

## ANDREW J. NEWMAN

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### Education

Doctor of Philosophy, Atmospheric Science, **Colorado State University**, Dec. 2011.

- Dissertation Title: Aspects of Gulf Surges and Tropical Upper Tropospheric Troughs in the North American Monsoon

Master of Science, Atmospheric Sciences, **University of North Dakota**, Aug. 2007.

- Thesis Title: Surface and Vertical Retrievals of Snowfall Using a Video Disdrometer and a 915 MHz Vertical Profiler

Bachelor of Science, Atmospheric Sciences, **University of North Dakota**, May 2004.

- Minors in Mathematics and Computer Science.
- Summa Cum Laude

### Professional Experience

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|--------------|---|
| 2017-Present | <b>Project Scientist II</b> , Research Applications Laboratory, National Center for Atmospheric Research<br>Primary Research Topic(s): Ensemble surface meteorology datasets, convective permitting regional climate simulations, continental domain hydrology and streamflow prediction for climate adaptation, flood frequency analysis, cloud microphysics |
| 2014-2017    | <b>Project Scientist I</b> , Research Applications Laboratory, National Center for Atmospheric Research<br>Primary Research Topic(s): Ensemble surface meteorology datasets, convective permitting regional climate simulations, continental domain hydrology and streamflow prediction for climate adaptation  |
| 2011-2013    | <b>Advanced Study Program Postdoctoral Fellow</b> , National Center for Atmospheric Research<br>Advisors: Dr. Martyn Clark and Dr. Roy Rasmussen, Research Applications Laboratory, National Center for Atmospheric Research<br>Primary Research Topic(s): Representation of sub-grid heterogeneity in land-surface/hydrology models                          |
| 2007-2011    | <b>Graduate Research Assistant</b> , Colorado State University  |

Advisor: Dr. Richard Johnson, Department of Atmospheric Science, Colorado State University  
 Primary Research Topic(s): Mesoscale atmospheric modeling of dynamic features in the North American Monsoon

2009 **Graduate Teaching Assistant**, Colorado State University

2008 **TiMREX Field Campaign**, Pingtung City, Taiwan  
 Primary tasks: Assisting with sounding network operation including data quality assurance and control, participate in daily briefings

2004-2007 **NASA ESS Graduate Fellow**, University of North Dakota  
 Advisor, Dr. Paul Kucera, Department of Atmospheric Sciences, University of North Dakota  
 Primary Research Topic(s): Development of in situ and remote sensing algorithms for snowflake size distribution measurements

2006 **NAMMA Field Campaign**, Senegal, Africa  
 Primary tasks: Assisting with deployment and maintenance of the rain gauge network and shift work at NASA Polarimetric radar (NPOL)

2004 **NASA Summer Graduate Fellow**, NASA/Wallops Flight Facility  
 Advisor: Dr. Larry Bliven, NASA/Wallops Flight Facility  
 Primary Research Topic(s): Video disdrometer instrument development

## **Additional Training**

UCAR Leadership Exploration And Development (LEAD) Training  
 UCAR Supervisor Orientation Training  
 RAL PI 101 and 202  
 Modern Fortran short courses  
 NCL tutorial  
 HEPEX streamflow forecasting workshop  
 Snow modeling short course

## **Publications**

### **1. Thesis and Dissertation**

**Newman, A. J.**, 2011: Aspects of Gulf Surges and Tropical Upper Tropospheric Troughs in the North American Monsoon. Ph.D. Dissertation, Colorado State University, 171 pp.

**Newman, A. J.**, 2007: Surface and Vertical Retrievals of Snowfall Using a Video Disdrometer and a 915 MHz Vertical Profiler. M.S. Thesis, University of North Dakota, 147 pp.

