Curriculum Vitae

Robert A. Stillwell

Instrument Software Engineer
Earth Observing Laboratory
National Center for Atmospheric Research
Boulder, CO, 80307
Last Updated on: April 16, 2024

Education

University of Colorado at Boulder 2017
PhD Aerospace Engineering Sciences
Emphasis: Remote Sensing Earth and Space Sciences
Advisor: Jeff Thayer
Thesis Title: Observing Microphysical Properties of Atmospheric Water Using Polarization and Raman Lidar

University of Colorado at Boulder 2013
M.S. Aerospace Engineering Sciences
Emphasis: Remote Sensing Earth and Space Sciences

University of Colorado at Boulder 2013
B.S. Aerospace Engineering Sciences
Minors: Applied Mathematics, Germanic Studies
Cum Laude

Professional Experience

National Center For Atmospheric Research
Instrument Software Engineer March 2019-Present
Postdoctoral Researcher August 2017-March 2019

Colorado Center for Astrodynamics Research
Graduate Research Assistant December 2013-August 2017
Undergraduate Research Assistant August 2010-December 2013

Leibniz Institute of Atmospheric Physics
Visiting Scientist June 2012-August 2012

Research Projects

Title:	Development of a Temperature Profiling Differential Absorption Lidar
Funding Source:	National Center for Atmospheric Research Advanced Study Program
Duration:	September 2017 - August 2019

Title:	The Detection and Role of Arctic Ice Clouds in Earth's Radiation Budget
Funding Source:	National Science Foundation GRFP (Grant Number: DGE 1144083)
Duration:	August 2012 - August 2017

Papers in Press, Revision, Review, and Preperation

1. Hayman, M., **R. A. Stillwell**, J. Carnes, G. J. Kirchhoff, S. M. Spuler, and J. P. Thayer: 2D Signal Estimation for Sparse Distributed Target Photon Counting Data, *(Submitted to Scientific Reports, Available at https://arxiv.org/abs/2311.18037).*

2. Rowe, P., X. Zou, I. Gorodetskaya, **R. A. Stillwell**, R. Cordero, E. Sepulveda, D. Bromwich, Z. Zhang, and M. Ralph: Clouds and Radiation over King George Island in the Southern Ocean, *(In Preparation)*

3. Cruikshank, O., L. Colberg, K. S. Repasky, **R. A. Stillwell**, S. M. Spuler: Advancement and Demonstration of a Perturbative Retrieval Technique for Temperature Profiling in the Lower Troposphere Using Differential Absroption Lidar (DIAL), *(In Preparation)*

Peer Reviewed Journal Articles

1. Hayman, M., **R. A. Stillwell**, A. Karboski, W. J. Marais, and S. M. Spuler: Global Estimation of Range Resolved Thermodynamic Profiles From Micropulse Differential Absorption Lidar, Opt. Express, 32, 14442-14460 (2024)

2. Spuler, S. M., M. Hayman, **R. A. Stillwell**, J. Carnes, T. Bernatsky, and K. S. Repasky: MicroPulse DIAL (MPD) – a Diode-Laser-Based Lidar Architecture for Quantitative Atmospheric Profiling, Atmos. Meas. Tech., 14, 4593–4616 (2021)

3. Hayman, M., **R. A. Stillwell**, and S. M. Spuler: Optimization of linear signal processing in photon counting lidar using Poisson thinning, Opt. Lett. 45, 5213-5216 (2020)

4. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, C. E. Bunn, and K. S. Repasky: Demonstration of a Combined Differential Absorption and High Spectral Resolution Lidar for Profiling Atmospheric Temperature, Opt. Express 28, 71-93 (2020)

5. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, V. P. Walden, M. D. Shupe, and N. B. Miller: Radiative Properties of Horizontally Oriented Ice Crystals over Summit, Greenland, Journal of Geophysical Research: Atmospheres 124, 12141-12156 (2019)

6. K. S. Repasky, C. E. Bunn, M. Hayman, **R. A. Stillwell**, and S. M. Spuler: Modeling the Performance of a Diode Laser-Based (DLB) Micro-Pulse Differential Absorption Lidar (MPD) for Temperature Profiling in the Lower Troposphere, Opt. Express 27, 33543-33563 (2019)

