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The Drought Interest Group: Understanding the seasonal cycle of thepPrecipitation response over the U.S. to Pacific SST forcing

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While there is now growing evidence that the strongest precipitation response over the U.S. to the leading modes of SST variability in the Pacific occurs during fall, most previous studies on the SST impact have focused on the winter or summer seasons. This study uses the NASA Scout reanalysis (1948-present), a coarse (2 degree) resolution precursor to the MERRA reanalysis, to investigate the physical and dynamical mechanisms through which the leading Pacific SST pattern affects the U.S. throughout the seasonal cycle, focusing on the peak precipitation response during the fall. The dependence on the reanalysis is addressed by comparing the results with those based on both the NCEP/NCAR reanalysis and the NOAA-CIRES 20th century reanalysis. In addition, since the current-generation AGCMs forced with the leading Pacific SST pattern tend to show the peak U.S. precipitation response during summer rather than fall, we investigate potential model deficiencies by comparing the mechanisms in the US CLIVAR drought working group AGCM simulations with those in nature.