

Figure S1: (a) Spatial distribution of the JJA precipitation (shading, mm day^{-1}), sea level pressure (contour, hPa), and surface wind (vector, m s^{-1}) in the pre-industrial run (PI; 0 ka). (b) Spatial distribution of the JJA sea surface temperature (shading, K), sea level pressure (contour, hPa), and surface wind (vector, m s^{-1}) in 0 ka run. (c) Spatial distribution of spring (MAM) sea surface temperature (shading, K), sea level pressure (contour, hPa), and surface wind (vector, m s^{-1}) in 0 ka run.

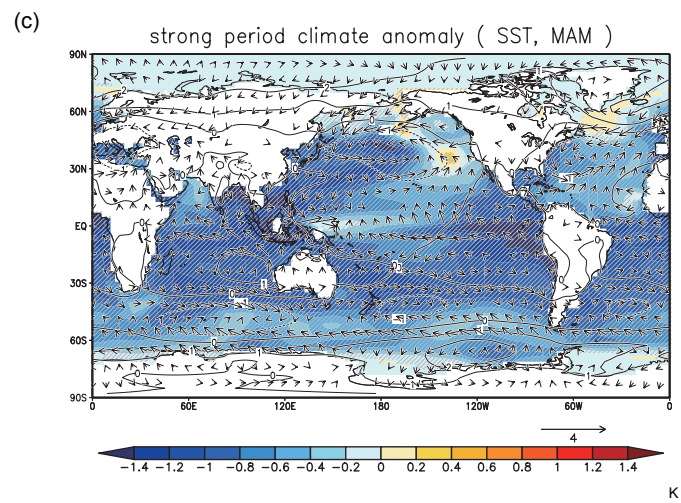
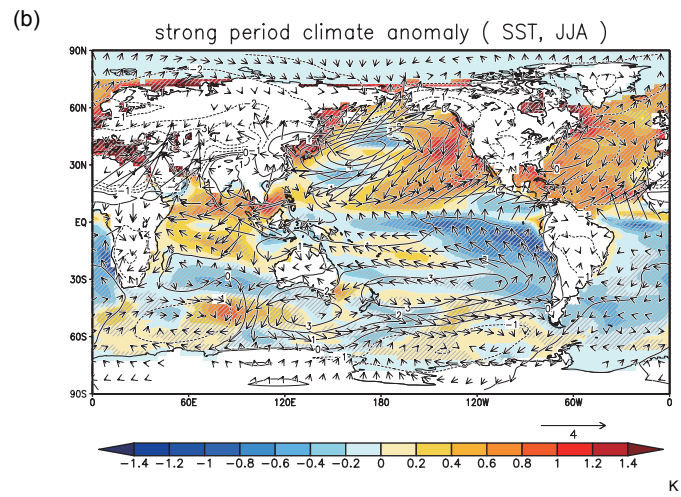
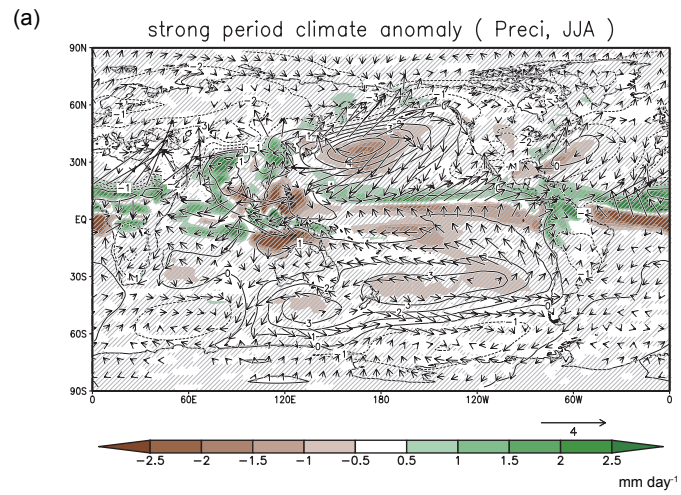


Figure S2: **(a)** Spatial distribution of the JJA precipitation (shading, mm day^{-1}), sea level pressure (contour, hPa), and surface wind (vector, m s^{-1}) anomalies in strong periods. Solid and dashed lines denote positive and negative, respectively. Surface wind anomaly under 0.1 m s^{-1} is masked. Hatched area denotes regions exceeding a 95 % confidence level using Student's t-test. **(b)** Spatial distribution of the JJA sea surface temperature (shading, K), sea level pressure (contour, hPa), and surface wind (vector, m s^{-1}) anomalies in strong periods. Solid and dashed lines denote positive and negative, respectively. Surface wind anomaly under 0.1 m s^{-1} is masked. Hatched area denotes regions exceeding a 95 % confidence level using Student's t-test. **(c)** Spatial distribution of spring (MAM) sea surface temperature (shading, K), sea level pressure (contour, hPa), and surface wind (vector, m s^{-1}) anomalies in strong periods. Solid and dashed lines denote positive and negative, respectively. Surface wind anomaly under 0.1 m s^{-1} is masked. Hatched area denotes regions exceeding a 95 % confidence level using Student's t-test.