

Kevin Toshio Uno

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Education

- PhD 2012, University of Utah; Geology: *Advances in terrestrial paleoecology from intratooth stable isotope profiles in tooth enamel and tusk dentin*
- MS 2008, University of Utah; Geology: *A geochemical study of the origin of debris bands at Storglaciären, Sweden*
- BA 2001, Carleton College; Geology: *Upper Cretaceous paleomagnetism from Umbria, Italy: "Anchored" poles set proposed True Polar Wander event adrift*

Appointments & Experience

- 2020-present, Associate Research Professor, Lamont-Doherty Earth Observatory
- 2016-2020, Assistant Research Professor, LDEO
- 2012-2016, Postdoctoral Research Scientist, LDEO
- 2011-2012, 2008-2009: Graduate Research Assistant, Univ. of Utah
- 2010-2011, Graduate Research Fellow, Univ. of Utah
- Fall 2009, Visiting Instructor, Carleton College
- Spring 2008, Adjunct Instructor, Univ. of Utah
- 2005-2007, NSF GK12 Fellow, Univ. of Utah
- 2004-2005, Staff Geologist, URS Corporation, Oakland, CA.

Research Interests

- Environmental analyses and reconstructions using light stable isotopes from molecular biomarkers in sediments (C,H), tooth enamel (C,O), and paleosol carbonate (C,O).
- Biomarker-based reconstructions of grass abundance using PTMEs and of fire using PAHs in ancient ecosystems
- Radiocarbon dating of modern (post-bomb) tissues in ecology and wildlife forensics

Publications (* = undergraduate advisee; ** = graduate advisee)

28. de la Torre, I, Benito-Calvo, A., Bibi, F., Njau, J., Pei, S., Rivals, F., Tong, H., **Uno, K.T.**, Varela, S., and Wu X, (*in review*), Perspectives on the biogeographic and cultural adaptations of early humans during the first intercontinental dispersals.
27. **Uno, K.T.**, Fisher, D.C., Schuster, G.T., Wittemyer, G., Douglas-Hamilton, I., Omondi, P., Litoroh, M., Cerling, T.E., (2020). High-resolution stable isotope profiles from elephant (*Loxodonta africana*) tusk dentin and tail hair document seasonal variability in climate, ecology, and diet. *Palaeogeography, Palaeoclimatology, Palaeoecology*.
26. Potts, R., Moerman, J.W., Behrensmeyer, A.K., Deino, A.L., Beverly, E.J., Brown, E.T., Deocampo, D.M., Kinyanjui, R., Lupien, R.L., Owen, R.B., Rabideaux, N., Russell, J.M., Stockhecke, M., Riedl, S., deMenocal, P., Faith, J.T., Garcin, Y., Noren, A., Scott, J.J., Western, D., Bright, J., Clark, J.B., Cohen, A.S., Heil, C.W., Keller, C.B., King, J., Levin, N.E., Brady, K., Muiruri, V., Renaut, R., Rucina, S.M., **Uno, K.T.**, Dommain, R., (2020). Increased ecological resource variability during a critical transition in hominin evolution. *Science Advances*.
25. Polissar, P.J., Rose, C., **Uno, K.T.**, Phelps, S.R., deMenocal, P., (2020). Reply to 'Comment on Polissar et al. 'Synchronous rise of African C4 ecosystems 10 million years ago in the absence of aridification', *Nature Geoscience*.
24. **Yang, D., **Uno, K.T.**, Souron, A., McGrath, K., Pubert, E., Cerling, T.E., (2020). Intra-tooth stable isotope variations in warthog canines and third molars: implications for paleoenvironmental reconstruction. *Chemical Geology*.
23. **Uno, K.T.**, Fisher, D., Wittemyer, G., Douglas-Hamilton, I., Carpenter, N., Omondi, P., and Cerling, T.E., (2020). Forward and inverse methods for extracting climate and diet information from stable isotope profiles in proboscidean molars. *Quaternary International*.
22. **Uno, K.T.**, Bibi, F., (2020). Stable isotope paleoecology of the late Miocene Baynunah Formation, Abu Dhabi, United Arab Emirates, *in*: Bibi, F., Kraatz, B., Beech, M. (Eds.), *Sands of Time*. Springer-Verlag.
21. Polissar, P.J., Rose, C., **Uno, K.T.**, Phelps, S.R., deMenocal, P., 2019, Synchronous rise of African C4 ecosystems 10 million years ago in the absence of aridification, *Nature Geoscience*, 12, 657-660.
20. Lukens, W.E., Fox, D.L., Snell, K.E., Wiest, L.A., Layzell, A.L., **Uno, K.T.**, Polissar, P.J., Martin, R.A., Fox-Dobbs, K., Pelaez-Campomanes, P., 2019, Pliocene paleoenvironments in the Meade Basin, southwest Kansas, *Journal of Sedimentary Research*, v. 89, no. 5, p. 416-439.

