



The recent trend of increasing precipitation in Sahel and the associated inter-hemispheric dipole of global SST

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Although the Sahel precipitation decreased during the 1970s, it has increased since the mid-1980s. This trend shift also occurred throughout the world with weaker signatures than in Sahel. The trend shift of precipitation over north Eurasia and Sahel regions was overall in phase, whereas those over the South America were out of phase with Sahel. The Sahel trend shift was remarkably similar to the trend shift of the difference in SSTs between Northern Hemisphere (NH) and Southern Hemisphere (SH); that is, until the 1980s the NH SST had decreased relative to the SH SST, whereas after the 1980s this trend reversed. Concurrent with this shift were trend shifts in the NH-SH contrast in atmospheric temperature and humidity and in inter-hemispheric meridional winds around Sahel. It appears that the NH-SH SST contrast determines the long-term variation of precipitation over Sahel through the shift of inter-hemispheric atmospheric circulations.