

**Andrew J. Monaghan**

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**Professional Preparation**

University of Alaska, Fairbanks	Civil Engineering	<i>B.S., 1998</i>
The Ohio State University, Columbus	Atmospheric Sciences	<i>M.S., 2003</i>
The Ohio State University, Columbus	Atmospheric Sciences	<i>Ph.D., 2007</i>
University of London, LSHTM, London	Public Health	<i>M.Sc., expected 2020</i>

**Appointments**

- 2017-present: Research Computing Analyst, Office of Information Technology, University of Colorado Boulder.
- 2016-2017: Scientist III, Research Applications Lab, National Center for Atmospheric Research.
- 2011-2017: Guest Researcher, Division of Vector-Borne Diseases, Centers for Disease Control and Prevention.
- 2012-2016: Scientist II, Research Applications Lab, National Center for Atmospheric Research.
- 2009-2011: Scientist I, Research Applications Lab, National Center for Atmospheric Research.
- 2007-2009: Associate Scientist III, Research Applications Lab, National Center for Atmospheric Research.
- 2000-2007: Research Associate/Senior Research Associate, Polar Meteorology Group, Byrd Polar Research Center, The Ohio State University.
- 1998-2000: Technician, Water and Environmental Research Center, University of Alaska Fairbanks.

**Skills and Experience**

*Leadership and project management:* Former co-lead of the NCAR Weather, Climate and Health Program. Principal Investigator on grants awarded by NSF, NASA and CDC. This work has involved planning and implementing field- and office-based research projects, supervising postdocs, mentoring graduate students, and seeing the research process through to completion.

*Grant writing:* Led or contributed to ~50 proposals over the past decade.

*Technical writing:* Authored or co-authored ~90 articles in peer-reviewed journals; have also written or contributed to technical reports, magazine articles and book chapters.

*Communication:* Gave ~40 presentations to scientific audiences since 2006, as well as numerous presentations to university students, K-12 students and the general public.

*Interpersonal skills:* Presently work in a role that requires thoughtful communication with university students, staff and researchers who use high performance computing resources. I have trained in emotional intelligence techniques in order to facilitate listening and understanding among users who have diverse skill levels, backgrounds and personalities.

*Atmospheric modeling:* Use and validation of regional climate models for historical and future dynamical downscaling over Antarctica, Alaska, South America, the Arabian Peninsula, Uganda and the U.S. An area of interest is the development and application of cost-effective methods to dynamically downscale meteorological data.

*Land surface modeling:* Modification and use of the offline version of Noah Land Surface Model (“HRLDAS”) for generating low-cost high-spatial resolution near-surface atmospheric fields over urban areas for assessments of historical and future heat exposure at neighborhood levels.

*Disease vector modeling:* Co-development and application of the Water Height and Temperature in Container Habitats Energy Model (“WHATCH’EM”; doi:10.5065/D6J67DXP), a model that simulates water conditions in containers exploited by virus-transmitting mosquitoes for their immature life stages. Co-development of a weather-driven mechanistic mosquito life cycle model that employs WHATCH’EM to simulate the seasonal evolution of mosquito populations at high spatial resolution. Familiarity with mechanistic epidemiological models (Susceptible-Exposed-Infected-Recovered models). These models can be combined to analyze and predict risk for numerous vector-borne diseases of national and international importance.

*Ecological modeling:* Experience in the development of empirical models that enable mapping of historical and future environmental niches for insects and arachnids of medical importance. These models are used to inform public health and other decision makers of regional risks for specific diseases.

*Human health:* Involved in projects addressing the ecology and epidemiology of human plague, dengue virus, Zika virus, Lyme disease, West Nile virus, meningitis, and heat-related illnesses. Familiarity with both physical and social drivers of human health risks. Public health coursework in epidemiology, health economics, medical anthropology, environmental health and health statistics.

*Polar meteorology:* My M.S. research involved validating a real-time mesoscale weather prediction system in Antarctica that supports NSF’s field activities. My Ph.D. research focused on reconstructing records of historical climate variability over Antarctica. I continue to be involved with research in both Antarctica and Alaska, and was recently the Atmospheric Sciences Editor for the journal *Antarctic Science*.

## **Peer-reviewed Publications (Overall: 97 total, 17 as lead author)**

### Lead Author:

1. **Monaghan, A.J.**, R.J. Eisen, L. Eisen, J. McAllister, H.M. Savage, J-P. Mutebi, and M.A. Johansson, 2019: Consensus and uncertainty in the geographic range of *Aedes aegypti* and *Aedes albopictus* in the contiguous United States. *PLOS Comp. Biol.*, **15**, e1007369 doi:10.1371/journal.pcbi.1007369.
2. **Monaghan, A.J.**, C.A. Schmidt, M.H. Hayden, K.A. Smith, M.H. Reiskind, R. Cabell, and K.C. Ernst, 2018: A simple model to predict the potential abundance of *Aedes aegypti* mosquitoes one month in advance. *Am. J. Trop. Med. Hyg.*, in press, doi:10.4269/ajtmh.17-0860.
3. **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. *J. Appl. Meteorol. Climatol.*, **57**, 709-731, doi:10.1175/JAMC-D-17-0161.1.
4. **Monaghan, A.J.**, K.M. Sampson, D.F. Steinhoff, K.C. Ernst, K.L. Ebi, B. Jones, and M.H. Hayden, 2018: The potential impacts of 21st century climatic and population changes on human exposure to the virus vector mosquito *Aedes aegypti*. *Climatic Change*, **146**, 487-500, doi:10.1007/s10584-016-1679-0.
5. **Monaghan, A.J.**, C.W. Morin, D.F. Steinhoff, O.V. Wilhelmi, M.H. Hayden, D.A. Quattrochi, M.H. Reiskind, A.L. Lloyd, K.A. Smith, C.A. Schmidt, P. Scalf, and K.C. Ernst, 2016: On the seasonal occurrence and abundance of the Zika virus vector mosquito *Aedes aegypti* in the contiguous United States. *PLoS Currents Outbreaks*, **1**, doi:10.1371/currents.outbreaks.50dfc7f46798675fc63e7d7da563da76.
6. **Monaghan, A.J.**, S.M. Moore, K.M. Sampson, C.B. Beard, and R.J. Eisen, 2015: Climate change influences on the annual onset of Lyme disease in the United States. *Ticks and Tick-Borne Diseases*, **6**, 615-622, doi:10.1016/j.ttbdis.2015.05.005.

