

# ALEXANDER K. MITCHELL

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## *Curriculum Vitae*

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### EDUCATION

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- Ph.D. candidate (expected Summer 2025), Atmospheric Sciences** January 2023 – present  
University at Albany, SUNY, Albany, NY
- M.S., Atmospheric Sciences** December 2022  
University at Albany, SUNY, Albany, NY
- B.S., Meteorology – *Magna Cum Laude*** May 2018  
North Carolina State University, Raleigh, NC

### RESEARCH AND EXPERIENCE

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- Graduate Research Assistant** June 2021 – Present  
University at Albany, SUNY; Albany, NY
- Utilizing reanalysis datasets for investigating extreme precipitation in Central America and intraseasonal tropical cyclone behavior in the eastern North Pacific
  - Documenting and preparing materials for submission to the National Science Foundation
  - Presenting research at regional/national/international conferences
- Teaching Assistant** Aug 2018 – May 2021  
University at Albany, SUNY; Albany, NY
- Assisting in teaching outside of instructional hours
  - Developing and grading course examinations and assignments respectively
- Student Intern** Feb 2018 – May 2018  
National Weather Service; Raleigh, NC
- Instructed on the baseline understanding of the duties at the National Weather Service as an operational meteorologist
  - Organized and prepared written area forecast discussions using the Advanced Weather Interactive Processing System (AWIPS)
- Undergraduate Research Assistant** May 2017 – May 2018  
State Climate Office of North Carolina; Raleigh, NC
- Collected and examined solar radiation data from surface observations
  - Prepared and extracted internal data requests for various clients
  - Identified effective methods to evaluating solar radiation models for the updated National Fire Danger Rating System

## INVITED PRESENTATIONS

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**Mitchell, A. K.** and L. F. Bosart, 2020: Large-Scale Flow Patterns Conducive to Central American Extreme Precipitation Events during Autumn. *101<sup>st</sup> American Geophysical Union Meeting*, Virtual.

## SEMINARS

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**Mitchell, A. K.**, K. L. Corbosiero, and L. F. Bosart, 2024: [Atmospheric Dynamics Governing the Recurvature of Eastern North Pacific Tropical Cyclones](#). Mesoscale & Microscale Meteorology (MMM) Laboratory - NCAR, Boulder, CO.

**Mitchell, A. K.**, K. L. Corbosiero, and L. F. Bosart, 2023: [The Influence of North Pacific Large-Scale Variability on Recurring EPAC Tropical Cyclones](#). Mesoscale & Microscale Meteorology (MMM) Laboratory - NCAR, Boulder, CO.

**Mitchell, A. K.** and L. F. Bosart, 2022: [The Governing Dynamics and Predictability of Recurring EPAC Tropical Cyclones](#). Mesoscale & Microscale Meteorology (MMM) Laboratory - NCAR, Boulder, CO.

**Mitchell, A. K.** and L. F. Bosart, 2022: Large-scale and Topographic Influences on the evolution of eastern North Pacific Tropical Cyclones during the Autumn. *TAFB Tropical Workshop* - National Hurricane Center (NHC), Miami, FL.

**Mitchell, A. K.** and L. F. Bosart, 2022: [The Governing Dynamics and Predictability of Recurring EPAC Tropical Cyclones](#). NOAA/AOML Hurricane Research Division (HRD)/Atlantic Oceanographic & Meteorological Laboratories (AOML), Miami, FL.

## FIRST-AUTHORED ORAL PRESENTATIONS

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**Mitchell, A. K.**, K. L. Corbosiero, and L. F. Bosart, 2024: Atmospheric Dynamics Governing the Recurvature of Eastern North Pacific Tropical Cyclones. *Front Range Tropical Cyclone Workshop*, Fort Collins, CO.

**Mitchell, A. K.**, K. L. Corbosiero and L. F. Bosart, 2023: Intraseasonal Variability of Recurring EPAC Tropical Cyclones. *10th Northeast Tropical Meteorology Workshop*, Albany, NY.

**Mitchell, A. K.** and T. C. Leicht, 2023: Representative Experiences of Current Synoptic Meteorology Education. *103<sup>rd</sup> American Meteorological Society Meeting*, Denver, CO.

**Mitchell, A. K.** and L. F. Bosart, 2022: The Governing Dynamics and Variability of Recurring EPAC Tropical Cyclones. *103<sup>rd</sup> American Geophysical Union Meeting*, Chicago, IL.

**Mitchell, A. K.** and L. F. Bosart, 2022: Identifying Sources of Large-Scale Variability Linked to Forecasted Track Errors of Tropical Cyclone Marie (2020). *35th Conference on Hurricanes and Tropical Meteorology*, New Orleans, LA.

