## Increasing WNP Tropical Cyclone-related Extreme Precipitation over East Asia during Boreal **Summer Associated with PDO Shift**

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## Introduction

- \* Precipitation induced by TCs has been proven to be a source of numerous natural disasters and has considerable impact, frequently associated with extreme hazards.
- \* Globally, TC precipitation rates are rising, notably in the northwest Pacific and shows a 1.3% annual increase, such changes correlated with higher SSTs (Guzman et al., 2021).
- \* We aim to examine changes in the WNP basin's TC-related rainfall



over the EA area during the summer season and its possible relationship with climate variability.







TC-related total precipitation 20 mm≤ and <50 mm (R20) day and >50 mm (R50) day numbers with the 95th percentile of daily precipitation (R95P) per year.

- Moderate precipitation days (R20) account for the majority of TC precipitation and exhibit a stable oscillation.
- After the late 1990s, the R50 shows a significant increase, with more frequent heavy rain days during epoch2 than in epoch1.





IVT: integrated vapor transport, can effectively indicate the position of moisture channels

## Characteristics of WNP basin TC



TCP exhibits decadal variability, with a pronounced negative correlation identified between it and SST over

The rising SST over west north Pacific intensifying TC-related

Epoch2

PDO region during epoch2.

extreme precipitation.

## Conclusion

\* Here, we observe a significant increasing in extreme TC rainfall during epoch2, which nearly doubled compared to epoch1.

\* The principal components of first mode of TCP EOF analysis exhibit a regular decadal oscillation during epoch2.

\* PDO first transitioned into its negative phase (since 1979) at the onset of epoch2. This shift has led to a notable increase in TCrelated extreme precipitation over EA.

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