

Katelynn Greer

Fort Collins, CO
(970) 310-4628
greer.katelynn@gmail.com
www.katelynngreer.com

EDUCATION

Ph.D. Aerospace Engineering Sciences, December 2013

University of Colorado at Boulder

Dissertation “Wave Driven Disturbances of the Thermal Structure in the Polar Winter Upper Stratosphere and Lower Mesosphere”

EMP Engineering Management Certificate, May 2013

Engineering Management Program, University of Colorado at Boulder

M.S. Aerospace Engineering Sciences, May 2009

University of Colorado at Boulder

Thesis “Baroclinic Conditions and Anomalous Temperature Excursions in the Arctic Winter Middle Atmosphere”

B. S. Aerospace Engineering Sciences, May 2007

University of Colorado at Boulder

Sr Design Proj. “SWIFT: Supersonic Wind Imaging Flow Tunnel” Electronics & Sensors Lead

PROFESSIONAL EXPERIENCE

Research Associate II, Laboratory for Atmospheric & Space Physics, University of Colorado

- Conduct original research concerning the coupling of the ionosphere and neutral atmosphere, the impact of waves and tides and instabilities
- Support the GOLD mission science objectives

March 2017 – Current

Assistant Research Physicist, Space Science Laboratory, University of California- Berkeley with Dr. Thomas Immel and Dr. Scott England

- Conducted original research in ionospheric and magnetospheric physics with an emphasis towards the role of ionosphere-magnetosphere interactions during periods of geomagnetic storms using numerical models and comparing these to ground- and space-based observations
- Wrote scripts to process data for the upcoming NASA ICON mission (launch expected June 2017)
- Drafted original research articles to submit to critical peer-reviewed journals
- Wrote research grants with other members of the Atmospheric Emissions group
- Presented and shared research in the field of aeronomy and the wider public
- Mentored young and developing students in the discipline of science and technology

June 2014 – current

Research Associate, Laboratory for Atmospheric & Space Physics, University of Colorado with Professor Cora E. Randall

- Collaborated on a two papers detailing the dynamics of polar winter middle atmospheric disturbances using the Whole Atmosphere Community Climate Model (WACCM) output data and their relationships with minor/major Sudden Stratospheric Warmings (SSWs)

January 2014 – April 2014

Graduate Research Assistant, University of Colorado with Professor Jeffrey Thayer

- Organized and directed personal research in geophysical fluid dynamics with limited supervision
- Collaborated on a series of papers coupling of the lower and middle atmosphere using observational, assimilated and model data
- Wrote critical peer review of papers considered for publication in the Journal of Geophysical Research
- Operated and maintained SRI's Kangerlussuaq Greenland remote sensing LIDAR system, producing 110 nights of observations *Summer 2008*

<http://ccar.colorado.edu/rses/index.html>

Supported by NSF-CEDAR Grant (AGS-0940174) 2010-2013 & CU Aerospace Grant 2007-2009

May 2007 – December 2013

Optical Remote Sensing Specialist, Vaisala Inc., Supervisor Charles Quire

- Critically evaluated potential lidar technologies and products by coding models in MatLAB
- Collaborated with outside contractor to assess technology readiness
- Determined that the price point of proposed lidar system was not suitable for current market
- Products and Technology (PTE) Division

<http://www.vaisala.com/>

June 2009 – December 2009

Undergraduate Research Assistant, University of Colorado with Professor Jeffrey Thayer

- Designed and constructed a test-bed LIDAR system
- Developed LIDAR data inversion code in MatLAB

Supported by Undergraduate Research Experience Grant

June 2005- April 2007

PEER-REVIEWED JOURNAL ARTICLES

Greer, K. R., T. Immel, and A. Ridley (2017), On the variation in the ionospheric response to geomagnetic storms with time of onset, *J. Geophys. Res. Space Physics*, 122, doi:10.1002/2016JA023457.

Greer, K. R., J. P. Thayer, V. L. Harvey, and E. D. Peck (2015), Modeling and mechanisms of polar winter upper stratosphere/lower mesosphere disturbances in WACCM, *J. Geophys. Res. Atmos.*, 120, doi:10.1002/2015JD023471.

Greer, K., J. P. Thayer, and V. L. Harvey (2013), A climatology of polar winter stratopause warmings and associated planetary wave breaking, *J. Geophys. Res. Atmos.*, 118, 4168–4180, doi:10.1002/jgrd.50289.

Thayer, J. P., **K. Greer**, and V. L. Harvey (2010), Front-like behavior in the Arctic wintertime upper stratosphere and lower mesosphere, *Journal of Geophysical Res.*, 115, D00N04, doi:10.1029/2010JD014278.

