[Speaker Zoom video]

ENSO - PP / US east coast

Yangchuanosaurus_Dandiya_Cantabile

Scientific Background

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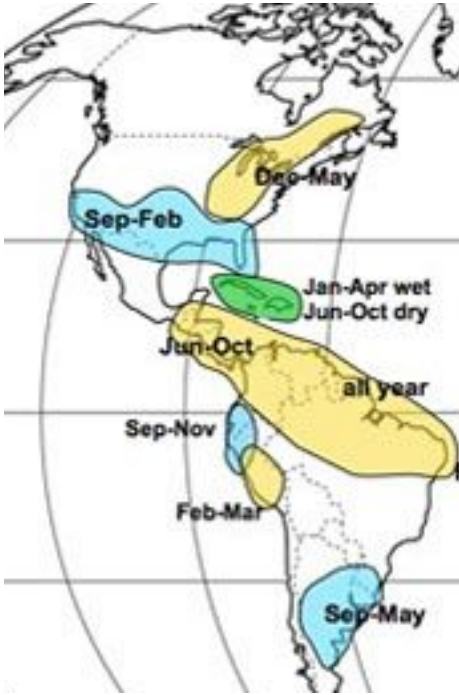
El Niño events can impact distant and diverse regions of the planet.

1. El Niño impact the position and intensity of the Jet Stream, which affects the position and strength of pressure gradients.
2. Changes in the distribution of pressure gradients appear to altered the amount and spatial distribution of wetness/rainfall in the US East Coast during El Niño conditions



Research Questions

1. Are there any precipitation spatial patterns before and after El Niño events?
2. Are Delaware discharge levels changing in response to such (potential) ENSO-precipitation relationship?

Before El-NIÑO:
1982, 1991, 1997, 2014

After El-NIÑO:
1984, 1993, 1999, 2017

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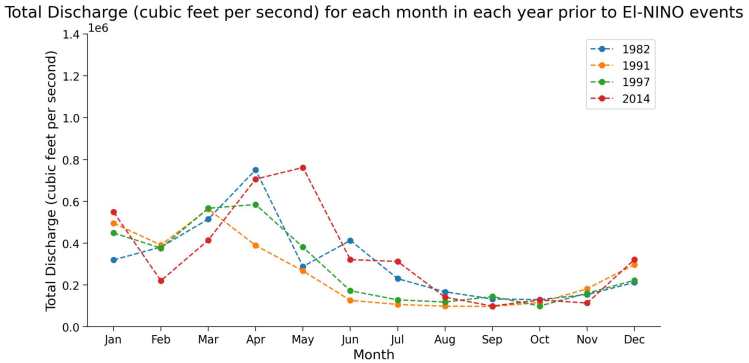
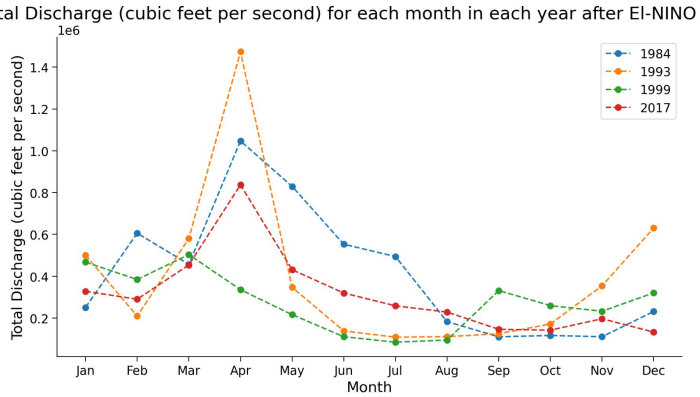
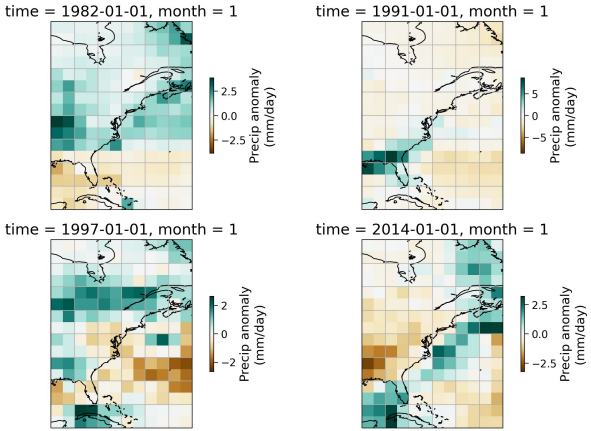
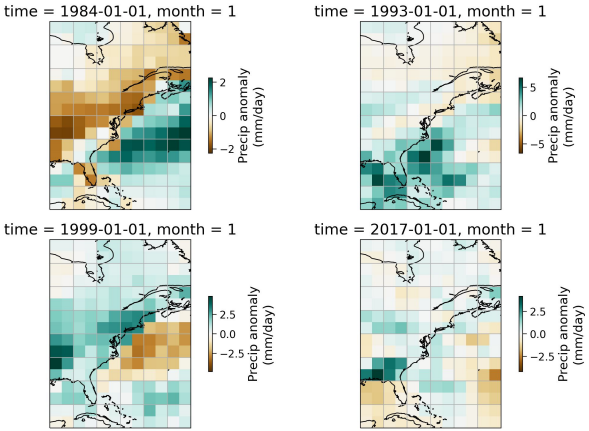
Discharge





