HOKKAIDO UNIVERSITY

Title	Validating a regional climate model’s downscaling ability for East Asian summer monsoonal interannual variability
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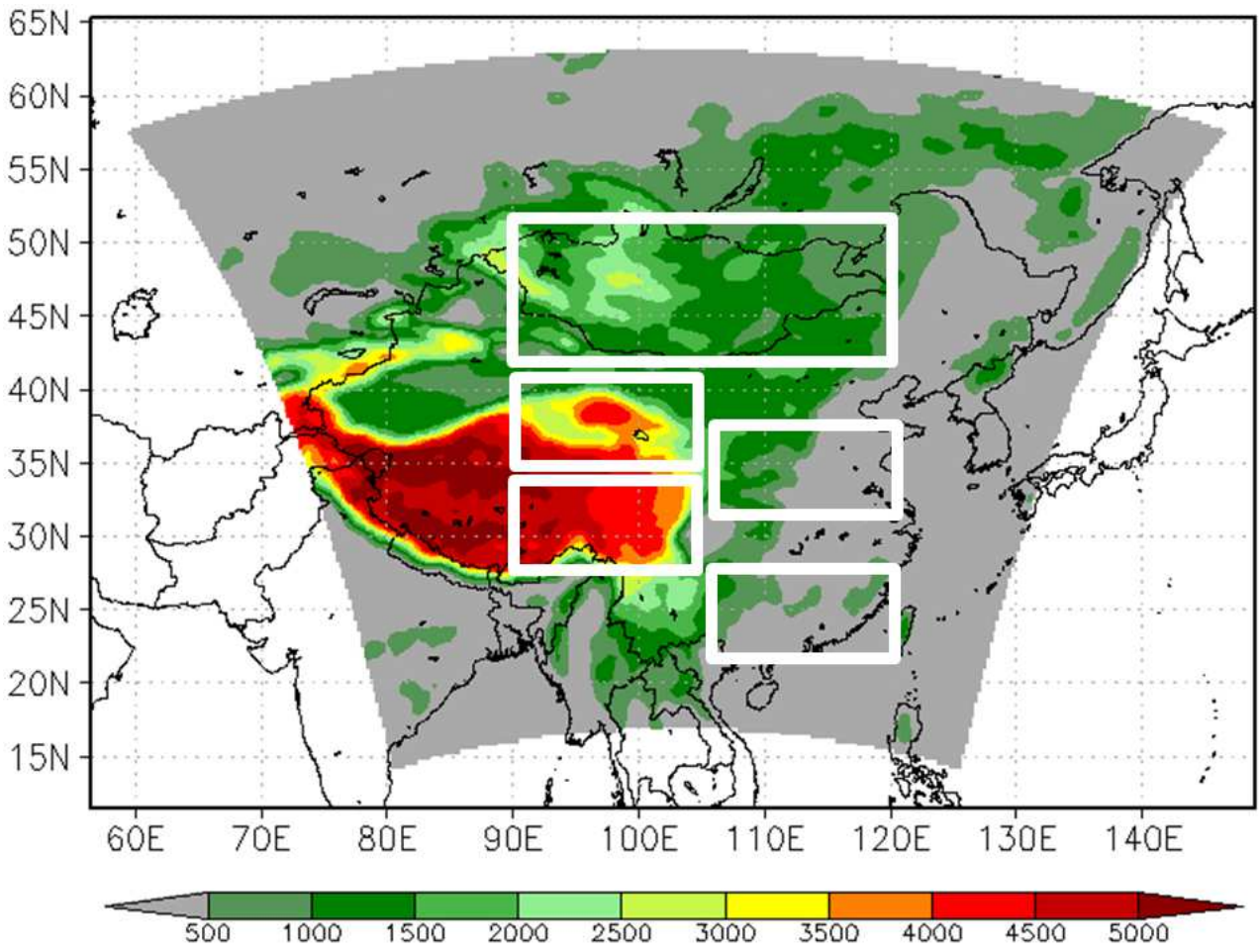


Figure 1: Topography in study area and experimental domain. Rectangles show sub-domains for analysis; Mongolia (90-120°E, 42-52°N), Southeast China (105-120°E, 22-28°N), North China (105-120°E, 32-38°N), Northwest China (90-105°E, 35-41°N), and Tibetan Plateau (90-105°E, 28-34°N).

