

# Super El Nino and the 2015 extreme summer drought over North China

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North China was hit by a devastating drought in the summer of 2015, affecting about 21 million people and 3.4 million hectares of crops in seven provinces. The direct economic loss reached up to 11.48 billion RMB. Meanwhile, a super El Niño developed, which resulted in widespread droughts and floods around the globe. With a good prediction of the 2015/16 super El Niño, NCEP's Climate Forecast System version 2 (CFSv2) roughly captured the extreme summer drought over North China. This raises the question of whether the 2015/16 super El Niño helped the forecasting of the 2015 extreme summer drought.

"A strong El Niño does not necessarily result in a higher predictability of extreme drought," Dr. Xing Yuan from Institute of Atmospheric Physics said regarding his group's recently published research in *Scientific Reports*. He believes that "the occurrence of North China drought depends on whether the low-latitude precursor (e.g., El Niño) evolves synergistically with a high-latitude precursor (e.g., Eurasian spring snow cover reduction) to trigger a positive summer Eurasian teleconnection (EU) pattern that favors anomalous northerly and air sinking over North China, weakens the East Asian summer monsoon, and thereby reduces the moisture transported from the south. So a successful seasonal forecast of the North China summer drought relies on whether the model captures the EU pattern."

According to Yuan, almost all CFSv2 ensemble members predicted the strong 2015 El Niño quite well, but some missed the North China

summer drought when they failed to capture the EU circulation pattern. YUAN's studies suggest that a dynamical-statistical forecasting approach that combines both the low- and high-latitudes precursors enhances the predictability of extreme droughts over North China. Therefore, it is more useful than the dynamical forecasting at long lead.

**More information:** Shanshan Wang et al, Does a Strong El Niño Imply a Higher Predictability of Extreme Drought?, *Scientific Reports* (2017). [DOI: 10.1038/srep40741](https://doi.org/10.1038/srep40741)

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