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Education:

January 2012 – May 2016, University of Colorado, Boulder, CO

Doctor of Philosophy in Atmospheric and Oceanic Sciences

GPA: 3.67 on a 4.00 scale

August 2009 – December 2011, University of Colorado, Boulder, CO

Master of Science in Atmospheric and Oceanic Sciences

GPA: 3.64 on a 4.00 scale

August 2005 – May 2009, Purdue University, West Lafayette, IN

Bachelor of Science with departmental honors in Synoptic Meteorology and Atmospheric Chemistry

GPA: 3.63 on a 4.00 scale

Experience:

National Center for Atmospheric Research, Boulder, CO, June 2019 – Present, Software Engineer II

Columbia University, New York, NY, January 2019 – May 2019, Associate Research Scientist

NASA Goddard Institute for Space Studies, New York, NY, June 2016 – December 2018, NASA Postdoctoral Program Fellow

University of Colorado, Boulder, CO, May 2010 – April 2016, Graduate Research Assistant

Metropolitan State University of Denver, Denver, CO, August 2014 – December 2014, Adjunct Professor

University of Colorado, Boulder, CO, August 2009 – April 2010, Graduate Teaching Assistant

Purdue University, West Lafayette, IN, January 2006 – July 2009, Undergraduate Research Assistant

University of Minnesota Minneapolis, MN, May 2007 – August 2007, REU Research Intern

Research Interests:

Climate and weather modeling; Water isotopes; Moist convection; Cloud physics; Atmospheric hydrology and the global water cycle; Paleoclimate; Climate change.

Publications:

Hu, J., Dee, S., and **J. Nusbaumer** (2020). The Role of Isotope-Enabled GCM Complexity in Simulating Tropical Circulation Changes in High-CO₂ Scenarios. *Journal of Advances in Modeling Earth Systems*, Vol. 12, 8, doi: 10.1029/2020MS002163.

Muñoz, S. E., Porter, T. J., Bakkeland, A., **Nusbaumer, J.**, Dee, S. G., Hamilton, B., Giosan, L., and J. E. Tierney (2020). Lipid Biomarker Record Documents Hydroclimatic Variability of the Mississippi River Basin During the Common Era. *Geophysical Research Letters*, Vol. 47, 12, doi: 10.1029/2020GL087237.

Wong, H., Fyke, J. G., Lenaerts, J. T. M., **Nusbaumer, J.**, Singh, H., Noone, D., Rasch, P. J., and R. Zhang (2020). Influence of sea-ice anomalies on Antarctic precipitation using source attribution in the Community Earth System Model. *The Cryosphere*, Vol. 14, 2, 429-444, doi: 10.5194/tc-14-429-2020.

Nusbaumer, J., Alexander, P. M., LeGrande, A. N., and M. Tedesco (2019). Spatial Shift of Greenland Moisture Sources Related to Enhanced Arctic Warming. *Geophysical Research Letters*, Vol. 46, 24, doi: 10.1029/2019GL084633.

Hu, J., Emile-Geay, J., Tabor, C., **Nusbaumer, J.**, and J. Partin (2019). Deciphering Oxygen Isotope Records From Chinese Speleothems With an Isotope-Enabled Climate Model. *Paleoceanography and Paleoclimatology*, Vol. 34, 12, doi: 10.1029/2019PA003741.

Dütsch, M., Blossey, P. N., Steig, E. J., and **J. Nusbaumer** (2019). Nonequilibrium Fractionation During Ice Cloud Formation in iCAM5: Evaluating the Common Parameterization of Supersaturation as a Linear Function of Temperature. *Journal of Advances in Modeling Earth Systems*, Vol. 11, 11, doi: 10.1029/2019MS001764.

Stevenson, S., Otto-Bliesner, B. L., Brady, E. C., **Nusbaumer, J.**, Tabor, C., Tomas, R., Noone, D. C., and Z. Liu (2019). Volcanic Eruption Signatures in the Isotope-Enabled Last Millennium Ensemble. *Paleoceanography and Paleoclimatology*, Vol. 34, 8, doi: 10.1029/2019PA003625.

Brady, E., Stevenson, S., Bailey, D., Liu, Z., Noone, D., **Nusbaumer, J.**, Otto-Bliesner, B. L., Tabor, C., Tomas, R., Wong, T., Zhang, J., and J. Zhu (2019). The Connected Isotopic Water Cycle in the Community Earth System Model Version 1. *Journal of Advances in Modeling Earth Systems*, Vol. 11, 8, doi: 10.1029/2019MS001663.

Bailey, A., Singh, H. K. A., and **J. Nusbaumer** (2019). Evaluating a Moist Isentropic Framework for Poleward Moisture Transport: Implications for Water Isotopes over Antarctica. *Geophysical Research Letters*, Vol. 46, 13, 7819-7827, doi: 10.1029/2019GL082965.

