

# BRETT JAMES TIPPLE

## CONTACT INFORMATION

University of Utah  
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## APPOINTMENTS

UNIVERSITY OF UTAH

SALT LAKE CITY, UT

*Adjunct Assistant Professor*, School of Biological Sciences

2019 – Present

- Conducted chemical research on industrial hemp.
- Coordinated industrial hemp testing in DEA/USDA-approved lab in the state.
- Facilitated technology transfer of University IP to spinoff and start-up companies.

*Research Assistant Professor*, Department of Biology

2010 – 2019

- Formed an interdisciplinary research group focused on modern and ancient ecology.
- Taught over 300 students leading-edge techniques on state-of-the-art instrumentation.
- Provided guidance on academic committees of 3 undergraduate and 4 graduate students.

*Postdoctoral Researcher*, Department of Biology

2009 – 2010

- Contributed to a cutting-edge geospatial chemical methods and products.

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

SANTA CRUZ, CA

*Associate Project Scientist*, Institute of Marine Sciences

2017 – Present

- Established alliances between researchers with unidentified yet common research goals.
- Helped secured over US\$900k in research and instrumentation funding.

UNITED STATES GEOLOGICAL SURVEY

SANTA CRUZ, CA

*Affiliate Scientist*, Pacific Coastal and Marine Science Center

2017 – 2019

- Executed novel geochemical approaches to complex problems of national importance.
- Developed geochemical protocols for Center's wildfire and landslide responses.

## EDUCATION

YALE UNIVERSITY

NEW HAVEN, CT

*Doctor of Philosophy*, Geology and Geophysics

2009

*Master of Philosophy*, Geology and Geophysics

2005

INDIANA UNIVERSITY

BLOOMINGTON, IN

*Bachelor of Science with Distinction*, Geological Sciences

2003

## TEACHING

UNIVERSITY OF UTAH	SALT LAKE CITY, UT
<i>Instructor</i> , Stable Isotope Biogeochemistry and Ecology (BIOL 7475)	2010 – 2017
<i>Instructor</i> , Isotopes in Large-Scale Environmental Research (GEO 7476)	2016
<i>Lecturer</i> , Stable Isotope Biogeochemistry and Ecology (BIOL 7475)	2015
<i>Instructor</i> , Individual Undergraduate Research (BIOL 4955)	2011, 2012
YALE UNIVERSITY	NEW HAVEN, CT
<i>Laboratory Leader</i> (Teaching Fellow Level II), Mineralogy and Petrology	2008
<i>Part-time Acting Instructor</i> , Introduction to Geochemistry	2006
<i>Discussion Section Leader</i> (Teaching Fellow Level II), Global Environmental Change	2005
<i>Grader/Tutor</i> (Teaching Fellow Level I), Introduction to Geochemistry	2004
INDIANA UNIVERSITY	BLOOMINGTON, IN
<i>Student Teacher</i> (7 <sup>th</sup> grade Earth Science), School of Education	1998

## 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./Ph.D., Geology and Geophysics) University of Utah, M.S. 2015/Ph.D. 2019  
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

### *Graduate Student Mentees:*

Natasha L. Vokhshoori (Ph.D., Ocean Sciences) UC Santa Cruz, *expected* 2021  
Christy J. Mancuso (Ph.D., Biology) University of Utah, 2018  
Yusuf Jameel (Ph.D., Geology and Geophysics) University of Utah, 2017

### *Undergraduate Thesis Mentees:*

Alexander Bailess (B.S., Marine Biology) UC Santa Cruz, 2020  
Laurel Teague (B.S., Earth Science) UC Santa Cruz, 2019  
Jade MacMillan (B.S., Earth Science) UC Santa Cruz, 2019  
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 Haghpanah (B.S., Chemistry; B.A., Mathematics) Quinnipiac University, 2005

## COMMUNITY OUTREACH AND SERVICE

*Judge* for student presentations at the 10<sup>th</sup> Biennial Bay-Delta Science Conference (September, 2018).

*Presented* lecture on forensic applications of stable isotopes at the Salt Lake Valley Law Enforcement Administrators and Directors (LEADS) (March, 2018).

*Judge* for the Outstanding Student Paper Award with the Paleoceanography and Paleoclimate Focus Group at the American Geophysical Union Meeting (December, 2011-2014; 2016).

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

*Mentor* for Salt Lake City Public Schools Science Fair (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-author* of layman's article on stable isotopes for *Bee Culture Magazine* (2010).

*Judge* for New Haven Public Schools Science Fair (2008).

*Organizer* for Geological History of Connecticut Field Trip, Department of Geology & Geophysics, Yale University, (2004).

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

*Recruiter* for Department of Geology & Geophysics, Geological Society of America Annual Meeting (November, 2004, 2005, 2006); American Geophysical Union Annual Meeting (December, 2004, 2006, 2007).

## 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).

*Faculty Affiliate* for the Global Change and Sustainability Center, University of Utah (2013 – Present).