Publications (cont.)

19. **Uno, K.T.**, Rivals, F., Bibi, F., Pante, M.C., Njau, J. and de la Torre, I. 2018, Large mammal diets and paleoecology across the Oldowan-Acheulean transition at Olduvai Gorge, Tanzania from stable isotope and tooth wear analyses, *Journal of Human Evolution*, v. 120, p. 76-91.
18. Rivals, F., **Uno, K.T.**, Bibi, F., Pante, M.C., Njau, J. and de la Torre, I., 2018, Dietary traits of the ungulates from the HWK EE site at Olduvai Gorge (Tanzania): Diachronic changes and seasonality, *Journal of Human Evolution*, v. 120, p. 203-214.
17. Cerling, T.E., Barnette, J.E., Chesson, L.A., Douglas-Hamilton, I, Gobush, K.S, **Uno, K.T.**, Wasser, S.K., Xu, X., 2016, Radiocarbon dating of seized ivory confirms rapid decline in African elephant populations and provides insight into illegal trade, *Proceedings of the National Academy of Sciences*, v. 113 no. 47, p.13300-13305.
16. **Uno, K.T.**, Polissar, P.J., *Kahle, E., Feibel, C.S., Harmand, S., Roche, H., and deMenocal, P.B., 2016a, A Pleistocene paleovegetation record from plant-wax biomarkers from the Nachukui Formation, West Turkana, Kenya, *Philosophical Transactions of the Royal Society B*, v. 371, no. 1698, p. 1-10.
15. **Uno, K.T.**, Polissar, P.J., *Jackson, K., and deMenocal, P.B., 2016b, A Neogene biomarker record of vegetation change in eastern Africa, *Proceedings of the National Academy of Sciences*, v. 113, no. 23, p. 6355-6363.
14. Cerling, T. E., Andanje, S. A., Blumenthal, S. A., Brown, F. H., Chritz, K. L., Harris, J. M., Hart, J. A., Kirera, F. M., Kaleme, P., Leakey, L. N., Leakey, M. G., Levin, N. E., Manthi, F. K., Passey, B. H., and **Uno, K. T.**, 2015, Dietary changes of large herbivores in the Turkana Basin, Kenya from 4 to 1 Ma: *Proceedings of the National Academy of Sciences*, v. 112, no. 37, p. 11467–11472.
13. Kusaka, S., Takanori N., **Uno, K.T.**, Nakatsukasa, M., & Cerling, T.E., 2015, Carbon isotope ratios of human tooth enamel record evidence of terrestrial resource consumption during the Jomon period, Japan: *Journal of Archeological Science*, v. 158, no. 2, p.300-311.
12. Saarinen, J., Karme, A., Cerling, T.E, **Uno, K.T.**, Säilä, L., Kasiki, S., Ngene, S., Obari, T., Mbua, E., Manthi, K., and Fortelius, M., 2015, A new tooth wear-based dietary analysis method for Proboscidea (Mammalia): *Journal of Vertebrate Paleontology*, v. 35, no. 3, p. e918546.
11. Fox, D., Martin, R., Roepke, E., Fetrow, A., Fischer-Femal, B., **Uno, K.T.**, Fox-Dobbs, K., Snell, K.E., Haveles, A.,and Polissar, P. (2015). Biotic and Abiotic Forcing During the Transition to Modern Grassland Ecosystems: Evolutionary and Ecological Responses of

Publications (cont.)

