

# CIRRUCULUM VITÆ

## RACHEL L. LUPIEN

### Address

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### Education

BROWN UNIVERSITY Providence, RI  
**May 2019** Ph.D., Earth, Environmental, and Planetary Sciences  
Advisor: James M. Russell

BROWN UNIVERSITY Providence, RI  
**May 2016** M.Sc., Earth, Environmental, and Planetary Sciences  
Advisor: James M. Russell

AMHERST COLLEGE Amherst, MA  
**May 2012** B.A., (cum Laude) Geology  
Advisor: Tekla A. Harms

### Professional Experience

LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY Palisades, NY  
**July 2019-Present** Postdoctoral Research Scientist  
Advisors: Peter de Menocal & Kevin T. Uno

LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY Palisades, NY  
**2012-2014** Research Assistant  
Goldstein Radiogenic Isotope Lab

### Publications

#### *Peer-Reviewed Scientific Journals*

1. **Lupien, R.L.**, Russell, J.M., Feibel, C., Beck, C., Castañeda, I., Deino, A., Cohen, A.S. (2018). A leaf wax biomarker record of early Pleistocene hydroclimate from West Turkana, Kenya. *Quaternary Science Reviews*, 186, 225-235. doi: 10.1016/j.quascirev.2018.03.012
2. **Lupien, R.L.**, Russell, J.M., Feibel, C., Beck, C., Castañeda, I., Deino, A., Cohen, A.S. (2018). Reply to Comments by Nutz & Schuster (2018) on: "A leaf wax biomarker record of early Pleistocene hydroclimate from West Turkana, Kenya". *Quaternary Science Reviews*, 201C, 508-510. doi: 10.1016/j.quascirev.2018.10.015
3. Liang, J., Russell, J.M., Xie, H., **Lupien, R.L.**, Si, G., Wang, J., Hou, J., Zhang, G. (2018). Vegetation effects on temperature calibrations of branched glycerol dialkyl glycerol tetraether (brGDGTs) in soils. *Organic Geochemistry*, 127, 1-11. doi: 10.1016/j.orggeochem.2018.10.010

#### *In Progress*

1. **Lupien, R.L.**, Russell, J.M., Beck, C.C., Feibel, C.S., Cohen, A.S., Impacts of abrupt and high-frequency climate change on hominin evolution during the early Pleistocene in the Turkana Basin, East Africa. *Earth and Planetary Science Letters* [*in review*]
2. **Lupien, R.L.**, Russell, J.M., Kingston, J., Yost, C., Schuh, A., Logan, J., & Cohen, A.S., Vegetation structure in the Baringo Basin, East Africa across the Plio-Pleistocene and its relationship to Northern Hemisphere glaciation. *Palaeogeography, Palaeoclimatology, Palaeoecology*, Special Issue: A high resolution, multi-proxy record of Pliocene hominin environments in the Kenyan Rift Valley: Analysis of the Baringo-Tugen-Barsemoi (BTB) Drill Core [*in review*]
3. Potts, R., Dommain, R., Moerman, J., Behrensmeyer, A.K., Deino, A., Owen, R.B., Beverly, E., Brown, E., Deocampo, D., Kinyanjui, R., **Lupien, R.**, Rabideaux, N., Russell, J., Stockhecke, M., Riedl, S., Faith, J.T., Western D., Bright, J., Clark, J.B., Cappio, L., Cohen, A., deMenocal, P. Garcin, Y., P., Heil, C., King, J., Keller, C.B., Levin, N.E., Muiruri, V., Scott, J., Brady, K., Noren, A., Renaut, R., Rucina, S., Uno, K., High-resolution environmental dynamics during a critical time in hominin evolution. *Nature* [*in review*]
4. **Lupien, R.L.**, Russell, J.M., Castañeda, I., Pearson, E., Lamb, H., Schabitz, F., Campisano, C., Sier, M., Deino, A., Cohen, A., Orbital-scale controls on Plio-Pleistocene East African hydroclimate. [*in prep*]
5. Liang, J., Stevenson, M., Vachula, R., **Lupien, R.L.**, Han, B., Lin, Q., Yue, H., Wang, M., Liang, P., Huang, Y., McGowan, S., Hou, J., Russell, J., Lake ecosystem severely altered by climate warming and human activity on the Qingdai-Tibetan Plateau. [*in prep*]
6. **Lupien, R.L.**, Hartman, A., Pena, L., Goldstein, S.L. AMOC variability during the last 400 kyr from Nd isotopes in the Southern Ocean. [*in prep*]

