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

2023-Present	**Project Scientist III**, Research Applications Laboratory, National Center for Atmospheric Research Primary Research Topic(s): Regional climate modeling, hydrometeorological datasets, assessments of climate impacts modeling methods, continental domain hydrology and streamflow prediction for climate adaptation, flood frequency analysis
2017-2023	**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, flood frequency analysis, 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

2011-2014	**Advanced Study Program Postdoctoral Fellow,** 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
	Primary tasks: Assisting with sounding network operation including data quality assurance and control, participate in daily briefings
2004-2007	**NASA Earth System Science 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

Career Synopsis

Dr. Newman's research experiences across a range of observational and modeling techniques and phenomena provide a unique skill set that is well suited for hydrometeorological research. Hydrometeorology is inherently interdisciplinary, as it is built largely on the boundary of the land and atmosphere, which requires expert knowledge across both domains. Since joining NCAR in 2011 as an ASP postdoctoral fellow, his research has been predominantly centered on producing actionable climate science for community resilience, surface water resource management, and climate and health studies. Dr. Newman has made significant contributions along three primary research foci: hydrometeorological datasets and tools (e.g., CAMELS, GMET, HUMID), regional climate modeling (e.g., CONUS, Alaska, and Hawai'i), and surface hydrology (CAMELS, hydrologic modeling, model benchmarking, and hydrologic projections). He routinely

leads complex, interdisciplinary projects and directly supervises three NCAR science staff members.

Publications

1. Refereed Journal Articles

A. In Review
1. **Newman, A. J.**, C. Kalb, TC. Chakraborty, A. Fitch, L. A. Darrow, J. L. Warren, M. J. Strickland, H. A. Holmes, A. J. Monaghan, and H. H. Chang, 2024: The High-resolution Urban Meteorology for Impacts Dataset (HUMID) over the Conterminous United States. *Scientific Data*, in review.
2. Cheng, Y., A. Craig, K. N. Musselman, A. Bennett, M. W. Seefeldt, J. Hamman, and A. J. Newman, 2024: Coupled high-resolution land-atmosphere modeling for hydroclimate and terrestrial hydrology in Alaska and the Yukon River Basin (1990-2021). Journal of Geophysical Research - Atmospheres, in review.

3. Emard, K., and co-authors including **A. J. Newman**, 2024: Connecting local ecological knowledge and Earth system models: comparing three participatory approaches. *Ecology and Society*, accepted pending revision.
4. Tye, M. R., and co-authors including **A. J. Newman**, 2024: Evaluating an Earth system model from a water user perspective. *EGUSphere*, accepted pending revision
5. Tang, G. and co-authors including **A. J. Newman**, 2024: Uncertainty hotspots in global hydrologic modeling: the impact of precipitation and temperature forcings. *Bulletin of the American Meteorological Society*, in review.

B. Published
16 first, 52 co-author (68 total)
Web of Science H-Index: **26**; I-10 index: **41**; **4** Highly Cited Papers (denoted with ******)
Google Scholar H-Index: **30**; I-10 index: **49**

2024

1. Lybarger, N. D., A. Smith, **A. J. Newman**, E.D. Gutmann, A. W. Wood, C. D. Frans, M. D. Warner, and J. R. Arnold, 2024: Improving Earth system model selection methodologies for projecting hydroclimatic change: Case study in the Pacific Northwest. *J. Geophys. Research - Atmospheres*, **129**(7), e2023JD039774.
2. Blaskey, D., M. N. Gooseff, Y. Cheng, A. J. Newman, J. C. Koch, and K. N. Musselman, 2024: A high-resolution daily hindcast (1990-2021) of Alaskan river discharge and temperature from coupled and optimized physical models. *Water Resources Research*, **60**(4), e2023WR036217.
3. Rugg, A., Gutmann, E. D., R. R. McCrary, F. Lehner, **A. J. Newman**, J. H. Richter, M. R. Tye, and A. W. Wood, 2023: Mass-conserving downscaling of climate model

precipitation over mountainous terrain for water resource applications. *Geophys. Research. Letters*, **50**, e2023GL105326.

4. Tang, G., Wood, A. W., **Newman, A. J.**, Clark, M. P., and Papalexiou, S. M.: GPEP v1.0: the Geospatial Probabilistic Estimation Package to support Earth science applications, Geosci. Model Dev., 17, 1153–1173, https://doi.org/10.5194/gmd-17-1153-2024, 2024.

2023

5. Darrow, L. A. and co-authors including A. J. Newman, 2024: Preterm and early-term delivery following heatwaves in 50 U.S. metropolitan areas. *Journal of the American Medical Association Network Open*.

6. Cosgrove, B. and co-authors including **A. J. Newman**, 2024: NOAA's National Water Model: advancing operational hydrology through continental-scale modeling. *JAWRA Journal of the American Water Resources Association*.

