

BRETT JAMES TIPPLE

UNIVERSITY OF UTAH, DEPARTMENT OF BIOLOGY
GLOBAL CHANGE AND SUSTAINABILITY CENTER

CURRICULUM VITAE

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APPOINTMENTS UNIVERSITY OF UTAH SALT LAKE CITY, UT
Research Assistant Professor, 2010-Present

UNIVERSITY OF UTAH SALT LAKE CITY, UT
Postdoctoral Researcher, 2009-2010
Supervisors: James R. Ehleringer

EDUCATION YALE UNIVERSITY NEW HAVEN, CT
Ph.D., Geology and Geophysics, 2009
Dissertation: *Leaf Waxes as Environment Recorders: An Empirical Evaluation and Paleoclimate Applications*.
Advisor: Mark Pagani

YALE UNIVERSITY NEW HAVEN, CT
M. Phil., Geology and Geophysics, 2005
Thesis: *A Biomarker Record of the Paleogene Evolution and Expansion of C₄ Plants*.

INDIANA UNIVERSITY BLOOMINGTON, IN
B.S. with Distinction, Geological Sciences, 2003
Senior Thesis: *Carbon Isotopic Evidence for a Methane Supported Microbial Community from a Late Archean Silty-Shale: Witwatersrand Basin*.
Advisor: Lisa M. Pratt

TEACHING UNIVERSITY OF UTAH SALT LAKE CITY, UT
Instructor, Isotopes in Large-Scale Environmental Research (GEO 7476), 2016
Instructor, Stable Isotope Biogeochemistry and Ecology (BIOL 7475), 2010-2016
Lecturer, Stable Isotope Biogeochemistry and Ecology (BIOL 7473), 2015
Instructor, Individual Undergraduate Research (BIOL 4955), 2011, 2012

YALE UNIVERSITY NEW HAVEN, CT
Graduate Teaching and Laboratory Assistant, Mineralogy and Petrology, 2008
Lecturer, Introduction to Geochemistry, 2006
Graduate Teaching Fellow (Level II), Global Environmental Change, 2005
Graduate Teaching Fellow (Level I), Introduction to Geochemistry, 2004

ADVISING

Postdoctoral Researchers:

Jennifer E. Johnson, University of Arizona, 2014-2016

Melissa A. Berke, University of Utah, 2011-2013

Graduate Student Committees:

Lehai Hu (M.S., Geology and Geophysics) University of Utah, 2015

Clement Bataille (Ph.D., Geology and Geophysics) University of Utah, 2014

Thuan Chau (P.S.M., Environmental Science) University of Utah, 2013

Graduate Student Research-in-Residence Advisees:

Amanda L.D. Bender (Ph.D., Earth and Planetary Science) Washington University in St. Louis, 2016

Tiffany B. Saul (Ph.D., Anthropology) University of Tennessee, Knoxville, 2016

Undergraduate Thesis Mentees:

Elizabeth Young (B.S., Biology) University of Utah, 2014

Stephannie Covarrubias (B.A. [Honors], Biology) University of Utah, 2014

Susanna Khachatryan (B.S., Biology) University of Utah, 2012

Yasmeen Hussain (B.S. [Honors], Mathematics; Biology) University of Utah, 2012

Katherine French (B.S., Chemistry) Yale University, 2009

Sara Enders (B.S., Geology and Geophysics) Yale University, 2006

Jennifer Haghanah (B.S., Chemistry; B.A., Mathematics) Quinnipiac University, 2005

COMMUNITY OUTREACH

Presented lectures at the Salt Lake Unified Police Department's *Cold Case Summit* (June, 2014; May 2016).

Science Fair Mentor for New Haven Public Schools (2008) and Salt Lake City Public Schools (2012, 2013).

Presented petroleum geochemistry and oil spill forensics talk at a community forum following a large oil spill within Salt Lake City (2010).