- Small Mammal Communities Over the Last 5 Million Years. *The Paleontological Society Papers*, 21, 197-218.
10. Patnaik, R., Cerling, T.E, **Uno, K.T.**, Fleagle, J.G., 2014, Diet and habitat of Siwalik primates *Indopithecus*, *Sivaladapis* and *Theropithecus*: *Annales Zoologici Fennici*, v. 51, no. 1-2, p.123-142.
 9. **Uno, K. T.**, Quade, J., Fisher, D., Wittemyer, G., Douglas-Hamilton, I., Andanje, S. A., Omondi, P., Litoroh, M., and Cerling, T. E., 2013, Bomb-curve radiocarbon measurement of recent biologic tissues and applications to wildlife forensics and stable isotope (paleo)ecology: *Proceedings of the National Academy of Sciences*, v. 110, no. 29, p. 11736-11741.
 8. Kimura, Y., Jacobs, L.L., Cerling, T.E., **Uno, K.T.**, Ferguson, K.M., Flynn, L.J., Patnaik, R., 2013, Fossil Mice and Rats Show Isotopic Evidence of Niche Partitioning and Change in Dental Ecomorphology Related to Dietary Shift in Late Miocene of Pakistan, *PLoS ONE* 8(8): e69308.
 7. Cerling, T. E., Manthi, F. K., Mbuu, E., Leakey, M. G., Leakey, L. N., Leakey, R. E., Brown, F. H., Grine, F. E., Hart, J. A., Kaleme, P., Roche, H., **Uno, K. T.**, and Wood, B. A., 2013, Stable isotope-based diet reconstructions of Turkana Basin hominins: *Proceedings of the National Academy of Sciences*, v. 110, no. 26, p. 10501-10507.
 6. Bibi, F., Souron, A., Bocherens, H., **Uno, K.**, and Boisserie, J.-R., 2013, Ecological change in the lower Omo Valley around 2.8 Ma: *Biology Letters*, v. 9, no. 1 p.1-4.
 5. Macharia, A., **Uno, K.**, Cerling, T., and Brown, F., 2012, Isotopically distinct modern carbonates in abandoned livestock corrals in northern Kenya: *Journal of Archaeological Science*, v. 39, no. 7, p. 2198-2205.
 4. Moore, P. L., Iverson, N. R., **Uno, K. T.**, Dettinger, M. P., Brugger, K. A., and Jansson, P., 2012, Entrainment and emplacement of englacial debris bands near the margin of Storglaciären, Sweden: *Boreas*, p. 71-83.
 3. Cerling, T. E., Mbuu, E., Kirera, F. M., Manthi, F. K., Grine, F. E., Leakey, M. G., Sponheimer, M., **Uno, K. T.**, and Lee-Thorp, J., 2011, Reply to Godfrey et al.: Outside the box: *Proceedings of the National Academy of Sciences*.
 2. Cerling, T. E., Mbuu, E., Kirera, F. M., Manthi, F. K., Grine, F. E., Leakey, M. G., Sponheimer, M., and **Uno, K. T.**, 2011, Diet of *Paranthropus boisei* in the early Pleistocene of East Africa: *Proceedings of the National Academy of Sciences*, v. 108, no. 23, p. 9337-9341.
 1. **Uno, K. T.**, Cerling, T. E., Harris, J. M., Kunimatsu, Y., Leakey, M. G., Nakatsukasa, M., and Nakaya, H., 2011, Late Miocene to Pliocene carbon isotope record of differential diet change among East African herbivores: *Proceedings of the National Academy of Sciences*, v. 108, no. 16, p. 6509-6514.

Publications submitted or in progress

Uno, K.T., Polissar, P.J., Bonnefille, R., and deMenocal, P.B., *in prep*, Late Pliocene step-wise grassland expansion and mammalian evolutionary events in the Lower Omo Valley, Ethiopia.

Polissar, PJ, **Uno, K.T.**, Phelps, S.R., *Pensky, J., *in prep*, Hydrologic changes drove the Late Miocene expansion of C₄ grasslands in Northern India.

Karp, AT, **Uno, K.T.**, Polissar, PJ, Freeman, KA, *in prep*, Late Miocene C₄ grassland fire feedbacks on the Indian Subcontinent.

Reichgelt, T., Venanzio, P., **Uno, K.T.**, Kimeu, J.M., Mbale, M., and Kinyanjui, R.N., *in prep*, The role of climate in tropical leaf morphology – New data from Kenya, *Biotropica*

Selected Abstracts (* = undergraduate advisee; ** = graduate advisee)

*Brown, M., **Uno, K.T.**, Merceron, G., Boisserie, J-R., 2020, Carbon Isotope Analysis of Cercopithecidae from the Shungura Formation, 3.3 Ma-1.2 Ma: Diet during the transition between dominant species of *Theropithecus* in the Turkana Basin, Society of Vertebrate Paleontology Annual Meeting.

