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Speaker : Wan-Li Tsai

Advisor : Prof. Li-Chiao Wang

A Historical Perspective of the La Niña Event in 2020/2021

Abstract

El Niño–Southern Oscillation(ENSO) is the strongest interannual variability in the tropical oceans and it serves as the major source of global climate predictability. In the ENSO cycle, El Niño and La Niña represent two opposite phases. However, there are some asymmetric features. One of the striking differences between El Niño and La Niña is the asymmetry of their temporal evolutions. Due to irregular features, every event is unique. Thus, it is meaningful to examine and compare each event from a historical perspective.

2020/2021 La Niña emerged in August 2020 and dissipated in May 2021. 2020/2021 La Niña was uniquely preceded by a borderline El Niño instead of an El Niño with a weak equatorial-heat discharge process. Such a result gave rise to the weakest event among the strong La Niñas since 1982, although there were strong upwelling Kelvin wave activities. In this work, they examined the evolution of oceanic and atmospheric anomalies in the equatorial Pacific during 2020/2021 La Niña, and compared it with the historically strong La Niña events. Contributions of different time scale components were also identified to explore how each term modified the strength and evolution of the La Niña events. Besides, with a climate model, authors managed to assess the predictions of 2020/2021 La Niña event and the unexpected impact in the North American region.

Keyword

Recharge-discharge process

Upwelling Kelvin wave

Reference

Li, X., Hu, Z. Z., Tseng, Y. H., Liu, Y., & Liang, P. (2022). A historical perspective of the La Niña event in 2020/2021. *Journal of Geophysical Research: Atmospheres*, 127(7).