Co-authored layman's article on stable isotopes for *Bee Culture Magazine* (2010).

Mentor for Armonk, NY High School Science Program (2004, 2005).

SYNERGISTIC ACTIVITIES

Rapporteur and Agreement Holder Representative: Implementation of Nuclear Techniques to Improve Food Traceability Systems (CRP D52037), Research Coordination Meeting 4, Department of Nuclear Science and Applications, Joint FAO/International Atomic Energy Agency Division of Nuclear Techniques in Food and Agriculture (November, 2015; November, 2016).

Organized and Co-chaired: 25g. Plant Compounds and their Isotope Ratios as Ecohydrological Tracers, Goldschmidt Conference (June, 2014).

Organized and Co-chaired: PP12B. *New Approaches to Cenozoic Terrestrial Ecosystem and Climate Reconstructions*, American Geophysical Union Fall Meeting (December, 2009).

Peer Referee for *Earth and Planetary Science Letters*, *Food Chemistry*, *Geochimica et Cosmochimica Acta*, *Geology*, *Geochemistry*, *Geophysics*, *Geosystems*, *Nature*, *Nature Geoscience*, *Organic Geochemistry*, *Quaternary Science Reviews*, *The Proceedings of the National Academy of Science of the United States of America*, *Plant, Cell and Environment*, *PLOS ONE*.

Proposal Reviewer for the National Science Foundation (EAR, BIO, OCE, CAREER), Chilean Fondo Nacional de Desarrollo Científico y Tecnológico, National Institute of Justice, Sigma Xi, the Geological Society of America, and the National Geographic Society.

PUBLICATIONS

Peer-Reviewed Scientific Journals

([#]Postdoctoral Researcher author, ^{*}Graduate Student author, ^{\$}Undergraduate Student author)

27. **Tipple, B.J.**, ^{*}Jameel, Y., ^{*}Chau, T.H., Chesson, L.A., ^{*}Mancuso, C.J., Bowen, G.J. and Ehleringer, J.R. (*Submitted*) Tap water isotopes reveal structure of the San Francisco Bay Area's water systems and adjustments during a major drought, *Water Research*.
26. **Tipple, B.J.** and Chesson, L.A. (*Submitted*) Standard methods for sampling and analyzing beeswax for hydrogen isotope analysis, *Journal of Apicultural Research*.
25. ^{*}Chau, T.H., **Tipple, B.J.**, ^{*}Hu, L., Fernandez, D., Cerling, T.E., Chesson, L.A. (*In Press*) Reconstruction of travel history using coupled $\delta^{18}\text{O}$ and $^{87}\text{Sr}/^{86}\text{Sr}$ measurements of hair, *Rapid Communications in Mass Spectrometry*.
24. ^{*}Jameel, Y., Brewer, S., Good, S.P., **Tipple, B.J.**, Ehleringer, J.R., and Bowen, G.J. (2016) Spatiotemporal variation in the tap water isotope ratios of Salt Lake City: a novel indicator of urban water system structure and dynamics, *Water Resources Research*, 52, 1-20, doi: 10.1002/2016WR019104.
23. Ehleringer, J.R., Barnette, J.E., ^{*}Jameel, Y., **Tipple, B.J.**, and Bowen, G.J. (2016) Urban water – A new frontier in isotope hydrology, *Isotopes in Environmental and Health Studies*, doi: 10.1080/10256016.2016.1171217.
22. Cerling, T.E., Barnette, J.E., Bowen, G.J., Chesson, L.A., Ehleringer, J.R., Remien, C.H., Shea, P.A., **Tipple, B.J.**, and West, J.B. (2016) Forensic stable isotope biogeochemistry, *Annual Reviews of Earth and Planetary Sciences*, 44, 175-206.
21. **Tipple, B.J.**, Hambach, B., Barnette, J.E., Chesson, L.A., and Ehleringer, J.R. (2016) The influences of cultivation method on inflorescence lipid distributions, concentrations, and carbon isotope ratios of *Cannabis sp.*, *Forensic Science International*, 262, 233-241.
20. [#]Berke, M.A., **Tipple, B.J.**, Hambach, B., and Ehleringer, J.R. (2015) Life-form specific gradients in compound specific $\delta^2\text{H}$ of modern leaf waxes along a North American Monsoonal transect, *Oecologia*, 179, 4, 981-997.

