NSAP Publications

List of Publications by Year

NSAP staff are highlighted in red text.
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2014 Publications

Archer, C., Delle Monache, L., and Rife, D., 2014. Airborne wind energy: Optimal locations and variability. *Renewable Energy*, 64, 180-186.

Abdussalam, Auwal F., Andrew J. Monaghan, Vanja M. Duki, Mary H. Hayden, Thomas M. Hopson, Gregor C. Leckebusch, John E. Thornes, 2014: Climate Influences on Meningitis Incidence in Northwest Nigeria. *Wea. Climate Soc.*, 6, 62–76. doi: 10.1175/WCAS-D-13-00004.1.

Abdussalam, Auwal F., Andrew J. Monaghan, Daniel Steinhoff, Vanja M. Dukic, Mary H. Hayden, Thomas M. Hopson, Gregor C. Leckebusch, and John E. Thornes: The impact of climate change on meningitis in northwest Nigeria: an assessment using CMIP5 climate model simulations. *Wea. Climate Soc.* (under review).

Annunzio, A.J., P.E. Bieringer, R. Cabell, G. Bieberbach: A Methodology for Sensor Testing and Evaluation for Defense Applications, Submited for publication in *Journal of Applied Meteorology and Climatology*.

Bieringer, P.E., A. Annunzio, G. Bieberbach, N. Platt, and J. Hannan, 2014: Contrasting the Use of Single Realization vs. Ensemble Average Chemical and Biological (CB) Threats for CB Defense Analysis. In Press, *Journal of Applied Meteorology and Climatology*.

Bieringer, P.E., F. Vandenberghe, I. Sykes, J. Hannan, J. Hurst, G. Bieberbach, L.M. Rodriguez, and R. Fry: Automated Source Parameter and Low Level Wind Estimation for Atmospheric Transport and Dispersion Applications. In internal review in preparation for submission to *Atmospheric Environment*.

Broman, D., B. Rajagopalan, T. M. Hopson, R. Pandya: Spatio-Temporal Variability and Predictability of Relative Humidity Over West African Monsoon Region. *J. of Climate* (under review).

Carlos Pérez García-Pando, Madeleine Thomson, Michelle Stanton, Peter Diggle, Thomas Hopson, Rajul Pandya, and Ron Miller: Meningitis and Climate – from Science to Practice. *Earth Perspectives* (in press).

Eisen, L. 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. In Press, *Journal of Medical Entomology*.

Feyera A. Hirpa, Mekonnen Gebremichael , Thomas M. Hopson, Rafal Wojick, Haksu Lee: Assimilation of Satellite Soil Moisture Retrievals into Hydrologic Model for Improving River Discharge. Chapter in *Soil Moisture, American Geophysical Union* (in press).

Hopson, T. M., 2014: "Assessing the Ensemble Spread-Error Relationship", *Monthly Weather Review*, Vol. 142, No. 3., pp 1125-1142.

Kolczynski, W. and J. Hacker, 2014: The potential for Self-Organizing Maps to identify model error structures. Accepted to *Mon. Wea. Rev.*

Kristen McCormack, Thomas Hopson, Mary Hayden, Maxwell Dalaba, Andrew Monaghan, Jennifer Boehnert, Katherine Dickinson, Abraham Hodgson, Abudulai Adams Forgor, Patricia Akweongo, Rajul Pandya: The relationship between meningococcal meningitis and proximity to bodies of water: a case study of Northern Ghana. *Wea. Climate Soc.* (under review).

Massey, J. D., W. J. Steenburgh, S. W. Hoch, and J. C. Knievel, 2014: Sensitivity of near-surface temperature forecasts to soil properties over a sparsely vegetated dryland region. *J. Applied Meteor. Climatol*, 53, 1976–1995. DOI:10.1175/JAMC-D-13-0362.1.

Nunalee, C.G., B. Kosovic, P.E. Bieringer: Eulerian dispersion modeling with WRF-LES of plume impingement in neutrally and stably stratified turbulent boundary layers, in *Atmospheric Environment*, Vol. 99, pp 571-581.

Nunalee, C.G., B. Kosovic, P.E. Bieringer: Evaluation of WRF-LES for Dispersion and Transport Modeling Over Complex Terrain, In Sponsor Review for publication in *Atmospheric Environment*.

Pandya R., A. Hodgson, M. H. Hayden, P. Akweongo, T. Hopson, A. Adams Forgor, T. Yoksas, M. A. Dalaba, V. Dukic, R. Mera, A. Dumont, K. McCormack, D. Anaseba, T. Awine, J. Boehnert, G. Nyaaba, A. Laing, F. Semazzi. 2014: Using Weather Forecasts to Help Manage Meningitis in the Sahel. *Bull. Amer. Meteor. Soc.* (under review).