7. **Monaghan, A.J.**, L. Hu, N.A. Brunzell, M.P. Barlage, and O.V. Wilhelmi, 2014: Evaluating the impact of urban morphology configurations on the accuracy of urban canopy model temperature simulations with MODIS. *J. Geophys. Res. Atm.*, doi:10.1002/2013JD021227.
8. **Monaghan, A.J.**, M. Barlage, J. Boehnert, C.L. Phillips, and O.V. Wilhelmi, 2013: Overlapping interests: The impact of geographic coordinate assumptions on limited-area atmospheric model simulations. *Mon. Wea. Rev.*, **141**, 2120-2127. DOI:10.1175/MWR-D-12-00351.1.
9. **Monaghan, A.J.**, K. MacMillan, S.M. Moore, P.S. Mead, M.H. Hayden, and R.J. Eisen, 2012: A regional climatology of West Nile, Uganda, to support human plague modeling. *J. Appl. Meteor. Climatol.*, **51**, 1201-1221.
10. **Monaghan, A. J.**, D. L. Rife, J. O. Pinto, C. A. Davis, and J. R. Hannan, 2010: Global precipitation extremes associated with diurnally-varying low-level jets. *J. Climate*, **23**, 5065-5084.
11. **Monaghan, A.J.**, D.H. Bromwich, and D.P. Schneider, 2008: 20th century Antarctic air temperature and snowfall simulations by IPCC climate models. *Geophys. Res. Letts.*, **35**, L07502, doi:10.1029/2007GL032630.
12. **Monaghan, A.J.**, D.H. Bromwich, W. Chapman, and J.C. Comiso, 2008: Recent variability and trends of Antarctic near-surface temperature. *J. Geophys. Res.*, **113** D04105, doi:10.1029/2007JD009094.
13. **Monaghan, A.J.**, and D.H. Bromwich, 2008: Advances in describing recent Antarctic climate variability. *Bull. Amer. Meteorol. Soc.*, **89** 1295-1306.
14. **Monaghan, A.J.**, D.H. Bromwich, R.L. Fogt, S-H. Wang, P.A. Mayewski, D.A. Dixon, A.A. Ekaykin, M. Frezzotti, I.D. Goodwin, E. Isaksson, S.D. Kaspari, V.I. Morgan, H. Oerter, T.D. van Ommen, C.J. van der Veen, and J. Wen, 2006: Insignificant change in Antarctic snowfall since the International Geophysical Year. *Science*, **313**, 827-831.
15. **Monaghan, A.J.**, D.H. Bromwich, and S-H. Wang, 2006: Recent trends in Antarctic snow accumulation from Polar MM5. *Philosophical Trans. Royal. Soc. A*, **364**, 1683-1708.
16. **Monaghan, A.J.**, D.H. Bromwich, J.G. Powers, and K.W. Manning, 2005: The climate of the McMurdo, Antarctica region as represented by one year of forecasts from the Antarctic Mesoscale Prediction System. *J. Climate*, **18**,1174-1189.
17. **Monaghan, A.J.**, D.H. Bromwich, H. Wei, A.M. Cayette, J.G. Powers, Y.H. Kuo, and M. Lazzara, 2003: Performance of weather forecast models in the rescue of Dr. Ronald Shemenski from South Pole in April 2001. *Wea. Forecasting*, **18**, 142-160.

Co-Author:

18. Rohat, G., O. Wilhelmi, J. Flacke, **A.J. Monaghan**, J. Gao, M. van Maarseveen, and H. Dao, 2020: Assessing urban heat-related adaptation strategies under multiple futures for a major U.S. city. *Climatic Change*, submitted.
19. 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 climate simulation of the Hawaiian Islands. *Bull. Atmos. Sci. Tech.*, submitted.
20. Newman, A.J., **A.J. Monaghan**, M.P. Clark, K. Ikeda, L. Xue, E. Gutman and J.R. Arnold, 2020: Mesoscale water cycle changes in Alaska portrayed by a high-resolution regional climate simulation. *Climatic Change*, conditionally accepted.
21. Jing, X., L. Xue, Y. Yin, J. Yang, D.F. Steinhoff, **A.J. Monaghan**, D. Yates, C. Liu, R. Rasmussen, S. Taraphdar, and O. Pauluis, 2020: Convection-permitting regional climate simulations in the Arabian Gulf region using WRF driven by bias-corrected GCM data. *J. Climate*, in press.
22. Rohat, G., **A.J. Monaghan**, M.H Hayden, S.J. Ryan, and O.V. Wilhelmi, 2020: Intersecting vulnerabilities: Climatic and demographic contributions to future population exposure to *Aedes*-borne viruses in the United States. *Env. Res. Letts.*, in press, <https://doi.org/10.1088/1748-9326/ab9141>.

