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EDUCATION

2013/09 – 2018/08 Ph.D. Graduate School of Earth Science, Chinese Culture University, Taiwan
2010/09 – 2013/08 M.S. Graduate School of Earth Science, Chinese Culture University, Taiwan

EMPLOYMENT

2020/01 - present Postdoctoral Researcher RCEC, Academia Sinica, Taiwan
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HONORS & AWARDS

PROFESSIONAL SERVICE

RESEARCH INTEREST

Tropical cyclones are the natural disasters that cause the most economic losses and human casualties. The climate change of tropical cyclones under global warming has always been a very important issue in climatology.

In previous studies, Emanuel and Nolan (2004) proposed the relationship between tropical cyclone generation and environmental field, and developed the Genesis Potential Index (GPI); Emanuel (2010) modified the GPI index, the wet entropy difference between the middle troposphere and the boundary layer is introduced into the formulation, proposed a new typhoon generation index χGPI. But we found that the tropical cyclone index in the Northwest Pacific GPI index or χGPI index results are not ideal. We want to develop a new index that is more suitable for estimating tropical cyclone genesis frequency in the Northwest Pacific.

RESEARCH HIGHLIGHTS

1. **The abrupt change of Tropical cyclone genesis frequency**
   The Tropical cyclones (TCs) genesis indices were used to discuss the abrupt change of Tropical cyclone genesis frequency (TCGF) in the Western North Pacific (WNP) from 1979 to 2014 and to discuss the factors contributing to the abrupt change. We propose a new genesis index, MoχGPI, which is more consistent with observations regardless of spatial distribution or time

series of TC activity. The new index uses the method proposed by previous studies to conduct a budget analysis to discuss the contribution of large-scale environmental parameters to TCGF abrupt change.

2. **Climate Change of Tropical cyclone genesis frequency**

   Emanuel (2010) proposed the relationship between tropical cyclone generation and environmental field, and developed the Genesis Potential Index (χGPI). In our study used the climate data output from the European Center for Medium-Range Weather Forecasts to explore the difference in typhoon activity between the two typhoon generation indices in different basins. We found that the tropical cyclone index is better for seasonal changes, in the Northwest Pacific χGPI index results are not ideal. Therefore, we modified the index, hoping to provide a better Index of the frequency of tropical cyclones under climate change.

REPRESENTATIVE PUBLICATIONS (*: corresponding author)

1. **Hsiao, L.P.**, Tsou, C., & Yu, J. (2020). Investigating the abrupt change of tropical cyclone (TC) activity in the Western North Pacific by using different TC genesis indices. *International Journal of Climatology.* doi:10.1002/joc.6558
2. Yu., J.-Y., **L.-P. Hsiao**, and P.-G. Chiu (2018, Apr). Evaluating the Emanuel-Nolan genesis potential index: Contrast between North Atlantic and western North Pacific. terrestrial atmospheric and oceanic sciences, 29(2),201-214.
3. **Hsiao, L.P.**, and Yu., J.-Y,（2017）。A Typhoon Genesis Potential Index for Western North Pacific. *Atmospheric Sciences*, 45(3), 221-240.