Uno, K.T., Merceron, G., Brown, M., Guy, F., Hlusko, L., Martin, J., Balter, V., Souron, A., Boisserie, J-R., 2020, Combining fossil enamel stable isotopes and dental microwear texture analysis to assess dietary niche-partitioning among primates (Cercopithecidae and Hominini) from the Lower Omo Valley, Ethiopia, Society of Vertebrate Paleontology Annual Meeting.

deMenocal P.B., Polissar P.J., Tierney, J., **Uno, K.T.**, Phelps, S.R., Rose, C.A., 2018, Paleoenvironmental contexts of hominin evolution: reconciling African wet-dry cycles and secular vegetation trends over the Neogene, GSA Abstracts with Programs, doi:10.1130/abs/2018AM-320353.

*Shi, S., Cerling, T.E., **Uno, K.T.**, 2018, What plant is that? Chemotaxonomy from *n*-alkane molecular distributions of East African plants with implications for paleoecology, Abstract PP31D-1701 presented at 2018 Fall Meeting, American Geophysical Union (AGU) Fall Meeting, Washington DC, 10-14 Dec.

**Yang, D. Uno, K.T., 2018, Intratooth isotope profiles of fossil suids: environmental variability in the Pleistocene deposits of the Koobi Fora Formation, Annual Meeting of the Paleoanthropology Society, Austin, TX, 10-11 April.

*Buzeta, R.K., **Uno, K.T.**, Polissar P.J., Phelps, S.R., 2017, Step-wise cooling in the high north Atlantic over the past 17 million years, GSA Abstracts with Programs. Vol. 49, No. 6, doi:10.1130/abs/2017AM-305754.

Selected Abstracts (cont.)

Uno, K.T., Polissar P.J., Snell, K.E., Lukens, W.E., Fox-Dobbs, K., Haveles, A.W., Martin, R.A. and Fox, D.L., 2015, Plant wax biomarkers in late Neogene paleosols as archives of Great Plains vegetation, *GSA Abstracts with Programs*, v. 47, n. 7, p.716.

*Jackson, K., **Uno, K.T.**, Polissar P.J., deMenocal P.B., 2015, Changing vegetation in Northeast Arica: Plant wax carbon isotope ratios indicate late Miocene appearance of C₄ grasses, Volume 47, *GSA Abstracts with Programs*.

*Fischer-Femal, B., Polissar, P., **Uno, K.T.**, Fox-Dobbs, K., Fetrow, A., Roepke, L., Snell, K., Fox, D.L., Feinberg, J., Martin, R., 2014, Reconstructing Vegetation Changes from Biomarkers in Modern Soils and Late Neogene Paleosols in a Grassland, Meade Basin, KS, USA, AGU Fall Meeting, San Francisco, CA.

Uno, K. T., Polissar P.J., Bonnefille R., Brown F.H., Feibel C.S., *Kahle E.C., Lepre C.J., Levin N.E., deMenocal P.B., 2013, Plant wax biomarkers in fluvial-lacustrine sediments from the Omo-Turkana and Awash basins in eastern Africa, AGU Fall Meeting, San Francisco, CA.

Uno, K. T., Fisher, D.C., and Cerling, T. E., 2013, Towards quantitative reconstructions of diet and environment using stable isotope profiles in tissues: examples from elephants, Volume 45, *GSA Abstracts with Programs*.

Uno, K. T., 2012, Enamel maturation and intratooth stable isotope profiles in elephant (*Loxodonta africana*) molars: A new tool for evaluating seasonality in terrestrial paleoenvironments from proboscidean teeth, *J. of Vert. Paleontology*, 32, p. 186-187.

Moore, P.L., Iverson, N.R., **Uno, K.T.**, Brugger, K.A., and Dettinger, M., 2011, Entrainment and uplift of basal sediment to the surface of a polythermal glacier margin, Storglaciären, Sweden, Volume 43, *GSA Abstracts with Programs*, p. 217.