23. Gaff, H., R.J. Eisen, L. Eisen, R. Nadolny, J. Bjork, and **A.J. Monaghan**, 2020: LYMESIM 2.0: An updated simulation of blacklegged tick (*Ixodes scapularis* Acari: Ixodidae) population dynamics and enzootic transmission of *Borrelia burgdorferi*. *J. Med. Entomol.*, **57**, 715-727.
24. Rohat, G., O.V. Wilhelmi, J. Flacke, **A.J. Monaghan**, J. Gao, H. Dao, and M. van Maarseveen, 2019: Characterizing the role of socioeconomic pathways in shaping future urban heat-related challenges: the case of Greater Houston, Texas. *Sci. Tot. Environ.*, in press, 10.1016/j.scitotenv.2019.133941.
25. O'Lenick, C.R., O.V. Wilhelmi, R. Michael, M.H. Hayden, A. Baniassadi, C. Wiedinmyer, **A.J. Monaghan**, P.J. Crank, and D.J. Sailor, 2019: Urban heat and air pollution: a framework for integrating population vulnerability and indoor exposure in health risk analyses. *Sci. Tot. Environ.*, **10**, 715-723.
26. Michael, R., C.R. O'Lenick, **A.J. Monaghan**, O.V. Wilhelmi, C. Wiedinmyer, M.H. Hayden, and M. Estes, 2018: Application of geostatistical approaches to predict the spatio-temporal distribution of ozone in Houston, Texas. *J. Exp. Sci. Environ. Epidemiol.*, 10.1038/s41370-018-0091-4.
27. Dally, M., J. Butler-Dawson, L. Krisher, **A. Monaghan**, D. Weitzenkamp, C. Sorensen, R.J. Johnson, E.J. Carlton, C. Asensio, L. Tenney, and L.S. Newman, 2018: The impact of heat and impaired kidney function on productivity of Guatemalan sugarcane workers, *PLoS ONE*, **13**, e0205181.
28. Eisen, R.J., S. Feirer, K.A. Padgett, M.B. Hahn, **A.J. Monaghan**, V.L. Kramer, R.S. Lane, and M. Kelly, 2018: Modeling climate suitability of the western blacklegged tick in California. *J. Med. Entomol.*, **55**, 1133-1142, doi:10.1093/jme/tjy060.
29. Colborn, K.L., E. Giorgi, **A.J. Monaghan**, E. Gudo, B. Candrinho, T.J. Marrufo, and J.M. Colborn, 2018: Spatio-temporal modelling of weekly malaria incidence in children under 5 for early epidemic detection in Mozambique. **8**, doi:10.1038/s41598-018-27537-4.
30. Ebi, K.L., T. Hasegawa, K. Hayes, **A. Monaghan**, S. Paz, and P. Berry, 2018: Health risks of warming of 1.5° C, 2° C, and higher, above pre-industrial temperatures. *Environ. Res. Letts.*, **13**, 063007.
31. Johnson, T.L., K.A. Boegler, R.J. Clark, M.J. Delorey, J.K.H. Bjork, F.M. Dorr, E.K. Schiffman, D.F. Neitzel, **A.J. Monaghan**, and R.J. Eisen, 2018: An acarological risk model predicting the density and distribution of host-seeking *Ixodes scapularis* nymphs in Minnesota. *Am. J. Trop. Med. Hyg.* **98**, 1671-1682.
32. Schmidt, C.A., G. Comeau, **A.J. Monaghan**, D.J. Williamson, and K.C. Ernst, 2018: Effects of desiccation stress on adult female longevity in *Aedes aegypti* and *Ae. albopictus* (Diptera: Culicidae): Results of a systematic review and pooled survival analysis. *Parasites and Vectors*, **11**, doi:10.1186/s13071-018-2808-6.
33. O'Neill, B.C., J. Done, A. Gettelman, P. Lawrence, F. Lehner, J-F. Lamarque, L. Lin, **A.J. Monaghan**, K. Oleson, X. Ren, B. Sanderson, C. Tebaldi, M. Weitzel, Y. Xu, B. Anderson, M.J. Fix, and S. Levis, 2018: The Benefits of Reduced Anthropogenic Climate change (BRACE): A synthesis. *Climatic Change*, **146**, 287-291.
34. Johnson, T.L., U. Haque, **A.J. Monaghan**, L. Eisen, M.B. Hahn, M.H. Hayden, H.M. Savage, J. McAllister, J-P. Mutebi, and R.J. Eisen, 2017: Modeling the environmental suitability for *Aedes (Stegomyia) aegypti* and *Aedes (Stegomyia) albopictus* (Diptera: Culicidae) in the contiguous United States. *J. Med. Entomol.*, **54**, 1605-1614.
35. Collins, G.Q., Heaton, M.J., Hu, L., and **A.J. Monaghan**, 2017: Spatio-temporal, multi-resolution modeling to infill missing areal data and enhance the temporal frequency of infrared satellite images. *Environmetrics*, **28**, e2466.
36. Kay, S.L., J.W. Fischer, **A.J. Monaghan**, J.C. Beasley, R. Boughton, T.A. Campbell, S.M. Cooper, S.S. Ditchkoff, S.B. Hartley, J.C. Kilgo, S.M. Wisely, A.C. Wyckoff, K.C. VerCauteren, and K.M. Pepin, 2017: Quantifying drivers of wild pig movement across multiple spatial and temporal scales. *Movement Ecol.*, **5**, 14.

37. Grubaugh, N.D., J.T. Ladner, M.U.G. Kraemer, ... **A.J. Monaghan**, ... and K.G. Andersen, 2017: Genomic epidemiology reveals multiple introductions of Zika virus into the United States. *Nature*, doi:10.1038/nature22400.
38. Dickinson, K.L., **A.J. Monaghan**, I.J. Rivera, E. Kanyomse, J. Adoctor, R. Kaspar, A.R. Oduro, C. Wiedinmyer, 2017: Changing weather and climate in northern Ghana: comparison of local perceptions with meteorological and land cover data. *Regional Environ. Change*, **17**, 915-928. doi:10.1007/s10113-016-1082-4.
39. Hahn, M.B., C.S. Jarnevich, **A.J. Monaghan**, and R.J. Eisen, 2016: Modeling the geographic distribution of *Ixodes scapularis* and *Ixodes pacificus* (Acari Ixodidae) in the contiguous United States. *J. Med. Entomol.*, doi:10.1093/jme/tjw076.
40. Eisen, R.J., R.J. Clark, **A.J. Monaghan**, L. Eisen, M.J. Delorey, K. Horiuchi, and C.B. Beard, 2016: Host-seeking phenology of *Ixodes pacificus* (Acari: Ixodidae) nymphs in northwestern California in relation to calendar week, woodland type and weather conditions. *J. Med. Entomol.*, doi:10.1093/jme/tjw155.
41. Ernst, K.C., K.R. Walker, P. Reyes-Castro, T.K. Joy, A.L. Castro-Luque, R.E. Diaz-Caravantes, M. Gameros, S. Haenchen, M.H. Hayden, **A.J. Monaghan**, E. Jeffrey-Gutiérrez, Y. Carriere, and M.R. Riehle, 2016: *Aedes aegypti* (Diptera: Culicidae) longevity and differential emergence of dengue in two cities in Sonora, Mexico. *J. Med. Entomol.*, in doi:10.1093/jme/tjw141.
42. Steinhoff, D.F., **A.J. Monaghan**, L. Eisen, M.J. Barlage, T.M. Hopson, I. Tarakidzwa, K. Ortiz-Rosario, S. Lozano-Fuentes, M.H. Hayden, P.E. Bieringer, and C.M. Welsh-Rodriguez, 2016: WATCH'EM: A Weather-Driven Energy Balance Model for Determining Water Height and Temperature in Container Habitats for *Aedes aegypti*. *Earth Interactions*, doi:10.1175/EI-D-15-0048.1.
43. Hu, L., **A.J. Monaghan**, M.J. Barlage, and J. Voogt, 2016: A first satellite-based observational assessment of urban thermal anisotropy. *Remote Sens. Environ.*, **181**, 111-121. doi:10.1016/j.rse.2016.03.043.
44. Eisenhauer, I.F., C.M. Hoover, J.V. Remais, **A.J. Monaghan**, M. Celada, and E.J. Carlton, 2016: Short report: Estimating risk of domestic water source contamination following precipitation events. *Am. J. Trop. Med. Hyg.*, **94**, 1403-1406.
45. Marsha, A., S.R. Sain, M.J. Heaton, **A.J. Monaghan**, and O.V. Wilhelmi, 2016: Influences of climatic and population changes on extreme heat mortality in Houston, Texas. *Climatic Change*, doi:10.1007/s10584-016-1775-1.
46. Dickinson, K.L., M.H. Hayden, S. Haenchen, **A.J. Monaghan**, K. Walker, and K. Ernst, 2016: Willingness to pay for mosquito control in Key West, Florida and Tucson, Arizona. *Am. J. Trop. Med. Hyg.*, **94** 775-779.
47. Conlon, K., **A.J. Monaghan**, M.H. Hayden, and O.V. Wilhelmi, 2016: Potential impacts of future climatic and land use changes on intra-urban heat exposure in Houston, Texas. *PLoS ONE*, **11**, e148890.
48. Springer, Y.P., C.S. Jarnevich, D.T. Barnett, **A.J. Monaghan**, and R.J. Eisen, 2015: Modeling the present and future geographic distribution of the Lone star tick, *Amblyomma americanum* (Ixodida: Ixodidae), in the continental United States *Am. J. Trop. Med. Hyg.*, **93**, 875-890
49. Morin, C.W., **A.J. Monaghan**, M.H. Hayden, R. Barrera, and K.C. Ernst, 2015: Meteorologically Driven Simulations of Dengue Epidemics in San Juan, PR. *PLoS NTD*, **9**, e0004002. doi:10.1371/journal.pntd.0004002.
50. Miller, L.M., N.A. Brunsell, D.B. Mechem, F. Gans, **A.J. Monaghan**, R. Vautard, D.W. Keith, and A. Kleidon, 2015: Turbine-atmosphere interactions and vertical momentum transport limit largescale wind power. *Proc. Nat. Acad. Sci.*, **112**, 11169-11174.

