MICHAEL A. BRUNKE

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Professional Experience

2015	**The University of Arizona**	Ph.D., Atmospheric Sciences
2000	**The University of Arizona**	M.S., Atmospheric Sciences
1998	**University of Michigan**	B.S., Atmospheric, Oceanic, and Space Sciences

Appointments

1998-present

Dept. of Hydrology and Atmospheric Sciences and Dept. of Atmospheric Sciences, The University of Arizona

Research Scientist (2015-present), appointed Research Specialist (2008-2015), classified staff Research Specialist (2000-2008), Graduate Research Assistant (1999-2000), Graduate Teaching Assistant (1998-1999)
Analysis of climatological and campaign data; model evaluation and improvement. Extensively used NCL, IDL, Matlab, Fortran 77/90, C, performed GCM/ESM experiments.

Publications

Brunke, M. A., and Co-Authors, 2022: Aircraft observations of turbulence in cloudy and cloud-free boundary layers over the western North Atlantic Ocean from ACTIVATE and implications for the Earth system model evaluation and development. *J. Geophys. Res.: Atmospheres*, **127**, e2022JD0036480, https://doi.org/10.1029/2022JD0036480.

Brunke, M. A., J. Welty, and X. Zeng, 2021: Attribution of snowpack errors to simulated temperature and precipitation in E3SMv1 over the contiguous United States. *J. Adv. Model. Earth Sys.*, **13,** e2021ms002640, doi:10.1029/2021MS002640.

Brunke, M. A., P.-L. Ma, J. E. J. Reeves Eyre, P. J. Rasch, A. Sorooshian, and X. Zeng, 2019: Subtropical marine low stratiform cloud deck spatial errors in the E3SMv1 Atmosphere Model. *Geophys. Res Lett.*, **46**, 12 598-12 607.

Brunke, M. A., J. J. Cassano, N. Dawson, A. K. DuVivier, W. J. Gutowski, Jr., J. Hamman, W. Maslowski, B. Nijssen, J. E. J. Reeves Eyre, J. C. Renteria, A. Roberts, and X. Zeng, 2018: Evaluating the atmosphere-land-ocean-sea ice interface processes in the Regional Arctic System Model version 1 (RASM1) using local and globally gridded observations. *Geosci. Model Dev.*., **11**, 4817-4841.

Brunke, M. A., P. Broxton, J. Pelletier, D. Gochis, P. Hazenberg, D. M. Lawrence, L. R. Leung, G.-Y. Niu, P. A. Troch, and X. Zeng, 2016: Implementing and evaluating variable soil thickness in the Community Land Model version 4.5. *J. Climate*, **29**, 3441-3461.

Brunke, M. A., S. T. Stegall, and X. Zeng, 2015: A climatology of tropospheric humidity inversions in five reanalyses. *Atmos. Res.*, **153**, 165-187.

Brunke, M. A., Z. Wang, X. Zeng, M. Bosilovich, and C.-L. Shie, 2011: An assessment of the uncertainties in ocean surface turbulent fluxes in 11 reanalysis, satellite-derived, and combined global datasets. *J. Climate*, **24**, 5469-5493.

Brunke, M. A., S. P. de Szoeke, P. Zuidema, and X. Zeng, 2010: A comparison of ship and satellite measurements of cloud properties with global climate model simulations in the southeast Pacific stratus deck. *Atmos. Chem. Phys.*, **10**, 6527-6536, doi:10.5194/acp-10-6527-2010.

Brunke, M. A., X. Zeng, V. Misra, and A. Beljaars, 2008: Integration of a prognostic sea surface skin temperature scheme into weather and climate models. *J. Geophys. Res.*, **113**, D21117, doi:10.1029/2008JD010607.

Brunke, M. A., M. Zhou, X. Zeng, and E. L Andreas, 2006: An intercomparison of bulk aerodynamic algorithms used over sea ice with data from the SHEBA experiment. *J. Geophys. Res.*, **111**, C09001, doi:10.1029/2005JC002907.

Brunke, M. A., C. W. Fairall, X. Zeng, L. Eymard, and J. A. Curry, 2003: Which bulk aerodynamic algorithms are least problematic in computing ocean surface turbulent fluxes? *J. Climate*, **16**, 619-635.

Brunke, M. A., X. Zeng, and S. Anderson, 2002: Uncertainties in sea surface turbulent flux algorithms and datsets. *J. Geophys. Res.*, **107**, 3141, doi:10.1029/2001JC000992.

Cassano, J. J., A. DuVivier, A. Roberts, M. Hughes, M. Seefeldt, **M. Brunke,** A. Craig, B. Fisel, W. Gutowski, J. Hamman, M. Higgins, W. Maslowski, B. Nijssen, R. Osinski, and X. Zeng, 2017: Development of the Regional Arctic System Model (RASM): Near-surface atmospheric climate sensitivity. *J. Climate*, **30**, 5729-5753, doi:10.1175/JCLI-D-15-0775.1.