## **2. Refereed Journal Articles**

### **B. In Review**

1 first, 5 co-author (6 total)

1. **Newman, A. J.**, Stone, A. G., Saharia, M., Holman, K. D., Addor, N., and Clark, M. P.: Identifying Sensitivities in Flood Frequency Analyses using a Stochastic Hydrologic Modeling System, *Hydrol. Earth Syst. Sci. Discuss.* [preprint], <https://doi.org/10.5194/hess-2021-49>, in review, 2021.
2. Liu, H., B. Tolson, **A. J. Newman**, and A. W. Wood, 2021: Leveraging ensemble meteorological forcing data to improve parameter estimation of hydrologic models. Submitted to *Hydrologic Processes*.
3. Tang, G., M. P. Clark, S. M. Papalexiou, **A. J. Newman**, A. W. Wood, D. Brunet, P. H. Whitfield, 2020: EMDNA: Ensemble Meteorological Dataset for North America. *Earth Syst. Sci. Data Discuss.* [preprint], <https://doi.org/10.5194/essd-2020-303>, in review, 2020.
4. Huang, M., M, J. Strickland, M. Richards, H. A. Holmes; **A. J. Newman**, J. V. Garn, Y. Liu, J. L. Warren, H. H. Chang; L. A. Darrow, 2021: Acute Associations between Heatwaves and Preterm and Early-term Birth in 50 US Metropolitan Areas in the 1980s: A Matched Case-Control Study. Submitted to *Environmental Health*.  
**Accepted pending revision**
5. Thomas, N.; S. T Ebelt; **A. J Newman**; N. Scovronick; R. R D'Souza; S. Moss; J. L Warren; M. J Strickland; L. A Darrow; H, Chang, 2021: Time-series analysis of daily ambient temperature and emergency department visits in five US cities with a comparison of exposure metrics derived from 1-km meteorology products. Submitted to *Environmental Health*. **Accepted pending revision**
6. Ikeda, K., R. Rasmussen, C. Liu, **A. J. Newman**, F. Chen, M. Barlage, E. Gutmann, J. Dudhia, D. Gochis, A. Dai, C. Luce, and K. Musselman, 2021: Projected future changes in snowfall and snowpack in the Western U.S. as captured by a convective resolving climate simulation: Mesoscale and microphysical factors. Submitted to *Climate Dynamics*. **Accepted pending revision**

### **C. Published**

14 first, 28 co-author (42 total)