19. Ehleringer, J.R., Chesson, L.A., Valenzuela, L.O., **Tipple, B.J.**, and Martinelli, L.A., (2015) Humans and Society – Amazing insights from stable isotope biogeochemistry, *Elements*, 11, 4, 259-264.
18. **Tipple, B.J.**, [#]Berke, M.A., Hambach, B., Roden, J.S., and Ehleringer, J.R. (2015) Predicting leaf wax *n*-alkane ²H/¹H ratios: controlled water source and humidity experiments with hydroponically grown trees confirm predictions of Craig-Gordon model, *Plant, Cell and Environment*, 38, 6, 1035-1047.
17. Chesson, L.A., **Tipple, B.J.**, Barnette, J.E., Cerling, T.E., and Ehleringer, J.R. (2015) The potential for application of ink stable isotope analysis in questioned document examination, *Science & Justice*, 55, 1, 27-33.
16. ^{*}Bataille, C., Mastalerz, M. **Tipple, B.J.**, and Bowen, G.J. (2013) Influence of organic provenance and preservation on the carbon isotope variations of dispersed organics in ancient floodplain sediments, *Geochemistry, Geophysics, Geosystems*, 14, 11, 4874-4891.
15. **Tipple, B.J.**, ^{*}Chau, T.H., Chesson, L.A., Fernandez, D., and Ehleringer, J.R. (2013) Isolation of the strontium pools and isotope ratios in modern human hair, *Analytica Chimica Acta*, 798, 1, 64-73.
14. Chesson, L.A., **Tipple, B.J.**, Erkkila, B.R., and Ehleringer, J.R. (2013) Hydrogen and oxygen stable isotope analysis of pollen collected from honey, *Grana*, 52, 4, 305-315.
13. **Tipple, B.J.** and Pagani, M. (2013) Environmental control on eastern broadleaf forest species' leaf wax distributions and D/H ratios, *Geochimica et Cosmochimica Acta*, 111, 1, 64-77.
12. Dirghangi, S.S., Pagani, M., Hren, M.T., and **Tipple, B.J.** (2013) Distribution of glycerol dialkyl glycerol tetraethers in soils from two environmental transects in the USA, *Organic Geochemistry*, 59, 1, 49-60.
11. **Tipple, B.J.**, [#]Berke, M.A., ^{\$}Doman, C.E., ^{\$}Khachatryan, S. and Ehleringer, J.R. (2013) Leaf *n*-alkane record the plant-water environment at leaf flush, *The Proceedings of the National Academy of Sciences*, 110, 7, 2659-2664.
10. Chesson, L.A., **Tipple, B.J.**, Mackey, G.N., Fernandez, D., and Ehleringer, J.R. (2012) Strontium isotope ratios of tap water from the coterminous USA, *Ecosphere*, 3, 7, Article 67.
9. **Tipple, B.J.**, Chesson, L.A., Erkkila, B., Ehleringer, J.R., and Cerling, T.E. (2012) B-HIVE: Beeswax Hydrogen Isotopes as Validation of Environment Part II. Compound-specific hydrogen isotope analysis, *Food Chemistry*, 134, 1, 494-501.
8. **Tipple, B.J.**, Pagani, M., Krishnan, S., Dirghangi, S.S., Galeotti, S., Agnini, C., Giusberti, L., and Rio, D. (2011) Coupled high-resolution marine and terrestrial records of carbon and hydrologic cycles variations during the Paleocene-Eocene Thermal Maximum (PETM), *Earth and Planetary Science Letters*, 311, 1-2, 82-92.
7. Chesson, L.A., **Tipple, B.J.**, Erkkila, B., Ehleringer, J.R., and Cerling, T. (2011) B-HIVE: Beeswax Hydrogen Isotopes as Validation of Environment Part I. Bulk honey and honeycomb stable isotope analysis, *Food Chemistry*, 125, 2, 576-581.

