

Christina P. Kalb
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EDUCATION

Master of Science in Atmospheric Science

Colorado State University, Fort Collins, CO

Advisor: Steve Rutledge

Thesis: CG Lightning Polarity and Environmental Conditions over the Central United States

August 2007

GPA: 3.917

Bachelor of Science in Atmospheric Sciences, Summa Cum Laude

The Ohio State University, Columbus, OH

March 2004

GPA: 3.91

EXPERIENCE

Associate Scientist II

Feb 2009 – present

National Center for Atmospheric Research, Boulder, CO

- Developed a real time self adjusting model calibration by matching frequencies between the modeled and observed cumulative frequency distributions of vertically integrated liquid water and echo tops
- Evaluated model forecasts of convection/thunderstorms for real time applications
- Combined and analyzed data from a web database documenting model forecast evaluation
- Performed statistical analysis on a random forest technique for forecasting thunderstorm initiation
- Developed a parameterization for electrified clouds in a global climate model using regression analysis
- Used statistics to evaluate probabilistic forecasts of oceanic thunderstorms from global model ensembles
- Developed a set of programs which takes irregularly spaced watershed data and converts it to a grid of the user's choice for use as model input

Atmospheric Scientist

June 2007 – Feb 2009

CPP Inc., Fort Collins, CO

- Consultant on various atmospheric science and wind engineering topics
- Obtained and analyzed noise measurements from operational wind farms for use in proposed future wind farm locations
- Assessed meteorological cause of damage to structures and determined the percentage of damage resulting from specific meteorological phenomena
- Evaluated meteorological conditions associated with high amplitude power line oscillation and developed a climatology for use in predicting future oscillation events
- Explored the effects of complex terrain on wind flow for use in determining mining pile locations
- Combined knowledge and understanding of the industry with the client's needs and operations

Graduate Research Assistant

July 2004 – May 2007

Department of Atmospheric Sciences at Colorado State University, Fort Collins, CO

- Areas of research: mesoscale meteorology, thunderstorms, lightning, statistics, and radar applications

Graduate Teaching Assistant Aug 2005 – Dec 2005
Department of Atmospheric Sciences at Colorado State University, Fort Collins, CO
 – AT 350 Introduction to Weather and Climate (TA), AT 351 Introduction to Weather and Climate Laboratory (Instructor)

National Weather Center Research Experience for Undergraduates Program June 2003 – Aug 2003
 Norman, OK
 – Performed visual and statistical analysis on the performance of the Atmospheric Radiation Measurement (ARM) Program's cloud reporting instruments
 – Wrote a scientific paper and presented my research at the National Severe Storms Laboratory
 – Gained a better understanding of how to communicate effectively when writing or presenting scientific work

Weather Assistant Oct 1999 – June 2001
Channel 12 News, Cincinnati, OH
 – Updated and rendered meteorological graphics for television, and web page forecasts
 – Worked on small research projects including examining past meteorological data and drawing conclusions based upon trends
 – Gained an understanding of the role of the television meteorologist as well as the duties they perform
 – Developed computer skills, personal responsibility, teamwork, business ethics, accountability, interpersonal skills, and attention to detail

COMPUTER SKILLS

- Strong experience in Windows, IDL, Linux, Microsoft Excel, Microsoft Word, and Microsoft Power Point
- Experience with Matlab, NCL, Fortran, Python, and shell scripting

HONORS/AWARDS

- NCAR Special Recognition Award December 2010
 Awarded for data analysis and beta version software development
- Member of Phi Kappa Phi Honor Society 2004 – present
- Member of Golden Key International Honour Society 2002 – present

OUTREACH

- Judge, Colorado STEM Academy Science Fair January 2016
- Volunteer, NCAR Super Science Saturday November 2014
- Volunteer, Girl Scouts at NCAR April 2014
- Volunteer, NCAR Super Science Saturday October 2012
- Space Odyssey Volunteer at the Denver Museum of Nature and Science 2008 – 2011

AFFILIATIONS

- Member of the American Meteorological Society 2000 – 2016
- Member of the American Geophysical Union 2009 – 2015
- Treasurer of The Ohio State University Meteorology Club 2002 – 2003
- Vice President of The Ohio State University Meteorology Club 2003 – 2004

MENTORING

- Co-mentored two students from the Significant Opportunities in Atmospheric Research and Science Program, May – July 2012, 2013

REFEREED PUBLICATIONS

- Peterson, M., C. Liu, D. Mach, W. Deierling, and **C. P. Kalb**, 2015: A Method of Estimating Electric Fields above Electrified Clouds from passive Microwave Observations. *Journal of Atmospheric and Oceanic Technology*, **32**, 1429-1446.

MANUSCRIPTS IN REVIEW

- **Kalb, C. P.**, W. Deierling, A. Baumgaertner, M. J. Peterson, C. Liu, and D. Mach: Parameterizing total storm conduction currents in the Community Earth System Model. *Journal of Geophysical Research*, in review.
- Peterson, M. J., W. Deierling, C. Liu, D. Mach, and **C. P. Kalb**: Variations in the optical characteristics of lightning and the properties of illuminated clouds, *Journal of Geophysical Research*, in review.

