

# Jessica W. Moerman

Smithsonian Stable Isotope Postdoctoral Fellow  
Smithsonian National Museum of Natural History,  
Department of Anthropology

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## Education

**Georgia Institute of Technology**, Atlanta, GA 2015  
PhD in Earth and Atmospheric Sciences  
Minor in Public Policy  
Dissertation: Regional hydrology captured in northern Borneo rainfall and  
dripwater isotope variability

**University of Tennessee at Chattanooga**, Chattanooga, TN 2009  
BS in Chemistry with highest honors  
BS in Geology  
*summa cum laude*

## Research Positions

**Smithsonian Stable Isotope Postdoctoral Fellow** 2017-present  
Smithsonian National Museum of Natural History  
Supervisor: Richard Potts

**NSF Atmospheric and Geospace Sciences Postdoctoral Fellow**, *joint appointment at* 2015-2017  
University of Michigan and Smithsonian National Museum of Natural History  
Supervisors: Naomi Levin (U. Michigan), Richard Potts (Smithsonian)

**NSF Graduate Research Fellow/Graduate Research and Teaching Assistant** 2009-2015  
Georgia Institute of Technology  
Advisor: Kim Cobb

**Undergraduate Research Assistant** 2007-2009  
University of Tennessee-Chattanooga  
Advisor: Gretchen Potts

## Honors and Awards

Smithsonian Stable Isotope Postdoctoral Fellow 2017-present  
NSF Atmospheric and Geospace Sciences Postdoctoral Fellowship 2015-2017  
Georgia Institute of Technology EAS Best Paper Award 2013  
P.E.O. Scholar Award, Annabelle B. Bush Memorial Endowed Scholar 2013  
NSF Urbino Summer School in Paleoclimatology Scholarship 2013  
NSF Graduate Research Fellowship 2010-2013  
Georgia Institute of Technology President's Fellowship 2009-2012  
University of Tennessee-Chattanooga McNeely Outstanding Senior in Chemistry 2009  
University of Tennessee-Chattanooga Undergraduate Award in Analytical Chemistry 2009  
University of Tennessee-Chattanooga Outstanding Senior in Geology 2009  
Barry M. Goldwater Scholarship 2008  
University of Tennessee-Chattanooga William E. Brock Scholar 2004-2009

## Refereed Publications (\* indicates student advisee)

[11] S.E. Ellis\*, Cobb., K.M., **J.W. Moerman.**, Bennett., A.L., Gerstner. H., Malang. J. Impact of the 2015/2016 El Niño event on rainwater and cave dripwater isotopes in Northern Borneo. *in prep.*

- [10] **J.W. Moerman**, Levin, N., Olaka, L., Selker, J.S. Evaporative impact of 2016/2017 East African drought captured by triple oxygen isotopic composition of rainfall and surface waters. *in prep.*
- [9] **J.W. Moerman**, Levin, N., Kutzbach, J., Potts, R. Precession-related variability in the East African monsoon over the last interglacial period in NCAR CCSM3. *in prep.*
- [8] **J.W. Moerman**, Levin, N., Passey, B., Potts, R. Role of evaporative forcing on East African water balance over the last 500ky revealed by triple oxygen isotopes and clumped isotope thermometry. *in prep.*
- [7] **J.W. Moerman**, Cobb, K.M., Konecky, B.L., Noone, D. The role of remote versus local climatic influences in shaping seasonal rainfall  $\delta^{18}\text{O}$  variations in northern Borneo. *in prep. for Journal of Geophysical Research-Atmospheres.*
- [6] J.L. Conroy, Noone, D., Cobb, K.M., **Moerman, J.W.**, Konecky, B.L. Paired precipitation-vapor isotopes define the amount effect in western tropical Pacific storms. (2016) *J. Geophysical Research – Atmospheres.* **121**, 3290-3303.
- [5] S.A., Carolin, Cobb, K.M., Lynch-Stieglitz, J., **Moerman, J.W.**, Lejau, S., Malang, J., Clark, B., Tuen, A.A., Adkins, J.F. (2016) Rainfall variability across MIS 5 and 6 revealed in northern Borneo stalagmite records. *Earth and Planetary Science Letters.* **439.** 182-193.
- [4] A.N. Meckler, Affolter, S., Dublyansky, Y., Krüger, Y., Vogel, N., Adkins, J., Bernasconi, S., Carolin, S., Cobb, K., Frenz, M., Kipfer, R., Leuenberger, M., **Moerman, J.W.**, Spötl, C., Fleitmann, D. (2015) Glacial-interglacial temperature change in the tropical West Pacific: A comparison of stalagmite-based paleothermometers. *Quaternary Science Reviews.* **127.** 90-116.
- [3] **J.W. Moerman**, Cobb, K.M., Partin, J.W., Meckler, A.N., Carolin, S.A., Adkins, J.F., Malang, J., Lejau, S., Clark, B., Tuen, A.A. (2014) Transformation of ENSO-related rainwater to dripwater  $\delta^{18}\text{O}$  variability by vadose water mixing. *Geophysical Research Letters.* **41.** 7907–7915.
- [2] **J.W. Moerman**, Cobb, K.M., Adkins, J.F., Sodemann, H., Clark, B., Tuen, A.A. (2013) Diurnal to interannual rainfall  $\delta^{18}\text{O}$  variations in northern Borneo driven by regional hydrology. *Earth and Planetary Science Letters.* **369-370**, 108-119.
- [1] **J.W. Moerman** & G.E. Potts (2011) Analysis of metals leached from smoked cigarette litter. *Tobacco Control.* **20**, Supp. 1, i30-i35.