PP anomalies





Statistical analysis (Precipitation)

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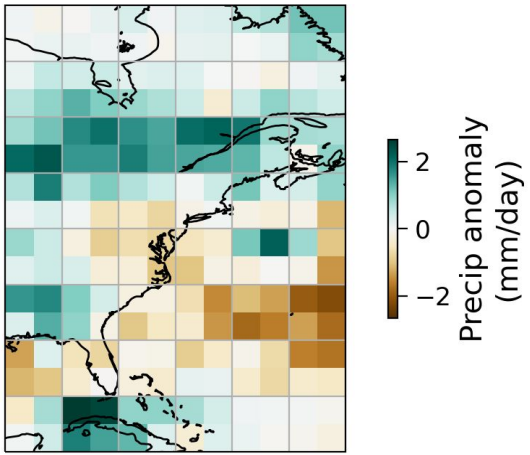
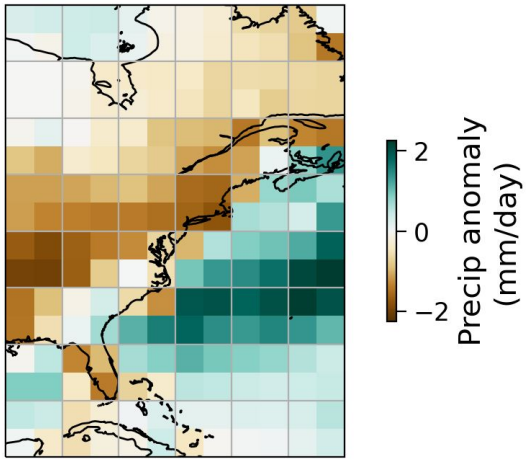
BEFORE

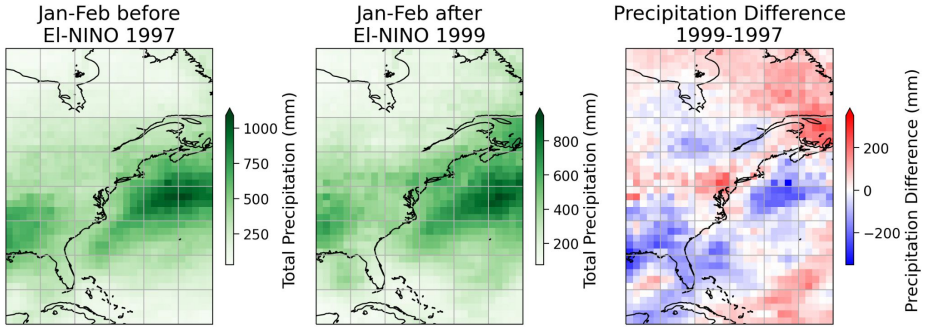


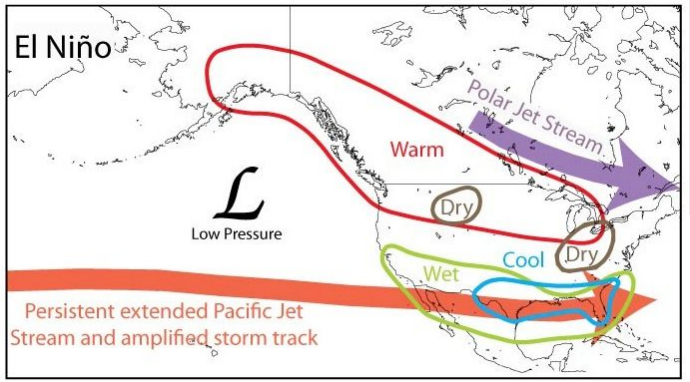
AFTER



T-Statistics (**Before vs After**): 0.45
p-value: 0.84

Spatial differences





Difference of Precipitation before and after El Niño events

Summary

- Statistically, differences in precipitations before and after El Niño events were not significant
- We found that discharge (ft3*-s) at Delaware basin was twice after El Niño than that of before.
- During and after El Niño, the **northern part** of east US tends to be **drier** than the south.
- We learned that not every El Niño events have varying spatial impacts on precipitation
- However, it seems to be a differential subregional effect between the north and south as well between the land and the ocean.

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