Pinto, J., Monaghan, A., Delle Monache, L., Vanvyve, E., and Rife, D., 2014. Regional assessment of a targeted random sampling technique for more efficient dynamical climate downscaling. *Journal of Applied Meteorology and Climatology*, 27, 1524–1538.

Platt, N. C. Czech, J. Urban, D. DeRiggi, M. Ambroso, P.E. Bieringer, G. Bieberbach, A. Wysgrodzki, and J. Weil: Use of The Ensemble-Mean Plume versus Individual Plume Realizations for Toxic Load Modeling. Submitted to *Atmospheric Environment*.

Ryerson, W. and J. Hacker, 2014: The potential for mesoscale visibility predictions with a multi-model ensemble. Accepted to *Wea. and Forecast.*

Urban, J. T., K. Galvin, N. Platt, P.E. Bieringer, G. Bieberbach, A.J. Annunzio, 2014: Comparison of hazard area and casualty predictions of a small-scale chemical attack using various toxic load toxicity models. Accepted with revisions: *The International Journal of Environment and Pollution*.

2013 Publications

Archer, C. L., Colle, B., Delle Monache, L., Dvorak, M., Lundquist, J., Bailey, B. H., Beaucage, P., Churchfield, M. J., Fitch, A. C., Kosovic, B., Lee, S., Moriarty, P. J., Simao, H., Stevens, R. J. A. M., Veron, D., and Zack, J., 2013. Meteorology for coastal/offshore wind energy in the United States: Recommendations and research needs for the next 10 years. Accepted, *Bulletin of the American Meteorological Society*.

Bieringer, P.E., S. Hanna, G. Young, B. Kosovic, J. Hannan, and R. Ohba, 2013: Methods for Estimating the Atmospheric Radiation Release from the Fukushima Dai-ichi Nuclear Power Plant. *Bull. Amer. Meteor. Soc.*, 94.

Bieringer, P.E., S. Longmore, G. Bieberbach, L.M. Rodriguez, J, Copeland, and J. Hannan, 2013: A Method for Targeting Air Samplers for Facility Monitoring in an Urban Environment. *Atmospheric Environment*, 80, pp. 1-12.

Bieringer P.E., P.S. Ray, A.J. Annunzio, 2013. The Effect Of Topographic Variability On Initial Condition Sensitivity Of Low-Level Wind Forecasts Part 1: Experiments Using Idealized Terrain. *Mon Wea. Rev.*, 141, pp 2137-2155.

Bieringer P.E., P.S. Ray, A.J. Annunzio, 2013. The Effect Of Topographic Variability On Initial Condition Sensitivity Of Low-Level Wind Forecasts Part II: Experiments Using Real Terrain And Observations. *Mon Wea. Rev.*, 141, pp. 2156-2172.

Cheng, W., Y. Liu, Y.W. Liu, Y. Zhang, W.P. Mahoney, and T. T. Warner, 2013: The impact of model physics on numerical wind forecasts. *Renewable Energy*, 55, 347-356.

Delle Monache, L., Eckel, T., Rife, D., and Nagarajan, B., 2013. Probabilistic weather prediction with an analog ensemble. *Monthly Weather Review*, 141, 3498-3516.

Grim, J. A., J. C. Knievel, and E. T. Crosman, 2013: Techniques for using MODIS data to remotely sense lake water surface temperatures. *J. Atmos. Oceanic Technol.*, 30, 2434-2451. doi: 10.1175/JTECH-D-13-00003.1.

Hacker, J. and W. Angevine, 2013: Ensemble data assimilation to characterize surface-layer errors in numerical weather prediction models. *Mon. Wea. Rev.*, 141, 1804–1821. doi: 10.1175/MWR-D-12-00280.1.

Hirpa, F. A., T. M. Hopson, M. Gebremichael, T. De Groeve, G. R. Brakenridge, P. Restrepo, 2013: Use of satellite-based flood signals for real-time river flow forecasting: application to two major rivers in south Asia. *Remote Sensing of the Environment*, 131, 140-151. doi: 10.1016/j.rse.2012.11.013.

Rodriguez, L.M., P.E. Bieringer, T.Warner 2013: Urban transport and dispersion model sensitivity to wind direction uncertainty and source location, *Atm ospheric Environment*, Volume 64, January 2013, Pages 25-39, ISSN 1352-2310, 10.1016/j.atmosenv.2012.08.037.