7. Rasmussen, R. M., and co-authors including **A. J. Newman**, 2023: CONUS404: The NCAR-USGS 4-km Long-term regional hydroclimate reanalysis over the CONUS. *Bull. Amer. Meteor. Soc.*, **104**, E1382-1408, doi:10.1175/BAMS-D-21-0326.1.

8. Blaskey, D., J. C. Koch, M. N. Gooseff, **A. J. Newman**, Y. Cheng, J. A. O'Donnell, and K. N. Musselman, 2023: Increasing Alaskan River discharge during the cold season is driven by recent warming. *Environmental Research Letters*, **18**, 024042, doi:10.1088/1748-9326/acb661.

9. Dougherty, E. M., A. F. Prein, E. D. Gutmann, and **A. J. Newman**, 2023: Future simulated changes in central U.S. mesoscale convective system rainfall caused by changes in convective and stratiform structure. *J. Geophysical Research-Atmospheres*, **128**, e2022JD037537, doi:10.1029/2022JD037537.

10. Hale, K., K. N. Musselman, A. J. Newman, B. Livneh, and N. P. Molotch, 2023: Effects of snow water storage on hydrological partitioning across the mountainous, western United States. *Water Resources Research*, in review.

11. Herman-Mercer, and co-authors, 2023: The Arctic Rivers Project: Using an equitable co-production framework for integrating meaningful community engagement and science to understand climate impacts. *Community Science*, in review.

12. Tang, G., M. P. Clark, W. Knoben, H. Liu, S. Gharari, L. Arnal, H. Beck, A. W. Wood, **A. J. Newman**, and S. M. Papalexiou, 2023: The impact of meteorological forcing uncertainty on hydrological modeling in cryosphere basins: A global analysis. *Water Resources Research*, in review.

13. Chakraborty, T.C., **A. J. Newman**, Y. Qian, A. Hsu, and G. Sheriff, 2023: Residential Segregation and Urban Heat Stress Disparities in the United States, *One Earth*, in review.

2022

14. Cheng, Y., K. N. Musselman, S. Swenson, D. Lawrence, J. J. Hamman, K. Dagon, and D. Kennedy, and **A. J. Newman**, 2022: Moving land models towards actionable science: A novel application of the Community Terrestrial Systems Model across Alaska and the Yukon River Basin. *Water Resources Research*, **59**, e2022WR032204, doi:10.1029/2022WR032204.

15. Liu, H., A. W. Wood, **A. J. Newman**, and M. P. Clark, 2022: Ensemble dressing of meteorological fields: using spatial regression to estimate uncertainty in deterministic gridded meteorological datasets. *J. Hydrometeorology,* **23**, 1525-1543, doi:10.1175/JHM-D-21-0176.1

16. Richards, M., M. Huang, M. J. Strickland, **A. J. Newman**, J. L. Warren, R. D'Souza, H. H. Chang, and L. A. Darrow, 2022: Acute associations between heatwaves and stillbirth in six US states. *Environmental Health*, **21**, 1-11, doi:10.1186/s12940-022-00870-y

17. Sepúlveda, U., Mendoza, P. A., Mizukami, N., and **Newman, A. J.**: Revisiting parameter sensitivities in the Variable Infiltration Capacity model, Hydrol. Earth Syst. Sci., 26, 3419–3445, https://doi.org/10.5194/hess-26-3419-2022, 2022.

18. Mizukami, N., **A. J. Newman**, J. S. Littell, T. W. Giambelluca, A. W. Wood, E. D. Gutmann, J. J. Hamman, D. R. Gergel, B. Nijssen, M. P. Clark, and J. R. Arnold, 2022: New projections of 21st century climate and hydrology for Alaska and Hawai'i. *Climate Services,* doi:10.1016/jcliser.2022.100312.

19. Bunn, P. W., A. W. Wood, **A. J. Newman**, H.-I. Chang, C. L. Castro, M. P. Clark, and J. R. Arnold, 2022: Improving station-based ensemble surface meteorological analyses using numerical weather prediction: A case study of the Oroville Dam crisis precipitation event. *J. Hydrometeorology*, **23**,1155-1169, doi:10.1175/JHM-D-21-0193.1.

20. Chen, K., **A. J. Newman**, M. Huang, C. Coon, L. A. Darrow, M. J. Strickland, H. A. Holmes, 2022. Estimating heat-related exposures and urban heat island impacts: A case study for the 2012 Chicago Heatwave. *Geohealth,* **6**, e2021GH000535. https://doi.org/10.1029/2021GH000535.

2021

21. **Newman, A. J.**, Stone, A. G., Saharia, M., Holman, K. D., Addor, N., and Clark, M. P., 2021: Identifying Sensitivities in Flood Frequency Analyses using a Stochastic Hydrologic Modeling System, *Hydrol. Earth Syst. Sci.*, 25, 5603-5621, doi:10.5194/hess-25-5603-2021.

