CAUSES AND PREDICTABILITY OF THE 2012 GREAT PLAINS DROUGHT

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Fig. ESI. U.S. seasonal soil moisture anomalies (mm) during the 12-month period antecedent to the occurrence of dry May–Aug conditions over the central Great Plains during 2012 (see the lower right panel). Soil moisture has been estimated by driving a one-layer bucket water balance model with observations of monthly temperature and precipitation. The dataset spans 1948–present, and the method is described in Huang et al. (1996).
Fig. ES2. Composite U.S. seasonal precipitation anomalies (mm) during the 12-month period antecedent to the occurrence of dry May–Aug conditions over the central Great Plains during historical droughts. Based on the average of the nine driest May–Aug events during 1895–2011, including 1934, 1936, 1901, 1976, 1913, 1988, 1953, 1911, and 1931. Data source is the NOAA U.S. Climate Divisions.
Fig. ES4. The linear correlation between an index of observed May–Aug U.S. central Great Plains summer rainfall (see Fig. 6) and May–Aug surface temperatures. Period of analysis is 1895–2011. Statistically significant correlations are confined to the central United States where there is a strong inverse correlation between summer rainfall and summer land surface temperature. Data source is the monthly NOAA Merged Land–Ocean Surface Temperature analysis (MLOST).

Fig. ES3. (top) Observed climatological May–Aug (left) 700-hPa specific humidity (g kg\(^{-1}\)) and (right) 700-hPa meridional wind magnitude (m s\(^{-1}\)). (bottom) Anomalous May–Aug 2012 (left) 700-hPa specific humidity (g kg\(^{-1}\)) and (right) anomalous 700-hPa meridional wind magnitude (m s\(^{-1}\)). Data source is the NCEP–NCAR reanalysis. Departures are relative to a 1981–2010 reference.