Rostkier-Edelstein, D. and J. Hacker, 2013: Flow-dependence, column covariance, and forecast model in assimilating surface observations for probabilistic nowcasts of PBL profiles. *Wea. and Forecast.*, 28, 29–54. doi: 10.1175/WAF-D-12-00043.1.

Williams, J., Maxwell, R., Delle Monache, L., 2013. Improving wind energy forecasts using an Ensemble Kalman Filter data assimilation technique in a fully coupled hydrologic and atmospheric model. Accepted, *Journal of Advances in Modeling Earth Systems*.

Wyszogrodzki, A, Y. Liu, N. Jacobs, P. Childs, Y. Zhang, G. Roux and T. Warner, 2013: Analysis of the surface temperature and wind forecast errors of the NCAR-AirDat operational CONUS 4-km WRF forecasting system. *Meteorology and Atmospheric Physics*: 122, 125-143.

2012 Publications

Dukic, V., Mary Hayden, Tom Hopson, Abudulai Adams-Forgor, Patricia Akweongo, Abraham Hodgson, Benjamin Lamptey, Tom Yoksas, Christine Wiedinmyer, and Raj Pandya, 2012: The role of weather variables in meningitis outbreaks in Navrongo, Ghana: a Generalized Additive Modeling Approach. Special Fall Issue of J. of Agric. Biol, and Env. Stats. *Journal of Agricultural, Biological, and Environmental Statistics*, doi: 10.1007/s13253-012-0095-9.

Lozano-Fuentes, S., Hayden, M.-H., Welsh-Rodriguez, C., Ochoa-Martinez, C., Tapia-Santos, B., Kobylinski, K. C., Uejio, C. K., Zielinski-Gutierrez, E., Delle Monache, L., Monaghan, A. J., Steinhoff, D. F., and Eisen, 2012: The dengue virus mosquito vectors Aedes aegypti at high elevation in Mexico. *A m. J. Trop. Med. Hyg.*, 87, 902-909.

Lozano-Fuentes, S., Welsh-Rodriguez, C., Hayden, M. H., Tapia-Santos, B., Ochoa-Martinez, C., Kobylinski, K. C., Uejio, C. K., Zielinski-Gutierrez, E., Delle Monache, L., Monaghan, A. J., Steinhoff, D. F., Eisen, L., 2012. Aedes (Ochlerotatus) epactius along an elevation and climate gradient in Veracruz and Puebla States, México. *Journal of Medical Entomology*, 49, 1244-1253.

Mahoney, W.P., K. Parks, G. Wiener, Y. Liu, B. Myers, J. Sun, L. Delle Monache, T. Hopson, D. Johnson, S.E. Haupt, 2012: A wind power forecasting system to optimize grid integration. *IEEE Transactions on Sustainable Energy*, 3, 670-682. doi: 10.1109/TSTE.2012.2201758.

Platt, N., D. DeRiggi, S. Warner, P.E. Bieringer, G. Bieberbach, A. Wyszogrodzki, and J. Weil, 2012: Method for comparison of large eddy simulation generated wind fluctuations with short-range observations, *Int. J. Environment and Pollution*, Vol. 48, No. 1/2/3/4, pp.22–30.

Rostkier-Edelstein, D., Y. Liu, W. Wu, P. Kunin, M. Ge and A. Givati, 2012: Towards a high-resolution climatography of seasonal precipitation over Israel. *International Journal of Climatology*. doi: 10.1002/joc.3814.

Seefeldt, M., T. Hopson, T. Warner, 2012: A characterization of the variation in relative humidity across West Africa during the dry season,. *J. Applied Meteor. & Climat.*, doi: 10.1175/JAMC-D-11-0196.1.

Wu, W., Y. Liu, M. Ge, G. Descobes, T. Warner, D. Yates, T. Hopson, and S. Swerdlin, D. Rostkier-Edelstein, P. Kunin, A. Givati, 2012: Statistical downscaling of climate forecast system seasonal predictions for the Southeastern Mediterranean. *Atmospheric Research*, doi: 10.1016/j.atmosres.2012.07.019.

2011 Publications

Berner, J., S.-Y. Ha, J. Hacker, A. Fournier, and C. Snyder, 2011: Model uncertainty in a mesoscale ensemble prediction system: Stochastic versus multi-physics representations. *Mon. Wea. Rev.*, 139, 1972–1995.

Bromwich, D.H., J.P. Nicolas, and A. J. Monaghan, 2011: An assessment of precipitation changes over Antarctica and the Southern Ocean since 1989 in contemporary global reanalyses. *J. Climate*, conditionally accepted.