51. Hayden, M.H., J.L. Cavanaugh, C. Tittel, M. Butterworth, S. Haenchen, K. Dickinson, **A.J. Monaghan**, and K.C. Ernst, 2015: Stakeholder perceptions of dengue preparedness and response in Key West, Florida. *Am. J. Public Health*, in press, 15-0128.
52. Dickinson, K.L., E. Kanyomse, R. Piedrahita, E. Coffey, I. Rivera, J. Adoctor, R. Aligiria, D. Muvandimwe, M. Dove, V. Dukic, M. Hayden, D. Diaz-Sanchez, V. Adoctor, D. Anaseba, Y. Slichter, N. Masson, **A.J. Monaghan**, A. Titiati, D. Steinhoff, Y-Y. Hsu, R. Kaspar, B. Brooks, A. Hodgson, M. Hannigan, A.R. Oduro and C. Wiedinmyer, 2015: Research on Emissions, Air quality, Climate, and Cooking Technologies in Northern Ghana (REACCTING): Study Rationale and Protocol. *BMC Public Health*, 15, doi:10.1186/s12889-015-1414-1.
53. Ernst, K.C., Haenchen, S., Dickinson, K., Doyle, M.S., Walker, K., **A.J. Monaghan**, and M.H. Hayden, 2015: Awareness and support of release of genetically modified "sterile" mosquitoes, Key West, Florida, USA. *Emerg. Inf. Dis.*, 21, doi:10.3201/eid2102.141035.
54. Hahn, M.B., **A.J. Monaghan**, M.H. Hayden, R.J. Eisen, M.J. Delorey, N.P. Lindsey, R.S. Nasci, and M. Fischer, 2015: Meteorological conditions associated with increased incidence of West Nile virus disease in the United States, 2004-2012.. *Am. J. Trop. Med. Hyg.*, *Am. J. Trop. Med. Hyg.*, 92, 1013-1022.
55. Moore, S.M., **A.J. Monaghan**, J.N. Borchert, J.T. Mpanga, L.A. Atiku, K.A. Boegler, J. Montenieri, K. MacMillan, K.L. Gage, and R.J. Eisen, 2015: Seasonal fluctuations of small mammal and flea communities in a Ugandan plague focus: evidence to implicate *Arvicanthis niloticus* and *Crocidura* spp. as key hosts in *Yersinia pestis* transmission. *Parasites and Vectors*, 8, doi:10.1186/s13071-014-0616-1.
56. Heaton, M.J., S.R. Sain, **A.J. Monaghan**, M.H. Hayden, and O.V. Wilhelmi, 2015: An Analysis of an Incomplete Marked Point Pattern of Heat-Related 911 Calls. *J. Am. Statistical Assoc.*, 110, 123-125. doi:10.1080/01621459.2014.983229.
57. Steinhoff, D.F., **A.J. Monaghan**, and M. Clarke, 2014: Projected impact of 21st century ENSO changes on rainfall in Central America and northwest South America from CMIP5 AOGCMs. *Clim. Dyn.*, doi:10.1007/s00382-014-2196-3.
58. Vanvyve, E., L. Delle Monache, **A.J. Monaghan**, and J.O. Pinto, 2014: Wind resource estimates with an analog ensemble approach. *Wind Energy*, doi:10.1016/j.renene.2014.08.060.
59. Moreno-Madrinan, M.J., W.J. Crosson, L. Eisen, S.M. Estes, M.G. Estes Jr., M. Hayden, S.N. Hemmings, D.E. Irwin, S. Lozano-Fuentes, **A.J. Monaghan**, D. Quattrochi, C.M. Welsh-Rodriguez, and E. Zielinski-Gutierrez, 2014: Correlating Remote Sensing Data with Abundance of Pupae of the Dengue Virus Mosquito Vector, *Aedes aegypti*, in Central Mexico. *Int. J. Geo-Info.*, 3, 732-749. doi:10.3390/ijgi3020732.
60. Lozano-Fuentes, S., C. Welsh-Rodriguez, **A.J. Monaghan**, D.F. Steinhoff, C. Ochoa-Martinez, B. Tapia Santos, M.H. Hayden, and L. Eisen, 2014: Temporal Changes in Abundance of *Aedes (Stegomyia) aegypti* and *Aedes (Ochlerotatus) epactius* in High-Elevation Communities in México. *J. Med. Entomol.*, doi:10.1603/ME14015.
61. Hu, L. N.A. Brunsell, **A.J. Monaghan**, M.P. Barlage, and O.V. Wilhelmi, 2014: How can we use MODIS land surface temperature to validate long-term urban model simulations?. *J. Geophys. Res. Atm.*, 119, doi:10.1002/2013JD021101.
62. Abdussalam, A.F., **A.J. Monaghan**, D.H. Steinhoff, V.M. Dukic, M.H. Hayden, T.M. Hopson, J. Thornes, and G.C. Leckebusch, 2014: The impact of climate change on meningitis in northwest Nigeria: an assessment using CMIP5 climate model simulations. *Wea. Clim. Soc.*, 6, doi:10.1175/WCAS-D-13-00068.1.
63. Eisen, L.S., **A.J. Monaghan**, S. Lozano-Fuentes, D.F. Steinhoff, M.H. Hayden, and P.E. Bieringer, 2014: The Impact of Temperature on the Bionomics of the Vector Mosquito *Aedes (Stegomyia)*