6. **Tipple, B.J.** and Pagani, M. (2010) A 35 Myr terrestrial higher plant *n*-alkane stable carbon and hydrogen isotope record from the Gulf of Mexico: Implications for North American C₄ grasslands and hydrologic cycle dynamics, *Earth and Planetary Science Letters*, 299, 1-2, 15, 250-262.
5. **Tipple, B.J.**, Meyers, S.R., and Pagani, M. (2010) The carbon isotope ratio of Cenozoic CO₂: a comparative evaluation of available geochemical proxies, *Paleoceanography*, doi:10.1029/2009PA001851.
4. Edwards, E.J., Osborne, C.P., Strömberg, C.A.E., Smith, S.A., Bond, W.J., Christin, P.-A., Cousins, A.B., Duvall, M.R., Fox, D.L., Freckleton, R.P., Ghannoum, O., Hartwell, J., Huang, Y., Janis, C.M., Keeley, J.E., Kellogg, E.A., Knapp, A.K., Leakey, A.D.B., Nelson, D.M., Saarela, J.M., Sage, R.F., Sala, O.E., Salamin, N., Still, C.J., and **Tipple, B.J.** (2010) The origins of C₄ grasslands: Integrating evolutionary and ecosystem science, *Science*, 328, 5978, 587-591.
3. Pedentchouk, N., Sumner, W., **Tipple, B.J.**, and Pagani, M. (2008) $\delta^{13}\text{C}$ and δD Composition of *n*-alkanes from modern angiosperms and conifers: An experimental set-up in central Washington state, USA, *Organic Geochemistry*, 39, 8, 1066-1071.
2. **Tipple, B.J.** and Pagani, M. (2007) The early origins of terrestrial C₄ photosynthesis, *Annual Review of Earth and Planetary Sciences*, 35, 435-461.
1. Pagani, M., Zachos, J., Freeman, K.H., **Tipple, B.J.**, and Bohaty, S. (2005) Marked change in atmospheric carbon dioxide concentrations during the Oligocene, *Science*, 309, 600-603.

Peer-Reviewed Book Chapters

6. Chesson, L.A., **Tipple, B.J.**, Chakraborty, S., Rogers, K. (*Forthcoming, July 2017*) Odds and Ends (or All that's left to print), (Eds) Carter, J.F., Chesson, L.A., *Food Forensics: Stable Isotopes as a Guide to Authenticity and Origin*, 448 pages. CRC Press, Boca Raton, FL.
5. Chesson, L.A. and **Tipple, B.J.** (*Forthcoming*) Forensic identification of human skeletal remains using isotopes: A brief history of applications from archaeological dig sites to modern crime scenes, (Eds) Latham, K. Bartelink, E.J. Finnegan, M., *New Perspectives in Forensic Human Skeletal Identification*, Elsevier Press.
4. Chesson, L.A., **Tipple, B.J.**, Ehleringer, J.E., Parks, T., and Bartelink, E.J. (*Forthcoming, May 2017*) Forensic applications of isotope landscapes ("isoscapescapes"): A tool for predicting region-of-origin in forensic anthropology cases, (Eds) Boyd, D, Boyd, C., *Forensic Anthropology: Theoretical Framework and Scientific Basis*, 356 pages. John Wiley & Sons Limited, London, UK.
3. Chesson, L.A., Bartelink, E.J., **Tipple, B.J.**, Cerling, T.E., and Ehleringer, J.E. (*Forthcoming, January 2017*) Forensic applications of isotope geochemistry: Linking materials to individuals, locations, and times, (Ed) Bergslien, E., *Forensics Geoscience: Advances and Applications*, American Geophysical Union Press. ISBN: 978-1-119-05390-3.