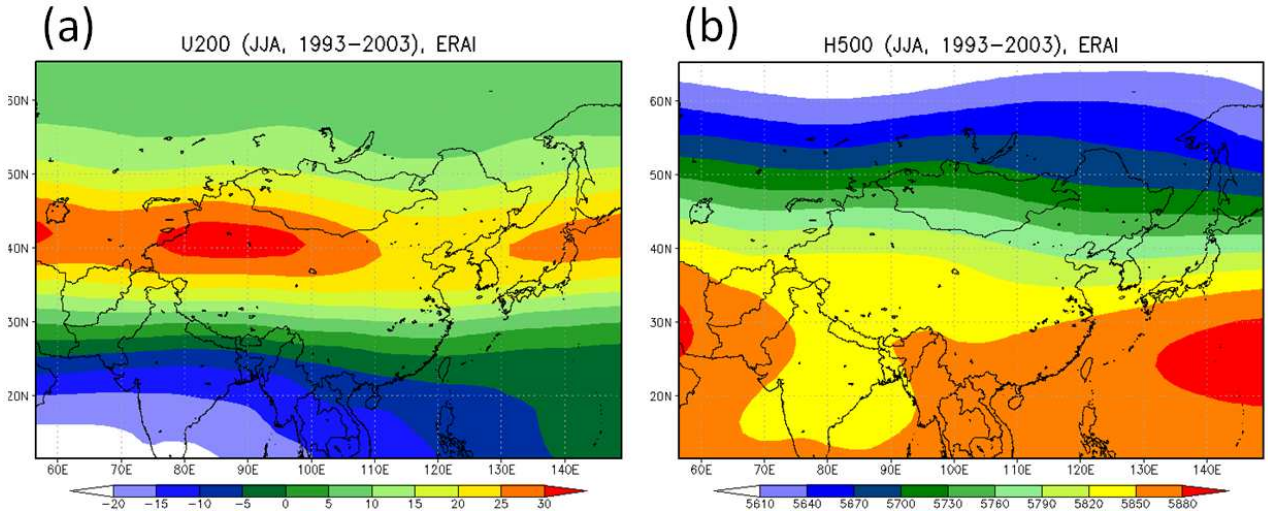


Figure 2: Eleven-year (1993-2003) JJA mean (a) U200 (m sec^{-1}) and (b) H500 (m) in ERA-Interim.

