



ATMOSPHERIC SCIENCE  
COLORADO STATE UNIVERSITY

2021 Student Research Symposium  
REU Site in Earth System Science

Tuesday, August 3, 2021 | 9:00 AM - 3:00 PM MDT  
Atmospheric Science - ATS 101 (in-person participation)

Please email Melissa Burt ([Melissa.Burt@colostate.edu](mailto:Melissa.Burt@colostate.edu)) to receive the Zoom information

8:50 Introductions and Welcome

**Session 1: 9:00 AM - 10:00 AM**  
**Atmospheric Convection**

9:00 Variability in thermodynamic profiles of extreme precipitation events in northern Taiwan

**Kyle Brooks**, University of Georgia

*Mentors: Dr. Michael Bell, Dr. Jen DeHart, and Chelsea Nam*

9:15 The influence of topography on extreme rainfall events in Taiwan

**Leah Swinney**, Texas A&M University, Corpus Christi

*Mentors: Dr. Kristen Rasmussen, Rung Panasawatwong, and Marqi Rocque*

9:30 Influence of the Andes mountains on the thermodynamics of mesoscale convective systems in subtropical South America

**Victoria Chavez**, University of Colorado, Boulder

*Mentors: Dr. Kristen Rasmussen, Marqi Rocque, Dr. Jim Hurrell, Lantao Sun*

9:45 Estimation and meteorological analysis of CCN during RELAMPAGO-CACTI in Córdoba, Argentina

**William Faletti**, Northern Illinois University

*Mentors: Samuel O'Donnell, Benjamin Swanson, Dr. Jeffery Pierce, Dr. Paul Demott, and Dr. Sonia Kreidenweis*

10:00 Break - 15 min

**Session 2: 10:15 AM - 11:15 AM MDT**  
**Tropical Phenomena**

- 10:15      Detecting tropical cyclone secondary eyewalls with a microwave-based scheme  
**Alvin Cheung**, Pennsylvania State University  
*Mentors: Dr. Chris Slocum and Dr. John Knaff*
- 10:30      Cold pools in tropical cyclones and isolated tropical convection  
**Brittney Smith**, Northern Vermont University, Lyndon  
*Mentors: Nicholas Falk and Dr. Susan van den Heever*
- 10:45      The effect of projected Sea Surface Temperature (SST) pattern changes on tropical precipitation using CESM 1  
**Amanda Bowden**, University of Georgia  
*Mentors: Dr. Eric Maloney, Justin Whitaker, Michael Natoli, and Justin Hudson*
- 11:00      A simple model of tropical and subtropical interactions  
**Jay Pillai**, University of Illinois, Urbana-Champaign  
*Mentors: Michael Needham, Mark Branson, Dr. David Randall*
- 11:15      *Break - 65 minutes*

**Session 3: 12:15 PM - 1:30 PM MDT**  
**Atmospheric Aerosols, Chemistry, and Wildfires**

- 12:20      Quantifying enhancements in ammonia and methane from concentrated animal feeding operations in northeastern Colorado using ground-based mobile sampling  
**Trey Maddaleno**, Truman State University  
**Yuwei Zhao**, Colorado State University  
*Mentors: Dr. Ilana Pollack, Dr. Amy Sullivan, Julieta Juncosa Calahorrano, and Dr. Emily Fischer*
- 12:45      Using PM<sub>2.5</sub> observations to verify HRRR smoke forecasts during the 2020 western US fire season  
**Sam Lesmerises**, Northern Vermont University, Lyndon  
*Mentor: Dr. Amanda Back and Dr. Christina Holt*
- 1:00        Local and long-range impacts of wildfire smoke on air quality in Fort Collins, CO  
**Blake Checkoway**, University of Georgia  
*Mentor: Dr. Jenny Hand*
- 1:15        Analysis of risk communications during the Cameron Peak Fire  
**Gillian Felton**, University of Northern Colorado  
*Mentors: Dr. Matt Rogers and Andrea Schumacher*
- 1:30        *Break - 15 minutes*

**Session 4: 1:45 PM - 3:00 PM MDT**  
**Prediction, Data Assimilation, and Satellite Retrieval**

- 1:45      Formulation of a nonlinear GOES-R Lightning flash extent density forward operator for ensemble assimilation and verification in the High Resolution Rapid Refresh(HRRR)  
**Ashley Sebok**, Millersville University  
*Mentors: Dr. Amanda Back, Dr. David Dowell, and Dr. Eric Bruning*
- 2:00      Understanding weekly precipitation forecast errors in western Colorado  
**Abby Thornton**, Texas A&M University  
*Mentors: Dr. Russ Schumacher and Dr. Becky Bolinger*
- 2:15      Predicting September arctic sea-ice extent using a hierarchy of statistical models  
**Hannah Myint**, University of San Francisco  
*Mentors: Dr. Zachary Labe and Dr. Elizabeth Barnes*
- 2:30      Predicting the Madden-Julian Oscillation using abstention-based neural networks  
**Anushka Narayanan**, Cornell University  
*Mentors: Dr. Zane Martin, Kirsten Mayer, and Dr. Elizabeth Barnes*
- 2:45      Updates to the GOES-16 split-window precipitable water satellite product  
**Emily Luschen**, University of Oklahoma  
*Mentors: Dr. Jack Dostalek and Dr. Lewis Grasso*
- 3:00      **ADJOURN**

**Join us for the REU Poster Session!**

Thursday, August 5, 2021

10:00 -11:30 AM (Morning Session)

1:30 - 3:00 PM (Afternoon Session)

ATS West Seminar Room (Rm. 121)

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