CURRICULUM VITA

**THURE E. CERLING**

Born: November 16, 1949; Elmhurst, Illinois

**CONTACT:**

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(1) 801-581-7062 (Geology)

(1) 801-585-0415 (Biology)

**ACADEMIC POSITION:**

Distinguished Professor. Dept. of Geology and Geophysics, University of Utah

Distinguished Professor, Dept. Biology, University of Utah

UU history

Assistant Professor. Geology 1979-1985

Associate Professor. Geology 1985-1990

Professor Geology 1990-present

Distinguished Professor. Dept. of Geology and Geophysics 2002-present

Distinguished Professor. Dept. of Biology 2002-present

Francis H Brown Presidential Chair 2018-present

Chair, Dept Geology & Geophysics 2016-present

**EDUCATION:**

B.S. Geology and Chemistry Iowa State University 1972

M.S. Geology Iowa State University 1973

Ph.D. Geology University of California Berkeley 1977

**SOCIETY AFFILIATIONS**

American Association for the Advancement of Science (Fellow–1997)

American Geophysical Union (Fellow­–2017)

Geochemical Society (Fellow–2021)

Geological Society of America (Fellow–­1996)

International Association of Geochemistry and Cosmochemistry (Fellow– 2008)

**PROFESSIONAL EXPERIENCE**

Geologist, Shell Oil Company, 1973; Geologist, The Anaconda Company, 1976

Research Scientist, Oak Ridge National Laboratory, 1977–79

Assistant, Associate, Full Professor, Distinguished Professor. University of Utah.

1979–present

**FIELD STUDIES**

Cosmogenic isotope studies: western USA, Antarctica, Argentina, Hawaii

Exploration Geology (oil and uranium): Utah, Arizona, Colorado, Texas

Ice studies: Antarctica, Alaska

Lakes: Lake Turkana (Kenya), Lake Malawi (Malawi), Lake Hövsgul (Mongolia)

Paleontological/Archeological sites: Turkey, Kenya, Tanzania, Spain, western USA, Bolivia, India, Pakistan, India, Argentina, Ethiopia

Radioactive waste disposal: Tennessee, Nevada, California

Savanna/grassland ecosystems: Kenya, Uganda, Argentina, USA, Canada, Mongolia

Soils and paleosols: USA, Canada, Kenya, Tanzania, Spain, France, Pakistan, India, Ethiopia

Volcanic ash correlation and radiometric dating: Kenya

Wildlife Conservation studies: Kenya, Uganda, South Africa, USA, DR Congo

**Current research interests**

isotope physiology and paleodiets of mammals; isotopes in forensics; geology of Old World paleoanthropologic sites; development of the Asian monsoon system; stable isotopes as climatological indicators; geochemistry of large lakes; environmental geochemistry (contaminant migration in groundwater, rivers, and soils); surface exposure dating using cosmogenic isotopes; history of the atmosphere (CO2, O2).

**PROFESSIONAL ACTIVITIES**

National Academy of Science ­– National Research Council.

National Academy of Sciences

GK Warren Committee (2011, 2014, 2024); NAS Award for Scientific Reviewing Committee (2011); Mary Thompson Award Committee (2015, 2021 (chair)); Cozzarelli Prize Committee (2013-2015); Section Chair (15 – Geology, 2015-2018); Arthur Day Medal and Lecture Committee, chair (2016-17); Class Membership Committee (Class I) 2016-2018

National Academy of Sciences – Section Chair (15 – Geology, 2015-2018)

Board of Earth Sciences and Resources (BESR)

BESR Board member, 1994–96; Physics and Chemistry of Earth Materials, 1986; Earth Surface Processes, 1988–1990; Characterizing the Upper Part of the Earth's Crust, 1993; Geodynamics Committee, 1995–97; Grand Challenges in Earth Sciences, 2006–2008; Climate and Human Evolution, 2007–2010; Committee on Earth Resources, 2012–2018

Board of Environmental Studies and Toxicology (BEST)

Study of the Control of Respirable Coal Mine Dust Exposure in Underground Mines, 2016-2018 (Chair).

Board on Radioactive Waste Management (BRWM)

Hydrologic/tectonic/hydrothermal systems at Yucca Mountain. guest expert, 1991; Review of Specific Scientific and Technical Safety Issues Related to Ward Valley, CA, 1994–95; Committee on Long–Term Institutional Management of DOE Legacy Waste Sites, 2001– 2002.

U.S. National Committee for the International Union of Quaternary Research: 1992–95; 2021-2024

NASA: Workshop on the Dating of Surface Features of Mars, 2000

United Nations - Office on Drugs and Crime; Guidelines for forensics methods and procedures for ivory sampling and analysis, 2013-2014.

American Geophysical Union; Water Quality Committee, 1986–88.

Geochemical Society. Board of Directors. 2000–2002

Geological Society of America: Climate Change Committee, 2004–2006, 2009–2010

Arthur Day Medal Committee Member (2019-2022)

National Science Foundation: Panel member: Archeometry, 1992–94, 2021–22; Geology and Paleontology, 1999–2000

U. S. Department of Energy, Basic Energy Sciences: Panel review member, Geochemistry Program, 1992–93; Guest panelist, Reactivity and mobility of geologic fluids: constraints from inorganic chemistry. 1996

Stable Isotope Ecology Short Course – University of Utah (co-founder). 1996 – 2019.

Stable Isotope Ecology Short Course – University of New Mexico (guest lecturer). 2021-2023

Geology of Turkana Basin Field Course. 2007-2012.

International Union of Geological Sciences: Nuclear Waste Group (1995–1997)

Fulbright Foundation: Discipline Peer Review Committee. 2010-2016

Save–The–Elephants: Science Advisory Board. 2012–present.