*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; Rapid Communications in Mass Spectrometry; Sedimentology.*

*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, Book Chapters, and Reports*

(#Postdoctoral Researcher author, \*Graduate Student author, §Undergraduate Student author)

45. Kwon, E.Y., **Tipple, B.J.**, Schmitter, A., and Timmermann, A. (*Submitted*) Unprecedented reversal of the oceanic  $\delta^{13}\text{C}$  gradient due to extreme greenhouse gas emissions, *The Proceedings of the National Academy of Sciences*.
44. Takesue, R.K. and **Tipple, B.J.** (*Submitted*) Tracking dispersal of wildfire contaminants following the 2017 Atlas and Nuns wildfires to the northern reach of San Francisco Bay with trace element, stable isotopes, and polycyclic aromatic hydrocarbons (PAHs) signatures, *USGS Open-File Report*.
43. \*Bender, A.L.D., **Tipple, B.J.**, and Bradley, A.S. (*Submitted*) Investigating species-specific differences in hydrogen isotopic compositions of leaf wax alkanes among *Solanum* species that differ in drought tolerance, *Organic Geochemistry*.
42. Ehleringer, J.R., §Covarrubias Avalos, S., **Tipple, B.J.**, Valenzuela, L.O., and Cerling, T.E. (2020) Stable isotopes in hair reveal dietary protein sources with links to socioeconomic status and health across the United States, *The Proceedings of the National Academy of Sciences*, 117, 33, 20044-20051.
41. \*Hu, L., Fernandez, D.P., Cerling, T.E., and **Tipple, B.J.**, (2020) Fast exchange of strontium between hair and ambient water: Implication for isotopic analysis in provenance and forensic studies, *PLOS ONE*, 15, 5, e0233712.
40. Bartelink, E.J., Chesson, L.A., **Tipple, B.J.**, Hall, S., and Kramer, R. (2020) Multi-isotope approaches for region-of-origin predictions of undocumented border crossers from the United States-Mexico border: Biocultural perspectives on diet and travel history, (Eds) Parra, R.C., Zapico, S.C., and Ubelaker, D.H., *Humanitarian Forensic Science: Interacting with the Dead and the Living*, 500 pages. John Wiley & Sons Limited, London, UK. ISBN: 9781119481966.
39. Svečnjak, L., Chesson, L.A., Gallina, A., Maia, M., Martinello, M., Mutinelli, F., Necati Muz, M., Nunes, F., Özdemir, N., Saucy, F., **Tipple, B.J.**, Wallner, K., Waś, E., and Waters, T., (2019) Standard methods for *Apis mellifera* beeswax research, *Journal of Apicultural Research*, 58, 2, 1-108.
38. **Tipple, B.J.**, Valenzuela, L.O., \*Chau, T.H., \*Hu, L., \*Bataille, C.P., Chesson, L.A., and Ehleringer, J.R. (2019) Strontium isotope ratios of human hair from the United States: Patterns and aberrations, *Rapid Communications in Mass Spectrometry*, 33, 5, 461-472.

37. \*Jameel, Y., Brewer, S., Fiorella, R.P., **Tipple, B.J.**, Terry, S., and Bowen G.J. (2018) Isotopic reconnaissance of urban water supply system dynamics, *Hydrology and Earth System Sciences*, 22, 6109-6125.
36. Chesson, L.A., Barnette, J.E., Bowen, G.J., Brooks, J.R., Casale, J.F., Cerling, T.E., Cook, C.S., Douthitt, C.B., Howa, J.D., Hurley, J.M., Kreuzer, H.W., Lott, M.J., Martinelli, L.A., O’Grady, S.P., Podlesak, D.W., **Tipple, B.J.**, Valenzuela, L.O., and West, J.B. (2018) Stable isotope analysis in plant and animal ecology – with application to forensic science in the Americas, *Oecologia*, 187, 1077-1094.
35. Chesson, L.A., **Tipple, B.J.**, Youmans, L.V., O’Brian, M.A., and Harmon, M.M., (2018) 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*, 1<sup>st</sup> Edition, pp. 157-173. Academic Press, London, UK. ISBN: 978-0-128-05429-1.
34. Bartelink, E.J., Berg, G.E., Chesson, L.A., **Tipple, B.J.**, Beasley, M.M., Prince-Buitenhuys, J.R., MacInnes, H., MacKinnon, A.T., and Latham, K., (2018) Applications of stable isotope forensics for geolocating unidentified human remains from past conflict situations and large-scale humanitarian efforts, (Eds) Latham, K. Bartelink, E.J. Finnegan, M., *New Perspectives in Forensic Human Skeletal Identification*, 1<sup>st</sup> Edition, pp. 175-184. Academic Press, London, UK. ISBN: 978-0-128-05429-1.
33. Chesson, L.A., **Tipple, B.J.**, Ehleringer, J.E., Parks, T., and Bartelink, E.J. (2018) 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. ISBN: 978-1-119-22638-3.
32. **Tipple, B.J.** and Ehleringer, J.R., (2018) Distinctions in heterotrophic and autotrophic-based metabolism as recorded in the hydrogen and carbon isotope ratios of *normal*-alkanes, *Oecologia*, 187, 1053-1075.
31. **Tipple, B.J.**, Valenzuela, L.O., and Ehleringer, J.R. (2018) Strontium isotope ratios of human hair record intra-city variations in tap water source, *Scientific Reports*, 8, 2224, doi:10.1038/s41598-018-21359-0.
30. Chesson, L.A., **Tipple, B.J.**, Chakraborty, S., and Rogers, K. (2017) Odds and Ends, (Eds) Carter, J.F., Chesson, L.A., *Food Forensics: Stable Isotopes as a Guide to Authenticity and Origin*, 352 pages. CRC Press, Boca Raton, FL. ISBN: 978-1-498-74172-9.
29. Chesson, L.A., Bartelink, E.J., **Tipple, B.J.**, Cerling, T.E., and Ehleringer, J.E. (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.
28. **Tipple, B.J.**, \*Jameel, Y., \*Chau, T.H., \*Mancuso, C.J., Bowen, G.J. Dufour, A., Chesson, L.A., and Ehleringer, J.R. (2017) Stable hydrogen and oxygen isotopes of tap water reveal structure of the San Francisco Bay Area’s water systems and adjustments during a major drought, *Water Research*, 119, 212-224.