- aegypti, With Special Reference to the Cool Geographic Range Margins. *J. Med. Entomol.*, **41**, doi:10.1603/ME13214.
64. Heaton, M.J., S.R. Sain, T.A. Greasby, C.K. Uejio, M.H. Hayden, **A.J. Monaghan**, J. Boehnert, K. Sampson, D. Banerjee, V. Nepal, and O.V. Wilhelmi, 2014: Characterizing Urban Vulnerability to Heat Stress using a Spatially Varying Coefficient Model. *Spatio-temporal Epidemiology*, **8**, 23-33, doi:10.1016/j.sste.2014.01.002.
  65. Steinhoff, D.F., D.H. Bromwich, J.C. Speirs, H.A. McGowan, and **A.J. Monaghan**, 2014: Austral Summer Foehn Winds over the McMurdo Dry Valleys of Antarctica from Polar WRF. *Q.J.R. Meteorol. Soc.*, doi:10.1002/qj.2278.
  66. Pinto, J.O., **A.J. Monaghan**, L. Delle Monache, E. Vanvyve, and D.L. Rife, 2014: Regional Assessment of Sub-Sampling Techniques for More Efficient Dynamical Climate Downscaling. *J. Appl. Meteor. Climatol.*, **27**, 1524-1538. doi:10.1175/JCLI-D-13-00291.1.
  67. Abdussalam, A.F., **A.J. Monaghan**, V.M. Dukic, M.H. Hayden, T.M. Hopson, G.C. Leckebusch, and J. Thornes, 2014: Climate influences on interannual variability of meningitis incidence in northwest Nigeria. *Wea. Clim. Soc.*, **6**, 62-76. DOI:10.1175/WCAS-D-13-00004.1
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  71. Rife, D.L., E. Vanvyve, J.O. Pinto, **A.J. Monaghan**, C.A. Davis, and G.S. Poulos, 2013: Selecting representative days for more efficient dynamical climate downscaling: Application to wind energy. *J. Appl. Meteor. Climatol.*, **52**, 47-63, doi:10.1175/JAMC-D-12-016.1.
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83. Rignot, E., I. Velicogna, M.R. van den Broeke, **A.J. Monaghan**, and J. Lenaerts, 2011: Acceleration of the contribution of the Greenland and Antarctic ice sheets to sea level rise. *Geophys. Res. Letts.*, **38**, L05503, doi:10.1029/2011GL046583.
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88. Tedesco, M., and **A.J. Monaghan**, 2009: An updated Antarctic melt record through 2009 and its linkages to high-latitude and tropical climate variability. *Geophys. Res. Letts.*, **36**, L18502, doi:10.1029/2009GL039186.
89. Fogt, R. L., J. Perlwitz, **A. J. Monaghan**, D. H. Bromwich, J. M. Jones, and G. J. Marshall, 2009: Historical SAM variability. Part II: 20th century variability and trends from reconstructions, observations, and the IPCC AR4 models. *J. Climate*, **22**, 5346-5365.
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91. Wen, Jiahong, K.C. Jezek, **A.J. Monaghan**, S. Bo, R. Jiawen, P. Huybrechts, 2006: Accumulation variability and mass budgets of the Lambert Glacier-Amery Ice Shelf system at high elevations. *Ann. Glaciol.*, **43**, 351-360.
92. Bromwich, D.H., **A.J. Monaghan**, K.W. Manning, and J.G. Powers, 2005: Real-time forecasting for the Antarctic: An evaluation of the Antarctic Mesoscale Prediction System (AMPS). *Mon. Wea. Rev.*, **133**, 579-603.
93. Bromwich, D.H., **A.J. Monaghan**, and Z. Guo, 2004: Modeling the ENSO modulation of Antarctic climate in the late 1990s with Polar MM5. *J. Climate*, **17**, 109-132.
94. Bromwich, D.H., **A.J. Monaghan**, J.G. Powers, J.J. Cassano, H. Wei, Y. Kuo, and A. Pellegrini, 2003: Antarctic Mesoscale Prediction System (AMPS): A case study from the 2000/2001 field season. *Mon. Wea. Rev.*, **131**, 412-434.



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96. Powers, J.G., **A.J. Monaghan**, A.M. Cayette, D.H. Bromwich, Y-H. Kuo, and K.W. Manning, 2003: Real-time mesoscale modeling over Antarctica: The Antarctic Mesoscale Prediction System (AMPS). *Bull. Amer. Meteor. Soc.*, **84**, 1533-1545.
97. Van Woert, M.L., E.S. Johnson, L. Langone, D.L. Worthen, **A.J. Monaghan**, D.H. Bromwich, R. Meloni, and R.B. Dunbar, 2003: The Ross Sea circulation during the 1990s. In *Antarctic Research Series, Biogeochemical Cycles in the Ross Sea*, (G. Ditullio and R. Dunbar eds.), **78**, 5-34.

### Thesis/Dissertation

1. Ph.D. Dissertation, 2007, The Ohio State University: “Recent variability and trends in Antarctic snowfall accumulation and near-surface air temperature.” Advisor: David H. Bromwich.
2. M.S. Thesis, 2003, The Ohio State University: Thesis Title: “Real-time forecasting for the Antarctic: An evaluation of the Antarctic Mesoscale Prediction System (AMPS).” Advisor: David H. Bromwich.

### Other Publications

1. **Monaghan, A.**, 2016: Global warming to expose more people to Zika-spreading mosquito *Aedes aegypti*. *The Conversation* (web magazine). <http://theconversation.com/global-warming-to-expose-more-people-to-zika-spreading-mosquito-aedes-aegypti-58908>.
2. Beard, C.B., R.J. Eisen, C.M. Barker, J.F. Garofalo, M. Hahn, M.H. Hayden, **A.J. Monaghan**, N.H. Ogden, P.J. Schramm, 2016: Chapter 5: Vectorborne Diseases. In, USGCRP Climate and Health Assessment. U.S. Global Change Research Program, Washington, DC. pp 129-156. doi:10.7930/j0765C7V.
3. Hayden, M.H. **A.J. Monaghan**, T. Apangu, K.S. Griffith, P.S. Mead, C.B. Beard, J.N. Borchert, K. Boegler, E. Zielinski-Gutierrez, S. Acayo, R. Acidri, S.M. Moore, K. MacMillan, L.A. Atiku, J.T. Mpanga, R.E. Enscore, K.L. Gage, and R.J. Eisen, 2016: Case Study 5H: Mapping and modeling plague in Uganda to improve health outcomes. In WHO-WMO Climate Services for Health Case Study project. World Meteorological Organization, Geneva. <https://public.wmo.int/en/resources/library/climate-services-health-case-studies>.
4. Bruyere, C.L., **A.J. Monaghan**, D.F. Steinhoff, and D. Yates, 2015: Bias-Corrected CMIP5 CESM Data in WRF/MPAS Intermediate File Format. *NCAR Technical Note* NCAR/TN-515+STR, 27 pp, DOI: 10.5065/D6445JJ7.
5. Boehnert, J., **A. Monaghan**, and O. Wilhelmi, 2015: The shape of Earth: Spatial referencing in weather and climate models. In, “Mapping and modeling weather and climate with GIS”, ESRI Press. Pp 25-40. (Book Chapter)
6. Tilmes, S., **A. Monaghan**, and J. Done, 2012: Addressing climate challenges in developing countries. *EOS Trans. of AGU*, **93**, 145. doi:10.1029/2012EO140008. (meeting summary)
7. Tedesco, M., and **A.J. Monaghan**, 2010 Climate and melting variability in Antarctica. *EOS*, **91**, 1-2, doi:10.1029/2010EO010001. (feature article)
8. **Monaghan, A.**, 2009: Antarctica and Climate Change. *World Watch Mag.*, **22**, 6-12.
9. **Monaghan, A.J.**, and D.H. Bromwich, 2008. Global warming at the poles. *Nature Geoscience*, **1**, 728-729. (perspective piece)

### Published Datasets

1. **Monaghan, A. J.**, D. F. Steinhoff, C. L. Bruyere, and D. Yates, 2014: DS316.1: NCAR CESM Global Bias-Corrected CMIP5 Output to Support WRF/MPAS Research. Research Data Archive at

the National Center for Atmospheric Research, Computational and Information Systems Laboratory, Boulder, CO [Dataset]. <https://doi.org/10.5065/D6DJ5CN4>.