Hu, J., Emile-Geay, J., **Nusbaumer, J.**, and D. Noone (2018). Impact of Convective Activity on Precipitation $\delta^{18}\text{O}$ in Isotope-Enabled General Circulation Models. *Journal of Geophysical Research – Atmospheres*, Vol. 123, 23, 13,595-13,610, doi: 10.1029/2018JD029187.

Dee, S. G., **Nusbaumer, J.**, Bailey, A., Russell, J. M., Lee, J.-E., Konecky, B., Buenning, N. H., and D. C. Noone (2018). Tracking the Strength of the Walker Circulation with Stable Isotopes in Water Vapor. *Journal of Geophysical Research – Atmospheres*, Vol. 123, 14, 7254-7270, doi: 10.1029/2017JD027915.

Nusbaumer, J., and D. Noone (2018). Numerical Evaluation of the Modern and Future Origins of Atmospheric River Moisture over the West Coast of the United States. *Journal of Geophysical Research – Atmospheres*, Vol. 123, 12, 6423-6442, doi: 10.1029/2017JD028081.

Tabor, C., Otto-Bliesner, B., Brady, E., **Nusbaumer, J.**, Zhu, J., Erb, M., Wong, A., Liu, Z., and D. Noone (2018). Interpreting precession driven $\delta^{18}\text{O}$ variability in the South Asian monsoon region. *Journal of Geophysical Research – Atmospheres*, Vol. 123, 11, 5927-5946, doi: 10.1029/2018JD028424.

Stevenson, S., Powell, B., Cobb, K., **Nusbaumer, J.**, Merrifield, M., and D. Noone (2018). 20th Century Seawater $\delta^{18}\text{O}$ Dynamics and Implications for Coral-based Climate Reconstruction. *Paleoceanography and Paleoclimatology*, Vol. 33, 6, 606-625, doi: 10.1029/2017PA003304.

Zhu, J., Liu, Z., Brady, E. C., Otto-Bliesner, B., Marcott, S. A., Zhang, J., Wang, X., **Nusbaumer, J.**, Wong, T. E., Jahn, A., and D. Noone (2017). Investigating the direct meltwater effect in terrestrial oxygen-isotope paleoclimate records using an isotope-enabled Earth system model. *Geophysical Research Letters*, Vol. 44, 24, 12,501-12,510, doi: 10.1002/2017GL076253.

Zhu, J., Liu, Z., Brady, E., Otto-Bliesner, B., Zhang, J., Noone, D., Tomas, R., **Nusbaumer, J.**, Wong, T., Jahn, A., and C. Tabor (2017). Reduced ENSO Variability at the LGM Revealed by an Isotope-enabled Earth System Model. *Geophysical Research Letters*, Vol. 44, 13, 6984-6992, doi: 10.1002/2017GL073406.

Dyer, E. L. E., Jones, D. B. A., **Nusbaumer, J.**, Li, H., Collins, O., Vettoretti, G., and D. Noone (2017). Congo Basin precipitation: Assessing seasonality, regional interactions, and sources of moisture. *Journal of Geophysical Research – Atmospheres*, Vol. 122, 13, 6882-6898, doi: 10.1002/2016JD026240.

Bailey, A., Blossey, P. N., Noone, D., **Nusbaumer, J.**, and R. Wood (2017). Detecting shifts in tropical moisture imbalances with satellite-derived isotope ratios in water vapor. *Journal of Geophysical Research – Atmospheres*, Vol. 122, 11, 5763-5779, doi: 10.1002/2016JD026222.

Nusbaumer, J., Wong, T. E., Bardeen, C., and D. C. Noone (2017). Evaluating hydrological processes in the Community Atmosphere Model Version 5 (CAM5) using stable isotope ratios of water. *Journal of Advances in Modeling Earth Systems*, Vol. 9, 2, 949-977, doi: 10.1002/2016MS000839.

Wong, T. E., **Nusbaumer, J.**, D. C. Noone (2017). Evaluation of modeled land-atmosphere exchanges with a comprehensive water isotope fractionation scheme in version 4 of the Community Land Model. *Journal of Advances in Modeling Earth Systems*, Vol. 9, 2, 978-1001, doi: 10.1002/2016MS000842.

Singh, H. K. A., Bitz, C. M., Donohoe, A., **Nusbaumer, J.**, and D. C. Noone (2016). A mathematical framework for analysis of water tracers: Part II, Understanding Large-Scale Perturbations in the Hydrological Cycle due to CO₂-Doubling. *Journal of Climate*, Vol. 29, 6765-6782, doi: 10.1175/JCLI-D-16-0293.1.