27. 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*, pp. 443-462, Springer International Publishing. New York, New York. ISBN: 978-3-319-40197-3.
26. \*Chau, T.H., **Tipple, B.J.**, \*Hu, L., Fernandez, D., Cerling, T.E., Chesson, L.A., and Ehleringer, J.R. (2017) 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*, 31, 6, 1-8.
25. \*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, 8, 1-20.
24. 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*, 52, 4-5, 477-486.
23. 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.
22. **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.
21. #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.
20. 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.
19. **Tipple, B.J.**, #Berke, M.A., Hambach, B., Roden, J.S., and Ehleringer, J.R. (2015) Predicting leaf wax *n*-alkane  $^2\text{H}/^1\text{H}$  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.
18. 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.
17. 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*, 2<sup>nd</sup> Edition, Volume 14, pp. 285-317.
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.**, <sup>#</sup>Berke, M.A., <sup>\$</sup>Doman, C.E., <sup>\$</sup>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 C<sub>4</sub> 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 CO<sub>2</sub>: a comparative evaluation of available geochemical proxies, *Paleoceanography*, 25, PA3202, 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 C<sub>4</sub> 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  $\delta\text{D}$  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 C<sub>4</sub> photosynthesis, *Annual Reviews 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.

*Technical and Data Reports*

7. **Tipple, B.J.** (2021) Isotope values of leaf tissues, leaf waxes, and xylem waters across elevational gradients, Pangaea.
6. Hambach, B., **Tipple, B.J.**, Ehleringer, J.E. (2021) Cuticular leaf wax concentrations and distributions of common flora of the Colorado Plateau, Great Basin, and Mojave Deserts, Pangaea.
5. **Tipple, B.J.** (2021) A Cenozoic terrestrial leaf wax carbon isotope record from seven globally distributed marine sediment core, Pangaea.
4. **Tipple, B.J.** (2021) Climatic and taxonomic influences on cuticular leaf wax distributions and isotope values of common eastern North American tree species, Pangaea.
3. **Tipple, B.J.** (2016) 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, Department of Justice, National Criminal Justice Reference Service, Document Number 250339, 92 pages.
2. Chesson, L.A., Howa, J.D. and **Tipple, B.J.** (2016) Isotope testing of heroin for provenancing, United Nations Office on Drugs and Crime, 9 pages.
1. **Tipple, B.J.** (2014) 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*

4. Cook, C.S., Erkkila, B., Chakraborty, S., **Tipple, B.J.**, Cerling, T.E., and Ehleringer, J.R. (2017) Stable Isotope Biogeochemistry and Ecology: Laboratory Manual, *Amazon Independently Published*, 181 pages, ISBN-10: 1973349086/ISBN-13: 978-1973349082.
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*

2. Watt, J., McGann, M., Takesue, R., Lorenson, T., **Tipple, B.J.**, and Papesch, A., (*In Preparation*) Evidence for vertical seismic and aseismic slip along the Hayward-Rodgers Creek Fault in Northern San Pablo Bay, California.
1. **Tipple, B.J.**, Stewart, A.R., Prouty, N.G., Ianiri, H., McCarthy, M.D. (*In Preparation*) Nitrogen isotope ratios of amino acids from co-occurring invasive clams isolate seasonal variations baseline biogeochemistry within the San Francisco Estuary.



## RESEARCH GRANTS

*Funded Proposals* (total = \$2.71 million)

UCSC Chancellor's Discretionary Fund, \$27,644 (*Pending*), PI: M.D. McCarthy, co-PI: **B.J. Tipple**, "Developing a new molecular isotopic tool to examine Delta food webs."

California Department of Fish and Wildlife: Prop 1 – Delta Water Quality and Ecosystem Restoration Grant Program, \$211,907 (10/1/2019-9/30/2021), PI: **B.J. Tipple**, co-PI: M.D. McCarthy, "Developing a new molecular isotopic tool to examine Delta food webs."