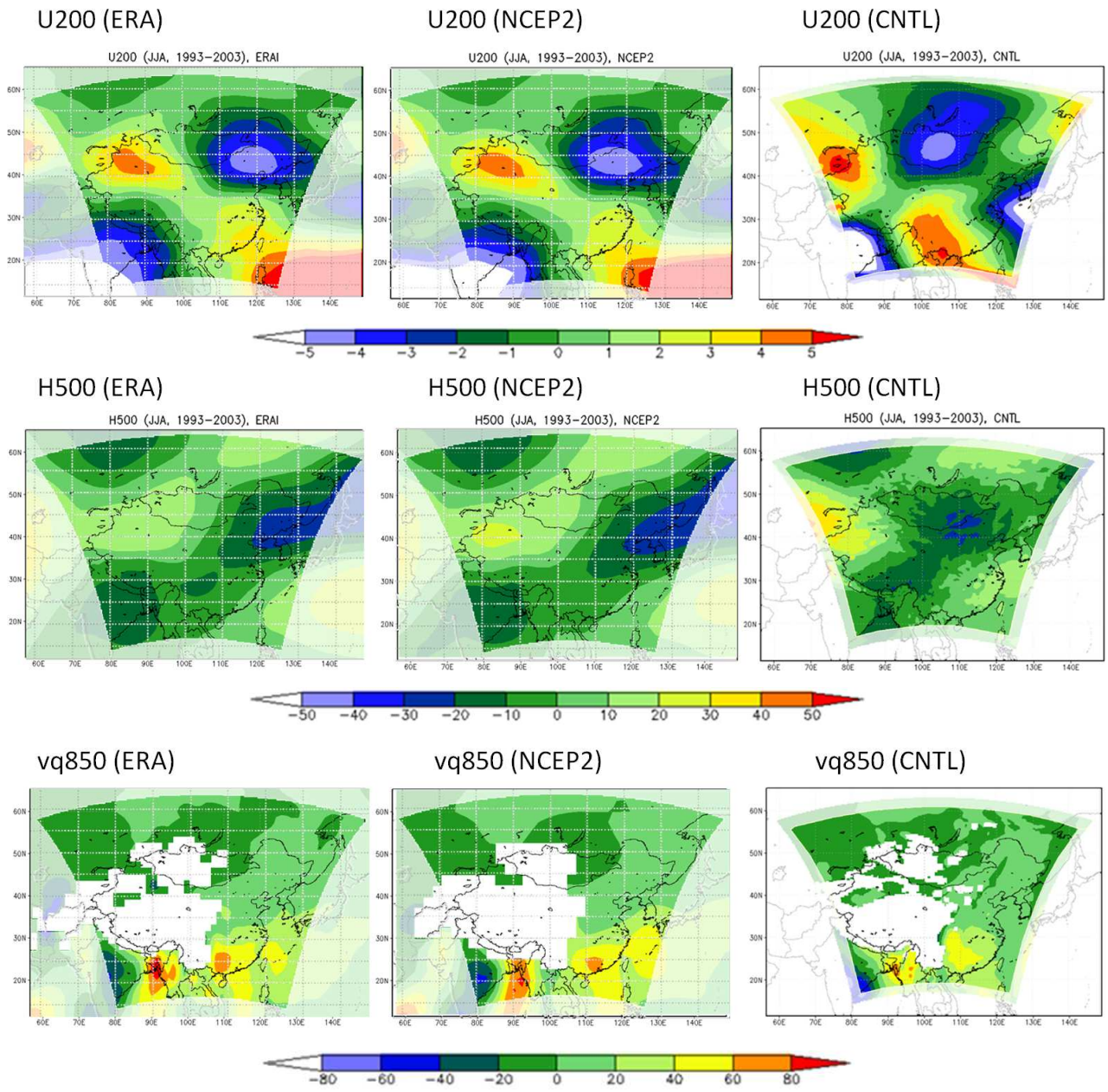


Figure 3: Eleven-year (1993-2003) JJA mean U200 (top, m sec^{-1}), H500 (middle, m), and vq850 (bottom, m sec^{-1}) in ERA-Interim (left), NCEP2 (middle), and CNTL run (right). Zonal mean of U200 and H500 are removed in each figure.