Uno, K.T., Cerling, T.E., Nakaya, H., Nakatsukasa, M., Kunimatsu, Y., 2008, Stable carbon and oxygen isotope ratios of fossil tooth enamel from the Nakali and Namurungule Formations, Kenya: Capturing the C₃-C₄ transition in East African equid diet at ~9.6 Ma, *J. of Vert. Paleontology*, 28, 3, p 155A.

Godsey, H.S., Chapman, D.S., Hynek, S.A., Jarrell, E, Johnson, W.P., Naftz, D.L., Neuman, C.R., **Uno, K.T.**, 2006a, Saline Lakes: Platforms for Place-Based Scientific Inquiry by K-12 Students, Abstract H52A-07, AGU Fall Meeting, San Francisco, CA.

Uno, K., et al., 2006, $\delta^{18}\text{O}$ and $\delta^2\text{H}$ Stable Isotopic Enrichment of Ice from a Debris Band on Storglaciären, Abstract C31A-1231, AGU Fall Meeting, San Francisco, CA.

Uno, K.T., and Bice, D.M. 2001, Upper Cretaceous Paleomagnetism from Umbria, Italy: "Anchored" Poles set Proposed True Polar Wander Event Adrift, AGU Spring Meeting, Boston, MA. (**received AGU Outstanding Student Paper Award**)

Grants and Fellowships (Uno total since 2012: \$2.14 million)

- 2020 NSF-FRES: Turkana Miocene Project; LDEO PI Uno: \$808K; \$2.7 million total
- 2020 NSF-ARCH: Homo and pyrotechnology LDEO PI Uno: \$146K; \$399K total
- 2020 NSF-CAREER: Neogene Grasslands and proxy development: \$700K
- 2019 Columbia University Climate and Life Fellowship: \$187K
- 2018 LDEO Climate Center Grant: \$10K
- 2015 NSF Archeology; Co-PI Uno: \$5K; \$40K total to PI: Joe Ferraro
- 2015 LDEO Climate Center Grant: \$10K
- 2014 Vulcan Foundation: Isotope Verification of Region and Year: \$30K; total \$201K
- 2013 Wenner-Gren Foundation for Anthropological Research: \$20K
- 2013 NSF Earth Life Transitions; \$110K to Co-I's Polissar and Uno; total \$640K to PI D. Fox
- 2013 LDEO Climate Center Grant: \$10K
- 2012 LDEO Postdoctoral Fellowship: \$122K
- 2010 University of Utah Graduate Research Fellowship: \$15K
- 2011 GSA Student Travel Grant
- 2005-2007 NSF GK-12 Fellowships : \$60K
- Kresge Science Foundation Research Grant: \$5K in 2000; \$1K in 1999

Teaching

- Spring 2018-present Terrestrial Paleoecology in Kenya (Princeton & Columbia Universities)
- Spring 2018. EESC UN2300, Life Systems (Columbia University)
- Fall 2015. Environmental Change and Human Evolution (Columbia University)
- June 2010- 2012. Lab Instructor for Stable Isotopes in Ecology (U of Utah)
- Fall 2009. Introduction to Geology (Carleton College)
- Spring 2009. Teaching Assistant (TA), Turkana Basin Field Course, Kenya (U of Utah)
- Spring 2008. Earthquakes and Volcanoes (U of Utah):
- Fall 2007. TA, Introduction to Geochemistry (U of Utah)
- Fall 2007. TA, Aqueous Geochemistry (U of Utah)
- 2005-2007. NSF GK-12 Fellow: Rose Park & Escalante Elementary Schools (SLC, UT)
- 2002- 2003. Japanese Exchange and Teaching Program, Okayama, Japan
- Fall 2001. TA, Trimester-long Geology Program in Italy, 2001 (Carleton College)
- Spring 2001. TA, Oceans and Atmospheres (Carleton College)
- Spring 2000. TA, Igneous and Metamorphic Petrology (Carleton College)