Web of Science H-Index: **17**; I-10 index: **21**

Google Scholar H-Index: **21**; I-10 index: **26**

1. Jian, S., J. L. Warren, N. Scovronick, S. Moss, L. A. Darrow, M. J. Strickland, **A. J. Newman**, Y. Chen, S. T. Ebel, H. H. Chang, 2021: Using logic regression to characterize extreme heat exposures and their health associations: a time-series study of emergency department visits in Atlanta. *BMC Medical Research Methodology*. **In press**.
2. **Newman, A. J.**, A. J. Monaghan, M. P. Clark, K. Ikeda, L. Xue, E. Gutmann, and J. R. Arnold, 2021: Hydroclimatic changes in Alaska portrayed by a high-resolution regional climate simulation. *Climatic Change*, **164**(1), 1-21.
3. Xue, L., Y. Wang, **A. J. Newman**, K. Ikeda, R. M. Rasmussen, T. W. Giambelluca, R. J. Longman, A. J. Monaghan, M. P. Clark, and J. R. Arnold, 2020: How will rainfall change over Hawai‘i in the future? High resolution regional climate simulation for the Hawaiian Islands. *Bulletin of Atmospheric Science and Technology*, **1**, 459-490.
4. **Newman, A. J.**, M. P. Clark, A. W. Wood, and J. R. Arnold, 2020: Probabilistic spatial meteorological estimates for Alaska and the Yukon. *J. Geophys. Research: Atmospheres*. **125**, e2020JD032696. <https://doi.org/10.1029/2020JD032696>
5. Poujol, B., A. F. Prein, and **A. J. Newman**, 2020: Kilometer-scale modeling projects a tripling of Alaskan convective storms in future climate. *Climate Dynamics*. <https://doi.org/10.1007/s00382-020-05466-1>
6. Tang, G., Clark, M. P., **Newman, A. J.**, Wood, A. W., Papalexiou, S. M., Vionnet, V., and Whitfield, P. H.: SCDNA, 2020: a serially complete precipitation and temperature dataset for North America from 1979 to 2018, *Earth Syst. Sci. Data*. **12**, 2381-2409, <https://doi.org/10.5194/essd-12-2381-2020>.
7. **Newman, A.J.**, and M. P. Clark, 2020: TIER Version 1.0: An open-source Topographically InformEd Regression (TIER) model to estimate spatial meteorological fields. *Geoscientific Model. Dev.* **13**, 1827–1843, <https://doi.org/10.5194/gmd-13-1827-2020>.
8. Longman, R. J., **A. J. Newman**, T. W. Giambelluca, M. Lucas, 2020: Characterizing the uncertainty and assessing the value of gap-filled daily rainfall data in Hawai‘i. *J. Appl. Meteor. Climatol.*, **59**, 1261–1276, <https://doi.org/10.1175/JAMC-D-20-0007.1>
9. Brunner, M. I., L. A. Melsen, **A. J. Newman**, A. W. Wood, and M. P. Clark 2020: Future streamflow regime changes in the United States: assessment using functional classification. *Hydrol. Earth Sys. Sci.* **24**, 3951–3966, <https://doi.org/10.5194/hess-24-3951-2020>.
10. He, C., F. Chen, M. Barlage, C. Liu, **A. J. Newman**, W. Tang, K. Ikeda, and R. Rasmussen, 2019: Can convection-permitting modeling provide decent precipitation for high-resolution snowpack simulations over mountains? *J. Geophysical Research – Atmospheres*, **124** (23), 12631-12654.
11. Rakovec, O., N. Mizukami, R. Kumar, **A. J. Newman**, S. Thober, A. W. Wood, M. P. Clark, and L. Samaniego, 2019: Diagnostic Evaluation of Large-domain Hydrologic Models calibrated across the Contiguous United States. *J. Geophysical Research – Atmospheres*, **124**(24), pp.13991-14007.