### Invited Presentations

1. Controls on Plio-Pleistocene East African Climate. *Massachusetts Institute of Technology, March 2019*, Host: Christine Chen
2. Early Pleistocene biomarker record of rainfall in East Africa. *Lamont-Doherty Earth Observatory of Columbia University, October 2016*, Host: Kevin Uno

### Conference Abstracts

\* denotes mentee

1. Lamb, H., Asrat, A., Ramsey, C.B., Cohen, A., Chapot, M., Davies, S., Dean, J., Deino, A., Düsing, W., Foerster, V., Grove, M., Junginger, A., Lane, C., Leng, M., **Lupien, R.L.**, Pearson, E., Roberts, H., Russell, J., Schabitz, F., Trauth, M., Vidal, C., 2019. The 600,000-year palaeoenvironmental record from Chew Bahir, Ethiopia: testing hypotheses of climate change and human origins. Abstract presented at the 2019 INQUA 20<sup>th</sup> Congress, Dublin, Ireland.
2. Cohen, A.S., Billingsley, A., Campisano, C., **Lupien, R.L.**, Muiruri, V., Owen, B., Russell, J.M., Stockhecke, M., Yost, C., HSPDP Team Members, 2019. A comparative analysis of African Plio-Pleistocene patterns of environmental variability and biological evolutionary implications. Abstract presented at the 2019 INQUA 20<sup>th</sup> Congress, Dublin, Ireland.
3. **Lupien, R.L.**, Russell, J.M., Beck, C., Feibel, C., Cohen, A.S., 2018. Early Pleistocene Millennial-Scale Hydroclimate Fluctuation in Kenya with Implications for Hominin Evolution. Abstract presented at the 2018 AGU Fall Meeting, Washington, D.C.

