

BRETT JAMES TIPPLE

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

BIOGRAPHICAL SKETCH

PERSONAL STATEMENT

My primary academic strengths are in the fields of isotope geochemistry and paleoclimatology, as well as, modern and ancient plant ecology. I utilize stable isotope ratios and abundances of organic molecules and other organic phases to constrain the physical and environmental conditions of modern and ancient oceans, terrestrial ecosystems, and atmospheres. Specifically, I employ carbon and hydrogen compound-specific isotope analyses (CSIA) of lipids extracted from sediments to develop environmental reconstructions on a variety of spatial and temporal scales. In addition to paleoclimate and paleoecology studies, I also focus on assessing the environmental factors impacting isotopic compositions of modern terrestrial plant material through both controlled greenhouse and natural experimental designs. This work addresses the disconnect between the growth of CSIA in paleo-research and the absence of controlled data sets from modern terrestrial higher-plant systems.

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EDUCATION YALE UNIVERSITY NEW HAVEN, CT
Ph.D., Geology and Geophysics, 2009

YALE UNIVERSITY NEW HAVEN, CT
M.Phil., Geology and Geophysics, 2005

INDIANA UNIVERSITY BLOOMINGTON, IN
B.S. with Distinction, Geological Sciences, 2003
Cumulative GPA: 3.72

POSITIONS UNIVERSITY OF UTAH, DEPARTMENT OF BIOLOGY SALT LAKE CITY, UT
Research Assistant Professor, 2010-Present

- Authored 37 scholarly articles in respected scientific journals and books.
- Raised and managed over \$1.9M in external research funding.
- Communicated research findings and chaired scientific sessions at conferences.
- Provided leadership and guidance on advisory committees for 7 undergraduate students, 5 master and doctoral students, and 2 postdoctoral researchers.

ISOANALYTICS, LLC. SALT LAKE CITY, UT
Co-Founder, Research and Development, 2016-Present

- Developed novel applications of stable isotopes related to the emerging issues in marijuana cultivation in Utah and nationwide.

UNIVERSITY OF UTAH, DEPARTMENT OF BIOLOGY SALT LAKE CITY, UT
Postdoctoral Researcher, 2009-2010

- Developed multiple novel analytical methods to resolve technical issues.

ANALYTICAL SKILLS

Laboratory wet chemistry, gas chromatography mass spectrometry (GC-MS), isotope ratio mass spectrometry (IRMS), cavity ring-down spectrometry (CRDS), compound specific isotope analysis (CSIA), inductively coupled plasma mass spectrometry (ICP-MS), multicollector inductively coupled plasma mass spectrometry (MC-ICP-MS).

SELECTED AWARDS

- Best Poster Presentation – FIRMS/Isotope Analysis, ANZFSS International Symposium on the Forensic Sciences, Auckland, New Zealand (2016)
- Estwing Hammer Prize for Outstanding Geology Graduate Student, Estwing Manufacturing/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)
- Field Ecology Grant, Yale Institute of Biospheric Studies (2004)
- Best Undergraduate Research Project Award, Indiana University (2003)
- Phi Beta Kappa, Indiana University (2001)

SELECTED PUBLICATIONS (3 of 37)

Tipple, B.J., Jameel, Y., Chau, T.H., Chesson, L.A., Mancuso, C.J., Bowen, G.J. 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.

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.

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.

SELECTED RESEARCH GRANTS (3 of 9)

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."

National Institute of Justice: 2011-DN-BX-K544: \$342,000 (9/1/2011-8/31/2013), 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 (4/15/2011-3/31/2014), 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."