12. Mizukami, N., O. Rakovec, **A. J. Newman**, M. Clark, A. Wood, H. Gupta, and R. Kumar, 2019: On the choice of calibration metrics for “high flow” estimation using hydrologic models. *Hydrol. Earth Syst. Sci.*, **23**, 2601-2614, [https://doi:10.5194/hess-23-2601-2019](https://doi.org/10.5194/hess-23-2601-2019).
13. Lee, J., P. Doubrawa, L. Xue, **A. J. Newman**, C. Draxl, and G. Scott, 2019: Wind resource assessment for Alaska’s offshore regions: validation of a 14-year high-resolution WRF data set. *Energies*, **12**(14), 2780.
14. **Newman, A. J.**, M. P. Clark, R. J. Longman, E. Gilleland, T. W. Giambelluca, and J. R. Arnold, 2019: Use of daily station observations to produce high-resolution gridded probabilistic precipitation and temperature time series for the Hawaiian Islands. *J. Hydrometeorology*, **20**, 509-529.
15. **Newman, A. J.**, M. P. Clark, R. J. Longman, and T. W. Giambelluca 2019: Methodological Inter-Comparison of Gridded Precipitation and Temperature Products across Hawaii. *J. Hydrometeorology*, **20**, 531-547.
16. Huang, G.-J., V. N. Bringi, **A. J. Newman**, G. Lee, D. Moiseev, and B. M. Notaros, 2019: Dual-Wavelength Radar Technique Development for Snow Rate Estimation: A Case Study from GCPEX. *Atmos. Meas. Tech.*, **12**, 1409-1427, [https://doi:10.5194/amt-12-1409-2019](https://doi.org/10.5194/amt-12-1409-2019).
17. Longman, R. J., A. G. Frazier, **A. J. Newman**, T. W. Giambelluca, D. Schanzebach, A. Kagawa-Viviani, H. Needham, G. Jacobs, J. R. Arnold, and M. P. Clark, 2019: High-resolution gridded daily rainfall and temperature for the Hawaiian Islands (1990-2014). *J. Hydrometeorology*, **20**, 489-508, doi:10.1175/JHM-D-18-0112.1
18. Addor, N. G. Nearing, C. Prieto, **A. J. Newman**, N. Le Vine, and M. P. Clark, 2018: A ranking of hydrological signatures based on their predictability in space. *Water Resources Research*, doi:10.1029/2018WR022606.
19. Melsen, L., N. Addor, N. Mizukami, **A. J. Newman**, P. Torfs, M. Clark, R. Uijlenhoet, and A. J. Teuling, 2018: Mapping (dis)agreement in hydrologic projections. *Hydrol. Earth Syst. Sci.*, **22**, 1775-1791, doi:10.5194/hess-22-1775-2018.
20. Longman, R. J., T. W. Giambelluca, M. A. Nullet, A. G. Frazier, K. Kodama, S. D. Crausbay, P. D. Krushelnycky, S. Cordell, M. P. Clark, **A. J. Newman**, J. R. Arnold, 2018: Compilation of climate data from heterogeneous networks across the Hawaiian Islands. *Sci. Data*, **5**, 180012, doi:10.1038/sdata.2018.12
21. Monaghan, A. J., M. P. Clark, M. P. Barlage, **A. J. Newman**, L. Xue, J. R. Arnold, and R. M. Rasmussen, 2018: High-resolution historical climate simulations over Alaska: A new resource for the research community. *J. Applied Meteor. Climatol.*, **57**, 709-731.
22. Henn, B., **A. J. Newman**, B. Livneh, C. Daly, J. D. Lundquist, 2018: An assessment of differences in gridded precipitation datasets in complex terrain. *Journal of Hydrology*, **556**, 1205-1219.
23. Henn, B., M. P. Clark, D. Kavetski, **A. J. Newman**, M. Hughes, B. McGurk, and J. Lundquist, 2018: Spatiotemporal patterns of precipitation inferred from streamflow