National Science Foundation: OCE 1828774, \$564,184 (10/1/2019-9/30/2020), PI: M.D. McCarthy, co-PIs: V. Oelze, D. Costa, A.C. Ravelo, P.Koch, Collaborator: **B.J. Tipple**. "MRI: Acquisition of an Isotope Ratio Mass Spectrometer for Compound-Specific Applications in Biogeochemistry and Environmental Studies at UC Santa Cruz."

US Geological Survey: FY18 Priority Ecosystems Science Mid-Year Supplemental Proposals, \$30,200 (7/1/2018-6/30/2019), PIs: R. Takesue and **B.J. Tipple**, "Sourcing of sediment and contaminant runoff to the northern reaches of San Francisco Bay from the Atlas and Nuns fires."

Packard Foundation: Ocean Science and Technology Grant, \$9,997 (5/15/2018-5/14/2019), PIs: **B.J. Tipple** and M.D. McCarthy, Collaborators: N.G. Prouty, A.R. Stewart. "Development of new molecular tools to understand the biogeochemistry and track change in natural and human-impacted estuaries."

UC Santa Cruz Division of Physical & Biological Sciences: Future Leaders in Coastal Science, \$21,272 (2/15/2018-2/14/2019), Student PI: N.L. Vokhshoori, Faculty Advisors: **B.J. Tipple** and M.D. McCarthy, "A window into California's past coastal environments: Compound-specific amino acid isotope ratios from bivalve shells to reconstruct nearshore primary productivity."

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 CO<sub>2</sub> from sedimentary charcoal.”

## **SCHOLARSHIPS, FELLOWSHIPS, AND ACADEMIC AWARDS**

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

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

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

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

Kenneth N. Weaver Student Travel Award, Northeastern Section of the Geological Society of America (2005)

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

Graduate Teaching Fellowship, Yale University (2004, 2005, 2008)

Best Undergraduate Research Project Award, Indiana University (2003)

Bill and Jan Cordua Scholarship, Department of Geological Sciences, Indiana University (2003)

William C. Menke Scholarship, Indiana University (2002)

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

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

Elected Phi Beta Kappa, Indiana University (2001)

## **PATENTS**

Ehleringer, J.R., Chesson, L.A., Dunn, R., Ehleringer, J., Shea, P.A., and **Tipple, B.J.** (2017) *Patent No. US9810673B1*. Salt Lake City, UT: U.S. Patent and Trademark Office.

## **PRESENTATIONS**

### *Invited Lectures*

*Leaf waxes as paleoclimate proxies: The continuing evolution of stable isotope-based methods to reconstruct past terrestrial environments*, Department of Geology and Geophysics, Louisiana State University, Baton Rouge, LA (March, 2018).

*Stable isotopes of marijuana– A fingerprint of cultivation condition and origin*, Salt Lake Valley Law Enforcement Administrators and Directors (LEADS) Meeting, Salt Lake City, UT (March, 2018).

*Stable isotopes of cannabis – A powerful new analytical tool*, Cannabis Science Conference, Portland, OR (August, 2017).

*Stable hydrogen and oxygen isotopes of water: A reservoir of environmental information*, School of Natural Sciences, University of California, Merced, Merced, CA (April, 2017).

*Crawling onto the land: The evolution of stable isotope-based proxies to reconstruct past terrestrial environments*, ConocoPhillips School of Geology and Geophysics, University of Oklahoma, Norman, OK (March, 2017).

*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)

*New molecular isotopic tools to understand the modern and past food webs of the San Francisco Bay and Delta#*, Bay/Delta Science Conference, Sacramento, CA (September, 2018).

*Combining molecular tools to track San Francisco Bay estuary biogeochemistry in relation to human development of the region#*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2018).

*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<sup>#</sup>*, Geological Society of America Annual Meeting, Denver, CO (October, 2013).

*Isolation of strontium pools and isotope ratios in modern human hair<sup>#</sup>*, 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<sup>#</sup>*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2012).

*Transpiration and atmospheric water impact the leaf wax n-alkane <sup>2</sup>H/<sup>1</sup>H values of hydroponically grown angiosperm trees<sup>#</sup>*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2012).

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

*Beeswax Hydrogen Isotopes as Validation of Environment: B-HIVE<sup>\*</sup>*, 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<sup>\*</sup>*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2009).

*Beeswax normal-alkane distributions and hydrogen isotope ratios as geo-location tools<sup>#</sup>*, 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<sup>#</sup>*, 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<sub>4</sub> grasslands and hydrologic cycle dynamics<sup>#</sup>*, 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<sup>#</sup>*. 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<sup>\*</sup>*, 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<sup>\*</sup>*, 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<sup>#</sup>*. American Geophysical Union Annual Meeting, San Francisco, CA (December, 2006).

*A Late Miocene n-alkane  $\delta D$  and  $\delta^{13}C$  record from the Gulf of Mexico<sup>#</sup>*, Geological Society of America Annual Meeting, Philadelphia, PA (October, 2006).