Chen, F., H. Kusaka, R. Bornstain, J. Ching, C.S.B. Grimmond, S. Grossman-Clarke, T. Loridan, K. Manning, A. Martilli, S. Miao, D. Sailor, F. Salamanca, H. Taha, M. Tewari, X. Wang, A. Wyszogrodzki, and C. Zhang, 2011: The integrated WRF/urban modeling system: development, evaluation, and applications to urban environmental problems. *International Journal of Climatology*, 31, 273-288. doi: 10.1002/joc.2158.

Delle Monache, L., T. Nipen, Y. Liu, G. Roux, and R. Stull, 2011: Kalman filter and analog schemes to post-process numerical weather predictions. *Monthly Weather Review, 139, 3554-3570*.

Flanner, M.G., K. M. Shell, M. Barlage, D. K. Perovich, and M.A. Tschudi, 2011: Northern hemisphere cryosphere radiative forcing and albedo feedback during 1979-2008, *Nature Geosci.*, doi:10.1038/ngeo1062, in press, available online.

Grabowski W.W., J. Slawinska, H. Pawlowska, and A.A. Wyszogrodzki, 2011: Macroscopic impacts of cloud and precipitation processes in shallow convection. *Acta Geophysica*, submitted.

Grim, J.A., and J.O Pinto, 2011: Estimating continuous-coverage instantaneous precipitation rates using remotely-sensed and ground-based measurements. *J. Appl. Meteorol. Clim.*, Submitted.

Grimmond, C.S.B., M. Blackett, M. Best, J. Barlow, J.J. Baik, S. Belcher, S.I. Bohnenstengel, I. Calmet, F. Chen, et al., 2011: Initial results from Phase 2 of the international urban energy balance model comparison. *International Journal of Climatology*, doi:10.1002/joc.2227.

Grotjahn, R., L.-L. Pan, and J. Tribbia, 2011 Sources of CAM3 vorticity bias during northern winter from diagnostic study of the vorticity equation. *Climate Dynamics*, accepted.

Hacker, J., C. Snyder, S.-Y. Ha, and M. Pocernich, 2011: Linear and nonlinear response to parameter variations in a mesoscale model. *Tellus A*, doi: 10.1111/j.1600-0870.2010.00505.x.

Hacker, J., S.-Y. Ha, C. Snyder, J. Berner, F. Eckel, E. Kuchera, M. Pocernich, S. Rugg, J. Schramm, and X. Wang, 2011: The U.S. Air Force Weather Agency's mesoscale ensemble: Scientific description and performance results. *Tellus A*, doi: 10.1111/j.1600-0870.2010.00497.

Hines, K. D. Bromwich, L. Bai, M. Barlage, and A. Slater, 2011: Development and Testing of Polar WRF. Part III: Arctic Land, *J. Climate*, 24(1), 26-48, doi:10.1175/2010JCLI3595.1.

Hirschberg , P., E. Abrams, A. Bleistein, W. Bua, L. Delle Monache, T. Dulong, J. Gaynor, B. Glahn, T. Hamill, J. Hansen, D. Hilderbrand, R. Hoffman, B. Morrow, B. Philips, J. Sokich, and N. Stuart, 2011: A weather and climate enterprise strategic implementation plan for generating and communicating forecast uncertainty information. *Bulletin of the American Meteorological Society , 92, 1651-1666*.

Hopson, T. M., 2011: Approximating the backwater effects of sea-level variation on upstream river depth: application to flood forecasting in Bangladesh. *Adv in Water Res*., submitted.

Kirkil, G., J. D. Mirocha, E. Bou-Zeid, F. K. Chow, B. Kosovic, 2011: Implementation and Evaluation of Dynamic Subfilter-Scale Stress Models for Large-Eddy Simulation using WRF. Submitted to *Mon. Wea. Rev*.

Kuttel, M., E.J. Steig, Q. Ding, A. J. Monaghan, and D.S. Battisti, 2011: Seasonal climate information preserved in West Antarctic ice core water isotopes: Relationships to temperature, large-scale circulation, and sea ice. *Climate Dyn.*, submitted.

Lee, Hyongki, C.K. Shum, I. Howat, A. J. Monaghan, Y. Ahn, J. Duan, J-Y Guo, C-Y Kuo, and L. Wang, 2011: Continuously accelerating ice loss over Amundsen Sea catchment, West Antarctica, revealed by integrating altimetry and GRACE data. *Earth and Planetary Sci. Letts.*, submitted.

