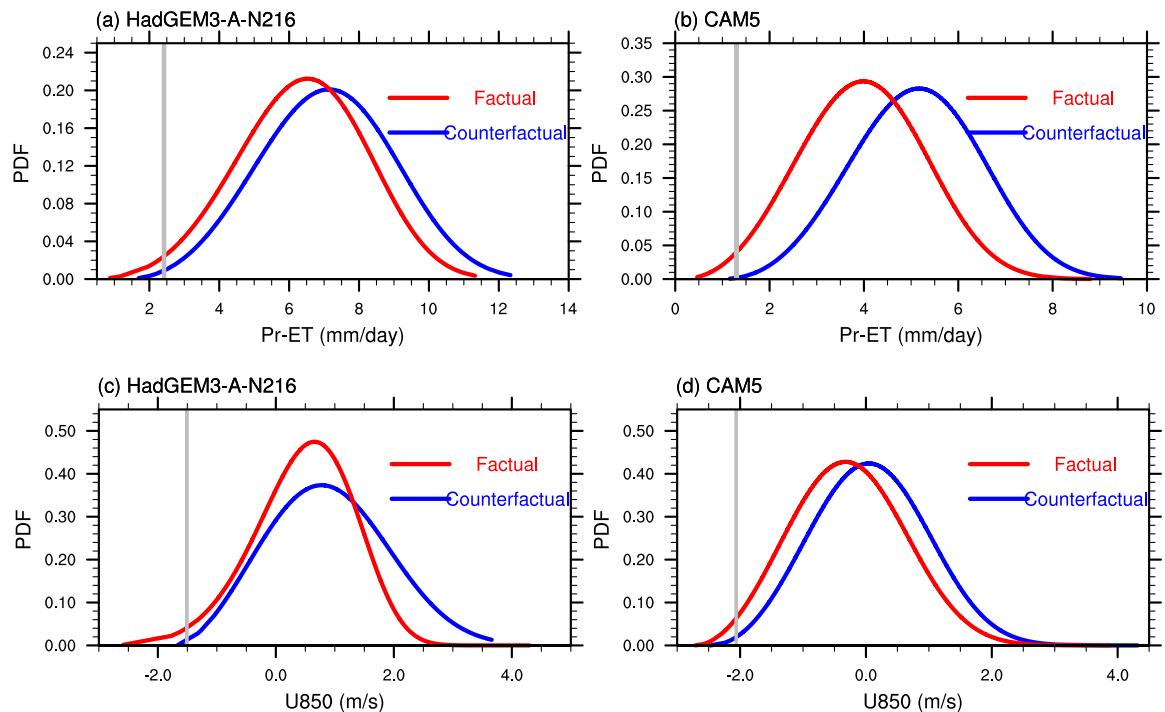


FIG. ES2. GEV distribution of the April–May mean Pr-ET (mm day^{-1}) averaged over South China in (a) HadGEM3-A and (b) CAM5 with (Factual experiment; red) and without (Counterfactual experiment; blue) anthropogenic climate changes. There are 15 members for 1960–2013 from HadGEM3-A-N216 and 50 members for 1959–2017 from CAM5. (c),(d) As in (a),(b), but for the distribution of April–May mean 850-hPa zonal winds area-averaged over 5° – 20°N , 90° – 120°E .

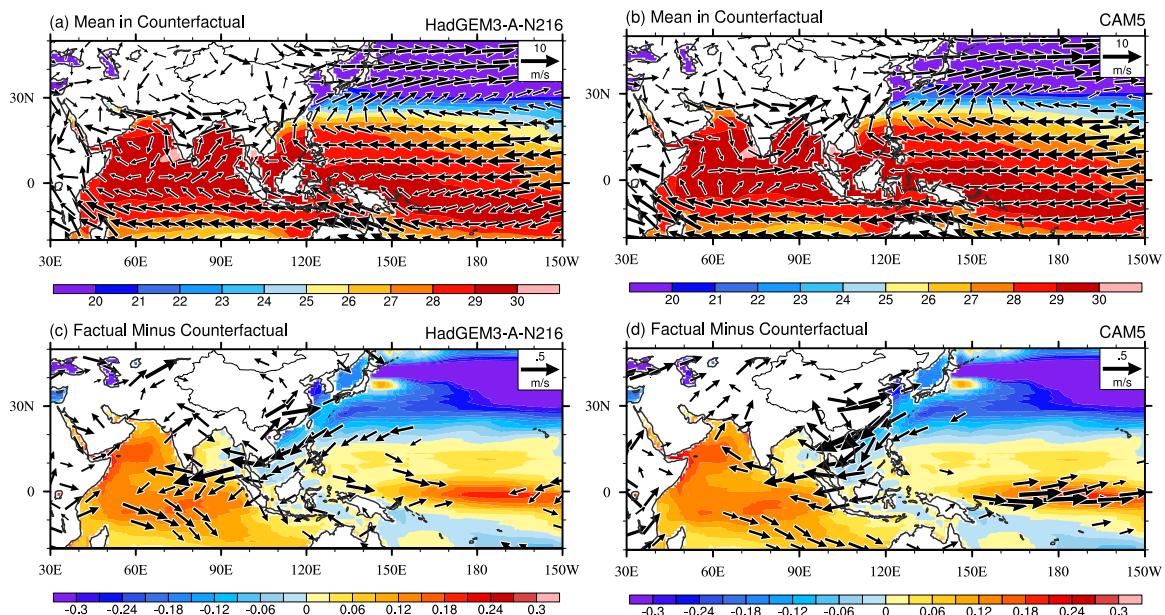


FIG. ES3. Distributions of April–May mean 850-hPa winds (vector; m s^{-1}) and sea surface temperature (shading; $^{\circ}\text{C}$) in MME of the Counterfactual experiment during 1960–2013 from (a) HadGEM3-A-N216 and (b) CAM5. (c),(d) As in (a),(b), but for the difference between the Factual and Counterfactual experiments. Only the wind anomalies where at least 2/3 members agree on the sign of changes are shown in (c) and (d). To show the impact of unevenly distributed SST anomalies on circulation changes, we first find the SST difference between Factual and Counterfactual and then remove its area-averaged mean over 40°S – 40°N .