2. **Monaghan, A. J.**, M. P. Clark, M. P. Barlage, A. J. Newman, L. Xue, J. R. Arnold, and R. M. Rasmussen, 2017: High-resolution climate simulations over Alaska: A community dataset, version 1. National Center for Atmospheric Research Earth System Grid, Boulder, CO [Dataset]. <https://doi.org/10.5065/D61Z42T0>.

**Presentations (Since 2006, lead author presentations only, conferences/workshops only)**

1. Monaghan, A.J., et al., July 2017: Toward early warning: Vector-borne disease research at NCAR. Sixth Biannual NCAR Colloquium on Climate and Health, Boulder, CO.
2. Monaghan, A.J., et al., January 2017: Climate Change and *Aedes*-transmitted arboviruses in the United States. Climate and Health Conference, University of Washington Center for Health and the Global Environment, Seattle, WA. (invited)
3. Monaghan, A.J., et al., January 2017: On the seasonal occurrence and abundance of the Zika virus vector mosquito *Aedes aegypti* in the contiguous United States. 97<sup>th</sup> AMS Annual Meeting, Seattle, WA.
4. Monaghan, A.J. et al., December 2016: Assessment of climate change and vector-borne diseases in the United States. 2016 Fall Meeting of the American Geophysical Union, San Francisco, CA. (invited)
5. Monaghan, A.J. et al., December 2016: High resolution regional climate simulations over Alaska. 2016 Fall Meeting of the American Geophysical Union, San Francisco, CA.
6. Monaghan, A.J., et al., September 2016: The potential impacts of 21<sup>st</sup> century climatic and population changes on human exposure to the virus vector mosquito *Aedes aegypti*. Aspen Global Change Institute Workshop on Health Impacts of Climate Change, Aspen, CO.
7. Monaghan, A.J., et al., January 2016: The potential impacts of 21<sup>st</sup> century climatic and population changes on human exposure to the virus vector mosquito *Aedes aegypti*. 96<sup>th</sup> AMS Annual Meeting, New Orleans, LA.
8. Monaghan, A.J., et al., January 2016: Climate change influences on the annual onset of Lyme disease in the United States. 96<sup>th</sup> AMS Annual Meeting, New Orleans, LA.
9. Monaghan, A.J. et al., December 2015: Climate change influences on the annual onset of Lyme disease in the United States. 2015 Fall Meeting of the American Geophysical Union, San Francisco, CA.
10. Monaghan, A.J., October 2015: What's hot?: Contemporary climatic data sources for use in infectious disease research. American Society of Tropical Medicine and Hygiene 92nd Annual Meeting, Philadelphia, DC.
11. Monaghan, A.J., et al., July 2015: Climate change influences on the annual onset of Lyme disease in the United States. Fifth Biannual NCAR Colloquium on Climate and Health, Boulder, CO.
12. Monaghan, A.J., January 2015: Climate change influences on the annual onset of Lyme disease in the United States. 95th AMS Annual Meeting, Phoenix, AZ.
13. Monaghan, A.J., August 2014: Disease vector mapping via environmental, climatological and sociological factors. International Society for Environmental Epidemiology 2014 Conference, Seattle, WA.
14. Monaghan, A.J., February 2014: The Dengue Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change. 94th AMS Annual Meeting, Atlanta, GA.
15. Monaghan, A.J., February 2014: Urban Modeling in Support of Characterizing Extreme Heat Vulnerability. 94th AMS Annual Meeting, Atlanta, GA.

16. Monaghan, A.J., November 2013: Modeling climatic linkages with human plague in Uganda now and in the future. American Society of Tropical Medicine and Hygiene 92nd Annual Meeting, Washington, DC.
17. Monaghan, A.J., et. al., January 2013: The Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change. American Society of Tropical Medicine and Hygiene 92nd Annual Meeting, Washington, DC.
18. Monaghan, A.J., et al., October 2013: High resolution simulations of the urban heat island. SIMMER Workshop: Linking Complex Science to Policy for Heat-Health Decision Making, Toronto, Canada.
19. Monaghan, A.J., et al., September 2013: A WRF-based hybrid dynamical-statistical downscaled climatology of West Nile, Uganda, to support human plague modeling. NCAR Regional Climate Modeling Seminar Series, Boulder, CO.
20. Monaghan, A.J., et al., July 2013: Local Climate Modeling. Fifth Biannual NCAR Colloquium on Climate and Health, Boulder, CO.
21. Monaghan, A.J., et al., July 2013: Enhancing surveillance for plague in NW Uganda. 5th GEO Health & Environment Community of Practice, Washington, DC.
22. Monaghan, A.J., et. al., March 2013: Climate change and the vector mosquito *Aedes aegypti* at the high altitude margins in Mexico: Observational and modeling results. Annual NSF Ecology and Evolution of Infectious Diseases Meeting, Athens, GA.
23. Monaghan, A.J., et. al., January 2013: The Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change. 93rd AMS Annual Meeting, Austin, TX.
24. Monaghan, A.J., April 2012: Challenges in Weather and Climate Sensitive Vector-Borne Disease Modeling. 2012 AMS Washington Forum, Washington, DC.
25. Monaghan, A.J., January 2012: The Dengue Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change. 92nd AMS Annual Meeting, New Orleans, LA.
26. Monaghan, A.J., M.H. Hayden, et al., December 2011: The Dengue Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change. American Society of Tropical Medicine and Hygiene 90th Annual Meeting, Philadelphia, PA.
27. Monaghan, A.J., M.H. Hayden, and O. Wilhelmi, October 2011: Weather, Climate and Human Health. ECSA Workshop on Regional Climate Issues in Developing Countries, Boulder, CO.
28. Monaghan, A.J., M.H. Hayden, and O. Wilhelmi, September 2011: The Weather, Climate and Health Program at the National Center for Atmospheric Research. ISPRS Symposium on Advances in Geospatial Technologies for Health, Santa Fe, NM.
29. Monaghan, A.J., M.H. Hayden, et al., July 2011: Modeling plague risk in Uganda. The 2011 NCAR/CDC Colloquium on Climate and Health, Boulder, CO.
30. Monaghan, A.J., M.H. Hayden, et al., March 2011: The Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change. Annual NSF Ecology and Evolution of Infectious Diseases Meeting, Madison, WI.
31. Monaghan, A.J., M.H. Hayden, et al., January 2011: Modeling and communicating plague risk in Uganda. 91st AMS Annual Meeting, Seattle, WA.
32. Monaghan, A.J., January 2011: Climate of the West Nile region of Uganda. Centers for Disease Control and Prevention, Division of Vector Borne Infectious Diseases, Ft. Collins, CO.
33. Monaghan, A.J., M.H. Hayden, O. Wilhelmi, and L. Buja, September 2010: WRF overview and WRF Health concept. WRF Health Workshop, Boulder, CO.
34. Monaghan, A.J., and R.J. Eisen, January 2010: Climate and spatial risk modeling of human plague in Uganda. 90<sup>th</sup> AMS Annual Meeting, Atlanta, GA.