2. Bartelink, E.J., Mackinnon, A.T., Prince-Buitenhuis, J.R., **Tipple, B.J.**, and Chesson, L.A. (2016) Stable isotope forensics as an investigative tool in missing person investigations, (Eds) Morewitz, S.J., Sturdy-Colls, C., *Handbook of Missing Persons*, 680 pages, Springer International Publishing. New York, New York. ISBN: 978-3-319-40197-3.
1. Chesson, L.A., **Tipple, B.J.**, Howa, J.D., Bowen, G.J., Barnette, J.E., Cerling, T.E., and Ehleringer, J.R. (2014) Stable Isotopes in Forensics Applications, *Treatise on Geochemistry*, 2nd Edition, Volume 14, pp. 285-317.

Technical Reports

2. **Tipple, B.J.** (*Forthcoming*) Isotope analyses of hair as a trace evidence tool to reconstruct human movements: Establishing the effects of the “Human Ecosystem” on strontium and oxygen isotope ratios, 92 pages.
1. **Tipple, B.J.** (2015) Isotope analyses of hair as a trace evidence tool to reconstruct human movements: combining strontium isotope with hydrogen/oxygen isotope data, Department of Justice, National Criminal Justice Reference Service, Document Number 248977, 51 pages.

Non-Peer Reviewed Contributions

3. **Tipple, B.J.** and Ehleringer, J.R. (2016) Carbon isotopes — The chemist’s tool to trace marijuana cultivation environment, *Atlas of Science*, <http://bit.ly/2eY44xm>.
2. **Tipple, B.J.** (2013) Capturing climate variability during our ancestors’ earliest days, *The Proceedings of the National Academy of Sciences*, 110, 4, 1144-1145.
1. Chesson, L.A. and **Tipple, B.J.** (2010) The isotope waggle dance: how the honey bee communicates with the chemist, *Bee Culture*, 183, 8, 30-32.

Publications in Progress

4. [§]Covarrubias Avalos, S., Valenzuela, L.O., **Tipple, B.J.**, Chesson, L.A., and Ehleringer, J.R. (*In Preparation*) The distributions and relationships of carbon and nitrogen isotopes in human hair with socioeconomic factors in the Salt Lake Valley, Utah.
3. **Tipple, B.J.**, Valenzuela, L.O., Chesson, L.A., and Ehleringer, J.R. (*In Preparation*) Combining strontium and oxygen isotope ratios of hair for human provenancing.
2. **Tipple, B.J.**, *Chau, T.H., Chesson, L.A., and Ehleringer, J.R. (*In Preparation*) Spatial and temporal dynamics of southwestern U.S. municipal water supplies as recorded by isotopes of tap water.
1. Cerling, T.E., Ehleringer, J.R., Polissar, P.J., Stromberg, C.A.E., **Tipple, B.J.**, Uno, K.T. (*In Preparation*) The geological history of C₄ photosynthesis.

RESEARCH GRANTS

Funded Proposals (total = \$1.87 million)

National Institute of Justice: NIJ-2016-4305: \$270,894.26 (11/1/2016-10/31/2018), PI: L.A. Chesson, co-PI: **B.J. Tipple**. “A Comprehensive test of the methods and models used to assign geographic origin to human skeletal remains with stable isotope data.”

United States Fish and Wildlife Service, Wildlife without Border – African Elephant Conservation Fund: F15AS00001: \$63,523.73 (2/1/2016-1/31/2017), PI: T.E. Cerling, co-PI: **B.J. Tipple**, L.A. Chesson. “Isotopic Verification Of Region & Year (IVORY).”