**Mitchell, A. K.**, N. Mastrantonas, D. Nash, W. Scheftic, J. R. Joshi, M. J. DeFlorio, A. C. Subramanian, and J. Berner, 2022: Subseasonal Predictions during the 2017 Oroville Dam Crisis: Role of Atmospheric Rivers and Antecedent Synoptic Conditions. *102<sup>nd</sup> American Meteorological Society Meeting*, Virtual. (\*oral presenter of collaborated work). <https://ams.confex.com/ams/102ANNUAL/meetingapp.cgi/Paper/398922>

**Mitchell, A. K.** and L. F. Bosart, 2021: Synoptic and topographic influences on the formation of Tropical Storm Hermine (2010). *34th Conference on Hurricanes and Tropical Meteorology*, Virtual.

**Mitchell, A. K.** and L. F. Bosart, 2021: Large-Scale Flow Patterns Conducive to Central American Extreme Precipitation Events during Autumn. *101<sup>st</sup> American Meteorological Society Meeting*, Virtual.

**Mitchell, A. K.** and L. F. Bosart, 2020: Synoptic and topographic influences on the formation of Tropical Storm Hermine (2010). *45<sup>th</sup> Annual Northeastern Storm Conference*, Saratoga Springs, NY.

**Mitchell, A. K.** and L. F. Bosart, 2020: The Relationship between Autumn Cold Surge Activity and Tropical Cyclones in the Eastern North Pacific. *100<sup>th</sup> American Meteorological Society Meeting*, Boston, MA.

**Mitchell, A. K.** and L. F. Bosart, 2019: The Relationship between Autumn Cold Surge Activity and Tropical Cyclones in the Eastern North Pacific. *19<sup>th</sup> Annual Cyclone Workshop*, Seon, Germany.

**Mitchell, A. K.** and L. F. Bosart, 2019: The Dynamical Influences of Large-Scale Flow on the Formation of Tropical Storm Selma in October 2017. *9<sup>th</sup> Northeast Tropical Meteorology Workshop*, Dedham, MA.

**Mitchell, A. K.** and L. F. Bosart, 2019: The Influence of Central American Gap Winds on the Formation of Tropical Storm Selma in October 2017. *44<sup>th</sup> Annual Northeastern Storm Conference*, Saratoga Springs, NY.

## **FIRST-AUTHORED POSTER PRESENTATIONS**

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**Mitchell, A. K.**, K. L. Corbosiero, and L. F. Bosart, 2024: A Comprehensive Analysis of Recurring EPAC Tropical Cyclones in Environments of Upper-Tropospheric Troughs. *36th Conference on Hurricanes and Tropical Meteorology*, Long Beach, CA.

**Mitchell, A. K.,** K. L. Corbosiero, and L. F. Bosart, 2024: The Influence of North Pacific Variability on Recurving EPAC Tropical Cyclones. *104<sup>th</sup> American Meteorological Society Meeting*, Baltimore, MD.

**Mitchell, A. K.,** K. L. Corbosiero, and L. F. Bosart, 2023: The Influence of North Pacific Variability on Recurving EPAC Tropical Cyclones. *104<sup>th</sup> American Geophysical Union Meeting*, San Francisco, CA.

**Mitchell, A. K.,** K. L. Corbosiero, and L. F. Bosart, 2023: Intraseasonal Variability of Recurving EPAC Tropical Cyclones. *32nd Conference on Weather Analysis and Forecasting (WAF)/28th Conference on Numerical Weather Prediction (NWP)/20th Conference on Mesoscale Processes*, Madison, WI.

**Mitchell, A. K.** and L. F. Bosart, 2023: The Governing Dynamics and Variability of Recurving EPAC Tropical Cyclones. *103<sup>rd</sup> American Meteorological Society Meeting*, Denver, CO.

**Mitchell, A. K.** and L. F. Bosart, 2022: Identifying Sources of Large-Scale Variability Linked to Forecasted Track Error of Tropical Cyclone Marie (2020). *Tropical Cyclones, Convection and Climate: A Symposium in Honor of Kerry Emanuel*, Boston, MA.  
[https://web.mit.edu/~twcronin/www/emanuel\\_symposium/poster\\_abstracts.pdf](https://web.mit.edu/~twcronin/www/emanuel_symposium/poster_abstracts.pdf)

**Mitchell, A. K.** and L. F. Bosart, 2022: Identifying Sources of Large-Scale Variability Linked to Forecasted Track Errors of Tropical Cyclone Sergio (2018). *102<sup>nd</sup> American Meteorological Society Meeting*, Virtual.

