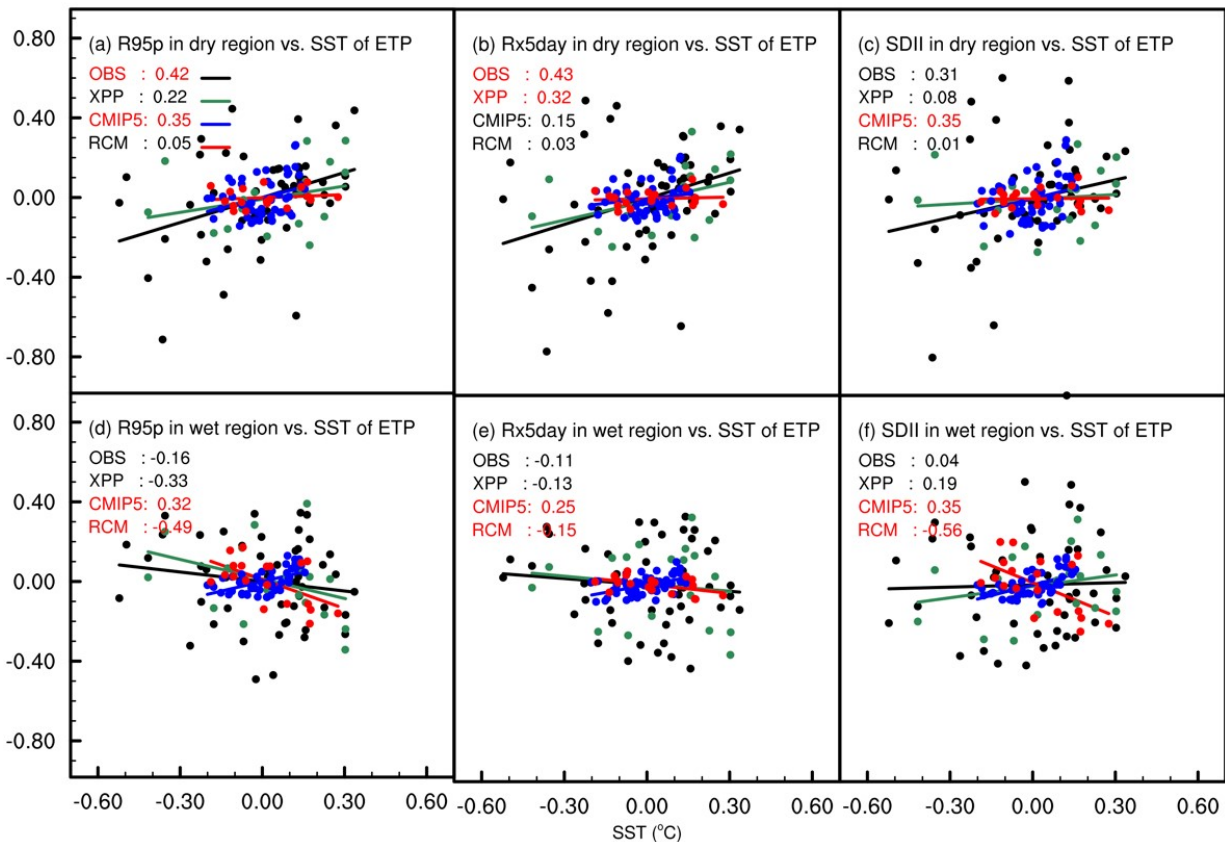


Precipitation extremes in dry regions of China found closely related to SST

July 11 2017



Scatterplots for the normalized annual time series of precipitation extreme indices (R95p, Rx5day, and SDII) in the (a-c) dry regions and (d-f) wet regions versus the SST in the ETP obtained from the observations (OBS and XPP), ensemble of 17 CMIP5 models, and ensemble of nine RCM models. The solid lines in Figures a-f show the linear regression, where the slopes of the linear regression are denoted in red if they were significant at the p

Precipitation extremes are of general interest due to their profound impacts on the society, economy, human safety, and the natural environment. Precipitation extremes exhibit high spatiotemporal variation in terms of both their frequency and intensity relative to the mean precipitation, so it is always difficult to detect extreme events and their underlying related mechanisms.

Recently, Dr. QIN Peihua and Prof. XIE Zhenghui from Institute of Atmospheric Physics (IAP) of the Chinese Academy of Sciences investigated the connections between the precipitation extremes during 1953-2002 in the dry and wet regions of China and the [sea surface temperature](#) (SST) in the eastern tropical Pacific Ocean (ETP) based on two sets of observations, CMIP5 models and regional climate models.

They found that in the dry [region](#) of China, the extreme precipitation indices had positive regression coefficients versus the SST of the ETP for all data sets, but the linear relationships of the extreme indices with the SST were more complex in the wet region. QIN and XIE conclude in their study that in the future period 2032-2051, more wet extremes will occur in southeast China while in northwest China there will be an increasing trend of dry extremes.

"We also completed correlation analysis between the precipitation extreme indices and the climate factors," said QIN, "and we found that the precipitation extremes were more sensitive to the annual and seasonal mean [precipitation](#), total water vapor, and upward vertical wind over most river basins in China."

More information: Peihua Qin et al, Precipitation extremes in the dry and wet regions of China and their connections with the sea surface temperature in the eastern tropical Pacific Ocean, *Journal of Geophysical Research: Atmospheres* (2017). [DOI: 10.1002/2016JD026242](https://doi.org/10.1002/2016JD026242)

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