National Institute of Justice: 2013-DN-BX-K009: \$367,399 (10/1/2013-3/31/2016), PI: **B.J. Tipple**. “Isotope analyses of hair as a trace evidence tool to reconstruct human movements: Establishing the effects of the “Human Ecosystem” on strontium and oxygen isotope ratios.”

Charles Stark Draper Laboratory, University Research and Development (URAD) Program: \$109,736 (7/1/2013-6/27/2014), PI: J.R. Ehleringer, co-PI: **B.J. Tipple**, T.E. Cerling, G.J. Bowen. “Hair as a recorder of region-of-origin and travel history.”

National Institute of Justice: 2011-DN-BX-K544: \$342,000 (9/1/2011-8/31/2014), PI: **B.J. Tipple**. “Isotope analyses of hair as a trace evidence tool to reconstruct human movements: combining strontium isotope with hydrogen/oxygen isotope data.”

National Science Foundation: IOS 1052551: \$707,500 (4/15/2011-3/31/2015), PI: J.R. Ehleringer, co-PI: **B.J. Tipple**. “Hydrogen isotopes in *n*-alkanes of tree leaves and needles: experimental studies with ecophysiological, ecosystem, climate, and dust-related applications.”

Yale University: John F. Enders Fellowship and Research Grant, \$2,000 (5/1/2006-9/30/2006), “Tree leaf waxes as environment recorders: An empirical evaluation with paleoclimate applications.”

Geological Society of America: Graduate Student Research Grant, \$2,500 (5/1/2005-9/30/2005), “(U-Th)/He and fission-track detrital grain double-dating as a paleo-wildfire indicator: Implications to the PETM.”

Yale Institute of Biospheric Studies: Field Ecology Grant, \$2,000 (11/1/2004-10/31/2005), “Establishing the carbon isotope ratio of Paleogene CO₂ from sedimentary charcoal.”

SCHOLARSHIPS, FELLOWSHIPS, AND ACADEMIC AWARDS

Best Poster Presentation – FIRMS/Isotope Analysis, ANZFSS International Symposium on the Forensic Sciences, Auckland, New Zealand (2016)

Estwing Hammer Award, Estwing Manufacturing Corporation/Graduate School of Arts and Sciences, Yale University (2008)

Graduate Research Fellowship, National Science Foundation (2004-2007)

John F. Enders Fellowship & Research Grant, Graduate School of Arts and Sciences, Yale University (2006)

Graduate Student Research Grant, Geological Society of America (2005)

Field Ecology Grant, Yale Institute of Biospheric Studies (2004)

Best Undergraduate Research Project Award, Indiana University (2003)

William C. Menke Scholarship, Indiana University (2002)

Bill Armstrong/Little 500 Scholarship, Indiana University Student Association (2002)

Charles Deiss Scholarship, Department of Geological Sciences, Indiana University (2001)

Elected Phi Beta Kappa, Indiana University (2001)

PRESENTATIONS

Invited Lectures

Exploring the “human ecosystem” with isotopes of water, Department of Earth and Planetary Sciences, Washington University in St. Louis, St. Louis, MO (December, 2016).

A framework to develop isoscape models for product origin and tracing questions, International Atomic Energy Agency, Research Coordination Meeting for the *Implementation of Nuclear Techniques to Improve Food Traceability Systems*, Vienna, Austria (November, 2016).

Applications of stable isotopes in cold case investigations, Utah Division for the International Association for Identification Spring Conference, Weber County Sheriff's Office, Ogden, UT (May, 2016).

Using isotope analysis to assist in cold case investigations, Cold Case Summit, Unified Police Department of Greater Salt Lake, Salt Lake City, UT (May, 2016).

Stable isotopes in the forensic sciences, College of Agriculture and Natural Resources, University of Delaware, Newark, DE (March, 2016)

Using oxygen and strontium isotopes to dissect a human ecosystem: A spatial and temporal study of water and human hair from Southern California, American Academy of Forensic Sciences, Las Vegas, NV (February, 2016).