Liu Y., T. Warner, W.Y.Y. Cheng, G. Roux, L. Delle Monache, Y. Liu, W. Mahoney, K. Parks, Y.-H. Wan, T. Hopson, B. Kosovic, 2011: Analysis and prediction of winds at large inland wind farms: NWP modeling tools and challenges. *Wind Energy*, conditionally accepted.

Liu, Y., T. Warner, Y. Liu, C. Vincent, W. Wu, B. Mahoney, S. Swerdlin, K. Parks, J. Boehnert, 2011: Simultaneous nested modeling from the synoptic scale to the LES scale for wind energy applications. *J. Wind Eng. Ind. Aerodyn.*, doi:10.1016/j.jweia.2011.01.013.

Pan L.-L., S.-H. Chen, D. Cayan, M.-Y. Lin, Q. Hart, M.-H., Zhang, Y. Liu, and J. Wang, 2011: Influences of climate change on California and Nevada regions revealed by a High-resolution dynamical downscaling study, Climate Dynamics, doi: 10.1007/s00382-010-0961-5.

Rasmussen, R., C. Liu, K. Ikeda, D. Gochis, D. Yates, F. Chen, M. Tewari, M. Barlage, J. Dudhia, W. Yu, K. Miller, K. Arsenault, V. Grubisic, G. Thompson, and E. Guttman, 2011: High Resolution Coupled Climate-runoff Simulations of Seasonal Snowfall over Colorado: A Process Study of Current and Warmer Climate, *J. Climate*, in press, available online.

Rignot, E., I. Velicogna, M.R. van den Broeke, and A. J. Monaghan, 2011: Acceleration of the contribution of the Greenland and Antarctic ice sheets to sea level rise. *Geophys. Res. Letts.*, submitted.

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Schmidli J., B. J. Billings, R. Burton, F. K. Chow, S. F. J. De Wekker, J. D. Doyle, V. Grubisic, T. R. Holt, Q. Jiang, K. A. Lundquist, A. N. Ross, L. C. Savage, P. Sheridan, S. Vosper, C. D. Whiteman, A. A. Wyszogrodzki, G. Zaengl, and S. Zhong, 2011. Intercomparison of mesoscale model simulations of the daytime valley wind system. *Mon. Wea. Rev.*, accepted.

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Xie, Y., S. Koch, J. McGinley, S. Albers, P.E. Bieringer, M. Wolfson, M. Chan, 2011: A space–time multiscale analysis system: a sequential variational analysis approach. *Mon. Wea. Rev.*, 139, 1224–1240.

Yang, Z-L, G-Y Niu, K Mitchell, F. Chen, M. Ek, M. Barlage, K. Manning, D. Niyogi, M. Tewari, and Y. Xia, 2011: The Community Noah Land Surface Model with Multi-Physics Options (Noah-MP): 2. Evaluation over Global River Basins, *J. Geophys. Res.*, conditionally accepted.

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Yu, W., W. Han, E. D. Maloney, D. Gochis, and S. Xie (2011), Observations of eastward propagation of atmospheric intraseasonal oscillations from the Pacific to the Atlantic, *J. Geophys. Res.*, 116, D02101, doi:10.1029/2010JD014336.

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Barlage, M., F. Chen, M. Tewari, K. Ikeda, D. Gochis, J. Dudhia, R. Rasmussen, B. Livneh, M. Ek, and K. Mitchell, 2010: Noah Land Model Modifications to Improve Snowpack Prediction in the Colorado Rocky Mountains, *J. Geophys. Res.*, 115, D22101, doi:10.1029/2009JD013470.

Bromwich, D., Y. Kuo, M. Serreze, J. Walsh, L. Bai, M. Barlage, K. Hines, and A. Slater, 2010: Arctic System Reanalysis: Call for Community Involvement, *EOS*, 91(2), 12 January, 2010.

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Frehlich, R., B. Sharman, F. Vandenberghe, W. Yu, Y. Liu, J. C. Knievel, and G. Jumper, 2010: Estimates of Cn2 from numerical weather prediction model output and comparison with thermosonde data. *J. Appl. Meteorol. Clim.,* 49, 1742-1755. doi: 10.1175/2010JAMC2350.1.

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Ikeda, K., R. Rasmussen, C. Liu, D. Gochis, D. Yates, F. Chen, M. Tewari, M. Barlage, J. Dudhia, K. Miller, K. Arsenault, V. Grubisic, G. Thompson, and E. Guttman, 2010: Simulation of snowfall over Colorado, *Atmospheric Research*, 97(4), 462-477.

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