Advising

- 2019-present. Rachel Lupien, Postdoctoral Researcher, LDEO.
- 2018. Morgan Brown, Columbia Univ.: undergraduate thesis on stable isotope ecology of fossil primates from the Lower Omo Valley, Ethiopia.
- 2016-present. Deming Yang, PhD committee member (SUNY Stony Brook).
- 2018. Sarah Shi, Columbia Univ.: summer undergraduate intern project on *n*-alkane distribution in modern East African plants.
- 2017. Rachel Buzeta, University of Dayton: summer undergraduate intern project on a Neogene high latitude SST record from alkenones ($U^{K_{37}}$) ODP Site 985.
- 2015. Kevin Jackson, Lafayette College: summer undergraduate intern project on a Neogene African vegetation from carbon isotopes in plant waxes extracted from marine sediments.
- 2014-2015. **1)** Brenden Femal, Univ. of Puget Sound: senior thesis on modern soil and paleosol biomarkers from Meade Basin, Kansas; **2)** Jenny Pensky, Barnard College: senior thesis on Siwalik vegetation and hydroclimate change from biomarkers in the Bengal Fan.
- 2013-2014. Emma Kahle, Columbia Univ.: senior thesis on East African paleoclimate from stable isotope records in leaf waxes.
- 2010-2012. Daniel Davis, Univ. of Utah: senior project on carbon isotope enrichment between elephant diet and enamel using breath CO_2 as a proxy.
- 2008-2010. Blake Hethmon, AMES high school, SLC, UT: science fair projects on elephant ecology from isotopes in tail hair (2008-9) and diet-turn-over times from isotopes in caterpillar frass (2010). He won First Place in the Chemistry Division of the Utah State Science Fair in 2010.

Awards and Honors

- 2012 Outstanding PhD Student Award, U of U Dept. of Geol. and Geophysics
- 2001 American Geophysical Union Outstanding Student Paper Award
- 2001 Magna Cum Laude, Carleton College
- 2001 Distinction for undergraduate thesis
- 2001 Elected Student Member of Sigma Xi

Professional Service

- Associate Editor (2017- 2019), *Journal of Human Evolution*
- Journal Reviewer for *Annales Zoologici Fennici*; *Current Biology*; *Earth and Planetary Science Letters*; *Geochemica et Cosmochemica Acta*; *Geology*; *Journal of the Geological Society of London*; *Journal of Human Evolution*; *Oecologia*; *Organic Geochemistry*; *Nature*; *Palaeogeography, Palaeoclimatology, Palaeoecology*; *Proceedings of the National Academy of Sciences*; *Proceedings of the Royal Society B*; *Quaternary Science Reviews*; *Science*; *Science Advances*
- Proposal Reviewer for The Leakey Foundation, NSF.
- Science Fair judge (2005-2010): Salt Lake City public and private schools.
- Expert testimony: New York State Assembly hearing on proposed ivory moratorium in NY state; January 16, 2014.

Invited Talks

- University of Helsinki, Finland, Seminar Series, 2/12/20
- University of Poitiers, France, *Paleovprim* Seminar Series, 11/11/19
- Columbia University, E3B (Biology) Departmental Seminar, 9/17/19
- NY Consortium in Evolutionary Primatology, Spring Symposium Speaker, 5/11/19
- GSA Annual Mtg, Pardee Symposium on Human Evolution, 11/6/18
- Brown University, DEEPS Seminar, 10/11/18
- New York University, Center for the Study of Human Origins Seminar, 3/1/18
- University of Poitiers, France, International Seminar Series, 1/17/18
- Paleo Society Short Course: Biogeochemical Approaches in Paleobiology and Paleoecology, 10/21/17
- University of California, Merced, Quantitative Biology Seminar, 9/15/17
- UC Boulder, Department of Geological Sciences Seminar, 4/26/17
- American Museum of Natural History (AMNH), EPS Seminar, 3/17/17
- Lamont-Doherty Earth Observatory (LDEO), Summer Intern Seminar, 7/21/16
- LDEO, Special Seminar, 5/17/16
- University of California, Davis, Dept. of Earth and Planetary Sciences, 5/3/16
- Princeton University, Dept. of Geosciences, 3/24/16
- Stony Brook University, Dept. of Geosciences, 2/24/16
- GSA Annual Mtg, (T184. African Environments across Space and Time), 11/2/15
- Royal Society Conference on Major Transitions in Human Evolution, London, 10/22/15
- Lafayette College, Dept. of Geology, 10/2/15
- King Abdullah Univ. of Science & Tech., Saudi Arabia, Earth Science Seminar, 4/22/15

Invited Talks (cont.)