7. Hayman, M., **R. A. Stillwell**, and S. M. Spuler: Fast computation of absorption spectra for lidar data processing using principal component analysis, Opt. Letters 44, 1900-1903 (2019)

8. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, M. D. Shupe, and D. D. Turner: Improved Cloud-Phase Determination of Low-Level Liquid and Mixed-Phase Clouds by Enhanced Polarimetric Lidar, Atmos. Meas. Tech. 11, 835-859. (2018)

9. Barton-Grimley, R. A., **R. A. Stillwell**, and J. P. Thayer: High resolution photon time-tagging lidar for atmospheric point cloud generation, Opt. Express 26, 26030-26044. (2018)

10. Bunn, C. E., K. S. Repasky, M. Hayman, **R. A. Stillwell**, and S. M. Spuler: Perturbative Solution to the Two Component Atmosphere DIAL Equation for Improving the Accuracy of the Retrieved Absorption Coefficient, Appl. Opt. 57, 4440-4450. (2018)

11. **Stillwell, R. A.**, P. Pilewskie, J. P. Thayer, M. O'Neill, and R. R. Neely III: Monte Carlo Method for the Analysis of Laser Safety for High Powered Lidar Systems, J. Laser Appl. 29. (2017)

12. Goerke, M., Z. Ulanowskie, G. Ritter, E. Hesse, R. R. Neely III, L. Taylor, **R. A. Stillwell**, and P. H. Kaye: Characterizing Ice Particles Using Two-Dimensional Reflections of a Lidar Beam, Appl. Opt. 56, G188-G196. (2017)

13. Neely, R. R., M. Hayman, **R. A. Stillwell**, J. P. Thayer, R. M. Hardesty, M. O'Neill, M. D. Shupe, and C. Alvarez: Polarization Lidar at Summit, Greenland, for the Detection of Cloud Phase and Particle Orientation, J. Atmos. Oceanic Technol. 30, 1635-1655. (2013)

Patent Activity

1. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, and K. S. Repasky: Differential Absorption Lidar for Profiling Temperature, Patent Application Submitted, November 2018. Status: Pending.

Peer Reviewed Conference Proceedings

1. **Stillwell, R. A.**, A. Karboski, M. Hayman, and S. M. Spuler: Extending the Observational Range of the MicroPulse DIAL (MPD) Instrument Through Shot-To-Shot Modification of Laser Pulse Characteristics (Submitted Abstract), 31st International Laser Radar Conference, Landshut, Germany, June 2024.

2. Spuler, S. M, **R. A. Stillwell**, and M. Hayman: The MicroPulse DIAL (MPD) for Lower Troposphere Thermodynamic Profiling Networks (Submitted Abstract), 31st International Laser Radar Conference, Landshut, Germany, June 2024.

3. Hayman, M., **R. A. Stillwell**, W. J. Marais, A. Karboski, and S. M. Spuler: Simultaneous Measurement of Water Vapor, Temperature and Aerosol Backscatter with Diode-Laser-Based Lidar (Submitted Abstract), 31st International Laser Radar Conference, Landshut, Germany, June 2024.

4. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, K. S. Repasky and O. Cruikshank: Field Testing of a Diode-Laser-Based Micropulse Differential Absorption Lidar System to Measure Atmospheric Thermodynamic Variables (Talk and extended abstract), 30th International Laser Radar Conference, Virtual, June 2022.

5. Spuler, S. M., **R. A. Stillwell**, M. Hayman, and K. S. Repasky: Semiconductor Lidar for Quantitative Atmospheric Profiling (Poster and extended abstract), 30th International Laser Radar Conference, Virtual, June 2022.

6. Hayman, M., W. J. Marais, **R. A. Stillwell**, S. M. Spuler, and J. Carnes: Enhancing the Performance of the MicroPulse DIAL through Poisson Total Variation Signal Processing (Talk and extended abstract), 30th International Laser Radar Conference, Virtual, June 2022.

7. Hayman, M., W. J. Marais, H. Chipilski, **R. A. Stillwell**, S. M. Spuler: When Can Poisson Random Variables Be Approximated As Gaussian? (Poster and extended abstract), 30th International Laser Radar Conference, Virtual, June 2022.