Crosbie, E., Z. Wang, A. Sorooshian, P. Y. Chuang, J. S. Craven, M. M. Coggon, **M. Brunke,** X. Zeng, H. Jonsson, R. K. Woods, R. C. Flagan, and J. H. Seinfeld, 2016: Stratocumulus cloud clearings and notable thermodynamic and aerosol contrasts across the clear-cloudy interface. *J. Atmos. Sci*, **73**, 1083-1099.

Curry, J. A., A. Bentamy. M. A. Bourassa, D. Bourass, E. F. Bradley, **M. Brunke,** S. Castro, S. H. Chou, C. A. Clayson, W. J. Emery, L. Eymard, C. W. Fairall, M. Kubota, B. Lin, W. Perrie, R. A. Reeder, I. A. Renfrew, W. B. Rossow, J. Schulz, S. R. Smith, P. J. Webster, G. A. Wick, and X. Zeng, 2004: SEAFLUX. *Bull. Amer. Meteor. Soc.*, **85**, 409-424.

Dadashazar, H., Z. Wang, E. Crosbie, **M. Brunke,** X. Zeng, H. Jonsson, R. K. Woods, R. C. Flagan, J. H. Seinfeld, and A. Sorooshian, 2017: Relationships between giant sea salt particles and clouds inferred from aircraft physicochemical data. *J. Geophys. Res.-Atmos.*, **122**, 3421-3434.

Decker, M., **M. A. Brunke,** Z. Wang, K. Sakaguchi, X. Zeng., and M. G. Bosilovich, 2012: Evaluation of the reanalysis products from GSFC, NCEP, and ECMWF using flux tower observations. *J. Climate*, **6**, 1916-1944.

Elliott, S., S. Burrows, P. Cameron-Smith, F. Hoffman, E. Hunke, N. Jeffery, Y. Liu, M. Maltrud, Z. Menzo, O. Ogunro, L. Van Roekel, S. Wang, **M. Brunke,** M. Jin, R. Letscher, N. Meskhidze, L. Russell, I. Simpson, D. Stokes, and O. Wingenter, 2018: Does marine surface tension have global biogeography? Addition for the OCEANFILMS package. *Atmosphere*, **9**, 216, doi:10.3390/atmos9060216.

Golaz, J. C., **M. A. Brunke,** and 82 Co-Authors, 2019: The DOE E3SM Coupled Model Version 1: Overview and evaluation at standard resolution. *J. Adv. Mod. Earth Sys.*, **11**, 2089-2129, doi:10.1029/2018MS001603.

Hamman, J., B. Nijssen, **M. Brunke,** J. Cassano, A. Craig, A. DuVivier, M. Hughes, D. P. Lettenmaier, W. Maslowski, R. Osinski, A. Roberts, and X. Zeng, 2016: Land surface climate in the Regional Arctic System Model. *J. Climate*, **29**, 6543-6562, doi:10.1175/JCLI-D-0415.1.

Herman, B., **M. A. Brunke,** R. A. Pielke, Sr., J. R. Christy, and R. T. McNider, 2010: Satellite global and hemispheric lower tropospheric temperature annual temperature cycle. *Remote Sensing*, **2**, 2561-2570, doi:10.3390/rs2112561.

Lawrence, D. M., **M. A. Brunke,** and 54 Co-Authors, 2019: The Community Land Model Version 5: Description of new features, benchmarking, and impact of forcing uncertainty. *J. Adv. Mod. Earth Sys.*, **11**, 4245-4287, doi:10.1029/2018MS001583.

Misra, V., L. Marx, **M. Brunke,** and X. Zeng, 2008: The Equatorial Pacific cold tongue bias in a coupled climate model. *J. Climate*, **21**, 5852-5869, doi:10.1175/2008CLI2205.1.

Pelletier, J. D., P. D. Broxton, P. Hazenberg, X. Zeng, P. A. Troch, G.-Y. Niu, Z. Williams, **M. A. Brunke,** and D. Gochis, 2016: A gridded global data set of soil, intact regolith, and sedimentary deposit thicknesses for regional and global land surface modeling. *J. Adv. Modeling Earth Sys.*, **8**, 41-65, doi:10.1002/2015MS000526.

Reeves Eyre, J. E. J., L. Van Roekel, X. Zeng, **M. A. Brunke,** and J.-C. Golaz, 2019: Ocean barrier layers in the Energy Exascale Earth System Model. *Geophys. Res. Lett.*, **46,** 8234-8243.

Roberts, A., A. Craig, W. Maslowski, R. Osinski, A. DuVivier, M. Hughes, B. Nijssen, and **M. Brunke,** 2015: Simulating transient ice-ocean Ekman transport in the Regional Arctic System Model and Community Earth System Model. *Annals of Glaciology*, **56**, 211-228, doi:10.3189/2015AoG9A760.