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

*A biomarker record of the Paleogene evolution and expansion of C<sub>4</sub> plants<sup>\*</sup>*, Geological Society of America Annual Meeting, Salt Lake City, UT (October, 2005).

*Long-term regional contributions of Cenozoic C<sub>4</sub> plants to marine sediments\**, Geological Society of America Annual Meeting, Denver, CO (October, 2004).

*C<sub>4</sub> plant distribution during the Cenozoic: Approach and preliminary Evidence<sup>#</sup>*, 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<sup>#</sup>*, Carnegie Institute, Washington D.C. (May, 2003).

#### Abstracts

#### 2020

Zhang, X., **Tipple, B.J.**, Zhu, J., and Zachos, J. *Regional hydrological variations along the California Coast during the PETM*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2020).

Kowalski, J., Lippert, P.C., **Tipple, B.J.**, and Wagner, C.L. *High-resolution environmental magnetism record of dynamics in bottom water redox conditions across the Paleocene-Eocene Thermal Maximum: Zumaia, Spain*, Annual Meeting, San Francisco, CA (December, 2020).

#### 2019

Watt, J., McGann, M., Takesue, R., Lorenson, T., **Tipple, B.J.**, and Papesh, A. *Evidence for vertical seismic and aseismic slip along the Hayward-Rodgers Creek Fault in Northern San Pablo Bay, California*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2019).

Saul, T.B., Gordon, G.W., Chesson, L.A., **Tipple, B.J.**, Steadman, D.W., Wescott, D. *Postmortem preservation of isotope ratios of human hair*, Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, San Michele all'Adige, Trentino, Italy (September 2019).

#### 2018

**Tipple, B.J.**, Prouty, N.G., Stewart, A.R., and McCarthy, M.D. *New molecular isotopic tools to understand the modern and past food webs of the San Francisco Bay and Delta*, Bay/Delta Science Conference, Sacramento, CA (September, 2018).

**Tipple, B.J.**, Prouty, N.G., and McCarthy, M.D. *Combining molecular tools to track San Francisco Bay estuary biogeochemistry in relation to human development of the region*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2018).

Saul, T.B., Gordon, G.W., **Tipple, B.J.**, Chesson, L.A., Steadman, D.W., Wescott, D. *Postmortem isotope ratio fidelity of human hair throughout outdoor decomposition*, Advances in Stable Isotope Techniques and Applications (ASITA) Workshop, Washington, DC (June, 2018).

Saul, T.B., Gordon, G.W., **Tipple, B.J.**, Chesson, L.A., Steadman, D.W., Wescott, D. *Taphonomic effects on isotope ratios of human hair*, American Academy of Forensic Sciences, Seattle, WA (February, 2018).

#### 2017

Jameel, Y., Brewer, S., Fiorella, R., **Tipple, B.J.**, Terry, S., Bowen, G.J. *Estimates of water source contributions in a dynamic urban water supply system with a Bayesian stable isotope mixing model*, American Geophysical Union, Annual Meeting, New Orleans, LA (December, 2017).

Bartelink, E.J., Chesson, L.A., **Tipple, B.J.**, Hall, S., and Kramer, R. *Use of stable isotopes to predict region of origin of undocumented border crossers from the US/Mexico Border*, Latin American Association of Anthropology (ALAF), São Paulo, SP, Brazil (October, 2017).

**Tipple, B.J.** and Ehleringer, J.E. *Stable isotopes of cannabis – A powerful new analytical tool*, Cannabis Science Conference, Portland, OR (August, 2017).

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  $\delta D$  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).

Chau, T.H., **Tipple, B.J.**, Hu, L., Fernandez, D., Cerling, T.E., Chesson, L.A., *Reconstruction of travel history using coupled  $\delta^{18}O$  and  $^{87}Sr/^{86}Sr$  measurements of hair*, ANZFSS International Symposium on the Forensic Sciences, Auckland, New Zealand (September, 2016).

Jameel, Y, Brewer, S., Good, S.P., **Tipple, B.J.**, Ehleringer, J.R., and Bowen, G.J., *Local scale spatiotemporal variation in the tap water isotope ratios: Implications for forensic studies and geolocation*, ANZFSS International Symposium on the Forensic Sciences, Auckland, New Zealand (September, 2016).

Ehleringer, J.R., **Tipple, B.J.**, Chesson, L.A., *Stable isotopes in Environmental and Food Forensics*, International Symposium on Stable Isotopes in Marine & Environmental Sciences, Hanyang University ERICA Campus, Ansan, Korea (May, 2016).

Ehleringer, J.R., Covarrubias Avalos, S., Mancuso, C.J., **Tipple, B.J.**, Martinelli, L.A., Valenzuela, L.O., Chakraborty, S., *Diet, location, travel, and socioeconomic status: what stable isotopes reveal about you*, IsoEcol 2016, Toyko, Japan (April, 2016).

Bartelink, E.J., MacInnes, H., Prince-Buitenhuys, J., MacKinnon, A., Chesson, L.A., **Tipple, B.J.**, Lantham, K., Berg, G., *Application of Stable Isotope Forensics for Predicting Region-of-Origin of Unidentified Border Crossers Found Deceased in the United States*, American Academy of Forensic Sciences, Las Vegas, NV (February, 2016).