8. Cruikshank, O., L. Colberg, K. S. Repasky, **R. A. Stillwell**, and S. M. Spuler: MicroPulse Differential Absorption Lidar tof Temperature Retrieval in the Lower Troposphere (Poster and extended abstract), 30th International Laser Radar Conference, Virtual, June 2022.

9. Colberg, L., O. Cruikshank, K. S. Repasky, S. M. Spuler, **R. A. Stillwell**, and M. Hayman: Planetary Boundary Layer Height Measurements Using MicroPulse DIAL (Poster and extended abstract), 30th International Laser Radar Conference, Virtual, June 2022.

10. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, C. E. Bunn, and K. S. Repasky: Towards Developing a Micro-Pulse Differential Absorption Lidar to Measure Atmospheric Temperature (Talk and extended abstract), 29th International Laser Radar Conference, Hefei, China, June 2019.

11. Hayman, M., W. Marais, **R. A. Stillwell**, and S. M. Spuler: Poisson Total Variation Denoising for Micro-Pulse Water Vapor DIAL (Talk and extended abstract), 29th International Laser Radar Conference, Hefei, China, June 2019.

12. Spuler, S. M., T. Bernatsky, C. E. Bunn, J. Carnes, M. Hayman, K. S. Repasky, **R. A. Stillwell**, and T. Weckwerth: Test Network of Micro-Pulse Differential Absorption Lidar Instruments (Talk and extended abstract), 29th International Laser Radar Conference, Hefei, China, June 2019.

13. **Stillwell, R. A.**, R. R. Neely III, M. D. Shupe, J. P. Thayer, and D. D. Turner: Multi-Sensor Identification of Polar Mixed Phase Clouds, 28th International Laser Radar Conference (Talk and extended abstract), 28th International Laser Radar Conference, Bucharest, Romania, June 2017.

14. Neely III, R. R., **R. A. Stillwell**, J. P. Thayer, and S. Cole: Properties of Horizontally Oriented Ice Crystals over Summit, Greenland, 28th International Laser Radar Conference (Talk and extended abstract), 28th International Laser Radar Conference, Bucharest, Romania, June 2017.

15. **Stillwell, R. A.**, R. R.Neely III, P. Pilewskie, M. O'Neill, J. P. Thayer, and M. Hayman: An Autonomous Polarized Raman Lidar System Designed for Summit Camp, Greenland (Poster and extended abstract), 27th International Laser Radar Conference, New York, New York, USA, July 2015.

16. Neely III, R. R., J. P. Thayer, R. M. Hardesty, M. Hayman, M. O'Neill, **R. A. Stillwell** and C. Alvarez: The Cloud, Aerosol Polarization and Backscatter Lidar at Summit, Greenland (Poster and extended abstract), 26th International Laser Radar Conference, Porto Heli, Greece, June 2012.

Conference Presentations

1. Spuler, S. M., **R. A. Stillwell**, M. Hayman, and K. S. Repasky: Semiconductor-Laser-Based Lidar for Thermodynamic Profiling of the Lower Atmosphere (Talk), AGU Fall Meeting, San Francisco, CA, December 2023.

2. Mayor, S. D., B. Morley, S. M. Spuler, **R. A. Stillwell**, P. Derian, M. Astaneh, and C. Tong: Preliminary results from the Raman-shifted Eye-safe Aerosol Lidar (REAL) at the Multipost MOST Horizontal Array Turbulence Study (M2HATS) (Talk), AGU Fall Meeting, San Francisco, CA, December 2023.

3. Rowe, P., X. Zou, I. Gorodetskaya, Z. Zhang, F. M. Ralph, **R. A. Stillwell**, and R. Cordero: Characterization of clouds, water vapor, and radiation and their role in Atmospheric River and Foehn events over the Antarctic Peninsula (Poster), AGU Fall Meeting, San Francisco, CA, December 2023.

4. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, O. Cruikshank, and K. S. Repasky: Testing of Field-Deployable Combined Differential Absorption and High Spectral Resolution Lidar Systems for Measuring Atmospheric Thermodynamic Variables and Quantitative Aerosol Profiles (Talk), AMS Annual Meeting, Denver, CO, USA, January 2023.