35. Monaghan, A.J., and M. Tedesco, December 2009: The minimum melting in Antarctica in 2009: An updated Antarctic melt record and its linkages to high latitude and tropical climate variability. AGU Fall Meeting, San Francisco, CA (presented by M. Tedesco).
36. Monaghan, A.J., September 2009: Climate variability and change in Antarctica during the past century. SCAR First Antarctic Climate Evolution (ACE) Symposium, Granada, Spain (invited).
37. Monaghan, A.J., D.H. Bromwich, and S.R. Colwell, July 2009: Surface and mid-tropospheric climate change in Antarctica. MOCA-09 IAMAS/IAPSO/IACS 2009 Joint Assembly, Montreal, Canada.
38. Monaghan, A.J., D.L. Rife, J.O. Pinto, and C.A. Davis, July 2009: A new global meso-beta-scale atmospheric reanalysis. MOCA-09 IAMAS/IAPSO/IACS 2009 Joint Assembly, Montreal, Canada.
39. Monaghan, A. J., D. L. Rife, C. A. Davis, A. N. Hahmann, and J. O. Pinto, July 2008: The New Joint Effects Model Global Meso-Beta-Scale Climatology: An Important Dataset for Improving Decision Making for T&D Applications. Twelfth Annual GMU Transport and Dispersion Modeling Workshop, Fairfax, VA, George Mason University, CD-ROM 5.5.
40. Monaghan, A.J., D.H. Bromwich, and D. Steinhoff, June 2007: Do topographically-induced vortices in the lee of Ross Island contribute to mesoscale cyclogenesis? 2nd Antarctic Meteorological Observation, Modeling, and Forecasting Workshop, Rome, Italy.
41. Monaghan, A.J., February 2007: Changes in Snowfall and Near-Surface Temperature Over Antarctica During the Past 50 Years. SUNY Stony Brook Topics in Atmospheric and Oceanic Sciences Seminar Series, Stony Brook, NY. (Invited).
42. Monaghan, A.J., and D.H. Bromwich, September 2006: A high spatial resolution record of near-surface temperature over WAIS during the past 5 decades. West Antarctic Ice Sheet Initiative (WAIS) Annual Workshop, Eatonville, WA.
43. Monaghan, A.J., D.H. Bromwich, and D. Steinhoff, March 2006: A Study of the Adelie Land Katabatic Wind Regime and Its Impact on Coastal Cyclonic Activity. SCAR Workshop on the Antarctic Wind Field, Kuala Lumpur, Malaysia.
44. Monaghan, A.J., et al., February 2006: Antarctic Atmospheric Research during the IPY and its relationship to THORPEX. WMO/THORPEX Scientific Conference, Cape Town, South Africa.

## Grants

### As Principal Investigator

1. Project Title: "SMAP-informed modeling of dengue and chikungunya risk along the U.S./Mexico border"; Source of Support: NASA ROSES – Soil Moisture Active Passive (SMAP) (Grant NNX16AO98G): \$388,639; Period Covered: 8/1/2016-7/31/2019; Affiliation: PI (lead institution). Collaborators include NASA, University of Arizona and University of Washington. Note: I transferred the PI role to Caspar Ammann (NCAR) when I moved to the University of Colorado; I am still involved in a research capacity.
2. Project Title: "The Vector Mosquito *Aedes aegypti* at the Margins: Sensitivity of a Coupled Natural and Human System to Climate Change"; Source of Support: NSF-CNH (Grant GEO-1010204); Award Amount: \$1,235,000; Period Covered: 10/1/10-9/30/14; Affiliation: PI (lead institution). University collaborators included Colorado State University and Universidad Veracruzana.
3. Project Title: "Disease Vector Mapping via Environmental/Climatological/Sociological Factors"; Source of Support: Defense Threat Reduction Agency (Grant HDTRA-13-C-0081); Award Amount: \$147,116; Period Covered: 6/17/13-6/16/14; Affiliation: PI (subaward via STAR LLC).

Science and Technology in Atmospheric Research (STAR) LLC was the lead institution. University collaborators included Colorado State University.

4. Project Title: "Modeling Plague in Uganda"; Source of Support: Department of Health and Human Services - CDC; Award Amount: \$46,298; Period Covered: 7/1/09-06/30/10; Affiliation: PI (lead institution).
5. Project Title: "Modeling Plague in Uganda FY11"; Source of Support: Department of Health and Human Services - CDC; Award Amount: \$45,000; Period Covered: 12/1/10-09/30/11; Affiliation: PI (lead institution).
6. Project Title: "Climate and Vector-Borne Disease Predictive Modeling in the Greater Congo Basin"; Source of Support: Department of Health and Human Services - CDC; Award Amount: \$50,000; Period Covered: 9/1/11-8/31/12; Affiliation: PI (lead institution).
7. Project Title: "Climate and Vector-Borne Disease Predictive Modeling in the Greater Congo Basin"; Source of Support: Department of Health and Human Services - CDC; Award Amount: \$86,835; Period Covered: 8/1/12-7/31/2013; Affiliation: PI (lead institution).