**Tipple, B.J.**, Chau, T.H., Chesson, L.A., and Ehleringer, J.R., *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).

2015

Johnson, J.E. **Tipple, B.J.**, Betancourt, J.L., Ehleringer, J.E., Leavitt, S.W., and Monson, R.K., *Do interspecific differences in the stable hydrogen isotopic composition of n-alkanes reflect variation in plant water sources or in biosynthetic fractionation*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2015).

Jameel, Y, Brewer, S., Good, S.P., **Tipple, B.J.**, Ehleringer, J.R., and Bowen, G.J., Spatio-temporal variation in the tap water isotope ratios of Salt Lake City: a novel indicator of urban water system structure and dynamics, Salt Lake County Watershed Symposium, West Valley City, UT (November, 2015).

Valenzuela, L.O., Covarrubias Avalos, S., **Tipple, B.J.**, and Ehleringer, J.R., “Somos lo que comemos”: Isótopos estables de pelo y respiración como bio-marcadores cuantitativos de dieta y nutrición, Jornada Nacionales de Anthropologia Biologica, Corrientes, Argentina (September, 2015).

**Tipple, B.J.**, Valenzuela, L.O., Chesson, L.A., and Ehleringer, J.R., *Strontium isotope ratios of hair for human provenancing*, American Chemical Society, Annual Meeting, Boston, MA (August, 2015).

**Tipple, B.J.**, Chau, T.H., Chesson, L.A., Ehleringer, J.R., Mancuso, C.J., and Valenzuela, L.O., *Strontium isotope ratios of hair for human provenancing*, American Academy of Forensic Sciences, Orlando, FL (February, 2015).

Chesson, L.A., **Tipple, B.J.**, Ehleringer, J.R., and Bartelink, E.J., *Forensic Applications of Isotope Landscapes (“Isoscapes”): A Tool for Predicting Region-of-Origin in Forensic Anthropology Cases*, American Academy of Forensic Sciences, Orlando, FL (February, 2015).

Bartelink, E.J., Chesson, L.A., **Tipple, B.J.**, Berg, G.E., *Recent Applications of Stable Isotope Forensics for Tracking Region-of-Origin and Residence Patterns of Unidentified Individuals*, American Academy of Forensic Sciences, Orlando, FL (February, 2015).

## 2014

**Tipple, B.J.**, Berke, M.A., Hambach, B., Roden, J.S., and Ehleringer, J.R., *Predicting the hydrogen isotope ratios of leaf waxes across landscapes*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2014).

Mancuso, C.J., **Tipple, B.J.**, and Ehleringer, J.R., *Observation of isotope ratios ( $\delta^2H$ ,  $\delta^{18}O$ ,  $^{87}Sr/^{86}Sr$ ) of tap water in urban environments*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2014).

**Tipple, B.J.**, Hambach, B., Barnette, J.E., Chesson, L.A., and Ehleringer, J.R., *Compound-specific isotope analysis of Cannabis sativa establishes origin and growth environment*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2014).

Berke, M.A., **Tipple, B.J.**, Hambach, B., Sandquist, D., and Ehleringer, J.R., *Multidecadal isotope analysis of Encelia farinosa from Death Valley, California*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2014).

**Tipple, B.J.**, Berke, M.A., Hambach, B., Roden, J.S., and Ehleringer, J.R., *Establishing the environmental controls and mechanisms shaping the  $^2H/^1H$  ratios of leaf wax n-alkanes*, Goldschmidt Conference, Sacramento, CA (June, 2014).



Berke, M.A., **Tipple, B.J.**, Hambach, B., Sandquist, D., and Ehleringer, J.R., *Multidecadal isotope analysis of Encelia farinosa from Death Valley, California*, Goldschmidt Conference, Sacramento, CA (June, 2014).

**Tipple, B.J.**, Valenzuela, L.O., Chesson, L.A., and Ehleringer, J.R., *Combining strontium and oxygen isotope ratios of hair for human provenancing*. American Academy of Forensic Sciences, Seattle, WA (February, 2014).

## 2013

Berke, M.A., **Tipple, B.J.**, Hambach, B., and Ehleringer, J.R., *Controls on compound specific  $^2\text{H}/^1\text{H}$  of leaf waxes along a North American monsoonal transect*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2013).

**Tipple, B.J.**, Berke, M.A., Hambach, B., Roden, J.S., and Ehleringer, J.R., *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).

**Tipple, B.J.**, Chesson, L.A., Valenzuela, L.O., Bowen, G.J., and Ehleringer, J.R., *Combining strontium and oxygen isotope ratios of hair for human provenancing*, Geological Society of America, Annual Meeting, Denver, CO (October, 2013).

Bowen, G.J., Baker, M., **Tipple, B.J.**, and Ehleringer, J.R., *Stable isotope ratios document community-scale structure and connectivity in public water supply systems*, Geological Society of America, Annual Meeting, Denver, CO (October, 2013).