5. Spuler, S. M., **R. A. Stillwell**, M. Hayman, K. S. Repasky: Semiconductor-based Lidar for Quantitative Atmospheric Profiling (Talk), AMS Annual Meeting, Denver, CO, USA, January 2023.

6. Hayman, M., W. J. Marais, **R. A. Stillwell**, J. Carnes, G. Kirchhoff, S. M. Spuler, and J. P. Thayer: Interrogation of Heterogeneous Atmospheric Structure Through Statistical Signal Processing (Talk), AMS Annual Meeting, Denver, CO, USA, January 2023.

7. Cruikshank O., L. Colberg, K. S. Repasky, **R. A. Stillwell**, and S. M. Spuler: Micropulse Differential Absorption Lidar for Temperature Retrieval in the Lower Troposphere Recent Improvements and Testing (Poster), AMS Annual Meeting, Denver, CO, USA, January 2023.2023.

8. Colberg L., O. Cruikshank, K. S. Repasky, S. M. Spuler, **R. A. Stillwell**, and M. Hayman: Improved Planetary Boundary Layer Height Retrievals from a Diode-Laser-Based High Spectral Resolution Lidar (Talk), AMS Annual Meeting, Denver, CO, USA, January 2023.

9. Tucker, S. C., M. Hayman, B. Walters, J. Applegate, S. M. Spuler, R. M. Hardesty, and **R. A. Stillwell**: Observing Atmospheric Flux with Flexible, Multi-function, Optical Autocovariance Wind Lidar (OAWL) for Concurrent Wind, Aerosol, and Water Vapor Measurements (Talk), AMS Annual Meeting, Denver, CO, USA, January 2023.

10. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, O. Cruikshank, and K. S. Repasky: A Field-Deployable Diode-Laser-Based Micropulse Lidar System to Measure Atmospheric Thermodynamic Variables: Field Testing (Talk), AMS Annual Meeting, Virtual, January 2022.

11. Cruikshank O., L. Colberg, K. S. Repasky, **R. A. Stillwell**, S. M. Spuler, and M. Hayman: Micropulse Differential Absorption Lidar for Temperature Retrieval in the Lower Troposphere (Talk), AMS Annual Meeting, Virtual, January 2022.

12. Colberg L., O. Cruikshank, K. S. Repasky, S. M. Spuler, **R. A. Stillwell**, and M. Hayman: Planetary Boundary Layer Height Measurements Using Diode-Laser-Based High Spectral Resolution Lidar (Talk), AMS Annual Meeting, Virtual, January 2022.

13. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, K. S. Repasky, O. Cruikshank, and L. Colberg: Progress Towards the Network Deployment of Atmospheric Temperature Profiling Using Differential Absorption Lidar (Talk), AMS Annual Meeting, Virtual, January 2021.

14. Spuler, S. M., **R. A. Stillwell**, M. Hayman, and K. S. Repasky: Lower Atmosphere Thermodynamic Profiling Test Network (Talk), AMS Annual Meeting, Virtual, January 2021.

15. Hayman, M., W. Marais, **R. A. Stillwell**, and S. M. Spuler: Biases Resulting from Nonlinear Photon Counting in a Heterogenous Atmosphere (Talk), AMS Annual Meeting, Virtual, January 2021.

16. Marais, W., M. Hayman, S. M. Spuler, **R. A. Stillwell**, R. Holz, R. Willett: Enhancing Observational Capabilities of Water Vapor Micro Pulse Differential Absorption Lidar Through Simultaneous Denoising and Inference (Talk), AMS Annual Meeting, Virtual, January 2021.

17. Cruikshank O., L. Colberg, K. S. Repasky, **R. A. Stillwell**, M. Hayman, and S. M. Spuler: Modeling the MicroPulse DIAL (MPD) Performance at Low Ranges, and Improving Temperature Profiling Retrieval Algorithms (Poster), AMS Annual Meeting, Virtual, January 2021.