#### As Co-Investigator

8. Project Title: "Collaborative research: implementing low-power, autonomous observing systems to improve the measurement and understanding of Antarctic precipitation"; Source of Support: NSF (Grant OPP-1543377); Award Amount: \$276,761; Period Covered: 5/1/16-4/30/19; Affiliation: Co-PI (subaward via UCB). Collaborators include the University of Colorado Boulder (lead institution).
9. Project Title: "Multidisciplinary research and training to address complex relationships among weather, climate, human health and ecosystems" (Year 2 Research); Source of Support: Department of Health and Human Services - CDC: \$102,838; Period Covered: 9/1/2015-8/31/2016; Affiliation: Co-PI (lead institution).
10. Project Title: "Multidisciplinary research and training to address complex relationships among weather, climate, human health and ecosystems" (Year 1 Research); Source of Support: Department of Health and Human Services - CDC: \$87,288; Period Covered: 9/1/2014-8/31/2015; Affiliation: Co-PI (lead institution).
11. Project Title: "On the Edge: The Impact of Climate Change on *Aedes Aegypti* and Dengue Risk in the Southwest US-Northwest Mexico"; Source of Support: NIH (Grant IR01AI091843); Award Amount: \$285,286; Period Covered: 9/1/12-8/31/15; Affiliation: Co-PI (subaward via U. Arizona). Collaborators included the University of Arizona (lead institution) and Colegio de Sonora.
12. Project Title: "System for Integrated Modeling of Metropolitan Extreme Heat Risk (SIMMER)"; Source of Support: NASA (Grant NNX10AK79G); Award Amount: \$1,490,038; Period Covered: 7/1/10-6/30/14; Affiliation: Co-PI (lead institution). University collaborators included the University of Kansas and Ryerson University.
13. Project Title: "On the Edge: Development of Predictive Risk Models for Tick Borne Diseases Based on Meteorological Descriptors"; Source of Support: Department of Health and Human Services - CDC; Award Amount: \$68,288; Period Covered: 8/30/13-8/29/14; Affiliation: Co-PI (lead institution).
14. Project Title: "Wind Energy Prospecting: Using NASA Earth Science Data to Create Improved Regional Wind Power Maps"; Source of Support: NASA (Grant NNX10AB30G); Award Amount: \$892,500; Period Covered: 10/01/09-09/31/13; Affiliation: Co-I (lead institution).
15. Project Title: "Global Variable-resolution Climatology Database for the Joint Effects Model (JEM)"; Source of Support: DTRA; Award Amount: \$557,202; Period Covered: 10/01/08-12/31/09; Affiliation: Co-I (lead institution).

16. Project Title: "Regional Climate Modeling for the Arabian Gulf Region – Future Scenarios and Capacity Building"; Source of Support: Climate Change Research Group; Award Amount: \$152,995; Period Covered: 7/1/2013-6/30/2014; Affiliation: Co-I (lead institution).

### **Service**

Editor, Atmospheric Sciences Section, Antarctic Science (2015-2017).

Member, AMS Board on Environment and Health (2016-2017).

Contributing author to Chapter 4 (Vectorborne Diseases) of USGCRP Climate and Health Assessment (doi:10.7930/j0765C7V).

Steering Committee for NCAR Early Career Scientists Association (2010-2015).

UCAR Awards Committee (2014-2016).

Panel reviewer: NSF Office of Polar Programs, December 2008, September 2011; NSF Coupled Natural and Human Systems Program, March 2011, February 2014.

Peer Reviewer: Science, Nature, Nature Geoscience, Journal of Climate, Monthly Weather Review, Journal of Applied Meteorology and Climatology, Journal of Geophysical Research, Geophysical Research Letters, Annals of Glaciology, Antarctic Science, the Cryosphere, and International Journal of Climatology, Journal of Medical Entomology, PLoS ONE, Bulletin of the American Meteorological Society, Journal of Water Resources Planning and Management, American Journal of Tropical Medicine and Hygiene.

### **Honors**

Recipient, UCAR Outstanding Publication Award, 2017 (for Monaghan et al. 2016, *PLoS Currents Outbreaks*).

Recipient, Research Applications Laboratory Outstanding Publication Award, 2017 (for Monaghan et al. 2016, *PLoS Currents Outbreaks*).

Recipient, Research Applications Laboratory Outstanding Publication Award, 2014 (for Rife et al. 2010, *J. Climate*).

Inaugural recipient of the Lay/Everett Service Award for outstanding contributions to the Byrd Polar Research Center, 2005.

### **Supervisory Activities**

2016-2017, Co-supervised Ryan Michael, CDC/NCAR Postdoctoral Fellow.

2016-2017, Co-supervised Chris Schmidt, CDC/NCAR Postdoctoral Fellow.

2015-2017, Supervised Sara Paull, NCAR ASP Postdoctoral Fellow.

2014-2016, Supervised Leiqiu Hu, NCAR ASP Postdoctoral Fellow.

2011-2016, Supervised Daniel Steinhoff, Project Scientist I.

2013-2015, Co-supervised Micah Hahn, CDC/NCAR Postdoctoral Fellow.

2013-2015, Co-supervised Katherine Conlon, CDC/NCAR Postdoctoral Fellow.

2010-2013, Co-supervised Chris Uejio, CDC/NCAR Postdoctoral Fellow.

2010-2013, Co-supervised Sean Moore, CDC/NCAR Postdoctoral Fellow.

### **Teaching, Training and Mentoring**

Teaching: *Climatology* (Geography 520), The Ohio State University, Winter 2006.

Teaching: *Antarctic Marine Ecology and Policy* (Int. Studies 597.02), The Ohio State University, Spring 2007.

Organized and taught a WRF introductory course to ~20 university and government personnel in Xalapa, Veracruz, Mexico in May 2013.

Co-organized and co-taught an introductory course on the use of the NCAR Command Language (NCL) to ~20 students, university and government personnel in Lima, Peru in September 2015.

Co-organizer and presenter: WRF Health Workshop, Boulder, CO, September 2010.

Co-organizer and presenter: ASP/ECSA Workshop on Regional Climate Issues in Developing Countries, Boulder, CO, October 2011.

Presenter: Broadening Participation in the Interdisciplinary Geosciences: Hands-on Training and Education – Workshop Series, Boulder, CO, June 2015.

Mentorship and training: graduate students (multi-month visitors): Auwal Abdussalam (U. Birmingham) 2012 & 2013; Leiqiu Hu (U. Kansas) 2013; Cory Morin (U. Arizona) 2014; Rakibul Khan (West Virginia U.) 2017.

Mentorship and training: undergraduate students (multi-month visitors): Ricardo Wells (S. Illinois U. Edwardsville) 2017.

Mentorship and training: high school students (summer internships through UCAR SPARK Program): Karielys Ortiz (2012); Gabriela Talavera (2013).

Presentations to non-scientific audiences: Ted Scripps Fellows in Environmental Journalism (2010, 2011, 2016); Boulder High School (2010); NCAR 50th Anniversary Open House (2010); ISP Summer Colloquium on African Weather and Climate (2011); NCAR Advisory Panel (2011, 2013); Government Accountability Office (2012); NCAR Extremes reading group (2013); NCAR Regional Climate Modeling seminar series (2013); National Geospatial-Intelligence Agency (2015); Global Weather Corp. (2015); Longmont FIRST program (2016); Arizona Dept. of Health Services (2016); Public Health Climate Change webinar (2016, 2017); U.S. Army Public Health Service (2017); NCAR Explorer's Series (2017).

University lectures and seminars: Colorado College Env. Studies Seminar (2011); U. Kansas Geography Colloquium (2014); CU ATOC 7500/CIRES Seminar Series (2015); S. Dakota State U. (2015); Wofford College (2016); Texas Tech U. (2016); Texas State U. (2016); CU Denver (2016); Front Range Community College (2017); U. Alabama Huntsville (2017).