- observations across the Sierra Nevada mountain range. *Journal of Hydrology*, **556**, 993-1012.
24. **Newman, A. J.**, M. Mizukami, M. Clark, A. W. Wood, B. Nijssen, and G. Nearing, 2017: Benchmarking of a physically based hydrology model. *J. Hydrometeorology*, **18**, 2215-2225.
  25. Mizukami, N., M. P. Clark, **A. J. Newman**, A. W. Wood, E. Gutmann, B. Nijssen, O. Rakovec, and L. Samaniego, 2017: Towards seamless large domain parameter estimation for hydrologic models. *Water Resources Research*, **53**, 8020-8040.
  26. Addor, N., **A. J. Newman**, N. Mizukami, M. P. Clark, 2017: The CAMELS data set: catchment attributes and meteorology for large-sample studies, *Hydrol. Earth Syst. Sci.*, **21**, 5293-5313, doi:10.5194/hess-21-5293-2017.
  27. Huang, C., **A. J. Newman**, M. P. Clark, A. W. Wood, and X. Zheng, 2017: Evaluation of snow data assimilation using the Ensemble Kalman Filter for seasonal streamflow prediction in the Western United States. *Hydrol. Earth Syst. Sci.*, **21**, 635-650, doi:10.5194/hess-21-635-2017.
  28. Notaroš, B. M., V. N. Bringi, C. Kleinkort, P. Kennedy, G.-J. Huang, M. Thurai, **A. J. Newman**, W. Bang, and G. Lee, 2016: Accurate Characterization of Winter Precipitation Using Multi-Angle Snowflake Camera, Visual Hull, Advanced Scattering Methods and Polarimetric Radar. *Atmosphere*, **7**(6), 81, doi:10.3390/atmos7060081.
  29. Liu, C., K. Ikeda, R. Rasmussen, M. Barlage, G. Thompson, **A. J. Newman**, A. F. Prein, F. Chen, L. Chen, M. Clark, A. Dai, J. Dudhia, T. Eidhammer, D. Gochis, E. Gutmann, S. Kurkute, Y. Li, and D. Yates, 2016: Continental-scale convection-permitting modeling of the current and future climate of North America. *Climate Dynamics*, doi:10.1007/s00382-016-3327-9.
  30. Wood, A. W., T. Hopson, **A. J. Newman**, L. Brekke, J. R. Arnold, and M. P. Clark: 2016: Quantifying streamflow forecast skill elasticities to initial condition and climate prediction skill. *J. Hydrometeorology*, **17**, 651-668.
  31. Mizukami, N., M. P. Clark, E. D. Gutmann, P. A. Mendoza, **A. J. Newman**, B. Livneh, B. Nijssen, L. Hay, L. D. Brekke and J. R. Arnold, 2016: Implications of the methodological choices for hydrologic portrayals over the Contiguous United States: statistically downscaled forcing data and hydrologic models. *J. Hydrometeorology*, **17**, 73-98.
  32. **Newman, A. J.**, M. P. Clark, J. Craig, B. Nijssen, A. W. Wood, E. D. Gutmann, N. Mizukami, L. Brekke, and J. R. Arnold, 2015: An observationally based gridded ensemble of precipitation and temperature data for the contiguous USA. *J. of Hydrometeorology*, **16**, 2481-2500.
  33. Mendoza, P. A., M. P. Clark, N. Mizukami, **A. J. Newman**, M. Barlage, E. D. Gutmann, R. Rasmussen, B. Rajagopalan, L. D. Brekke, and J. R. Arnold, 2015: Effects of hydrologic model choice and parameter estimation on the portrayal of climate change impacts., *J. Hydrometeorology*, **16**, 762-780, doi: 10.1175/JHM-D-14-0187.1

34. **Newman, A. J.**, M. P. Clark, K. Sampson, A. Wood, L. E. Hay, A. Bock, R. Viger, D. Blodgett, L. Brekke, J. R. Arnold, T. Hopson and Q. Duan, 2015: Development of a large-sample watershed-scale hydrometeorological dataset for the contiguous USA: Dataset characteristics and assessment of regional variability in hydrologic model performance. *Hydrology and Earth System Science*, **19**, 209-223, doi:10.5194/hess-19-209-2015.
35. Gochis, D., R. Schumacher, K. Friedrich, N. Doesken, M. Kelsch, J. Sun, K. Ikeda, D. Lindsey, A. Wood, B. Dolan, S. Matrosov, **A. Newman**, K. Mahoney, S. Rutledge, R. Johnson, P. Kucera, P. Kennedy, D. Sempere-Torres, M. Steiner, R. Roberts, J. Wilson, W. Yu, V. Chandrasekar, R. Rasmussen, A. Anderson, B. Brown, 2015: The great Colorado flood of September 2013. *Bulletin of the American Meteorological Society*, **96**, 1461–1487, doi: 10.1175/BAMS-D-13-00241.1.
36. **Newman, A. J.**, M. P. Clark, A. Winstral, D. Marks, and M. Seyfried, 2014: The use of similarity concepts to represent sub-grid variability in hydrologic and land-surface models: Case study in a snowmelt dominated watershed, *J. Hydrometeorology*, **15**, 1717-1738.
37. **Newman, A. J.**, and R. H. Johnson 2013: Dynamics of a North American Gulf Surge Event, *Mon. Wea. Rev.*, **141**, 3238-3253.
38. **Newman, A. J.**, and R. H. Johnson, 2012: Mechanisms for Precipitation Enhancement in a North American Monsoon Upper-Tropospheric Trough, *J. Atmos. Sci.*, **69**, 1775-1792.
39. **Newman, A. J.**, and R. H. Johnson, 2012: Simulation of a North American Monsoon Gulf Surge Event and Comparison to Observations, *Mon. Wea. Rev.*, **140**, 2534-2554.
40. Johnson, R. H., P. E. Ciesielski, T. S. L'Ecuyer, **A. J. Newman**, 2010: Diurnal Cycle of Convection during the 2004 North American Monsoon Experiment. *J. Climate*, **23**, 1060-1078.
41. **Newman, A. J.**, P. A. Kucera, and L. F. Bliven, 2009: Presenting the Snowflake Video Imager (SVI). *J. Atmos. Oceanic Technol.*, **26**, 167-179.
42. **Newman, A. J.**, P. A. Kucera, C. R. Williams, and L. F. Bliven, 2009: Snowflake Size Spectra Retrieved from a UHF Vertical Profiler. *J. Atmos. Oceanic Technol.*, **26**, 180-199.