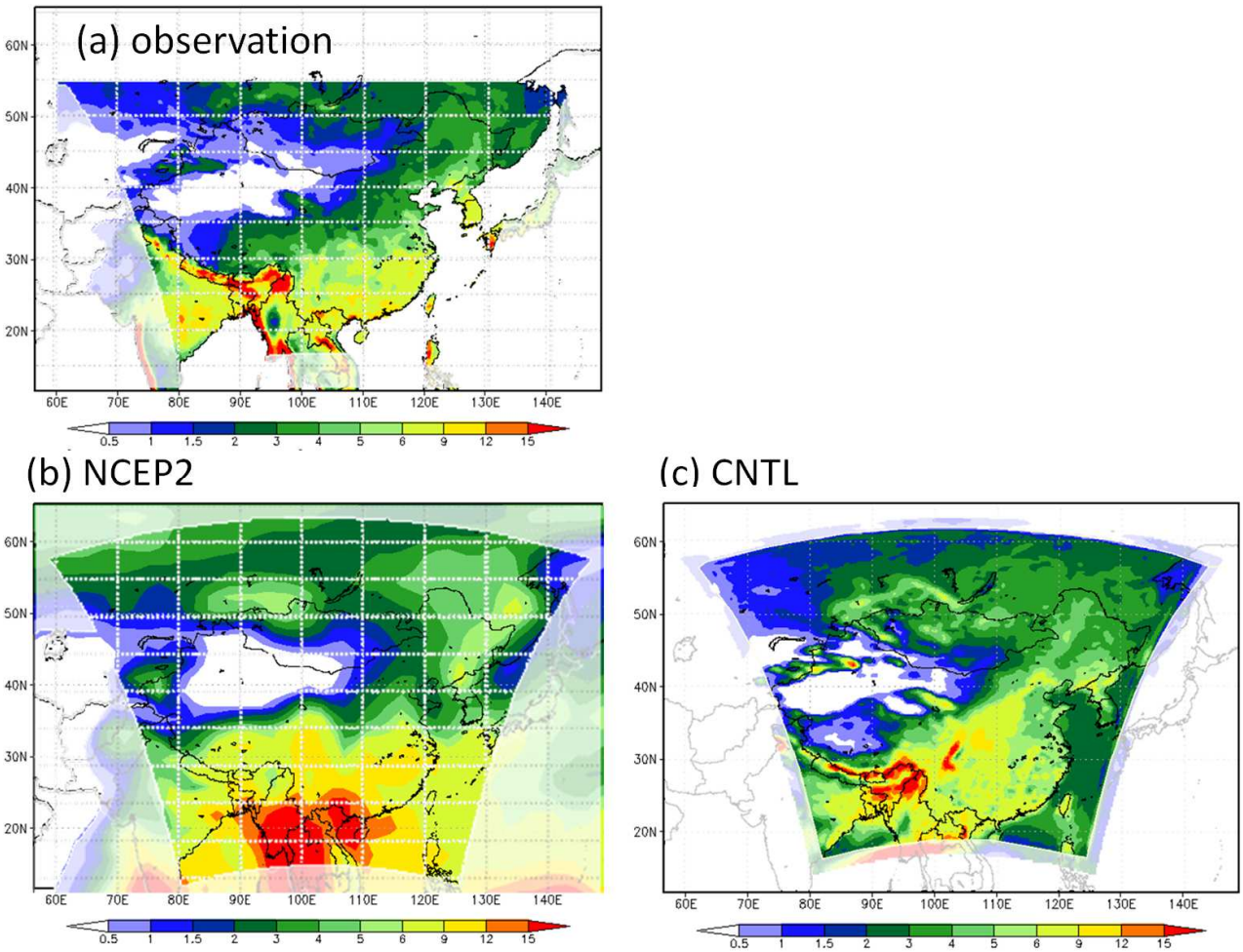


Figure 4: JJA mean precipitation (mm day^{-1}) in (a) observation (APHRODITE), (b) NCEP2, and (c) CNTL run from 1993 to 2003.