22. Liu, H., B. Tolson, **A. J. Newman**, and A. W. Wood, 2021: Leveraging ensemble meteorological forcing data to improve parameter estimation of hydrologic models. *Hydrologic Processes*, doi:10.1002/hyp.14410.

23. Tang, G., M. P. Clark, S. M. Papalexiou, **A. J. Newman**, A. W. Wood, D. Brunet, P. H. Whitfield, 2021: EMDNA: Ensemble Meteorological Dataset for North America. *Earth Syst. Sci. Data*, **13,** 3337-3362, doi:10.5194/essd-13-3337-2021.

24. Ikeda, K., R. Rassmussen, 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. *Climate Dynamics*, **57**, 2191-2215, doi:10.1007/s00382-021-05805-w.

25. 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. *Environmental Health*, **20,** 47 doi:10.1186/s12940-021-00733-y.

26. 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. *Environmental Health*, **20**, 55, doi:10.1186/s12940-021-00735-w.

27. Jiang, S., J. L. Warren, N. Scovronick, S. Moss, L. A. Darrow, M. J. Strickland, **A. J. Newman**, Y. Chen, S. T. Ebelt, 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*, **21**, 87, doi:10.1186/s12874-021-01278-x.

28. **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.

2020

29. 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.

30. **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

31. 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

32. 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.

33. **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.

34. 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 Hawaiʻi. *J. Appl. Meteor. Climatol.,* **59**, 1261–1276*,* https://doi.org/10.1175/JAMC-D-20-0007.1

35. 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.

2019

36. 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.

37. 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.

38. 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.

39. 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.

40. **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.

41. **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.

42. Huang, G.-J., V. N. Bringi, **A. J. Newman**, G. Lee, D. Moisseev, 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.

43. 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

2018

44. 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.

45. 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.

46. 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

47. 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.

48. ******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.

49. 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.

2017

50. **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.

51. 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.

52. ******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.

53. 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.

54. ******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, 2017: Continental-scale convection-permitting modeling of the current and future climate of North America. *Climate Dynamics***,** doi:10.1007/s00382-016-3327-9.

2016

55. 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.

56. 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.

57. 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.

2015

58. **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.

59. 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

60. ****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.

61. 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.

2014

62. **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.

2009-2013

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

64. **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.

65. **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.

66. 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.

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

68. **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.

2. 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.

3. Datasets

5 lead, 7 support (12 total)

1. **Newman, A. J.**, C. Kalb, A. Fitch, L. A. Darrow, J. L. Warren, M. J. Strickland, A. J. Monaghan, and H. H. Chang. 2024. *The High-resolution Urban Meteorology for Impacts Dataset - HUMID*. Research Data Archive at the National Center for Atmospheric Research, Computational and Information Systems Laboratory. https://doi.org/10.5065/JF2T-6F61.

2. Cheng, Y., A. P. Craig, K. N. Musselman, and **A. J. Newman**. 2024. *Multi-decadal historical regional hydroclimate simulation with two mid 21st century Pseudo-Global Warming futures over Alaska and the Yukon at 4 km resolution*. Research Data Archive at the National Center for Atmospheric Research, Computational and Information Systems Laboratory. https://doi.org/10.5065/ZPSB-PS82.

3. Mizukami, N., **A. J. Newman**, A. W. Wood, E. D. Gutmann, and J. J. Hamman, 2022: 21st century hydrologic projections for Alaska and Hawai'i. Boulder, CO: UCAR/NCAR/RAL. DOI: https://doi.org/10.5065/c3kn-2y77

4. **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

5. 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

6. 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

7. **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

8. 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

9. 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

10. 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

11. **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.

12. **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. co-lead developer of the Gridded Meteorological Ensemble Tool (GMET). Available at: https://github.com/NCAR/GMET

2. Lead developer of the Topograpically 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

Selected Seminars and Conference Presentations
1. External Seminars

1. Public webinar for NSF NNA Arctic Rivers Project, 'Developing actionable climate data with indigenous guidance.' 14 April 2021.
2. Inter-American Development Bank training seminar, subject matter expert on observations. 29 January 2021.
3. US Bureau of Reclamation Webinar, Project closeout for S&T 1794, 'Improving our understanding of the sources of flood frequency estimate uncertainty.', 26 August 2020.
4. NOAA Forcing Improvement Team seminar, co-presented with Andy Wood, 13 March 2020.
5. US Bureau of Reclamation Science and Technology Program monthly Water Resources and Operations science seminar, 'The Gridded Meteorological Ensemble Tool.' 12 March 2020.
6. US Bureau of Reclamation Science Webinar for the Mid-Pacific Region office, 'Ensemble Meteorology for Water Resources Applications.' 18 December 2019.
7. Presentation to International Visitor Delegation from Botswana and South Africa, 'Overview of RAL and RAL hydrology research.' Boulder, CO, 8 July 2019.
8. ASP Summer Colloquium, 'Producing observational precipitation datasets over orography in the US.' Boulder, CO, 5 June 2017.
9. University of North Dakota, Department of Atmospheric Sciences Seminar, 'Development and Application of a Station Based Gridded Ensemble

Precipitation and Temperature Dataset over the Contiguous United States.' Grand Forks, ND, 12 November 2015.