### **3. Datasets**

4 lead, 5 support (9 total)

1. **Newman, A. J.**, M. P. Clark, and A. W. Wood, 2020: Ensemble gridded daily rainfall and temperature over Alaska and the Yukon Territory. National Center for Atmospheric Research-Earth System Grid, <https://doi.org/10.5065/hsbv-b152>
2. Xue, L., Ikeda, K., **A. J. Newman**, A. J. Monaghan, and R. M. Rasmussen, 2020: High-resolution current and future climate simulations over Hawaii. National Center for Atmospheric Research Earth System Grid, <https://doi.org/10.5065/7c2d-bg23>

3. Monaghan, A. J., **A. J. Newman**, K. Ikeda, M. P. Clark, M. P. Barlage, L. Xue, J. R. Arnold, and R. M. Rasmussen, 2020: High-resolution climate simulations over Alaska: A community dataset, version 2. National Center for Atmospheric Research-Earth System Grid, <https://doi.org/10.5065/D61Z42T0>
4. **Newman, A. J.**, M. P. Clark, R. Longman, and T. Giambelluca, 2018: Ensemble gridded (1 km) daily rainfall and temperature for the Hawaiian Islands (1990-2014). <https://doi.org/10.5065/D6SB44JV>
5. Longman, R. J., A. Frazier, **A. Newman**, T. Giambelluca, A. Kagawa-Viviani, and M. P. Clark, 2018: Deterministic gridded (250 m) daily rainfall and temperature for the Hawaiian Islands (1990-2014). <https://doi.org/10.5065/D6X065VV>
6. Longman, R. J., T. W. Giambelluca, M. A. Nullet, A. G Frazier, K. Kodama, S. D. Crausbay, P. D. Krushelnycky, S. Cordell, M. P. Clark, **A. J. Newman**, and J. R. Arnold, 2018: Compilation of climate data from heterogeneous networks across the Hawaiian Islands. doi:10.6084/m9.figshare.c.3858208. [https://figshare.com/collections/Compilation\\_of\\_climate\\_data\\_from\\_heterogeneous\\_networks\\_across\\_the\\_Hawaiian\\_Islands/3858208/1](https://figshare.com/collections/Compilation_of_climate_data_from_heterogeneous_networks_across_the_Hawaiian_Islands/3858208/1)
7. Addor, N., **A. Newman**, M. Mizukami, and M. P. Clark, 2017. Catchment attributes for large-sample studies. Boulder, CO: UCAR/NCAR. <https://doi.org/10.5065/D6G73C3Q>
8. **Newman, A. J.**, M. P. Clark, J. Craig, B. Nijssen, A. Wood, and E. Gutmann 2015: Gridded Ensemble Precipitation and Temperature Estimates over the Contiguous United States, Boulder, CO: UCAR/NCAR-CISL-CDP, doi:10.5065/D6TH8JR2, 2015.
9. **Newman, A. J.**; K. Sampson; M. P. Clark; A. Bock; R. J. Viger; D. Blodgett, 2014. A large-sample watershed-scale hydrometeorological dataset for the contiguous USA. Boulder, CO: UCAR/NCAR. <https://dx.doi.org/10.5065/D6MW2F4D>