CONFERENCE PRESENTATIONS

- **Kalb, C. P.**, W. Deierling, M. J. Peterson, and C. Liu, 2015: Total storm conduction current parameterization in a global model. *Presented*, 2015 Fall Meeting, AGU, San Francisco, CA, AE12A-08.
- Deierling, W., **C. P. Kalb**, M. J. Peterson, C. Liu, D. M. Mach, and R. J. Blakeslee, Conduction currents in oceanic and continental electrified clouds, *Poster by Deierling*, 2015 Fall Meeting AGU, San Francisco, CA, AE31C-0458.
- Peterson, M. J., W. Deierling, C. Liu, D. Mach, and **C. P. Kalb**, On the variations of electricity, lightning and storm properties. *Poster by Peterson*, Fall Meeting AGU, San Francisco, CA, AE31C-0460. Presented by Peterson.
- **Kalb, C. P.**, W. Deierling, A. Baumgaertner, D. Mach, C. Liu, and M. J. Peterson, 2014: Parameterizing total storm conduction currents derived in a global model. *Poster*, XV International Conference on Atmospheric Electricity, Norman, OK, P-10-04.
- Deierling, W., **C. P. Kalb**, D. Mach, C. Liu, M. J. Peterson, and R. Blakeslee, 2014: On the variability of Wilson Currents by storm type and phase. *Presented by Deierling*, XV International Conference on Atmospheric Electricity, Norman, OK, O-10-02.
- **Kalb, C. P.**, W. D. Deierling, D. Mach, C. Liu, and M. Peterson, 2013: Total Storm Currents and their Relationship to Microphysical and Dynamical Cloud Properties. *Poster*, 2013 Fall Meeting, AGU, San Francisco, CA, AE23B-0421.
- Deierling, W. D., **C. P. Kalb**, D. Mach and C. Liu, 2013: Total Storm Currents in Relation to Storm Type and Life Cycle. *Poster by Deierling*, 2013 Fall Meeting, AGU, San Francisco, CA, AE23B-0427.
- Peterson, M. J., C. Liu, D. Mach, W. D. Deierling, and **C. P. Kalb**, 2013: Of Ice and Charging: A look at Thundercloud Electric Fields and Passive Microwave Observations. *Poster by Peterson*, 2013 Fall Meeting, AGU, San Francisco, CA, AE13B-0347.
- Deierling, W., D. M. Mach, **C. P. Kalb**, S. A. Al-Momar, and D. J. Cecil, 2013: Conduction currents in relation to cloud properties of different storm types. *Poster by Deierling*, 6th Conference on the Meteorological Applications of Lightning Data, Austin, TX, 740.
- Al-Momar, S., W. Deierling, **C. P. Kalb**, K. Kosmenko, D. Mach, and D. Cecil, 2013: Relating electrified cloud properties to Wilson Currents: An oceanic and continental case study. *Poster by Al-Momar*, AMS 12th Annual Student Conference, Austin, TX, S99.
- Cai, H., M. Steiner, J. A. Grim, **C. P. Kalb**, C. J. Kessinger, J. Pinto, K. Stone, and M. Strahan, 2013: Probabilistic convective storm guidance for strategic planning of offshore and transoceanic flights. *Poster by Steiner*, 16th Conference on Aviation, Range, and Aerospace Meteorology, Austin, TX, 628.
- **Kalb, C. P.**, J.O. Pinto, and S.A. Dettling, 2011: Evaluation of Modeled Precipitation Intensity Distributions and their Application to Short Term Forecasting. *Presented*, 24th Conference on

Weather and Forecasting/20th Conference on Numerical Weather Prediction, Amer. Meteor. Soc., Seattle, WA, 1B.2.

- **Kalb, C. P.**, A.R. Dean, R.A. Peppler, and K.L. Sonntag, 2004: Intercomparison of Cloud Base Height at the ARM Southern Great Plains Site. *Poster*, 14th ARM Science Team Meeting, Albuquerque, NM.
- **Kalb, C. P.**, A.R. Dean, R.A. Peppler, and K.L. Sonntag, 2004: Intercomparison of Cloud Base Height at the ARM Southern Great Plains Site. *Poster*, 3rd Annual Student Conference, Amer. Meteor. Soc., Seattle, WA, P1.7.

OTHER PRESENTATIONS

- **Kalb, C. P.**, W. Deierling, M. J. Peterson, and C. Liu, 2016: Total storm conduction current parameterization in a Global Model. *Presented*, Community Earth System Model Whole Atmosphere Working Group Meeting, Boulder, CO.
- Deierling, W., M. Peterson, and **C. P. Kalb**, 2015: Global Electric Circuit. *Co-presented*, RAL Retreat, Boulder, CO.
- **Kalb, C. P.** and W. Deierling, 2013: Electrical connections and consequences within the earth system: project overview. *Presented*, Space Foundation's Meteorology and Space Weather one-week Program, Boulder, CO.