18. Marais, W., M. Hayman, S. M. Spuler, **R. A. Stillwell**, R. Holz, R. Willett: Enhancing Observational Capabilities of Water Vapor Micro Pulse Differential Absorption Lidar Through Simultaneous Denoising and Inference (Talk), AGU Fall Meeting, Virtual, December 2020.

19. Spuler, S. M., **R. A. Stillwell**, M. Hayman, T. M. Wechwerth, K. S. Repasky: Micro-Pulse DIAL (MPD) Ground-Based Network for Thermodynamic Profiling in the Lower Troposphere (Talk), EGU General Assembly, Virtual, May 2020.

20. Wechwerth, T. M., S. M. Spuler, D. D. Turner, M. Hayman, **R. A. Stillwell**: First Observations from the Micro-Pulse DIAL Network (Talk), AMS Annual Meeting, Boston, MA, USA, January 2020.

21. Repasky, K. S., S. M. Spuler, M. Hayman, **R. A. Stillwell**, and O. Cruikshank: Micro-Pulse Differential Absorption Lidar (DIAL) for Thermodynamic Profiling in the Lower Troposphere (Talk), AMS Annual Meeting, Boston, MA, USA, January 2020.

22. Bunn, C. E., K. S. Repasky, **R. A. Stillwell**, M. Hayman, and S. M. Spuler: Diode-Laser-Based Micro-Pulse Differential Absorption Lidar for Thermodynamic Profiling of the Lower Troposphere (Talk), OSA Optical Sensors and Sensing Congress, San Jose, CA, USA, June 2019.

23. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, C. E. Bunn, and K. S. Repasky: Design of a Combined Oxygen Differential Absorption Lidar and High Spectral Resolution Lidar for Measuring Tropospheric Temperature (Talk), AMS Annual Meeting, Phoenix, AZ, USA, January 2019.

24. Bunn, C. E, K. S. Repasky, S. M. Spuler, M. Hayman, and **R. A. Stillwell**: Ground-Based Eye-Safe Networkable Micro-Pulse Differential Absorption Lidar (DIAL) for Thermodynamic Profiling in the Lower Troposphere (Talk), AMS Annual Meeting, Phoenix, AZ, USA, January 2019.

25. Barton-Grimley, R. A., **R. A. Stillwell**, and J. P. Thayer: High-Resolution Photon Time Tagging for Multifunction Atmospheric Lidar Studies (Talk and Poster), AMS Annual Meeting, Phoenix, AZ, USA, January 2019.

26. **Stillwell, R. A.**, S. M. Spuler, M. Hayman, Bunn, C. E, and K. S. Repasky: Towards Measuring Atmospheric Temperature Using a Combined Differential Absorption and High Spectral Resolution Lidar (Talk), AGU Fall Meeting, Washington D.C., USA, December 2018.

27. Rowe, P. M., E. Sepúlveda, S. Neshyba, M. Caballero, A. Damiani, R. Cordero, **R. A. Stillwell**, and R. R. Neely III: The Radiative Impact of Low Clouds over the Antarctic Peninsula and Southern Ocean: A first look at measurements made at King George Island, Antarctica (Talk), 15th Conference on Atmospheric Radiation, Vancouver, BC, Canada, July 2018.

28. Barton-Grimley, R. A., **R. A. Stillwell**, and J. P. Thayer: High Resolution Atmospheric Polarimetric Lidar Using Time-Correlated Single Photon Counting Principles (Talk), AGU Fall Meeting, New Orleans, LA, USA, December 2017.

29. Murphy, S. Y, V. P. Walden, L. Cohen, S. R. Hudson, and **R. A. Stillwell**: The Impact of Cloud Properties on Young Sea Ice During Three Winter Storms at N-ICE 2015 (Talk), AGU Fall Meeting, New Orleans, LA, USA, December 2017.

30. **Stillwell, R. A.**, R. R. Neely III, and J. P. Thayer: Multi-Sensor Observations of Polar Ice Clouds and Horizontally Oriented Ice Crystals (Talk), 10th International Symposium on Tropospheric Profiling, Fort Collins, CO, USA, May 2017.

31. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, and M. O'Neill: (Mis)Identification of Arctic Mixed Phase Clouds By Polarization Lidar (Talk), AMS Annual Meeting, Seattle, WA, USA, January 2017.