**Mitchell, A. K.** and L. F. Bosart, 2021: Identifying Sources of Large-Scale Variability Linked to Forecasted Track Errors of Tropical Cyclone Sergio (2018). *102<sup>nd</sup> American Geophysical Union Meeting*, New Orleans, LA.

**Mitchell, A. K.** and L. F. Bosart, 2020: A Case Study of Heavy Rainfall Associated with Weak Subtropical Disturbances in the Gulf of Mexico. *101<sup>st</sup> American Geophysical Union Meeting*, Virtual.

**Mitchell, A. K.,** T. C. Leicht, L. F. Bosart, 2019: The Downstream Impacts of West Coast Ridge Regimes over Northern and Central America. *100<sup>th</sup> American Geophysical Union Meeting*, San Francisco, CA.

## **CO-AUTHORED ORAL AND POSTER PRESENTATIONS**

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Piper, M. K. and **A. K. Mitchell**, 2023: A Climatology of Tropical Cyclone Interactions with Deformation *Steering Flows in the Atlantic*. *103<sup>rd</sup> American Meteorological Society Meeting*, Denver, CO.

Bosart L. F., T. C. Leicht, **A. K. Mitchell**, 2022: The Relative Contributions of Subsidence and Horizontal Advection to the Western European Heat Waves of June and July 2022. *103<sup>rd</sup> American Geophysical Union Meeting*, Chicago, IL.

N. Mastrantonas, D. Nash, W. Scheftic, **A. K. Mitchell**, J. R. Joshi, M. J. DeFlorio, A. C. Subramanian, and J. Berner, 2022: Subseasonal Predictions during the 2017 Oroville Dam Crisis: Role of Atmospheric Rivers and Antecedent Synoptic Conditions. *102<sup>nd</sup> American Meteorological Society Meeting*, Virtual. (\*oral presenter of collaborated work)

Bosart L. F., T. C. Leicht, **A. K. Mitchell**, M. Zhou, 2021: The Contributions of Recurring EPAC and WPAC Tropical Cyclones to an Extreme Weather Event over the Western CONUS in September 2020. NCAR ASP S2S Colloquium, Virtual.

Bosart L. F., T. C. Leicht, **A. K. Mitchell**, 2021: Synoptic-Dynamic Meteorology Concepts Relevant to S2S Time Scales. NCAR ASP S2S Colloquium, Virtual.

Bosart L. F., T. C. Leicht, **A. K. Mitchell**, 2020: The Intense High Plains “Bomb” Cyclone of 12–14 March 2019. *100<sup>th</sup> American Meteorological Society*, Boston, MA.

Leicht T. C., **A. K. Mitchell**, L. F. Bosart, 2019: The Structure and Evolution of Persistent Ridge Regimes across Western North America during the Transition Seasons. *100<sup>th</sup> American Geophysical Union Meeting*, San Francisco, CA.

## **AWARDS AND HONORABLE MENTIONS**

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2024	<b>Outstanding Student Presentation Award – 2<sup>nd</sup> place</b> <i>104<sup>th</sup> American Meteorological Society Meeting</i>
2023	AMS WAF Travel grant
2022	SMART Scholarship Recipient
2021	Selected participant for NCAR Advanced Study Program Summer Colloquium “The Science of S2S Predictions”
2020	<b>Outstanding Student Presentation Award – 1<sup>st</sup> place</b> <i>100<sup>th</sup> American Geophysical Union Meeting</i>
2019	Cyclone Workshop Travel grant
2018	Morrow, J. 2018. <i>NC State Students Complete Spring NWS Course</i> . Available online at

[https://www.weather.gov/media/rah/NWSRaleighNews/StudentVolunteers\\_Spring2018.pdf](https://www.weather.gov/media/rah/NWSRaleighNews/StudentVolunteers_Spring2018.pdf)

2016 Rivers, G. 2016. Mitchell Uses Involvement to Explore Passions, Overcome Fears. Available online at <https://studentinvolvement.dasa.ncsu.edu/mitchell-uses-involvement-to-explore-passions-overcome-fears/>

## **TECHNICAL SKILLS**

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Computer Languages:	Python, MATLAB, NCL, RStudio, HTML, SQL, PHP
Applied skills:	Machine Learning (i.e., Self-organizing Maps), WRF
Datasets:	ECMWF fifth-generation reanalysis (ERA5), NECP NCAR Reanalysis, NECP-CFS (CFSR) Reanalysis, NCEP Global Ensemble Forecasting System (GEFS), PERSSIAN-CDR