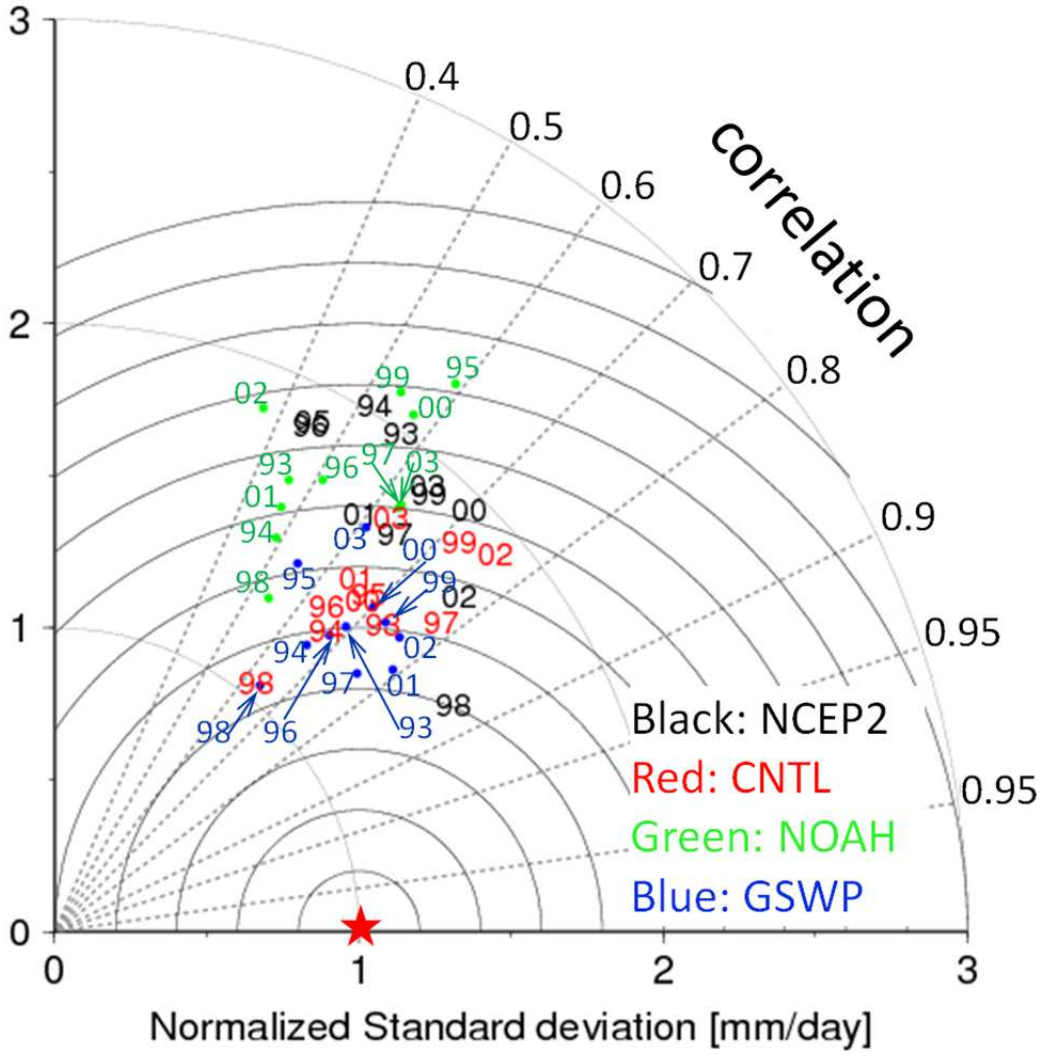


Figure 5: Taylor diagram of JJA precipitation over Mongolia using observation (APHRODITE) as reference data (shown at red star). 2-digit numbers plotted in the diagram indicate the year analyzed. Normalized standard deviation is used to compare multiple years. Black for NCEP2, red for CNTL run, green for NOAH run, and blue for GSWP run, respectively.

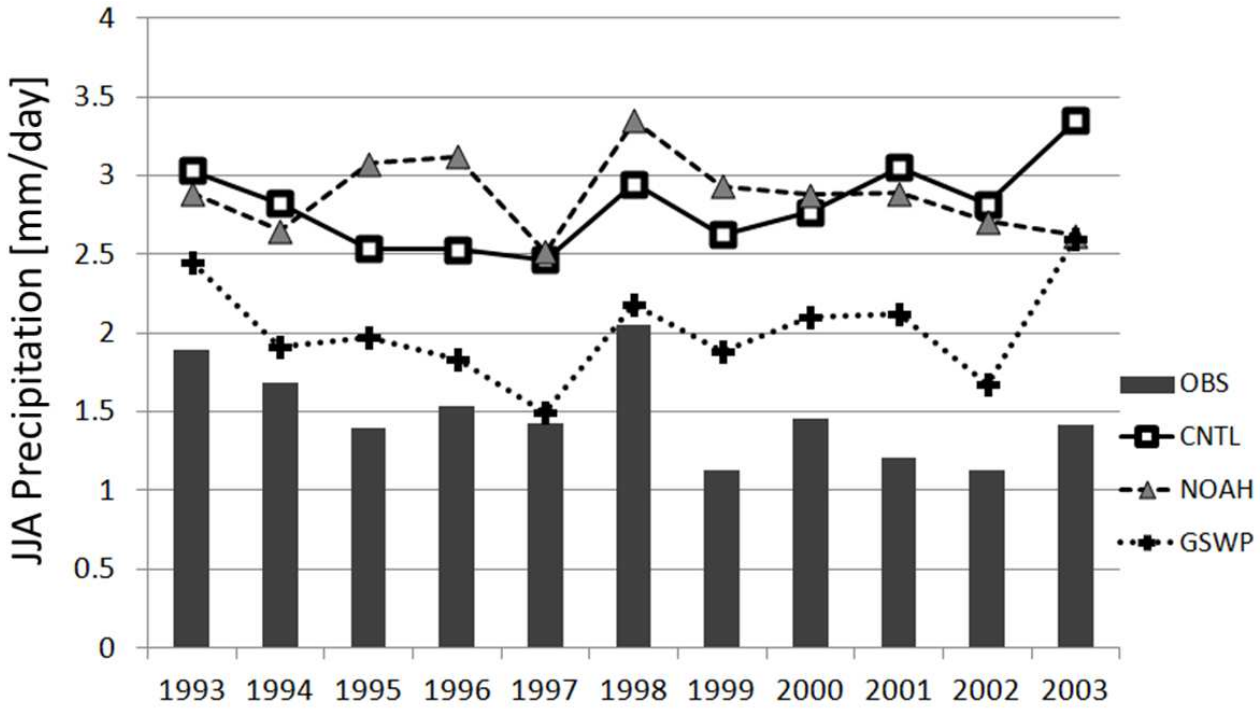


Figure 6: Interannual variation of JJA precipitation (mm day^{-1}) in Mongolia for observation (APHRODITE) and three experiments.