### **Teaching Experience**

Georgia Institute of Technology	
Graduate Teaching Assistant: EAS 2600 Earth Processes	Fall 2013, Spring 2014
Arabia Mountain High School, Lithonia, GA	
Guest instructor (2 class sections): Oceanography	2012-2013
University of Tennessee at Chattanooga	
Undergraduate Teaching Assistant: CHEM 102 General Chemistry II	Spring 2006

### **Public Engagement**

Lecturer, Smithsonian Science Education Academy for Teachers, Washington, DC	August 2017
Guest Speaker, Grace Capital City Church, Washington, DC	April 2017
Volunteer, “Scientist Is In”, Smithsonian National Museum of Natural History	2016-present
Guest Speaker, Grace Midtown Church, Atlanta, GA	November 2014
Mentor, NeXXt Scholars Program, New York Academy of Science	2013-2014
and International Women’s Undergraduate STEM Education Initiative	

Participant, AGU Congressional Visit Day, Washington, DC	September 2013
Co-organizer, Georgia Tech Veritas Forum	2012-2014

**Professional Service and Activities**

Member, PAGES DAPS Working Group: Paleoclimate Reanalyses, Data Assimilation and Proxy System Modeling	2017-present
Participant, Continental Scientific Drilling Coordination Office Long Range Science Plan Workshop: Scientific Drilling/Coring and Earth-Life System Evolution	2016
Session convener, “Water Isotope Systematics: Improving Paleoclimate Interpretations” 2014 AGU Fall Meeting, San Francisco, CA	2014
IAEA Coordinated Research Project: Isotopes in Precipitation and Paleoclimatic Archives in Tropical Areas	2013-present
Co-organizer for Southeastern Biogeochemistry Symposium, Atlanta, GA	2013-2014
Co-organizer for Georgia Tech Careers Seminar	2013-2014
Reviewer for <i>Nature Geoscience</i> , <i>Geology</i> , <i>Geophysical Research Letters</i> , <i>Journal of Geophysical Research-Atmospheres</i> , <i>Earth and Planetary Science Letters</i> , <i>Climate Dynamics</i> , <i>Global and Planetary Change</i> , <i>Journal of Hydrology</i> , <i>Journal of Water and Climate</i> , <i>Meteorology and Atmospheric Physics</i> , <i>Journal of the Meteorological Society of Japan</i>	

**Professional Training**

GeoChronR Workshop – Time-uncertain Data Analysis, Flagstaff, NM	2017
PAGES DAPS Workshop: Proxy System Modeling and Data Assimilation in Paleosciences, Louvain-la-Neuve, Belgium	2017
PAGES 3 <sup>rd</sup> Young Scientists Meeting, Morillo de Tou, Spain	2017
NMNH-LacCore Ologesailie Drilling Project Workshop, Minneapolis, MN	2015
AAAS Communicating Climate Science Workshop, Atlanta, GA	2015
Training Introducing Scholastic and Pedagogical Insight Resulting in Engaged Education (INSPIRE2) Workshop, Atlanta, GA	2014
PAGES Workshop – Cast, Cut, Sample and Analyze: Speleothem Workshop, Miami, FL	2014
Urbino Summer School for Paleoclimatology, Urbino, Italy	2013
Georgia Tech ASEE Interactive Teaching Workshop, Atlanta, GA	2013

**Invited Talks**

Smithsonian National Museum of Natural History, Dept. of Anthropology	April 2017
American University, Dept. of Environmental Science, Washington, DC	January 2017
United States Geological Survey, Reston, VA	November 2014
Lamont-Doherty Earth Observatory, Columbia University, New York, NY	September 2014
PAGES Workshop – Cast, Cut, Sample and Analyze: A practical approach to processing speleothems for paleoclimate reconstruction, University of Miami, Miami, FL	May 2014
Johns Hopkins University, Dept. of Earth and Planetary Sciences, Baltimore, MD	May 2014
Universiti Malaysia Sarawak, Miri, Malaysia	October 2012

