

CURRICULUM VITAE

Guo Lin

Ph.D.

NOAA/AOML/Hurricane Research Division

University of Miami/CIMAS

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Postdoctoral Associate

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Education

- **University of Colorado Boulder, Boulder, CO, USA** 08/2018 – 12/2023
Ph.D. in Atmospheric and Oceanic Sciences
Advisor: Zhien Wang
- **University of Wyoming, Laramie, WY, USA** 08/2015 – 12/2017
Master of Science: Atmospheric Science
Advisor: Zhien Wang
- **Chengdu University of Information Technology, Chengdu, China** 09/2011 – 07/2015
Bachelor of Science: Atmospheric Science

Research Interests

Atmospheric boundary layer (ABL) and land-atmosphere interactions

- ABL structures and processes
- Spatiotemporal variability of the ABL
- The transfer of momentum, heat, moisture, and particles at the interface of land and atmosphere
- Ground-based and airborne observation of land-atmosphere interactions

ABL-storm interactions

- ABL and developments of convective storms
- Gravity wave, bore, and cloud formations

Tropical cyclone observations and air-sea interactions

- Crewed and uncrewed aircraft measurements in Tropical Cyclones (TCs)
- ABL observation in TCs
- Air-sea interactions and exchange coefficients

Research Experience

NOAA/AOML/Hurricane Research Division & UMiami/CIMAS 01/2024 – present

Postdoctoral Associate, with Joseph J. Cione and Jun A. Zhang

- Analyze both uncrewed and crewed aircraft data to improve understanding of PBL processes in TCs, evaluate the impact of new uncrewed aircraft data, and potentially improve parameterization routines in operational hurricane models.
- Evaluate the scale impacts on turbulence in non-stationary condition of TCs.

University of Colorado Boulder 10/2023 – 01/2024

Research Scientist, with Zhien Wang

- Archive a new dataset of Tailed dual-Doppler Radar and Compact Raman Lidar measurements.
- Finish the scale analysis of airborne flux measurements over heterogeneous land surface process in my Ph.D. study.

University of Oklahoma & NOAA/National Severe Storms Lab 01/2020 – 06/2020

Visiting Research Assistant, with Min Xue and Conrad L. Ziegler

Verification of the Origins of Rotation in Tornadoes Experiment Southeast -2018 (VORTEX-SE 2018)

- Characterize Storm Dynamics and Inflow Environments by Combining Dual-Doppler TDRs and CRL Measurements

University of Colorado Boulder

05/2019 – 08/2023

Research Assistant, with Zhien Wang

Verification of the Origins of Rotation in Tornadoes Experiment Southeast -2018 (VORTEX-SE 2018)

- A Comparison of Convective Storm Inflow Moisture Variability between the Great Plains and the Southeastern United States Using Multiplatform Field Campaign Observations
- A New Dataset to Characterize Storm Dynamics and Inflow Environments by Combining Dual-Doppler TDRs and CRL Measurements

Chequamegon Heterogeneous Ecosystem Energy-balance Study Enabled by a High-density Extensive Array of Detectors (CHEESEHEAD)

- Airborne Measurements of Scale-Dependent Latent Heat Flux Impacted by Water Vapor and Vertical Velocity over Heterogeneous Land Surfaces

University of Wyoming

09/2015 – 08/2018

Research Assistant, with Zhien Wang

Plains Elevated Convection at Night (PECAN)

- Interactions between a Nocturnal MCS and the Stable Boundary Layer
- Convection Initiation and Bore Formation Following the Collision of Mesoscale Boundaries over a Developing Stable Boundary Layer