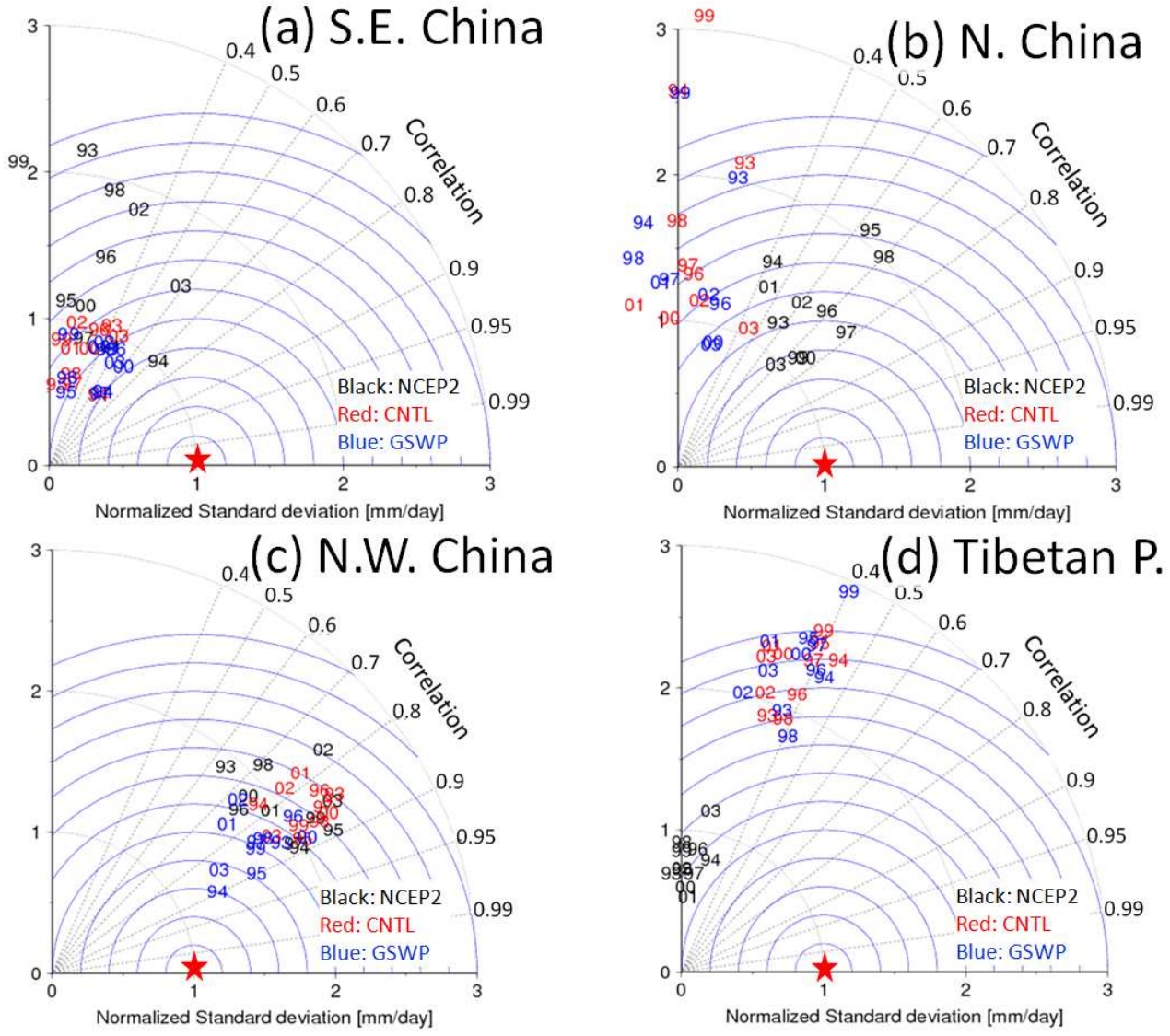


Figure 7: As in Fig. 5, but for (a) S.E. China, (b) N.E. China, (c) N.W. China, and (d) Tibetan Plateau. Black for NCEP2, red for CNTL run, and blue for GSWP run.