#### 4. Code

1. Lead developer of the Gridded Meteorological Ensemble Tool (GMET). Available at: <https://github.com/NCAR/GMET>
2. Lead developer of the Topographically InformEd Regression (TIER) software. TIERv1.0 is available at: <https://doi.org/10.5281/zenodo.3234938>. The active development repository of TIER is located at <https://github.com/NCAR/TIER>

#### Honors

- UCAR Scientific and Technical Advancement, 2017 for The National Water Model.
- Editors' Citation for Excellence in Refereeing for *JGR-Atmospheres*, 2016
- National Center for Atmospheric Research Advanced Study Program Postdoctoral Fellow, 2011-2013



- Shrake-Culler Scholarship, College of Engineering, Colorado State University, 2008-2009.
- NASA Earth System Science Graduate Fellowship, 2004-2007.
- Outstanding Graduate Student, Department of Atmospheric Sciences, University of North Dakota, 2005, 2006, and 2007.
- NASA Summer Graduate Student Fellowship, summer 2004.

## Community Service

- Co-Chair of NCAR Scientists Assembly Executive Committee (NSA-EC) 2020-present.
- Session Co-Chair in AMS Conf. of Hydrology 2019-present.
- Member AGU Hydrology Section Precipitation Technical Committee 2019-present
- Member of Wyoming Resource Allocations Panel (WRAP) for Wyoming-NCAR computational resources alliance 2019-present
- Member of RAL Post-doc/Early Career Scientist mentoring group 2021-present
- Research Applications Laboratory representative on NSA-EC 2018-2019
- Member of RAL workload management committee 2019
- Science mentor for student visitor from Beijing Normal University, fall 2014 through fall 2015.
- Participated in NCAR Undergraduate Leadership Workshop 2012-2015.
- Earth Explorers, Trail Ridge Middle School, Longmont CO, fall semester 2014.
- ASP seminar committee, Advanced Study Program, National Center for Atmospheric Research, 2011-2013.
- Graduate student representative, Department of Atmospheric Science, Colorado State University, 2008-2009.
- Student member of department graduate committee, Department of Atmospheric Sciences, University of North Dakota, 2005-2007.
- Reviewer for: J. Hydrometeorology, J. Climate, *JGR-Atmospheres*, Water Resources Research, BAMS, Geophys. Res. Letters, Monthly Weather Review, Hydrologic Processes, HESS, Geophys. Model Dev., Int. Journal Climatology, Advances in Meteorology, IEEE APM, Philosophical Transactions A., J. Hydrology, J. Applied Meteorology and Climatology, Advances in Meteorology, J. Hydrologic Engineering, Environmental Modelling and Software, Advances in Water Resources

## Technical Skill Areas

- Over 10 years of experience running WRF

- Experience with many land-surface, hydrologic, and snow models including: Noah-MP, VIC, SUMMA, FUSE, SAC-SMA, Snow-17, SnowModel, CTSM
- Experience modifying model code and developing new modules as needed
- Experience developing custom statistical model software and associated community releases.
- Experience verifying model output against multiple observation types
- Experience developing workflows (e.g. pre-processing scripts, numerical model runs, and post-processing scripts) to automate model simulations
- Ability to learn new ideas quickly and incorporate those concepts to develop useful results to relevant projects
- Proficient with Matlab, Fortran, GRADS, NCL, Awk, Bash and TCSH shell
- Familiar with C, Python, Perl, Java, IDL
- Over a decade of experience dealing with large datasets and various data formats including GRIB, GRIB2, NetCDF, HDF, ASCII, and others
- Experience participating in setup, maintenance and operations of field campaign observational platforms: rain gauge network and NPOL during NAMMA, sounding system during TIMREX
- Comfortable working with high performance computing platforms and Linux
- Use Microsoft Office for presentation, documents, and spreadsheets

### **Professional Memberships**

- Member American Geophysical Union
- Member American Meteorological Society