32. Barton-Grimley, R. A., J. P. Thayer, **R. A. Stillwell**, A. Gisler, and G. Crowley: Atmospheric Polarimetric Lidar Applied to Glacial Melt Water Measurements (Talk), AMS Annual Meeting, Seattle, WA, USA, January 2017.

33. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, and M. D. Shupe: Identification and Misidentification of Arctic Mixed Phase Clouds By Polarization Lidar (Poster), AGU Fall Meeting, San Francisco, CA, USA, December 2016.

34. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, M. O'Neill, and R. A. Barton-Grimley: Multiple Linear Polarization Lidar with Improved Polarization Retrievals for Enhanced Atmospheric Observation in the Arctic (Talk), EGU Annual Meeting, Vienna, Austria, April 2016.

35. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, M. O'Neill, and R. A. Barton-Grimley: Multiple Linear Polarization Lidar with Improved Polarization Retrievals for Enhanced Atmospheric Observation in the Arctic (Poster), AGU Fall Meeting, San Francisco, CA, USA, December 2015.

36. Barton-Grimley, R. A., A. Gisler, J. P. Thayer, **R. A. Stillwell**, and S. Grigsby: Novel Polarization Techniques and Instrumentation for Glacial Melt Pond Laser Bathymetry (Talk), AGU Fall Meeting, San Francisco, CA, USA, December 2015.

37. O'Neill, M., **R. A. Stillwell**, R. R. Neely III, P. Pilewskie, and J. P. Thayer: Hazard Analysis for an Arctic Based Autonomous Polarized Raman Lidar (Talk), International Laser Safety Conference, Albuquerque, NM, USA, March 2015.

38. **Stillwell, R. A.**, R. R. Neely III, M. O'Neill, M. Hayman, J. P. Thayer, R. A. Barton-Grimley, and M. Shupe: Polarization Lidar for the Detection of Cloud Phase and Particle Orientation (Talk), AMS Annual Meeting, Phoenix, AZ, USA, January 2015.

39. Neely III, R. R, **R. A. Stillwell**, M. O'Neill, M. Hayman, J. P. Thayer, D. D. Turner, R. M. Hardesty, R. J. Alvarez II, and M. Shupe: Design of an Autonomous Polarized Raman Lidar System for Arctic Observations (Talk), AMS Annual Meeting, Phoenix, AZ, USA, January 2015.

40. **Stillwell, R. A.**, R. R. Neely III, M. O'Neill, J. P. Thayer, M. Hayman, and L. Gillis: Design of an Autonomous Polarized Raman Lidar for Arctic Observations (Poster), AGU Fall Meeting, San Francisco, CA, USA, December 2014.

41. **Stillwell, R. A.**, R. R. Neely III, J. P. Thayer, and M. O'Neill: An Autonomous Raman Lidar for Atmospheric Measurement in the Arctic (Poster), Colorado Photonics Industry Association Annual Meeting, Boulder, CO, October 2014.

42. **Stillwell, R. A.**, R. R. Neely III, M. Hayman, J. P. Thayer, and M. O'Neill: Design of an RMR Lidar for High-Resolution Atmospheric Measurement above Summit, Greenland (Poster), Symposium on Meteorological Observation and Instrumentation, Westminster, CO, USA, June 2014.
1st place student poster presentation from the AMS Committee on Measurements

43. **Stillwell, R. A.**, R. R. Neely III, M. Hayman, J. P. Thayer, and M. O'Neill: Scientific Basis and Specifications for an Arctic High Resolution RMR Lidar (Talk), Symposium on Meteorological Observation and Instrumentation, Westminster, CO, USA, June 2014.

44. Neely III, R. R., **R. A. Stillwell**, M. Hayman, J. P. Thayer, R. M. Hardesty, and M. O'Neill: Polarization Lidar for the Detection of Cloud Phase and Particle Orientation (Talk), Symposium on Meteorological Observation and Instrumentation, Westminster, CO, USA, June 2014.