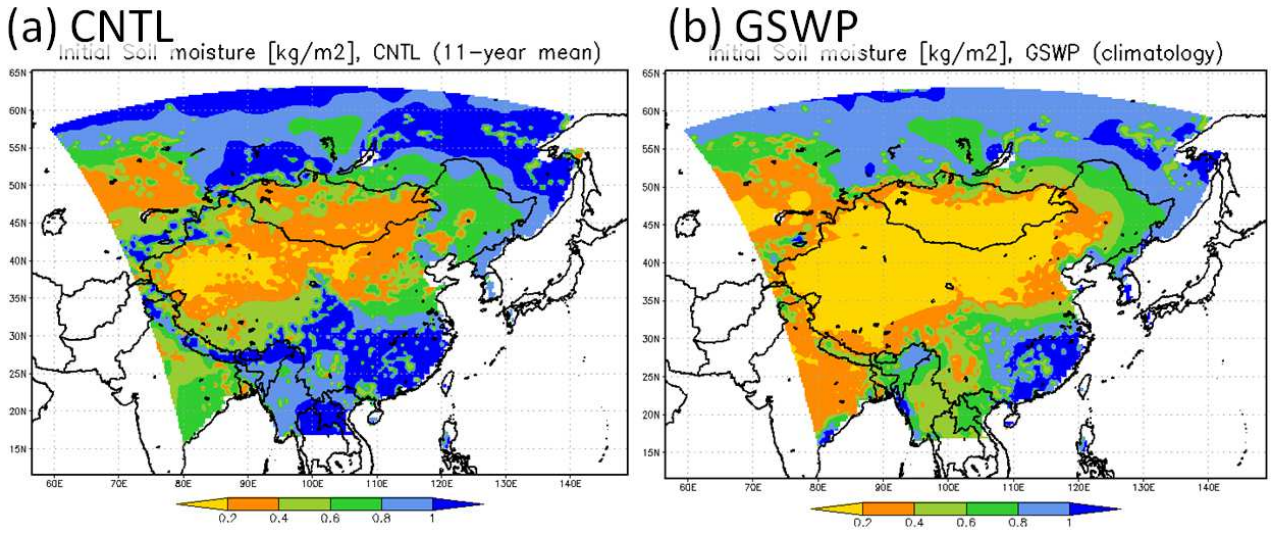


Figure 8: Column total soil moisture (kg m^{-2}) at the initial state of experiment in (a) CNTL and (b) GSWP run. Since 6-hourly soil moisture data at 25 May every year is used in CNTL, (a) is shown as 11-year mean at 25 May.

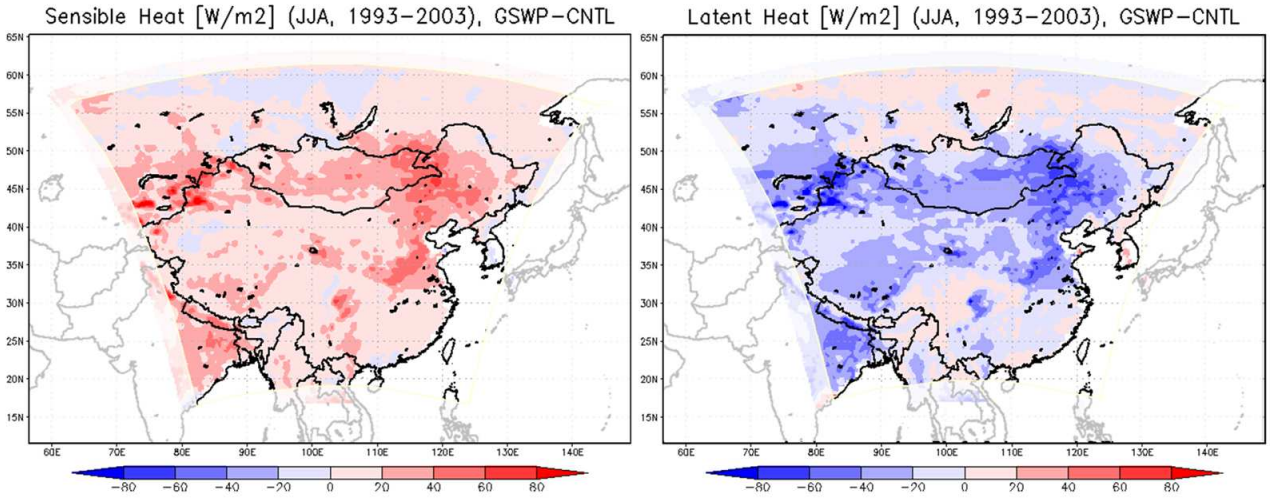


Figure 9: 11-year mean JJA sensible heat flux (W m^{-2}) and latent heat flux (W m^{-2}) differences between GSWP and CNTL experiments.