List of Peer-Reviewed Publications

In review/in pre

1. **Lin, G.**, Zhang, J. A., Marks F.D., Cione J. J., Wadler, J. B., and Dobosy, R., On Scale-dependent Turbulent Characteristics in the Eyewall Boundary Layer of Intense Hurricanes. *Submitted to Monthly Weather Review*.
2. Chu, Y., **Lin, G.**, Deng M., Xue, L., Li, W., Shin, H.H., Zhang, J.A., Guo, H., and Wang, Z., Fusing Machine Learning and Doppler Lidar Data for Convective Boundary Layer Height Prediction. *Submitted to Geophysical Research Letters*.
3. Deloach, C. J., Wadler, J. B., **Lin, G.**, Cione J. J., Zhang, J. A., Elston, J. S., and Stachura M. Z., Determining Air-Sea Interaction Exchange Coefficients in Low Winds Using Small UAS. *Submitted to Earth and Space Science*.
4. **Lin, G.**, Chu, Y., Wang, Z., Liu, H., Desai, A. R., Paleri, S., Zhang, J. A., Cione J. J., and Wadler, J. B., Scale Resolved Latent Heat Flux Impacted by Water Vapor and Vertical Velocity Through Heights. *In Pre*.

Published

1. **Lin, G.**, Zhang, J. A., Cione J. J., Wadler, J. B., and Dobosy, R., Turbulent Characteristics in the Eye and Eyewall of Hurricane Ian (2022). *Accepted for publication in Monthly Weather Review*.
2. Chu, Y., **Lin, G.**, Deng M., and Wang, Z., (2025), Characteristics of Eddy Dissipation Rates in Atmosphere Boundary Layer Using Doppler Lidar. *Remote Sensing*, 17(9), 1652. <https://doi.org/10.3390/rs17091652>.
3. Chu, Y., **Lin, G.**, Deng M., Guo, H., and Zhang, J.A. (2025), Characterizing the Mixing Layer Height using Machine Learning Approaches. *Remote Sensing*, 17(8), 1399; <https://doi.org/10.3390/rs17081399>.
4. **Lin, G.**, Wang, Z., Chu, Y., Ziegler, C. L., Hu, X. M., Xue, M., et al. (2024), Airborne Measurements of

Scale-Dependent Latent Heat Flux Impacted by Water Vapor and Vertical Velocity Over Heterogeneous Land Surfaces During the CHEESEHEAD19 Campaign. *Journal of Geophysical Research: Atmospheres*, 129(3). <https://doi.org/10.1029/2023jd039586>.

5. **Lin, G.**, Wang, Z., Ziegler, C., Hu, X., Xue, M., Geerts, B., Chu, Y., et al. (2023), A Comparison of Convective Storm Inflow Moisture Variability Between the Great Plains and the Southeastern United States Using Multiplatform Field Campaign Observations. *J. Atmos. Oceanic Technol.* <https://doi.org/10.1175/JTECH-D-22-0037.1>.
6. Chu, Y., Wang, Z., Xue, L., Deng, M., **Lin, G.**, Xie, H., Shin, H.H., Li, W., G., D'Amico, D.F. and Liu, D. (2022) Characterizing warm atmospheric boundary layer over land by combining Raman and Doppler lidar measurements. *Opt. Express*, **30**, 11892-11911. <https://doi.org/10.1364/OE.451728>.
7. **Lin, G.**, Grasmick, C., Geerts, B., Wang, Z. and Deng, M. (2021), Convection initiation and bore formation following the collision of mesoscale boundaries over a developing stable boundary layer: A case study from PECAN. *Mon. Wea. Rev.*, **149**, 2351-2367. <https://doi.org/10.1175/MWR-D-20-0282.1>.
8. Sun, H., Yang, J., Zhang, Q., Song, L., Gao, H., Jing, X., **Lin, G.**, and Yang, K., (2021): Effects of Day/Night Factor on the Detection Performance of FY4A Lightning Mapping Imager in Hainan, China. *Remote Sensing*, **13**, 2200, <https://doi.org/10.3390/rs13112200>.
9. **Lin, G.**, Geerts, B., Wang, Z., Grasmick, C., Jing, X. and Yang, J. (2019), Interactions between a nocturnal MCS and the stable boundary layer as observed by an airborne compact Raman lidar during PECAN. *Mon. Wea. Rev.*, **147**, 3169-3189. <https://doi.org/10.1175/MWR-D-18-0388.1>.
10. Chen, B., and Coauthors, (2019): Seasonal climatic effects and feedbacks of anthropogenic heat release due to global energy consumption with CAM5. *Climate Dynamics*, **52**, 6377-6390, <https://doi.org/10.1007/s00382-018-4528-1>.