## **PROFESSIONAL DEVELOPMENT AND SERVICE**

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<b>Feb 2024 – Jan 2026</b>	<b>Student Member of the AMS STAC Committee on Weather Analysis and Forecasting</b>
February 2024	Peer Reviewer for Monthly Weather Review (MWR)
December 2023	Joint Peer Reviewer for Weather and Climate Dynamics (WCD)
October 2023	Peer Reviewer for Proceedings of the National Academy of Sciences (PNAS)
September 2023	Volunteer for AOML/HRD map discussion
<b>Fall 2023</b>	<b>Seminar in College Teaching. Explores teaching methods, emphasizing the skills and knowledge needed to design and deliver courses that enhance student learning</b>
August 2023 – Present	Co-organizer of weekly Climate Group Seminars
January 2023 – May 2023	Monthly volunteer at the Latham Food Pantry
August 2022, April 2023	Co-hosted and delivered first-year graduate seminars on graduate fellowships and website development

<b>July 2022 – Jan 2023</b>	<b>Session Chair of 32nd Conference on Education: Reinvigorating and Modernizing Synoptic-Dynamic Meteorology Education, Teaching, Science, and Research</b>
<b>Dec 2021 – June 2022</b>	<b>Collaboratively contributed to a successful NSF proposal securing funding for my Ph.D. research</b>
January 2022	Joint Peer Reviewer for an NSF Proposal
April 2020 – May 2021	President of the UAlbany Atmospheric Science Graduate Student Organization
Jan 2019 – May 2021	Presenter at Weekly <i>Friday Map Discussion</i> led by Lance F. Bosart
2018 – 2020, 2021 – 2022	Atmospheric Science Graduate Student Organization Representative for the UAlbany Graduate Student Association
May 2019	Volunteer at the NOAA HWT Spring Forecasting Experiment at the SPC
August 2019	Volunteer for the Student Rapporteur Program at the AMS Summer Community Meeting
2019, 2020	Member of Planning Committee for University at Albany “Earth Day” event
<b>Jan 2019 – Jan 2020</b>	<b>Student Member of the AMS Board for Operational Government Meteorologists</b>
2018	Student Volunteer at the Annual American Meteorological Society Conference
2017 – 2018	President of the American Meteorological Society Student Chapter at NC State

## **ARTICLES**

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**Mitchell, A. K.,** B. J. Stutsrim, L. C. Gaudet, and E. Wilson, 2019: Panel Discussion 4: History and Future of Weather, Water, and Climate Enterprise Valuation. *Conference Report: 2019 AMS Summer Community Meeting*, A. Raghavendra and L.C. Gaudet, Eds., Amer. Meteor. Soc., 31–32. [Available online at [https://2521b23f-9174-470d-a176-c76dc2df3b61.filesusr.com/ugd/3e8f6b\\_8b31d4315fef453ab6f730c346b72cae.pdf](https://2521b23f-9174-470d-a176-c76dc2df3b61.filesusr.com/ugd/3e8f6b_8b31d4315fef453ab6f730c346b72cae.pdf)]

Capute, P., D. R. Card, **A. K. Mitchell**, and M. Farrar, 2019: Banquet Keynote: A Highly Capable and Responsive Observation Architecture: Can We Really Have It All? *Conference Report: 2019 AMS Summer Community Meeting*, A. Raghavendra and L.C. Gaudet, Eds., Amer. Meteor. Soc., 22–24. [Available online at [https://2521b23f-9174-470d-a176-c76dc2df3b61.filesusr.com/ugd/3e8f6b\\_8b31d4315fef453ab6f730c346b72cae.pdf](https://2521b23f-9174-470d-a176-c76dc2df3b61.filesusr.com/ugd/3e8f6b_8b31d4315fef453ab6f730c346b72cae.pdf)]

Gaudet, L. C., P. Capute, **A. K. Mitchell**, and B. Gail, 2019: Session 5: Weather Enterprise Keynote. *Conference Report: 2019 AMS Summer Community Meeting*. *Conference Report: 2019 AMS Summer Community Meeting*, A. Raghavendra and L.C. Gaudet, Eds., Amer. Meteor. Soc., 25–28. [Available online at [https://2521b23f-9174-470d-a176-c76dc2df3b61.filesusr.com/ugd/3e8f6b\\_8b31d4315fef453ab6f730c346b72cae.pdf](https://2521b23f-9174-470d-a176-c76dc2df3b61.filesusr.com/ugd/3e8f6b_8b31d4315fef453ab6f730c346b72cae.pdf)]