Katelynn Greer

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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 – February 2017

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

K. R. Greer, V. L. Harvey, L. Goncharenko (under construction), Anarctic Sudden Stratospheric Warming of 2019 Effects on Thermospheric Composition, Journal of Geophysical Research- Space Physics.

K. R. Greer, R. Eastes, S. Solomon, W. McClintock, D. Rusch, and A. Burns (2020), Variations of lower thermospheric FUV emissions based on GOLD observations and GLOW modeling, Journal of Geophysical Research- Space Sciences, 2020JA027810.

K. R. Greer, R. Eastes, and W. McClintock (2020), Global-scale Observations of the Limb and Disk (GOLD): Far-UV Imaging Spectrograph Background at Geostationary Orbit, IEEE Aerospace

Goncharenko, L., V. L. Harvey, **K. R. Greer**, Shun-Rong Zhang, Anthea J Coster (under review), Longitudinally-Dependent Low-Latitude Ionospheric Disturbances Linked to the Antarctic Sudden Stratospheric Warming of September 2019, Journal of Geophysical Research- Space Physics.

Eastes R. GOLD paper (2020)

England, S. L., **Greer, K. R**., Solomon, S. C., Eastes, R. W., McClintock, W. E., & Burns, A. G. (2020). Observation of thermospheric gravity waves in the Southern Hemisphere with GOLD. Journal of Geophysical Research: Space Physics, 125, e2019JA027405. https://doi.org/10.1029/2019JA027405

Pilinski, M., S. Bougher, **K. R. Greer**, E. Thiemann, L. Andersson, M. Benna and M. Elrod (2018), First Evidence of Persistent Night-Time Temperature Structures in the Neutral Thermosphere of Mars, Geophysical Research Letters, doi:10.1002/2018GL078761.

K. R. Greer, S. E. England, E. Becker, D. Rusch and R. Eastes (2018), Modeled Gravity Wave-like Perturbations in the Brightness of Far Ultraviolet Emissions for the GOLD Mission, Journal of Geophysical Research- Space Physics**,** doi:10.1002/2018JA025501.

Greer, K. R., T. Immel, and A. Ridley (2017), On the variation in the ionospheric response to geomagnetic storms with time of onset, Journal of Geophysical Research- 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, Journal of Geophysical Research- Atmospheres, 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, Journal of Geophysical Research-Atmospheres, 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 Research-Atmospheres, 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, 2013

CEDAR Student Poster Competition, Finalist 2010
CEDAR Student Poster Competition, Honorable Mention 2009
Women In Engineering and Lockheed Martin, Scholarship 2003-2005

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