Invited Talks

- Invited Seminar, Pacific Northwest National Laboratory, “Boundary Layer Heterogeneities from Land-Atmosphere Interactions and Their Impacts on Storm Environments”, Richland, WA, March 2025.
- 2024 Front Range Tropical Cyclone Workshop, Colorado State University, “Uncrewed Aircraft Observations of Turbulent Characteristics in the Low-Level Eye and Eyewall of Intense Hurricane Ian (2022)”, <https://rammb2.cira.colostate.edu/research/tropical-cyclones/front-range-tc-workshop/>.
- 2023 CHEESEHEAD Mini Conference (Virtual), University of Wisconsin Madison, “Airborne Measurements of Scale-Dependent Latent Heat Flux Impacted by Water Vapor and Vertical Velocity Over Heterogeneous Land Surfaces During the CHEESEHEAD19 Campaign”.
- Invited Seminar, Brookhaven National Laboratory, “Boundary Layer Heterogeneities from Land-Atmosphere Interactions and Their Impacts on Storm Environments”, Upton, NY, May 2023.
- Invited Seminar, Lawrence Livermore National Laboratory, “Boundary Layer Heterogeneities from Land-Atmosphere Interactions and Their Impacts on Storm Environments”, Livermore, CA, March 2023.

Selected Conference Presentations

Oral

- **Lin, G.**, Zhang, J. A., Cione, J. J., Dobosy, R. J., Wadler, J. B., 2024: Uncrewed Aircraft Observations of Turbulent Characteristics in the Low-Level Eye and Eyewall of Intense Hurricane Ian (2022), AMS 36th Conference on Hurricanes and Tropical Meteorology, 6-11 May 2024, Long Beach, CA
- Wang, Z., **Lin, G.**, Murray E., 2023: Advances in Airborne Raman Lidars for PBL Observations, the 103rd American Meteorological Society Annual Meeting 5-10 January 2021, Denver, CO.

- Wang Z., **Lin, G.**, and Geerts B., 2018: Observing Storm and PBL Interactions with Airborne Raman Lidar During the PEACN, 23rd Symposium on Boundary Layers and Turbulence, 11-15 June 2018 Oklahoma City, OK

Poster

- **Lin, G.**, Zhang, J. A., Marks, F.D., Cione, J. J., Dobosy R. J., Wadler J. B., Cione J., 2025: On Scale-Dependent Turbulent Characteristics in the Eyewall Boundary Layer of Intense Hurricanes. 105th AMS Annual Meeting 12-16 January 2025, New Orleans, LA.
- **Lin, G.**, Wang, Z., and Coauthors, 2023: A Comparison of Convective Storm Inflow Moisture Variability Between the Great Plains and the Southeastern United States Using Multiplatform Field Campaign Observations, 103rd AMS Annual Meeting 5-10 January 2023, Denver, CO.
- **Lin, G.**, C. D. Grasmick, B. Geerts, Z. Wang, and M. Deng, 2021: Convection Initiation and Bore Formation following the Collision of Mesoscale Boundaries over a Developing Stable Boundary Layer: A Case Study from PECAN, 101st AMS Annual Meeting Virtual 10-15 January 2021.
- **Lin, G.**, Wang Z., and Geerts B., 2018: Characterizing Environmental Boundary Layer Conditions around Nocturnal Convective Storms with Airborne Compact Raman Lidar during PECAN, 98th AMS Annual Meeting, 6-11 January 2018, Austin, TX.