4. Russell, J.M., **Lupien, R.L.**, Cohen, A.S., Beck, C., Campisano, C., Castañeda, I., Deino, A., Feibel, C., Kingston, J., Lamb, H., Potts, R., 2018. Orbital-scale controls on Plio-Pleistocene African climate. Abstract presented at the 2018 AGU Fall Meeting, Washington, D.C.
5. \*Subramanian, A., **Lupien, R.L.**, Russell, J.M., Potts, R., Deino, A., Behrensmeier, A.K., Dommain, R., 2018. Middle to Late Pleistocene Paleoenvironmental Variations at the Olorgesailie Basin, Kenya. Abstract presented at the 2018 AGU Fall Meeting, Washington, D.C.
6. Cohen, A.C., Billingsley, A., Campisano, C., **Lupien, R.L.**, Muiruri, V.M, Bernhard, O.R., Russell, J.M., Stockhecke, M., Yost, C.L., and The HSPDP Team Members, 2018. Records of Plio-Pleistocene environmental variability from the Hominin Sites and Paleolakes Drilling Project (HSPDP): Comparison with other African records and implications for hominin evolution. Abstract presented at the 2018 AGU Fall Meeting, Washington, D.C.
7. Castañeda, I.S., Thompson-Munson, M.E., Gilchrist, S., **Lupien, R.L.**, Russell, J.M, Salacup, J., Feibel, C., Cohen, A.S., 2018. Early Pleistocene temperature history of Paleolake Lorenyang, West Turkana Basin (Kenya). Abstract presented at the 2018 AGU Fall Meeting, Washington, D.C.
8. deMenocal, P.B., Polissar, P., Uno, K., Rose, C., Tierney, J., **Lupien, R.L.**, Russell, J., 2018. Paleoenvironmental Contexts of Hominin Evolution. Abstract presented at the 2018 AGU Fall Meeting, Washington, DC.
9. deMenocal, P.B., Polissar, P., Uno, K., Rose, C., Tierney, J., **Lupien, R.L.**, Russell, J., 2018. Paleoenvironmental Contexts of Hominin Evolution. Abstract presented at the 2018 GSA Annual Meeting, Indianapolis, IN.
10. Westover, K., Stone, J., Rabideaux, N., Yost, C.L., **Lupien, R.L.**, Kingston, J., 2018. Extreme hydroclimate variability in the Late Pliocene of Kenya's Baringo Basin: the diatom record. Abstract presented at the 2018 GSA Annual Meeting, Indianapolis, IN.
11. **Lupien, R.L.**, Russell, J.M., Cohen, A.S., Beck, C., Campisano, C., Castañeda, I., Deino, A., Feibel, C., Kingston, J., Lamb, H., Pearson, E., Potts, R., 2018. East African Paleoclimate and Human Evolution. Abstract presented at the 12<sup>th</sup> Graduate Climate Conference, Seattle, WA.
12. **Lupien, R.L.**, Russell, J.M., Cohen, A.S., Beck, C., Campisano, C., Castañeda, I., Deino, A., Feibel, C., Kingston, J., Lamb, H., Pearson, E., Potts, R., 2018. Site-Corrected Leaf Wax Biomarker Records Synthesized to Characterize East African Plio-Pleistocene Climate. Abstract presented at Goldschmidt 2018, Boston, MA.
13. Goldstein, S.L., Pena, L.D., Yehudai, M., Jaume-Seguí, M., Kim, J., Knudson, K., Basak, C., Hartman, A.E., **Lupien, R.L.**, 2018. The Atlantic Meridional Overturning Circulation Over Time From Nd Isotopes. Abstract presented at Goldschmidt 2018, Boston, MA.
14. **Lupien, R.L.**, Russell, J.M., Campisano, C., Feibel, C., Deino, A., Kingston, J., Potts, R., Cohen, A., 2017. A synthesis of Plio-Pleistocene leaf wax biomarker records of hydrological variation in East Africa and their relationship with hominin evolution. Abstract presented at the 2017 AGU Fall Meeting, New Orleans, LA.
15. **Lupien, R.L.**, Russell, J.M., Castañeda, I., Campisano, C., Cohen, A.C., 2017. Plio-Pleistocene biomarker records of climate in East Africa. Abstract presented at the 2017 Past Global Changes Open Science Meeting, Zaragoza, Spain.

16. **Lupien, R.L.**, Russell, J.M., Cohen, A., Feibel, C., Beck, C., Castañeda, I., 2016. Leaf wax biomarker reconstruction of Early Pleistocene hydrological variation during hominin evolution in West Turkana, Kenya. Abstract presented at the 2016 AGU Fall Meeting, San Francisco, CA.
17. **Lupien, R.L.**, Russell, J.M., Castañeda, I., Cohen, A., Feibel, C., Beck, C., 2015. Leaf wax biomarker record of rainfall from West Turkana, Kenya. Abstract presented at the 2016 Graduate Climate Conference, Woods Hole, MA.
18. **Lupien, R.L.**, Russell, J.M., Castañeda, I., Cohen, A., Feibel, C., Beck, C., 2015. Leaf wax biomarker record of rainfall from West Turkana, Kenya. 2015 Geological Society of America Annual Meeting, Baltimore, November 2015
19. Thompson-Munson, M., Castañeda, I.S., **Lupien, R.L.**, Russell, J.M., 2015. Late Pliocene and Early Pleistocene temperature reconstructions from paleolakes of the West Turkana and North Awash Basins, East Africa. Abstract presented at the 2015 GSA Annual Meeting, Baltimore, MD.
20. **Lupien, R.L.**, Pena, L., Goldstein, S., 2014. AMOC variability during the last 400 ka from Nd isotopes in the Southern Ocean. Abstract presented at the 2014 AGU Fall Meeting, San Francisco, CA.
21. **Lupien, R.L.**, Pena, L., Goldstein, S., 2013. Southern Ocean Nd isotope end-member variability during the last 400 kyr. Abstract presented at the 2013 AGU Fall Meeting, San Francisco, CA.
22. Pena, L.D., Goldstein, S.L., **Lupien, R.L.**, 2013. Abrupt Changes in Thermohaline Circulation During the Mid-Pleistocene Transition. Abstract presented at the 11<sup>th</sup> International Conference on Paleoceanography, Barcelona, Spain.
23. **Lupien, R.L.**, Harms, T.A., Hames, W.E., 2012. New constraints on cooling ages for Proterozoic accreted arc and metamorphic core zone rocks of the Big Sky orogen, SW Montana. Abstract presented at the 2012 GSA Northeastern Section Meeting, Hartford, CT.

