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

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

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

A. In Review

1. **Newman, A. J.**, M. P. Clark, R. J. Longman, T. W. Giambelluca, and J. R. Arnold, 2018: An ensemble of daily precipitation and temperature estimates for the Hawaiian Islands. Under review in J. Hydrometeorology.
2. **Newman, A. J.**, M. P. Clark, R. J. Longman, and T. W. Giambelluca 2018: Methodological Inter-Comparison of Gridded Precipitation and Temperature Products across Hawaii. Under review in J. Hydrometeorology.
3. 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, 2018: High-resolution gridded daily rainfall and temperature for the Hawaiian Islands (1990-2014). Under review in J. Hydrometeorology.

4. Addor, N. G. Nearing, C. Prieto, **A. J. Newman**, N. Le Vine, and M. P. Clark, 2018: Selection of hydrologic signatures for large-sample hydrology. *Water Resources Research*, **accepted pending revision**.

B. Published

1. **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.

2. 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.

3. 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: Compliation of climate data from heterogeneous networks across the Hawaiian Islands. *Sci. Data*, **5**, 180012, doi:10.1038/sdata.2018.12

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. **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.

15. 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

16. **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.

17. 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.

18. **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.

19. **Newman, A. J.**, and R. H. Johnson 2013: Dynamics of a North American Gulf Surge Event, *Mon. Wea. Rev.*, **141**, 3238-3253.

20. **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.

21. **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.

22. 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.

23. **Newman, A. J.**, P. A. Kucera, and L. F. Bliven, 2009: Presenting the Snowflake Video Imager (SVI). *J. Atmos. Oceanic Technol.,* **26**, 167-179.

24. **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

1. Longman, R. J., and co-authors 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

2. Monaghan, A. J., M. P. Clark, M. P. Barlage, **A. J. Newman**, L. Xue, J. R. Arnold, and R. M. Rasmussen, 2016: High-resolution cli- mate simulations over Alaska: A community dataset, version 1. National Center for Atmospheric Research Earth System Grid, https://doi.org/10.5065/D61Z42T0

3. 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

4. **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.

5. **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

Honors

- 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 Activities

- Reviewer for: J. Hydrometeorology, J. Climate, JGR-*Atmospheres*, Water Resources Research, Geophys. Res. Letters, Monthly Weather Review, Hydrologic Processes, HESS, Geophys. Model Dev., Int. Journal Climatology, Advances in Meteorology, Hydrology.
- Science mentor for student visitor from Beijing Normal University, fall 2014 through fall 2015.
- Participated in NCAR ULW 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.
- Science fair judge, Boulder Valley School District, Boulder, Colorado, United States of America, 2012.
- 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.

Technical Skill Areas

- Over 10 years of experience running WRF
- Experience with many land-surface, hydrologic, and snow models including: Noah-MP, VIC, SUMMA, SAC-SMA, Snow-17, SnowModel, FUSE
- Experience modifying model code and developing new modules as needed
- 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
- Comfortable with concepts of uncertainty and ensemble simulations to improve estimates of true system states and the reliability of model projections.
- Experience analyzing large amounts of model output with various analysis and visualization packages such as Matlab, R, NCL
- Proficient with Matlab, Fortran, GRaDS, NCL, Awk, Bash 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
- Primarily work in a Linux environment but use Microsoft Office for presentation, documents, and spreadsheets

Professional Memberships

- Member American Geophysical Union
- Member American Meteorological Society
- Member European Geophysical Union