RESEARCH INTERESTS

- Remote sensing observations of the ionosphere and upper atmosphere
- Modeling of the atmosphere-geospace environment
- Interpretation of data techniques including climate statistics, 3-D localized E-P flux, and k-means clustering
- Coupling of the atmospheric regions and neutral atmosphere to ionosphere
- Geophysical fluid mechanics including waves and instabilities

FELLOWSHIPS & AWARDS

Aerospace Engineering Department Graduate Community Service Award (\$1000), 2013

CEDAR Student Poster Competition, Finalist 2010

CEDAR Student Poster Competition, Honorable Mention 2009

Women In Engineering and Lockheed Martin, Scholarship 2003-2005

SKILLS

- Physics, Fluid Mechanics, Thermodynamics, Orbital Mechanics
- Science/Engineering Mathematics: Calculus, Diff Eq, Linear Algebra, Statistics
- Programming languages: MATLAB, IDL, LabVIEW, some Python
- Atmospheric and Oceanic Sciences
- Remote Sensing Technologies
- LIDAR Technology & Science
- Satellite Instrumentation
- Aerodynamics, Jet/Rocket Propulsion
- Sensors and Electronics
- Windows & LINUX environments
- Ethics in Engineering & Business
- Materials, Structures
- General Fabrication (Wood & Metal)
- Basic Finance & Accounting, Project Management
- Spanish (partial fluency)

TEACHING EXPERIENCE

Elementary Algebra Instructor, San Quentin Prison University Project (Fall 2015 & Spring 2016)

ASPIRE Summer Undergraduate Intern Mentor: Lauren Polo (Summer 2015)

Introduction to Applied Statistics, teaching assistant (spring & fall 2010), Dr. Jeffrey Luftig

Ethics in Engineering & Business, teaching assistant (spring 2011), Dr. Jeffrey Luftig

Introduction to Propulsion, grading assistant (fall 2009)

Aerospace Environments Research Group Meetings (fall & spring 2012-2013)

Private Tutor, Calculus I, II, & III

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science

American Geophysical Union

American Meteorological Society

PROFESSIONAL SERVICE ACTIVITIES

CEDAR Science Steering Committee, Student representative, 2011-2013

Aerospace Graduate Student Organization, Representative, fall 2010- spring 2011

Science Olympiad, judge and mentor for High School Students, 2003-current

CU Honor Code Panel, 2010-2013

Girl Scouts, Science Workshops mentor, 2004-current

Aerospace Engineering Sciences Curriculum Improvement Team, 2004-2007

Engineering Excellence Fund, Board Member, 2006-2007

Sigma Gamma Tau (Aerospace Honor Society) Secretary, 2006-2007

PROFESSIONAL PRESENTATIONS

Oral Presentations:

Greer, K., S. Solomon, D. Rusch, Anticipated Observation of Waves by the GOLD Mission Using a GCM and GLOW model, AGU Fall Meeting, SA33B-05, New Orleans LA, 13 December 2017.

Greer, K., T. Immel and A. Ridley, What Variation in Storm TEC is Produced by UT and Seasonal Onset Times?, CEDAR Workshop, Santa Fe NM, 22 June 2016.

Greer, K., ICON Science Data Pipeline: Ancillary Products for L1 to L2, ICON Science Meeting, Healdsburg CA, 1 June 2016.

Greer, K., T. Immel and A. Ridley, What Variation in Storm TEC is Produced by UT and Seasonal Onset Times?, ST05-20-29-D2-AM1-325-019, AOGS, Singapore, 3 August 2015.

Greer, K., Don't Just Get Mad! How to Help Government Craft Good Science Policy, CEDAR Student Workshop, University of Washington, 21 June 2015.

- Greer, K., J. P. Thayer, V. L. Harvey, E. D. Peck and C. E. Randall, Extreme Temperature Events and Planetary Wave Breaking in the Polar Winter Middle Atmosphere, ST02-D2-AM1-RD-003, AOGS, Sapporo Japan, 29 July 2014.
- Greer, K., J. P. Thayer, V. L. Harvey, E. D. Peck and C. E. Randall The Polar Vortex and Winter Weather Disturbances in the Middle Atmosphere, LASP Seminar, University of Colorado-Boulder, 8 March 2014.
- Greer, K., J. P. Thayer, V. L. Harvey, E. D. Peck and C. E. Randall The Polar Vortex and Winter Weather Disturbances in the Middle Atmosphere, Physics 290B Seminar, University of California-Berkeley, 25 February 2014.
- Greer, K., J. P. Thayer, V. L. Harvey, H.-L. Liu, E. D. Peck and C. E. Randall, Disturbances of the Wintertime Polar Upper Stratosphere and Lower Mesosphere, AGU Fall Meeting, SA22A-01, San Francisco CA, 10 December 2013.
- Greer, K., J. P. Thayer, V. L. Harvey, and E. D. Peck, Disturbances of the Wintertime Polar Upper Stratosphere and Lower Mesosphere: Observations, Modeling & Mechanisms, International Association of Geomagnetism and Aeronomy (IAGA) Meeting, Merida Mexico, 27 August 2013.
- Greer, K. R., PWB & Extreme Temperature Excursions: Observations & Modeling, NCAR-HAO Tea Meeting, NCAR Boulder CO, 24 May 2013.
- Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck, Synoptic Scale Baroclinic Instabilities & Planetary Wave Activity in the Polar Winter Middle Atmosphere, CEDAR Workshop, Santa Fe NM, 24-29 June 2012.
- Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck, Observations and Modeling Climatology of Polar, Wintertime Middle Atmosphere Disturbances, CESM Whole Atmosphere Working Group Meeting, NCAR Boulder CO, 1 February 2012.
- Greer, K., Planetary Wave Disturbances of the Wintertime Polar Upper Stratosphere/Lower Mesosphere, HAO Tea, NCAR, Boulder CO, 15 April 2011.
- Greer, K., Planetary Wave Disturbances of the Wintertime Polar Upper Stratosphere/Lower Mesosphere, PhD Comprehensive Exam, University of Colorado, Boulder CO, 21 April 2011.
- Greer, K., J. P. Thayer, V. L. Harvey, Front-Like Formations in the Middle Atmosphere: Vertical Coupling of Winter Polar Regions, PASI student research, PASI conference, San Juan Argentina, 5 October 2010.