## Teaching

**Instructor**, 2018 STEM II Program, Brown University

2018 Summer *Human Evolution and the Environment*: Co-teacher of 2-week intensive pre-college science course on climate change and human evolution

**Teaching Assistant**, Earth, Environment, and Planetary Sciences, Brown University

2016 Fall *Stratigraphy and Sedimentology*

2016 Spring *Earth: Evolution of a Habitable Planet*

**Certificate Recipient**, The Sheridan Center for Teaching, Brown University

2014-2015 *The Sheridan Teaching Seminar - Reflective Teaching (Certificate 1)*

**Volunteer Science Teacher**, Vartan Gregorian Elementary School, Providence, RI

2014-2017 *2<sup>nd</sup> Grade Science*

## Academic Mentoring

*Undergraduates*

**Avinash Subramanian** Thesis: Statistical Analysis of East African Paleoclimate Variations During the Late Pleistocene, and Implications for Human Evolution

**Alexander Alverson**

**Tristan Reinecke** Undergraduate Teaching and Research Award

*High Schoolers*

**Dheivanai Moorthy**

**Fellowships and Awards**

2017-2018 Institute at Brown for Environment and Society Graduate Fellowship, Brown University  
2016 Urbino Summer School of Paleoclimatology NSF Travel Grant and Stipend, USSP  
2014-2015 Charles Wilson Brown Fellowship, Brown University  
2011 Richard M. Foose Award, Amherst College

**Research Grants – \$314,297 in total**

2018 **NSF-EAR:** A 750,000-yr Leaf Wax Biomarker Record to Assess Environmental Change Across the Plio-Pleistocene Boundary in Tropical East Africa. **Co-Author**, \$302,472  
2018 Institute at Brown for Environment and Society Graduate Research Grant, \$4,950  
2017 Institute at Brown for Environment and Society Graduate Research Grant, \$5,000  
2016 Geological Society of America Graduate Student Research Grant, \$1,875

**Professional Development**

2018 Advanced Climate Dynamics Course (ACDC), Finse, Norway  
2017 International Continental Drilling Project (ICDP) Course, Windischeschenbach, Germany  
2016 Urbino Summer School in Paleoclimatology (USSP), Urbino, Italy

**Service**

*Departmental service at Brown University*

*President*, Geology Graduate Student Group (GeoClub), 2015-2016

*Leader*, Graduate Women in Science and Engineering, 2015-2018

*Member*, Diversity Working Group, 2015-

*Mentor*, 1<sup>st</sup> Year Graduate Mentoring Program, 2017-

*Professional service outside Brown University*

*Reviewer* of journal manuscripts for *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*; *Organic Geochemistry*; *Journal of Great Lakes Research*

*Session Convener*, 2018 AGU Fall Meeting

**Outreach**

*Member and Social Media*, 500 Women Scientists Providence Pod, 2017-

*Participant*, Skype-A-Scientist, 2017-

*Member*, Ocean State Scientists political action group, 2017

*Workshop leader*, The Lincoln School International Women's Day, 2016

*Speaker*, NerdNite Providence, 2015

**Professional Affiliations**

Institute at Brown for Environment and Society

Association for Women Geoscientists

Earth Science Women's Network

Geological Society of America

American Geophysical Union

Sigma Xi

The Geochemical Society