Translational Geochemistry: Applying stable isotopes to societal and biogeoscience questions, Department of Geosciences, Weber State University, Ogden, UT (February, 2016).

A framework to interpret isotope ratios for product origin and tracing questions, International Atomic Energy Agency, Research Coordination Meeting for the *Implementation of Nuclear Techniques to Improve Food Traceability Systems*, Kampala, Uganda (October, 2015).

Strontium isotope ratios of hair for human provenancing, American Chemical Society Annual Meeting, Boston, MA (August, 2015).

Predicting the hydrogen isotope ratios of leaf waxes across landscapes, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2014).

CSI: Crimes Solved with Isotopes, Cold Case Summit, Unified Police Department of Greater Salt Lake, Salt Lake City, UT (June, 2014).

Combining strontium and oxygen isotope ratios of hair for human provenancing. American Academy of Forensic Sciences, Seattle, WA (February, 2014).

The isotopes don't lie, but what are they telling us? Department of Earth and Environmental Science, Temple University, Philadelphia, PA (November, 2013).

Refining paleoenvironmental proxies from plant leaf waxes, Department of Biology, University of Utah, Salt Lake City, UT (October, 2013).

Isotope analysis of hair as a trace evidence tool to reconstruct human movements. American Academy of Forensic Sciences, Atlanta, GA (February, 2012).

A 35 Myr record of North American grasslands and hydrologic cycle dynamics. Department of Geology, University of Cincinnati, Cincinnati, OH (November, 2011).

Forensics applications of isoscapes. Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, West Lafayette, IN (September, 2011).

Coupled marine and terrestrial records of carbon cycle variation during the PETM. Department of Geological Sciences, Brown University, Providence, RI (July, 2011).

Fingerprints of oil - how scientists can distinguish one oil from another. Community Lecture Series – The Life of an Urban Stream, Salt Lake City, UT (August, 2010).

Leaf wax compound specific isotope ratios: Insights from the Modern and application to Cenozoic climates and floral dynamics. Distinguish Lecturer Series, Department of Geology and Geophysics, University of Utah, Salt Lake City, UT (February, 2010).

Leaf waxes as environment recorders. National Evolutionary Synthesis Center, Duke University, Durham, NC (April, 2009).

A Neogene higher plant n-alkane carbon and hydrogen isotope record from the Gulf of Mexico, Conoco-Philips, Houston, TX (December, 2008).

Contributed Presentations (*Oral, #Poster)

Tap water isotopes reveal the San Francisco Bay Area's plumbing and responses to a major drought[#], American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2016).

Strontium isotope ratios of human hair from the United States: Trends, Patterns, and Aberrations[#], ANZFSS International Symposium on the Forensic Sciences, Auckland, New Zealand (September, 2016).

Strontium isotope ratios of hair for human provenancing^{*}, American Academy of Forensic Sciences, Orlando, FL (February, 2015).

Establishing the environmental controls and mechanisms shaping the $^2\text{H}/^1\text{H}$ ratios of leaf wax n-alkanes^{*}, Goldschmidt Conference, Sacramento, CA (June, 2014).

Both water source and atmospheric water impact leaf wax n-alkane $^2\text{H}/^1\text{H}$ values of hydroponically grown angiosperm trees[#], American Geophysical Union Annual Meeting, San Francisco, CA (December, 2013).

Combining strontium and oxygen isotope ratios of hair for human provenancing[#], Geological Society of America Annual Meeting, Denver, CO (October, 2013).

Isolation of strontium pools and isotope ratios in modern human hair[#], Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, Montreal, Canada (September, 2013).

The spatial patterns of water management practices are reflected in the strontium isotope ratios of human hair[#], American Geophysical Union Annual Meeting, San Francisco, CA (December, 2012).

Transpiration and atmospheric water impact the leaf wax n-alkane $^2\text{H}/^1\text{H}$ values of hydroponically grown angiosperm trees[#], Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2012).

