



UNIVERSITY  
of HAWAI'I  
MĀNOA

## Department of Atmospheric Sciences Seminar Announcement

Department of Atmospheric Sciences, S.O.E.S.T., University of Hawai'i at Mānoa  
2525 Correa Road, HIG 350; Honolulu, HI 96822 ☎956-8775



- 1. Change in Tropical Cyclone (TC) Translation Speed in the South China Sea and Implication on TC Intensity Change**
- 2. The Explosive Intensification of Super Typhoon Hagibis (2019)**

### Professor I-I Lin

Department of Atmospheric Sciences  
National Taiwan University

You are invited to our weekly online Atmospheric Sciences Spring 2022 seminars via Zoom meeting.

When: May 4, 2022 at 3:30PM HST

Meeting admission: 3:15PM HST

Register in advance for this meeting:

<https://hawaii.zoom.us/meeting/register/tJcof--qqjMiEtXX9J8yHV3K8NrAjdJsakyN>

After registering, you will receive a confirmation email containing information about joining the meeting. Please save this information for future seminars.

### Abstract:

This talk will cover 2 topics. The first is a climate-scale study discussing the change in tropical cyclone translation speed in the South China Sea in the past 20 years. Though Kossin 2018 suggested a global slow-down of TC translation speed since 1950's, in the most recent 2 decades (1998 onwards), TC translation speed over the South China Sea (SCS) has actually increased by 43%. We found that this translation speed increase may have positively contributed to the observed TC intensity increase in the SCS, via increase in the air-sea fluxes associated with TC-induced ocean cooling suppression due to translation speed increase.

The 2nd topic a weather-scale study, on the explosive intensification of Super Typhoon Hagibis (2019). TC Hagibis is one of the highest impact TC in the western North Pacific. It badly damaged Japan (including Tokyo) in October 2019, the associated economical lost is 15 Billion US dollars. One of the most striking feature is Hagibis's 'explosive' intensification. Within 24h, it intensified from a tropical storm to Category '6' intensity (60-160kts). This talk will discuss this impressive intensification from ocean, atmosphere, and TC structure perspective. Hagibis's subsequent intensification evolution will also be discussed.

#### References:

Chang, Ya-Ting, Lin, I-I, Huang, Hsiao-Ching, Liao, Yi-Chun, and Lien, Chun-Chi, The Association of Typhoon Intensity Increase with Translation Speed Increase in the South China Sea, *Sustainability*, 12(3), doi:10.3390/su12030939, 2020.

Kossin, J.P.. A global slowdown of tropical-cyclone translation speed. *Nature* 2018, 558, 104–107, 2018.

Lin, I-I, Pun, I.-F. and Lien, C.-C., 'Category-6' Supertyphoon Haiyan in Global Warming Hiatus: Contribution from Subsurface Ocean Warming, *Geophys. Res. Lett.*, 41, doi:10.1002/2014GL061281, 2014.

Lin, I-I, Rogers, Robert F., Huang, Hsiao-Ching, Liao, Yi-Chun, Herndon, Derrick, Yu, Jin-Yi, Chang, Ya-Ting, Zhang, Jun A., Patricola, Christina M., Pun, Iam-Fei, Lien, Chun-Chi, A Tale of Two Rapidly-Intensifying Supertyphoons: Hagibis (2019) and Haiyan (2013), *BAMS*, 102, 9, E1645–E1664, doi: 10.1175/BAMS-D-20-0223.1, 2021.