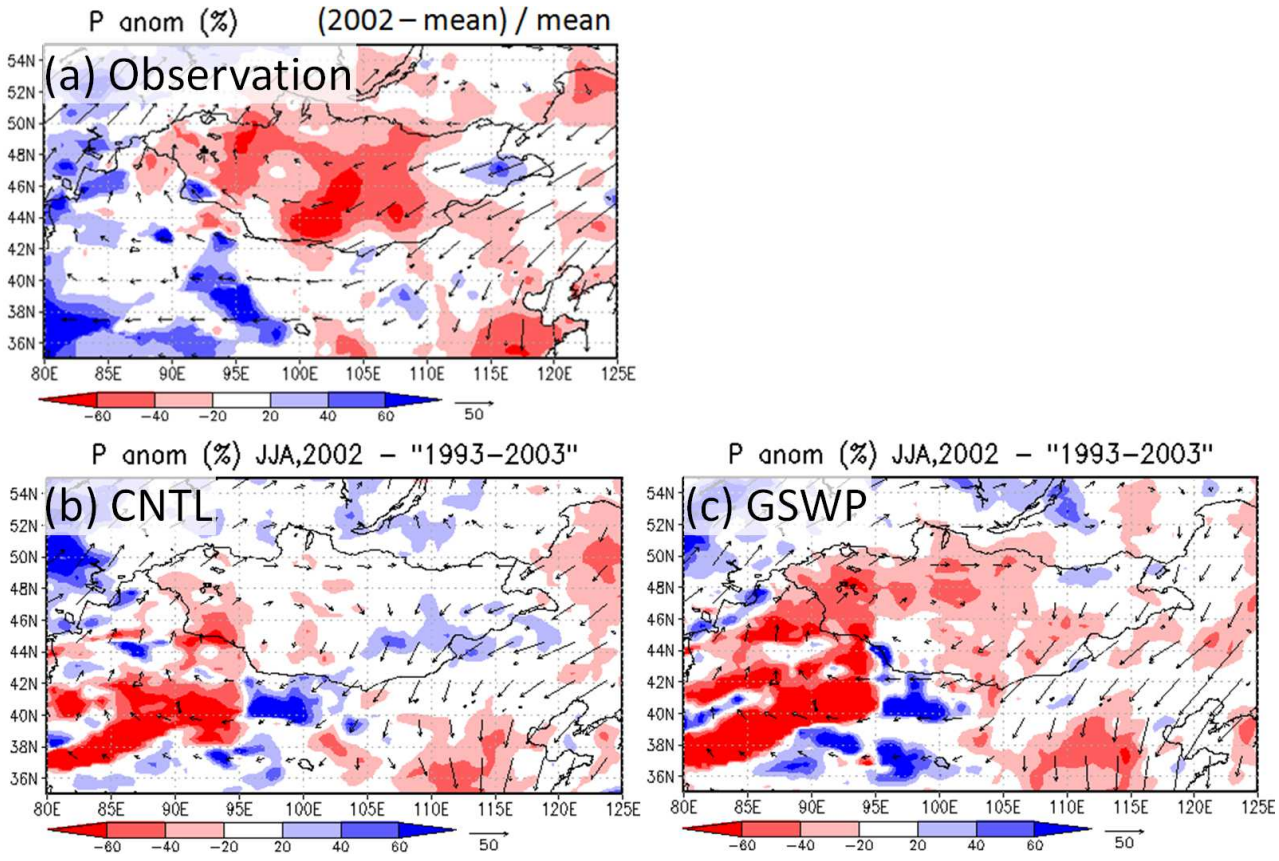


Figure 10: Precipitation (mm month^{-1}) and vertical integrated moisture flux (kg m^{-1} sec^{-1}) anomalies in JJA 2002 from 11-year JJA mean (1993-2003). Precipitation anomaly is expressed as ratio (%) against 11-year mean state. (a) Observation (APHRODITE), (b) CNTL run, (c) GSWP run. NCEP2 data are used to draw moisture flux in (a).