Project and Field Experience

Project

Co-I	<u>Improving NOAA Forecasts by Advancing the Capabilities of UAS to Sample Tropical Cyclones from the Stratosphere to the Ocean Surface.</u> NOAA <i>OAR UxS Research Transition Office and OMAO UxS Operations Center</i> . PI: Joseph J. Cione . Funded, \$1,827,000.	10/2024-09/2027
Co-I	<u>Quality control of uncrewed observations and optimization of sampling strategies for improved tropical cyclone forecasts.</u> NOAA <i>OAR WPO</i> . PI: Jun A. Zhang . Funded, \$581,878.	05/2025-04/2027

Field Experience

PI	2025 NOAA Hurricane Field Program - NOAA's Advancing the Prediction of Hurricanes Experiment (APHEX), <u>Multi-Lidar Observation of Tropical Cyclone Inflow</u> .	06-10/2025
Co-PI	2025 NOAA Hurricane Field Program - APHEX, <u>STRatEgic use of Emerging Technologies To Advance hurriCane fOrecaSting (STREET TACOS)</u> . PI: Joseph J. Cione .	06-10/2025
Co-I	2025 NOAA Hurricane Field Program – APHEX, <u>CHAOS: Coordinated Hurricane Atmosphere-Ocean Sampling</u> . Lev Looney .	06-10/2025
Co-I	2025 NOAA Hurricane Field Program – APHEX, <u>Ocean Survey</u> . PI: Jun A. Zhang .	06-10/2025
Co-I	2024 NOAA Hurricane Field Program - NOAA's Advancing the Prediction of Hurricanes Experiment (APHEX), <u>Research In Coordination with Operations Small Uncrewed Air Vehicle Experiment (RICO SUAVE)</u> . PI: Joseph J. Cione .	06-10/2024
Co-I	2024 NOAA Hurricane Field Program - APHEX, <u>Tropical Cyclone Boundary Layer (TCBL)</u> . PI: Jun A. Zhang .	06-10/2024
Co-I	2024 NOAA Hurricane Field Program – APHEX, <u>Ocean Survey</u> . PI: Jun A. Zhang .	06-10/2024

Professional Experience and Service

NOAA/AOML/HRD Emerging Technologies Science Team Member	01/2024 – present
Co-chair, 98 th AMS annual meeting PECAN MCS section	01/2018

Peer Review Activities

Paper Reviewer:

• JGR-Atmospheres	07/2024– present
• Advanced in Atmospheric Science	05/2023– present
• Dynamics of Atmospheres and Oceans	04/2025– present
• Photonics	11/2024 – present

Teaching Experience

University of Colorado Boulder

• ATOC-1070 <i>Weather and the Atmosphere Lab</i> (Independent teaching)	Teaching Assistant	Fall 2018
• ATOC-1070 <i>Weather and the Atmosphere Lab</i> (Independent teaching)	Teaching Assistant	Spring 2019

Jinxing Elementary School in Guizhou, China

• <i>Disaster Prevention</i>	Summer Teacher	07-08/2012
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Scholarships and Honors

UCAR Travel Grant (For <i>AMS Tropical Conf.</i>)	UCAR	2024
National Encouragement Scholarship	Department of Education in Sichuan Province	2013
Excellent Graduates	Chengdu University of Information Technology	2015
The First Prize Scholarship (<i>twice</i>)	Chengdu University of Information Technology	2012/2015
The Second Prize Scholarship (<i>twice</i>)	Chengdu University of Information Technology	2013/2014
Outstanding Student Leader	Chengdu University of Information Technology	2014
High Morality Prize	Chengdu University of Information Technology	2012
Certification of Volunteer in Disaster Prevention	Chinese Meteorological Society	2013
Outstanding Volunteer	China Association for Science and Technology & Love Service Alliance of Sunflower	2012