Singh, H. K. A., Donohoe, A., Bitz, C. M., **Nusbaumer, J.**, and D. C. Noone (2016). Greater aerial moisture transport distances with warming amplify interbasin salinity contrasts. *Geophysical Research Letters*, Vol. 43, 16, 8677-8684, doi: 10.1002/2016GL069796.

Singh, H. K. A., Bitz, C. M., **Nusbaumer, J.**, and D. C. Noone (2016). A mathematical framework for analysis of water tracers: Part I, Development of theory and application to the preindustrial mean state. *Journal of Advances in Modeling Earth Systems*, Vol. 8, 2, 991-1013, doi: 10.1002/2016MS000649.

Stevenson, S., Powell, B., Merrifield, M., Cobb, K., **Nusbaumer, J.**, and D. Noone (2015). Characterizing Coral Proxy Environments for Improved Climate Reconstruction: Mesoscale Influences on Central Pacific Islands. *Paleoceanography*, Vol. 30, 11, 1573-1593, doi: 10.1002/2015PA002824.

Bailey, A., **Nusbaumer, J.**, and D. Noone (2015). Precipitation efficiency derived from isotope ratios in water vapor distinguishes dynamical and microphysical influences on subtropical atmospheric constituents. *Journal of Geophysical Research – Atmospheres*, Vol. 120, 118, 9119-9137, doi: 10.1002/2015JD023403.

Noone, D., Risi, C., Bailey, A., Berkelhammer, M., Brown, D. P., Buening, N., Gregory, S., **Nusbaumer, J.**, Schneider, D. Sykes, J., Vanderwende, B., Wong, J., Meillier, Y., and D. Wolfe (2013). Determining water sources in the boundary layer from tall tower profiles of water vapor and surface water isotope ratios after a snowstorm in Colorado. *Atmospheric Chemistry and Physics*, Vol. 13, 1607-1623, doi: 10.5194/acp-13-1607-2013.

Sliver, R. L., Huber, M., and **J. Nusbaumer** (2008). Investigating tropical cyclone-climate feedbacks using the TRMM Microwave Imager and the Quick Scatterometer. *Geochem., Geophys., Geosyst.*, Vol. 9, 9, doi: 10.1029/2007GC001842.

Nusbaumer, J., and K. Matsumoto (2008). Climate and Carbon Cycle Changes under the Overshoot Scenario. *Global and Planetary Change*. Vol. 62, 1-2, 164-172, doi: 10.1016/j.gloplacha.2008.01.002.

Awards and Honors Received:

NASA GISS:

Awarded a NASA Postdoctoral Program Fellowship in June 2016.

University of Colorado:

Awarded the Graduate School Dissertation Completion fellowship for the Fall 2015 semester.

Received the Certificate in College Teaching from the University of Colorado's Graduate Teacher Program in April 2015.

Awarded a CIRES Graduate Student Research Fellowship for the Fall 2013 Semester.

Awarded an NSF Graduate Research Fellowship in April 2010

Professional Memberships:

Member of the American Geophysical Union.

Member of the American Meteorological Society.

Activities and Volunteer Work:

Reviewed manuscripts for: Climate of the Past, Paleoceanography and Paleoclimatology, Geophysical Research Letters, Water Resources Research, Journal of Hydrometeorology, Hydrological Processes, Geoscientific Model Development, Journal of Advances in Modeling Earth Systems (JAMES), Climate Dynamics, Journal of Climate, Journal of Geophysical Research - Atmospheres

NCAR CGD:

Lab/office hours volunteer for the 2019 and 2020 CESM Tutorial.

NASA GISS:

Doctoral dissertation opponent for Hera Guðlaugsdóttir at the University of Iceland.

Co-convener of the Water Isotope Systematics session at the 2018 AGU Fall Meeting.

University of Colorado:

University of Colorado Graduate Teacher Program's Lead Teaching Assistant for the Atmospheric and Oceanic Sciences department for the 2013-2014 school year.

Upgraded the computer systems and software for the ATOC Skywatch observatory in the summer of 2014, and helped maintain the observatory from August 2014 to May 2016.

Helped set-up an official Global Network of Isotopes in Precipitation (GNIP) station at the University of Colorado, along with Nik Buenning and David Noone. The station data is submitted semi-annually to the International Atomic Energy Administration (IAEA), with the last submission in March, 2014.

Member of the Atmospheric and Oceanic Science department's Comprehensive exam committee for the 2012-2013 and 2013-2014 school years.

Member of the Atmospheric and Oceanic Science department's ATOC Forum committee for the 2009-2010, 2010-2011 and 2012-2013 school years.

Member of the Atmospheric and Oceanic Science department's Poster Committee for the 2009-2010 school year.

Member of the American Meteorological Society's Student Conference Planning Committee for the 2010 and 2011 AMS student conferences.