- CUNY Staten Island, Department Seminar, 4/1/15
- Baynunah Paleontology Conference, Abu Dhabi Culture and Tourism Authority, 12/10/14
- LDEO, Biology and Paleoenvironment Seminar, 11/3/14
- Wildlife Conservation Society, New York, NY, 5/14/14
- City College New York, Dept. of Earth and Atmos. Sciences, 5/9/14
- Millersville University, PA, Wildlife Forensics Colloquium, 4/9/14
- Stony Brook University, Dept. of Geosciences, 3/25/14
- GSA Annual Mtg, (T240: Biogeochemical data in paleoecology), 10/30/13
- Pace University, 10/9/13
- AMNH, Comparative Biology Seminar, 9/30/13
- LDEO, Biology and Paleoenvironment Seminar, 5/31/13
- Middlebury College, Dept. of Geology, 3/1/13
- Society of Vert. Paleontology Romer Prize Session, 10/17/12
- LDEO Symposium titled "Did Climate Change Shape Human Evolution?", 4/20/12
- Utah Valley University, Dept. of Earth Science Seminar, 4/10/12
- Anthropological Society of Nippon Annual Meeting; Okinawa, Japan. 11/5/11
- Society of Vert. Paleontology Annual Meeting: Symposium on African Fauna; 10/13/10
- Kyoto University, Dept of Physical Anthropology; 3/24/10
- Luther College, Dept of Chemistry; 11/13/09
- Carleton College, Chemistry Department; 10/12/09
- National Museum of Kenya, Department of Paleontology; 5/18/09

Laboratory Experience

- 2012-present. Organic Geochemistry and Stable Isotope Labs, Lamont Doherty Earth Observatory. Method development for extracting biomarkers from terrestrial sediments and analyzing *n*-alkyl lipids for C and H isotope ratios. PAH and PTME extraction and analyses.
- 2008-2012. Stable Isotope Lab, U of Utah. Lab management duties include running carbonate and organic samples by off-line and on-line methods, and upkeep and maintenance of a cantankerous MAT 252 isotope ratio mass spectrometer and associated peripherals (Finnigan CarboFlo, Costech Elemental Analyzer, GC, and Merchantek (CO₂) laser ablation system).
- 2007-present. Department of Paleontology, National Museum of Ethiopia and National Museums of Kenya. Sampling of fossil teeth for stable isotope sampling. Includes training museum staff on sampling procedures and co-authoring the protocol for isotope sampling for the National Museums of Kenya.

Laboratory Experience (cont.)

- 2006-2008. Dissolved Gas Lab (D.K. Solomon), U of Utah. Traditional off-line vacuum extraction techniques for noble gases; analysis of noble gases (He, Ne, Ar, Kr, & Xe) using quadrupole and magnetic sector (MAP 215) mass spectrometry; Design, construction, and implementation of a portable (field) gas extraction line for glacial ice samples.
- 2000. Institute for Rock Magnetism, U of Minnesota. Thermal and AF stepwise demagnetization; NRM analysis using a superconducting rock magnetometer; characterization of rock magnetism using hysteresis, IRM acquisition, Low Temperature Remanence, and S-Ratio measurements.
- 1998-present. General lab methods (e.g., wet chemistry, cutting and polishing, thin sections, etc).

Field Work

- 2019. Expedition to Niger to study the African Humid Period site at Gobero and to collect modern plants.
- 2018. Led a team of botanists and paleoecologists on a two-week plant and soil sampling campaign through six national parks in Kenya.
- 2017. Sediment sampling for molecular biomarkers at 2.5 to 3.5 Ma archeological sites in the Turkana Basin, Kenya.
- 2015. Sediment sampling in the Great Plains (Meade Basin, Kansas) for molecular biomarkers.
- 2014. 1) Paleosol sampling in the Great Plains (Meade Basin, Kansas) for molecular biomarkers (with P. Polissar, Dave Fox and others). 2) Paleosol and lacustrine sediment sampling in the Lower Omo Valley, southern Ethiopia for molecular biomarkers (with JR Boisserie). 3) Paleontology and geology of the late Miocene Baynunah Formation, Abu Dhabi (with F. Bibi).
- Summer 2009. Geology and paleoanthropology east of Lake Turkana (with F.H. Brown and T.E. Cerling).
- Summer 2007. Geology west of Lake Turkana, Kenya (with F.H. Brown, N. Levin, and T.E. Cerling); Geology and paleontology of the Miocene Nakali Formation in the Suguta Valley, Kenya (with M. Nakatsukasa and Y. Kunimatsu, Kyoto Univ.).
- Summer, 2006. Storglaciären, Sweden: Geochemical investigation of ice and debris-bands at the glacier terminus (with N. Iverson and P. Moore, Iowa State Univ.).
- Winter, 2001. SEA Semester. Six weeks aboard the 138' tall ship SSV Corwith Cramer. Calculated geostrophic flow using CTD data collected in and around the Windward Passage.
- Summer 2000. Undergraduate thesis research on paleomagnetism and rock magnetism of Late Cretaceous limestones in the Umbria-Marche sedimentary sequence (with D. Bice (Penn State) and A. Montanari (Osservatorio Geologico di Coldigioco)).