**Tipple, B.J.**, Chau, T.H., Chesson, L.A., Fernandez, D.P., and Ehleringer, J.E., *Isolation of strontium pools and isotope ratios in modern human hair*, Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, Montreal, Canada (September 2013).

Ehleringer, J.E., Valenzuela, L.O., Chesson, L.A., **Tipple, B.J.** and Cerling, T.E., *A review of recent forensic applications of multiple stable isotopes in human hair to reconstruct travels*, Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, Montreal, Canada (September 2013).

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*, Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, Montreal, Canada (September 2013).

Berke, M.A., **Tipple, B.J.**, Hambach, B., and Ehleringer, J.R., *Compound specific  $^2\text{H}/^1\text{H}$  of modern leaf waxes along a North American Monsoonal transect*, International Meeting on Organic Geochemistry, Costa Adeje, Tenerife, Canary Islands (September, 2013).

**Tipple, B.J.**, Chesson, L.A., Valenzuela, L.O., and Ehleringer, J.R., *Geochemistry and the spatial patterns of water management are reflected in human hair*, Goldschmidt Conference, Florence, Italy (August, 2013).

## 2012

Berke, M.A., **Tipple, B.J.**, Roden, J.S., and Ehleringer, J.R., *Towards understanding mechanistic linkages between climate and leaf wax biomarker  $^2\text{H}/^1\text{H}$ : an elevational transect in the Wasatch Mountains, Utah*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2012).

**Tipple, B.J.**, Valenzuela, L.O., and Ehleringer, J.R., *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).

Hren, M.T., **Tipple, B.J.**, and Pagani, M., *The impact of pCO<sub>2</sub> and climate on D/H and <sup>13</sup>C/<sup>12</sup>C fractionation of higher-plant biomarkers: Implications for paleoclimate and paleoelevation reconstruction during global warm periods*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2012).

Dirghangi, S.S., Pagani, M., Hren, M.T., and **Tipple, B.J.**, *Distribution of Glycerol Dialkyl Glycerol Tetraethers in Soils from Two Environmental Transects in the U.S.*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2012).

**Tipple, B.J.**, Berke, M.A., Hambach, B., Roden, J.S., and Ehleringer, J.R., *Transpiration and atmospheric water impact the leaf wax n-alkane <sup>2</sup>H/<sup>1</sup>H values of hydroponically grown angiosperm trees*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2012).

Berke, M.A., **Tipple, B.J.**, Hambach, B., Roden, J.S., and Ehleringer, J.R., *Compound-specific D/H along an elevational transect in the Wasatch Mountains, Utah*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2012).

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

#### 2011

**Tipple, B.J.**, Ehleringer, J.E., Doman, C., and Khachatryan, S., *Leaf waxes in riparian trees: hydrogen isotopes and chain-length patterns<sup>#</sup>*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2011).

Khachatryan, S., **Tipple, B.J.**, and Ehleringer, J.R. *Temporal and Spatial Variations in plant water isotopes at the watershed scale*, Biogeosphere-Atmosphere Stable Isotopes Network Annual Meeting, Vail, CO (August, 2011).

#### 2010

Krishnan, S., Pagani, M., and **Tipple, B.J.**, *Using n-alkane records to constrain carbon cycle - hydrological cycle coupling: Case study from the Northern Hemisphere mid-latitudes during the PETM*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2010).

Krishnan, S., Pagani, M., and **Tipple, B.J.**, and Agnini, C., *Compound specific terrestrial leaf wax from the Cicogna section (Italy) during the PETM*, Goldschmidt Conference, Knoxville, TN (June, 2010).

**Tipple, B.J.**, Chesson, L.A., Erkkila, B.R., Cerling, T.E., and Ehleringer, J.R., *Beeswax Hydrogen Isotopes as Validation of Environment: B-HIVE*, Forensic Isotope Ratio Mass Spectrometry (FIRMS) Meeting, Washington, DC (April, 2010).

#### 2009

**Tipple, B.J.**, Dirghangi, S.S., Krishnan, S., Agnini, C., Galeotti, S., Rio, D., & Pagani, M., *A terrestrial PETM record of variations in carbon and hydrologic cycles from a Northern Italy section*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2009).

Dirghangi, S.S., Hren, M.T., **Tipple, B.J.**, and Pagani, M., *Environmental controls on the distribution of branched GDGTs in soils: Implications for paleoenvironmental reconstruction*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2009).

Ehleringer, J., Cerling, T., Chesson, L.A., Howa, J., Lott, M., O'Grady, S., **Tipple, B.J.**, and Valenzuela, L., *Forensics interest in stable isotope ratios*, Isocompound Conference, Potsdam, Germany (June, 2009).

Pagani, M., and **Tipple, B.J.**, *Arctic hydrology during the Paleocene-Eocene thermal maximum: recent updates and revelations*, Isocompound Conference, Potsdam, Germany (June, 2009).

**Tipple, B.J.** and Pagani, M., *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 Conference, Potsdam, Germany (June, 2009).