Greer, K., J. P. Thayer, V. L. Harvey, Front-Like Formations in the Middle Atmosphere: A Precursor to Sudden Stratospheric Warmings?, CEDAR Workshop on Atmospheric Coupling During Stratospheric Sudden Warmings, CEDAR conference, Boulder CO, 22 June 2010.

Posters:

Greer, K., T. J. Immel, and A. Ridley, Longitudinal Hemispheric Differences During Geomagnetic Storm Times Examined with GITM, SA23A-2332, AGU Fall Meeting, San Francisco, 15 December 2015.

Greer, K., J. P. Thayer, V. L. Harvey and E. D. Peck, Disturbances of the wintertime polar upper stratosphere and lower mesosphere: observations, modeling and mechanisms, ST05-20-29-D2-PM2-P-025, AOGS, Singapore, 3 August 2015.

Greer, K., T. J. Immel, and A. Ridley, Effect on TEC of Potential Pattern Inputs in GITM During the August 2011 Geomagnetic Storm, SA21A-4037, AGU Fall Meeting, San Francisco, 16 December 2014.

Greer, K., J. P. Thayer, V. L. Harvey, E. D. Peck and C. E. Randall, Extreme Stratopause Temperature Events: A prognosticator of Sudden Stratospheric Warmings?, AS19-A032, AOGS, Sapporo Japan, 30 July 2014.

Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck and C. Randall, Planetary Wave Breaking in the Polar Winter Middle Atmosphere and Extreme Temperature Events, 94th AMS meeting, Atlanta GA, 3-7 February 2014.

Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, and E. Peck, Planetary Wave Breaking and Extreme Temperature Excursions in the Polar Winter Middle Atmosphere, CEDAR Workshop, Boulder CO, 23-28 June 2013.

Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck and C. Randall, Upper Troposphere Front-like Behavior in the Stratosphere (A21G-0135), AGU conference, San Francisco CA, 3-7 December 2012.

Thayer, J. P., K. R. Greer, H-L. Liu, C. Yamashita, V. L. Harvey, E. Peck and C. Randall, Winter Middle Atmosphere Gravity Wave Generation and Mesosphere Coolings (SA41A-2067), AGU conference, San Francisco CA, 3-7 December 2012.

Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck and C. Randall, Synoptic-Scale Disturbances of the Wintertime Polar Upper Stratosphere and Lower Mesosphere: A Summary of Observed Characteristics & Potential Vorticity Analysis, CEDAR Workshop, Santa Fe NM, 24-29 June 2012.

Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck and C. Randall, Synoptic-Scale Disturbances of the Wintertime Polar Upper Stratosphere and Lower Mesosphere: A Summary of Observed Characteristics, SPARC-SSW conference, Kyoto, Japan, 22-24 February 2012.

Greer, K. R., J. P. Thayer, H-L. Liu, V. L. Harvey, E. Peck and C. Randall, An Investigation of Dynamical Mechanisms Associated with Planetary Wave Disturbances of the Winter Polar Middle Atmosphere, AGU conference, San Francisco CA, 5-9 December 2011.

Greer, K., J. P. Thayer, and V. L. Harvey, Front-like Behavior in the Polar Wintertime Upper Stratosphere and Lower Mesosphere, CEDAR conference, Santa Fe NM, 26 June-1 July 2011.

Greer, K., J. P. Thayer, and V. L. Harvey, A Climatology of Upper Stratospheric Lower Mesospheric Disturbances in the Polar Winter, AGU conference, San Francisco CA, 12-17 December 2010.

Greer, K., J. P. Thayer, V. L. Harvey, and J. Livingston, Front-like Behavior in the Polar Wintertime Upper Stratosphere and Lower Mesosphere, CEDAR conference, Boulder CO, 20-25 June 2010. (Finalist in CEDAR Student Poster Competition)