Field Work (cont.)

- August-October 1999. Carleton College Geology Program in Italy; Study of structural and tectonic evolution of the Apennines as revealed through the Umbria-Marche sedimentary sequence.
- July 1999. Field Assistant for Carleton Student and Faculty Research; Sampled Cambrian limestones in Canadian Rockies for stable carbon isotope stratigraphy (with C. Cowan (Carleton College) and M. Saltzman (Ohio State Univ.)).

Press Coverage

Radiocarbon dating of ivory seized in Manhattan

- [Scientists deploy DNA analysis and 14C dating in latest salvo against ivory trafficking](#), 2/5/18
- [Seized ivory probed for clues that could help save elephants](#), *Washington Post*, 1/16/18
- [Scientists Want to Save Elephants Through Inspecting Seized Ivory](#), Bloomberg, 1/15/18
- [Fighting ivory trafficking with forensic science](#), Physics.Org, 8/14/17

Radiocarbon dating of ivory shows tusks move quickly through illegal trade network

- [Recently Killed Elephants Are Fueling the Ivory Trade](#), *Science*, 11/7/16
- [Slaughter of Elephants for Their Ivory Intensifies](#), Agence France-Press, 11/7/16
- [Most Illegal Ivory Is Coming From Recently Killed Elephants](#), *The Verge*, 11/7/16
- China Central TV: News interview, 11/17/16.
- [Most Illegal Ivory Sold Comes From Illegally Killed Elephants](#), *Wired*, 11/08/16
- NTN24 TV (Colombia): Interview regarding China's domestic ivory trade ban, 01/13/17.

Bomb-curve Radiocarbon Dating to Ivory and Horn as a Forensic Tool (2013-2015)

- [TechKnow \(Aljazeera America\) Interview](#), June 2015.
- [Columbia Magazine](#): A Sound of Trumpets, 8/1/14.
- [The Telegraph](#): Time is running out to save the rhino, 2/12/14.
- [The Economist](#): The elephant in the room, 7/6/13.
- BBC World News: live radio interview, 7/2/13.
- NPR's [Morning Edition](#): Radiocarbon Clues Help Track Down Poached Elephant Ivory, 7/2/13.
- [The Guardian](#): Measuring carbon age in ivory could help combat poaching, study shows, 7/2/13.
- [National Geographic Daily News](#): Cold War Radioactivity Can Date Illegal Elephant Ivory, 7/1/13.

Press Coverage

Study reveals surprising diet of human ancestor “Nutcracker man”

- [Huffington Post](#): Ancient 'Nutcracker Man,' *Paranthropus boisei*, Didn't Actually Eat Nuts, 5/2/11.
- Smithsonian Magazine, June, 2011.
- [Science Daily](#): No Nuts for 'Nutcracker Man', 5/3/11.

Study shows African mammals adopted grassy diets at different rates over millions of years

- [The Salt Lake Tribune](#): U. scientists track ancient mammal diets from isotopes in teeth, 4/4/11.
- Science on [NBC News.com](#): Grazing animals shaped human evolution, 4/4/11.

Professional Development

- 2013 Preparing for an Academic Career in the Geosciences, Boulder, CO.
- 2006 Mineralogical Society of America short course: Paleoaltimetry, Snowbird, UT.
- 2005 Stable Isotopes in Ecology, Salt Lake City, UT.

Professional Affiliations

- American Geophysical Union
- Geological Society of America
- Mineralogical Society of America

Languages

- Proficient in Japanese
- Basic Italian