**Tipple, B.J.**, Chesson, L.A., Ehleringer, J.R., and Cerling, T.E., *Beeswax normal-alkane distributions and hydrogen isotope ratios as geo-location tools*, Isocompound Conference, Potsdam, Germany (June, 2009).

## 2008

**Tipple, B.J.** and Pagani, M., *A 35 Myr Terrestrial Higher Plant n-Alkane Stable Carbon and Hydrogen Isotope Record from the Gulf of Mexico: Implications to North American C<sub>4</sub> Grasslands and Hydrologic Cycle Dynamics*, American Geophysical Union Annual Meeting, San Francisco, CA (December, 2008).

**Tipple, B.J.** and Pagani, M., *A 35 Myr Terrestrial Higher Plant n-Alkane Stable Carbon and Hydrogen Isotope Record from the Gulf of Mexico: Implications to North American C<sub>4</sub> Grasslands and Hydrologic Cycle Dynamics*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2008).

Reiners, P., Thomson, S., **Tipple, B.J.**, Peyton, L., Rahl, J., and Mulch, A., *Secondary weathering phases and apatite (U-Th)/He ages*, Goldschmidt Conference, Vancouver, BC (June, 2008).

## 2007

**Tipple, B.J.**, Pagani, M., Smith, R., and Anders, A., *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, 2007).

Zinniker, D., **Tipple, B.J.**, and Pagani, M., *Climatic and physiological controls on the stable isotope composition of modern and ancient Cupressaceae*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2007).

**Tipple, B.J.**, Reiners, P., Thomson, S.N., Wing, S.L., and Stewart, R.J., *(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).

Pedentchouk, N., **Tipple, B.J.**, Pagani, M., Eniola, O., and Wagner, T., *Hydrogen and Carbon Isotope Compositions of n-Alkanes from Leaf Waxes in Modern Angiosperms and Gymnosperms: How Do They Compare?*, International Meeting of Organic Geochemistry, Torquay, England (September, 2007).

**Tipple, B.J.** and Pagani, M., *Eliciting climatic controls on leaf wax carbon and hydrogen isotopic ratios: a field study from the Eastern United States*, American Chemical Society, Annual Meeting, Boston, MA (August, 2007).

2006

**Tipple, B.J.** and Pagani, M., *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).

**Tipple, B.J.** and Pagani, M., 2006. A Late Miocene n-alkane  $\delta D$  and  $\delta^{13}C$  record from the Gulf of Mexico. Geological Society of America, Annual Meeting, Philadelphia, PA (October, 2006).

Pedentchouk, N., Sumner, W., **Tipple, B.J.**, and Pagani, M.  $\delta^{13}C$  and  $\delta D$  composition of n-alkanes from modern angiosperms and conifers: An experimental set-up in a natural setting, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2006).

**Tipple, B.J.** and Pagani, M., A Late Miocene n-Alkane  $\delta D$  and  $\delta^{13}C$  record from the Gulf of Mexico, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2006).

2005

**Tipple, B.J.** and Pagani, M., *A biomarker record of the Paleogene evolution and expansion of C<sub>4</sub> plants*, Geological Society of America, Annual Meeting, Salt Lake City, UT (October, 2005).

Pagani, M. and **Tipple, B.J.**, The influence of C<sub>4</sub> photosynthesis during the Miocene. Goldschmidt Conference, Moscow, ID (May, 2005).

2004

Grocke, D.R., **Tipple, B.J.**, and Pagani, M., *A Cenozoic terrestrial isotope record and evolution of C<sub>4</sub> photosynthesis*, American Geophysical Union, Annual Meeting, San Francisco, CA (December, 2004).

**Tipple, B.J.** and Pagani, M., *Long-term regional contributions of cenozoic C<sub>4</sub> plants to marine sediments*, Geological Society of America, Annual Meeting, Denver, CO (November, 2004).

**Tipple, B.J.**, Pagani, M., and Veach, A., 2004. *C<sub>4</sub> plant eistribution during the Cenozoic: approach and preliminary evidence*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2004).

Yong, H., Liang, S., **Tipple, B.J.**, Pagani, M., and Briggs, D., *Carbon isotopic compositions of in-situ n-alkanes from an Arctic Eocene deciduous flora: Were they influenced by the unique polar light regime*, Organic Geochemistry – Gordon Research Conference, Holderness, NH (August, 2004).

2003

Boice, A.E., **Tipple, B.J.**, and Pratt, L.M, *Isotopic evidence for microbial sulfate reduction and methanotrophy during the Late Archean, Witwatersrand Basin, South Africa*, Geological Society of America, Annual Meeting, Seattle, WA (November, 2003).

Moser, D., Gihring, T., Fredrickson, J., Brockman, F., Onstott, T.C., Hall, J., Lin, L., Davidson, M., Balkwell, D., Drake, G., Trimarco, E., Pfiffner, S., Peacock, A., Welty, A., Southam, G., Lengke, M., Wanger, G., **Tipple, B.J.**, Sherwood-Lollar, B., and Ward, J., *Microbiological, geochemical,*

*and hydrological linkage over 2.5 km of a vertically circulating continental fissure system, American Society for Microbiology (2003).*