45. Neely, R. R, M. Hayman, **R. A. Stillwell**, J. P. Thayer, R. M. Hardesty, M. O'Neill, M. Shupe, and C. Alvarez: The Cloud, Aerosol Polarization and Backscatter Lidar at Summit, Greenland (Talk), 12th Conference on Polar Meteorology and Oceanography, Seattle, WA, May 2013.

46. Neely III, R. R., M. Hayman, J. P. Thayer, R. M. Hardesty, M. O'Neill, M. Shupe, and **R. A. Stillwell**: First Year of Data From the Polarization Lidar for the Detection of Cloud Phase, Particle Orientation and Stratospheric Aerosol At Summit, Greenland (Talk), AMS Annual Meeting, New Orleans, LA, January 2012.

47. Hayman, M., J. P. Thayer, R. R. Neely III, M. O'Neill, and **R. A. Stillwell**: Demonstration of a Novel Polarization Lidar Technique for Identifying Horizontally Oriented Ice Crystals (Poster), AGU Fall Meeting, San Francisco, CA, December 2011.

48. **Stillwell, R. A.**, J. P. Thayer, and M. Hayman: Accounting for Nonlinear Sensor Behavior in Laser Remote Sensing Applications (Poster), CEDAR Conference, Santa Fe NM, June 2011.
Undergraduate Honorable Mention

Teaching and Mentoring Experience

1. Mentor for the National Center for Atmospheric Research's SOARS Program: Summer 2014, Summer 2018.

2. Tutor/Lead Tutor for the University of Colorado BOLD Center's Student Success Center: Fall 2013-Spring 2017.

3. Mentor for the University of Colorado's Discovery Learning Apprenticeship Program: Fall 2014-Spring 2015, Fall 2015-Spring 2016.
Mentee, Lewis Gillis, won poster competition for poster "Automatic Alignment of an Arctic Observing Lidar System".

4. Mentor for the YOURE@CU Program through the University of Colorado BOLD Center: Spring 2013.
Mentee, Jaclyn Cunitz, won poster competition for poster "Operational Considerations for Airborne Laser Bathymetry".

5. Teaching assistant for junior level Thermodynamics and Heat Transfer: ASEN 3113, Fall 2012. Performance based on student evaluations: 3.98/4.

Professional Service

1. Anonymous Reviewer for:
   (a) Atmospheric Research (2015)
   (b) Journal of Geophysical Research: Atmospheres (2017, 2018)
   (c) Journal of Applied Meteorology and Climatology (2018)
   (d) Atmospheric Chemistry and Physics (2018)
   (e) Remote Sensing (2020, 2022, 2022, 2024)
   (f) NASA Earth Science Technology Office (ESTO) (2020, 2022)
   (g) Atmospheric Measurement Techniques (2021, 2024)
   (h) Applied Optics (2022, 2022)
2. Representative on the AMS Committee for Laser Atmospheric Studies (CLAS) (2017-2023).
3. Student Representative on the AMS Committee for Laser Atmospheric Studies (CLAS) (2016-2017).

Skills

1. Languages
   (a) Native: English
   (b) B1 Proficiency: German
2. Programming Languages
   (a) Full Professional Proficiency: Labview, Latex, Matlab, Python
   (b) Basics: Bash, Solidworks, Thermal Desktop
3. Operating Systems

(a) Full Professional Proficiency: Linux, macOS, Windows

Field Research Activities

1. Albany, New York, 2024 - Eclipse Field Project (18 total days)
2. Tonopah, Nevada, 2023 - M2HATS Field Project (6 total days)
3. Hsinchu, Taiwan, 2022 - PRECIP Field Campaign (35 total days)
4. Billings, Oklahoma, 2019 - MPD Network Demonstration (10 total days)
5. Cordoba, Argentina, 2018 - RELAMPAGO Field Campaign (14 total days)
6. Summit, Greenland, 2013-2017 - ICECAPS Program (152 total days)
7. Andenes, Norway, 2012 - IAP Annual NLC Campaign (22 total days)

Supported Field Campaigns (not in field)

1. CAESER 2024
2. ESCAPE 2022

Professional Affiliations

1. American Geophysical Union (2014-Present).
2. American Meteorological Society (2015-2023).
3. Optical Society of America (2017-2023).
4. European Geophysical Union (2018-2020).