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
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SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY

Physical factors impacting convective storms and weather hazards

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You are invited to our weekly online Atmospheric Sciences Fall 2021 seminars via Zoom meeting.
When: October 20, 2021 at 3:30PM HST
Meeting admission: 3:15PM HST

Register in advance for this meeting:
https://hawaii.zoom.us/meeting/register/tJwlcOmtpz8iGtFAfj1LmB2t-J89CV76hI1s

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

Abstract:

Deep convective clouds play a crucial role in atmospheric circulation, energy, and water cycle of our climate system. The extreme form of such storms produces weather hazards such as large hail, damaging winds and/or tornadoes, and torrential rainfall, causing significant property damages and economic losses. There is a large gap in our fundamental understanding of how human activities modify storm intensity, precipitation, and associated hazards. In this talk, I will present our effort on impacts of anthropogenic aerosols, urbanization, and anthropogenic warming on storm intensity, extreme precipitation, and hailstones. I will focus on the understandings gained from process-level studies using both advanced observations and high-resolution model simulations. The challenges in observing and modeling such convective storms will be discussed.

Bio:

Dr. Jiwen Fan is a laboratory fellow at Pacific Northwest National Laboratory (PNNL). She received her Ph.D. degree in 2007 from Texas A&M University. Her expertise encompasses atmospheric chemistry, aerosols, clouds, convective systems, and severe storms. Her work contributes to improving physical understanding of the complex aerosol interactions with cloud microphysics and dynamics. Her current work includes (1) physical factors impacting severe convective storms, particularly under the context of urbanization, wildfires, and climate warming., (2) understanding meso-scale convective systems (MCSs) and improving global model capability in simulating MCSs, (3) development

of cloud microphysics parameterizations for weather and climate models, and (4) impacts of marine organic aerosols and dust on mixed-phase clouds.

Jiwen has published over 110 peer-reviewed journal articles including the high-impact journals such as *Science*, *Nature Geoscience*, *Nature Communications*, *Proceedings of the National Academy of Sciences of the United States of America*. She was 2015 AGU ASCENT award for exceptional mid-career scientists. She has led and co-led several large collaborative research projects including the DOE Climate Model Development and Validation (CMDV) on mesoscale convective systems (CMDV-MCS) and the Enabling Aerosol-cloud interactions at GLobal convection-permitting scalES (EAGLES). She is the editor of Journal of Advances in Modeling Earth Systems (JAMES).