2. Select Conference and Workshop Presentations

1. **Newman, A. J.**: Climate Change Impacts on Water Resources (Invited), CCIS Climate Intervention Scenario Design Workshop, 31 October - 2 November, 2022, Boulder CO.
2. **Newman, A. J.**, E. Dougherty, E. Gutmann, and A. Prein: Potential changes in rainfall associated with organized convection across North America (Invited). AMS Annual Meeting, Richard Johnson Symposium January 2022.
3. Hydrologic Ensemble Prediction Experiment (HEPEX) Streamflow Forecasting Workshop, 'Meteorological Forcings', Boulder, CO, May 14, 2019.
4. Guest Lecturer for U. Colorado graduate course CVEN 5363, 'Hydrologic modeling', subject matter expert on meteorological observations. 19 February 2019.
5. **Newman, A. J.**, M. Clark, R. J. Longman, T. W. Giambelluca, J. Cherry, A. W. Wood, and J. R. Arnold: Development of Gridded Daily Ensemble Precipitation and Temperature Datasets for Hawai'i and Alaska (Invited). AMS Annual Meeting, 22-26 January 2017, Seattle WA.
6. **Newman, A. J.,** and co-authors: Development of Gridded Ensemble Precipitation and Temperature Datasets for the Contiguous United States plus Hawai'i and Alaska (Invited). AGU Fall Meeting, 12-16 December 2016, San Francisco CA.
7. **Newman, A. J.**, N. Mizukami, M. Clark, A. W. Wood, L. D. Brekke, J. R. Arnold: Use of a priori benchmarks to evaluate the performance of a physically based hydrologic model (Invited). AMS Annual Meeting, January 2016, New Orleans LA.
8. **Newman, A. J.**, M. P. Clark, D. Marks, A. Winstral, M. Seyfried: Sensitivity of a land surface model to sub-grid forcing data variations (Invited), Davos Cryosphere and Atmosphere Assembly, 10 July 2013, Davos Switzerland.

Honors

- RAL Publication of the Year, 2021, co-author on 'Continental-scale convection-permitting modeling of the current and future climate of North America'
- 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.

Mentoring

- Lead mentor of SIParCS student, summer 2022
- Hosted and mentored M.S. student Eduardo Munoz from Universidad de Chile, summer 2019.
- Science mentor for a student visitor, Chengcheng Huang, from Beijing Normal University, 2014-2015.
- Informally mentor a post-doc, Hongli Liu (U. Saskatchewan), and a Ph.D. student, Mozhgan Askarzadehfarahani (CU-Denver), outside of NCAR.

Community Service

- Co-Chair or Chair of NCAR Scientists Assembly Executive Committee (NSA-EC) 2020-2023.
- 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
- NASA proposal review panel, 2022
- Regularly perform student judging at AMS annual meeting within Conference of Hydrology
- Science reviewer for Department of Energy SECURE water act report to congress, 2021
- Science reviewer for Chapter 4 of the Western Water Assessment Report: 'Colorado River Basin Climate and Hydrology: State of the Science', 2020.
- RAL representative on NSA-EC 2018-2019
- Member of RAL workload management committee 2019
- Coordinated RAL HAPpy Hour seminars, 2018-2022
- Participated in NCAR Undergraduate Leadership Workshop 2012-2015.
- Earth Explorers, Trail Ridge Middle School, Longmont CO, 2014.
- Reviewer for 20 unique journals: J. Hydrometeorology, J. Climate, JGR-*Atmospheres*, Water Resources Research, BAMS, Geophys. Res. Letters, Monthly Weather Review, Hydrologic Processes, Hydrology and Earth

System Science (HESS), Geophys. Model Dev., Int. Journal Climatology, Advances in Meteorology, IEEE APM, Philosophical Transactions of the Royal Society A., J. Hydrology, J. Applied Meteorology and Climatology, J. Hydrologic Engineering, Environmental Modelling and Software, Advances in Water Resources, Climate Dynamics

- 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.
- Student judging at AGU fall meeting, 2015-2016
- Regularly perform internal proposal reviews for RAL
- Regularly participate in internal hiring committees

Additional Training

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

Professional Memberships

- Member American Geophysical Union
- Member American Meteorological Society