Sakaguchi, K., X. Zeng, and **M. A. Brunke,** 2012: The hindcast skill of the CMIP ensembles for the surface air temperature trend. *J. Geophys. Res.*, **117**, D16113, doi:10.1029/2012JD017765.

Sakaguchi, K., X. Zeng, and **M. A. Brunke,** 2012: Temporal and spatial-scale dependence of three CMIP3 climate models in simulating the surface temperature trend in the twentieth century. *J. Climate*, **25**, 2456-2470.

Scheftic, W., X. Zeng, P. Broxton, and **M. Brunke,** 2014: Intercomparison of seven NDVI products over the United States and Mexico. *Remote Sensing*, **6**, 1057-1084, doi:10.3390/rs6021057.

Zeng, X., **M. Brunke,** M. Zhou, C. Fairall, N. A. Bond, and D. H. Lenschow, 2004: Marine atmospheric boundary layer height over the eastern Pacific: data analysis and model evaluation. *J. Climate*, **17**, 4159-4170.

Zhang, H., H. Beggs, C. J. Merchant, X. H. Wang, L. Majewski, A. E. Kiss, J. Rodriguez, L. Thorpe, C. Gentemann, and **M. Brunke,** 2018: Comparison of SST diurnal variation models over the tropical warm pool region. *J. Geophys. Res.-Oceans*, **123**, 3467-3488, doi:10.1029/2017JC013517.

Zhou, M., X. Zeng, **M. Brunke,** Z. Zhang, and C. Fairall, 2006: An analysis of statistic characteristics of stratus and stratocumulus over eastern Pacific. *Geophys. Res. Lett.*, **33**, L02807, doi:10.1029/2005GL024796.

Synergistic Activities

Services: Member, American Meteorological Society and American Geophysical Union; Session Chair, 12th and 14th AMS Conferences on Interaction of Sea and Atmosphere; Participant, SEAFLUX Project, VOCALS-Modeling Group, the Regional Arctic System Model (RASM) development team, NASA CMAC 2011 tools review panel and NOAA COM 2020 review panels; Reviewer, *Advances in Meteorology*, *Atmosphere*, *Atmospheric and Climate Sciences, Bulletin of Geography-Physical Geography Series, Chinese Journal of Oceanology and Limnology, Environmental Research Letters, Journal of Applied Meteorology and Climatology, Journal of Applied Remote Sensing, Journal of Climate, Journal of Geophysical Research, Meteorology and Atmospheric Physics, Water, Water Resources Research*, and NSF proposals; Member, College of Science Staff Advisory Council (2004-2010; Chair, 2005-2006, 2007-2010); Interview with K. Sakaguchi on spatial and temporal scales of global climate model skill, aired on KVOA on 21 September 2012; Public lecture, Green Valley Council Luncheon, 29 March 2014.

Awards: Recipient, 2004 UA College of Science Staff Excellence Award, 2011 UA College of Science Staff Excellence Award and Dean's Best of the Best Award; 2014 Galileo Circle Scholarship.

Collaborators and Other Affiliations

Collaborators in the last 48 months: A. Craig (NCAR), J. Cassano (U. Colorado), A. Corral (U. Arizona), E. Crosbie (NASA/LaRC), L. Cutler (U. Arizona), R. Delgado Urzua (U. Arizona), A. DuVivier (NCAR), N. Dawson (Idaho Power), S. Elliott (DOE/LANL), C. Golaz (DOE/LLNL), W. Gutowski (Iowa State U.), J. Hair (NASA/LaRC), J. Hamman (NCAR & U. Washington), C. Hostetler (NASA/LaRC), S. Kirschler (Germany), V. Larson (U. Wisconsin-Milwaukee), X.-Y. Li (DOE/PNNL), P.-L. Ma (DOE/PNNL), W. Maslowski (NPS), A. Minke (U. Arizona), R. Moore (NASA/LaRC), B. Nijssen (U. Washington), P. Rasch (DOE/PNNL), J. C. Renteria (DoD), J. E. J. Reeves Eyre (NOAA/PMEL), A. Roberts (DOE/LANL), C. E. Robinson (NASA/LaRC), M. Shook (NASA/LaRC), A. Sorooshian (U. Arizona), T. Tesfa (DOE/PNNL), K. L. Thornhill (NASA/LaRC), P. Thornton (DOE/ORNL), L. Van Roekel (DOE/LANL), C. Voigt (Germany), H. Wan (DOE/PNNL), H. Wang (DOE/PNNL), E. Winstead (NASA/LaRC), S. Zhang (DOE/PNNL), and L. D. Ziemba (NASA/LaRC)

Graduate Advisors and Supervisors: Prof. Xubin Zeng, The University of Arizona (M.S. and Ph.D. Advisor and Supervisor)