**Selected Conference Proceedings**

**J.W. Moerman**, Levin, N.E., Behrensmeyer, A.K., Deino, A.L., DeLuca, N., Lehmann, S.B., Passey, B.H., Potts, R., ODP Research Group. (2017) Triple oxygen isotopes in carbonate sediments: Insights on East African water balance since 500 ka. PAGES 5<sup>th</sup> Open Science Meeting. Abstract 14-01333.

**J.W. Moerman**, Levin, N.E., Behrensmeyer, A.K., Deino, A.L., DeLuca, N., Lehmann, S.B., Passey, B.H., Potts, R., ODP Research Group. (2016) Triple oxygen isotopes and clumped isotope thermometry applied to East African water balance over the last 500ky. 2016 American Geophysical Union Fall Meeting, Abstract PP31F-06.

- J.W. Moerman**, Levin, N.E., Passey, B.H., Potts, R. (2016) Triple oxygen isotopes as tracers of evaporation and pale-aridity proxies. Continental Scientific Drilling Coordination Office Workshop on Scientific Drilling/Coring and Earth-Life System Evolution.
- J.W. Moerman**, Cobb, K.M., Konecky, B.L., Noone, D. (2014) The role of remote versus local climatic influences in shaping seasonal and interannual rainfall  $\delta^{18}\text{O}$  variations in northern Borneo. 2014 American Geophysical Union Fall Meeting, Abstract PP31D-1171.
- J.W. Moerman**, Adkins, J.F., Partin, J.W., Clark, B., Malang, J., Lejau, S., Tuen, A.A., Cobb, K.M. (2014) Oxygen isotopes in Borneo cave dripwater resolve the 2009-2012 ENSO cycle. 2014 Annual Southeastern Biogeochemistry Symposium, Atlanta, GA.
- J.W. Moerman**, Cobb, K.M., Partin, J.W., Clark, B., Malang, J., Lejau, S., Tuen, A.A. (2013) Borneo cave dripwater isotope timeseries resolve the 2009-2012 ENSO cycle. 2013 American Geophysical Union Fall Meeting, Abstract PP42C-02.
- J.W. Moerman**, Cobb, K.M., Partin, J.W., Clark, B., Tuen, A.A. (2013) Borneo cave dripwater isotope timeseries resolve the 2009-2012 ENSO cycle. 2013 Georgia Tech EAS Graduate Student Symposium.
- J.W. Moerman**, Cobb, K.M., Adkins, J.F., Sodemann, H., Clark, B., Tuen, A.A. (2013) Local and regional climatic controls on high-resolution rainfall and cave dripwater oxygen isotopes in northern Borneo. 2013 Urbino Summer School for Paleoclimatology.
- J.W. Moerman**, Cobb, K.M., Adkins, J.F., Sodemann, H., Clark, B., Tuen, A.A. (2012) Local and regional climatic controls on high-resolution rainfall and cave dripwater oxygen isotopes in northern Borneo. 2012 American Geophysical Union Fall Meeting, Abstract PP33A-2094.
- J.W. Moerman**, K.M. Cobb, B. Clark, A.A. Tuen (2012) The spatial and temporal signature of the tropical 'amount effect' at intra-storm to interannual timescales. 2012 Georgia Tech EAS Graduate Student Symposium.
- J.W. Moerman**, K.M. Cobb, B. Clark, A.A. Tuen (2011) The amount effect at various timescales in rainwater and dripwater  $\delta^{18}\text{O}$  timeseries from northern Borneo. 6th International Conference: Climate Change - The Karst Record. Abstract 96.
- J.W. Moerman**, K.M. Cobb, B. Clark, A.A. Tuen (2011) The 'amount effect' at various timescales in northern Borneo rainwater  $\delta^{18}\text{O}$ . 2011 Georgia Tech EAS Graduate Student Symposium.
- J. Moerman**, K.M. Cobb, R. Kollmeyer, B. Clark, A.A. Tuen (2010) Climatic influences on daily rainwater  $\delta^{18}\text{O}$  and  $\delta\text{D}$  timeseries in Northern Borneo. 2010 Goldschmidt Conference. *Geochemica et Cosmochemica Acta*. **74**, 11, Supp 1, A716.
- J.W. Moerman** & G.E. Potts (2008) Analysis of pollutants leached from used cigarette litter. 60th Southeastern Regional Meeting of the American Chemical Society, Abstract 63473.