Leaf waxes in riparian trees: hydrogen isotopes and chain-length patterns[#], American Geophysical Union Annual Meeting, San Francisco, CA (December, 2011).

Beeswax Hydrogen Isotopes as Validation of Environment: B-HIVE^{}*, Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, Washington, DC (April, 2010).

A terrestrial PETM record of variations in carbon and hydrologic cycles from Northern Italy^{}*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2009).

Beeswax normal-alkane distributions and hydrogen isotope ratios as geo-location tools[#], IsoCompound Meeting, Potsdam, Germany (May, 2009).

Leaf waxes as a recorder of the hydrogen isotope ratios of precipitation and ground-water: Field data from the California Coastal and Sierra Nevada Ranges[#], IsoCompound Meeting, Potsdam, Germany (May, 2009).

A 35 Myr higher plant n-alkane stable carbon and hydrogen isotope record from the Gulf of Mexico: Implications to North American C_4 grasslands and hydrologic cycle dynamics[#], Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2008).

Orographic and climatic influence on leaf wax carbon and hydrogen isotopic ratios: A field survey from Northern California[#], American Geophysical Union Annual Meeting, San Francisco, CA (December, 2008).

(U-Th)/He and Fission-Track detrital grain double-dating as a paleo-wildfire indicator: Trials and tribulations from two Western Interior Basins and implications to the PETM^{}*, Geological Society of America Annual Meeting, Denver, CO (October, 2007).

Eliciting climatic controls on leaf wax carbon and hydrogen isotopic ratios: A field study from the eastern US^{}*, American Chemical Society Annual Meeting, Boston, MA (August, 2007).

A Neogene higher plant n-alkane carbon and hydrogen isotope record from the Gulf of Mexico[#], American Geophysical Union Annual Meeting, San Francisco, CA (December, 2006).

A Late Miocene n-alkane δD and $\delta^{13}C$ record from the Gulf of Mexico[#], Geological Society of America Annual Meeting, Philadelphia, PA (October, 2006).

Coupled Late Miocene n-alkane δD and $\delta^{13}C$ records from the Gulf of Mexico: Preliminary results[#], Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2006).

A biomarker record of the Paleogene evolution and expansion of C_4 plants^{}*, Geological Society of America Annual Meeting, Salt Lake City, UT (October, 2005).

Long-term regional contributions of Cenozoic C_4 plants to marine sediments^{}*, Geological Society of America Annual Meeting, Denver, CO (October, 2004).

C_4 plant distribution during the Cenozoic: Approach and preliminary Evidence[#], Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2004).

Carbon Isotopic Evidence for a Methane-Supported Microbial Community from a Late Archean Silty Shale: Witwatersrand Basin, South Africa[#], Carnegie Institute, Washington D.C. (May, 2003).

Abstracts

2016

Tipple, B.J., Jameel, Y., Chau, T.H., Mancuso, C.J., Bowen, G.J. Dufour, A., Chesson, L.A., and Ehleringer, J.R. Tap water isotopes reveal the San Francisco Bay Area's plumbing and responses to a major drought, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2016).

Johnson, J.E. **Tipple, B.J.**, Betancourt, J.L., Ehleringer, J.E., Leavitt, S.W., and Monson, R.K., *Variation in the apparent biosynthetic fractionation of n-alkane δD among terrestrial plants: Patterns, mechanisms, and implications*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2016).

Bender, A.L.D., **Tipple, B.J.**, Suess, M., Bradley, A.S., *Testing for differences in leaf wax biosynthetic fractionation*, Midwest Geobiology Symposium, Cincinnati, OH (October, 2016).

Tipple, B.J., Chesson, L.A., Valenzuela, L.O., Chau, T.H., and Ehleringer, J.R., *Strontium isotope ratios of human hair from the United States: Trends, Patterns, and Aberrations*, ANZFSS International Symposium on the Forensic Sciences, Auckland, New Zealand (September, 2016).

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