IsoForensics: Advisory Board Member, 2004-2019.

Utah Department of Environmental Quality: review of documents for Division of Water Quality, 2016.

Northwestern University, committee member – Nemmers Award in the Earth Sciences. 2018.

Turkana Basin Institute. Grants Committee member, 2019 – present

Review of Department or Center: The Ohio State University – Byrd Polar Center (2002); UC Santa Barbara – Earth Sciences (2004); Purdue University – Earth, Atmospheric, and Planetary Sciences (2009, 2014); University of New Mexico – Earth & Planetary Sciences (2013)

**EDITORIAL BOARDS**

*Geology*, Editorial Board. 1992–1997

*Chemical Geology*, Editorial Board. 1999–2007

*Geochimica et Cosmochimica Acta*. Associate Editor. 1999–2002, 2013–2015.

*Quaternary Research*. Editorial Board. 2002– 2017.

*African Journal of Ecology* – International Review Panel. 2007–2021.

*Proceedings of the National Academy of Science*. Editor. 2011–2021.

**HONORS, AWARDS, AND SPECIAL APPOINTMENTS**

Governor's Nuclear Waste Task Force, State of Utah, 1981–83

Visiting scholar, professor, fellow

Visiting Scholar. Scripps Institution of Oceanography, 1987–1988

Visiting Fellow for Global Change. Yale University, Jan–March, 1990

Visiting Professor. University of Lausanne, Switzerland. 1994–1995.

Visiting Professor. California Institute of Technology. March – June 1996

Fulbright Fellow. University of Cape Town, South Africa. August 2004–June 2005

Visiting Professor. California Institute of Technology. Jan – May 2012

Visiting Scholar. École Normale Supérieure, Lyon, France. May – June 2016.

Visiting Scholar. ETH-Zurich. Sept – Oct 2019.

Visiting Scholar. Mpala Research Centre, Kenya. Nov – Dec 2019.

Distinguished Research Award, University of Utah, 1998.

National Academy of Science, elected 2001.

Distinguished Professor of Geology and Geophysics, University of Utah. 2002

Distinguished Professor of Biology. University of Utah. 2002

US Nuclear Waste Technical Review Board. 2002–2011. (Presidential appointment)

Iowa State University. College of Liberal Arts and Science Alumni Award. 2005

Utah Governor’s Medal for Science and Technology. 2012

Gordon P Getty Award, LSB Leakey Foundation, 2014

Geological Society of America. President’s Medal. 2017

American Geophysical Union. Excellence in Earth and Space Science Education Award.

2017.

International Mineral Association. Mineral of the year 2017: Rowleyite.

International Union of Geological Sciences. Émile Argand Medal. 2022

Utah Academy of Engineering and Science (2021 ­– Founding member)

Rosenblatt Prize, University of Utah. 2022

**PUBLICATIONS**

1. Cerling TE, DL Biggs, CF Vondra, and HJ Svec, 1975, Use of oxygen isotope ratios in correlation of tuffs, East Rudolf Basin, Northern Kenya*. Earth and Planetary Science Letters* 25: 291–296.
2. Curtis GH, RE Drake, TE Cerling, BW Cerling, and J Hampel, 1975, Age of KBS Tuff in Koobi Fora Formation, Northern Kenya. *Nature* 258: 395–398.
3. Cerling TE, 1976, Oxygen isotope studies of the volcanoclastics of the East Rudolf Basin. In: Coppens, et al, eds., *Stratigraphy, Paleoecology and Evolution in the Lake Rudolf Basin*, University of Chicago Press, Chicago. pp. 105–114.
4. Cerling TE, RL Hay and JR O'Neil, 1977, Isotopic evidence for dramatic climatic changes in East Africa during the Pleistocene. *Nature* 267: 137–138.
5. Cerling TE and DW Powers, 1977, Paleorifting between the Gregory and Ethiopian Rifts. *Geology* 5: 441–444.
6. Cerling TE, BW Cerling, GH Curtis, RE Drake, and FH Brown, 1978, Correlation of reworked ash deposits; the KBS Tuff, Northern Kenya. *United States Geological Survey Open–File Report* 78–701: 61–63.
7. Cerling TE, RL Hay and JR O'Neil, 1978, Isotopic, geochemical and faunal evidence for Pleistocene climatic change in East Africa. *United States Geological Survey Open–File Report* 78–701: 63–65.
8. Curtis GH, RE Drake, TE Cerling, BW Cerling, and J Hampel, 1978, Age of KBS Tuff, Koobi Fora Formation, Northern Kenya. In: WW Bishop, ed., *Geological Background to Fossil Man*, Scottish Academic Press, 463–469. (Reprint of Nature 258: 395–398 (1975)).
9. Cerling TE, 1979, Paleochemistry of Plio–Pleistocene Lake Turkana, Kenya. *Palaeogeography, Palaeoclimatology, Palaeoecology* 27: 247–285.
10. Cerling TE, FH Brown, BW Cerling, GH Curtis and RE Drake, 1979, Preliminary correlations between the Koobi Fora and Shungura Formations, East Africa. *Nature* 279: 118–121.
11. Spalding BP and TE Cerling, 1979, Association of radionuclides with streambed sediments in White Oak Watershed. *ORNL/TM–6895*, Oak Ridge National Laboratory, Oak Ridge, Tennessee. 44 pp.
12. Drake RE, GH Curtis, TE Cerling, BW Cerling, and J Hampel, 1980, KBS Tuff dating and geochronology of tuffaceous sediments in the Koobi Fora and Shungura Formations, East Africa. *Nature* 283: 368–372.
13. Cerling TE and BP Spalding, 1981, Areal distribution of 60Co, 137Cs, and 90Sr in streambed gravels of White Oak Creek watershed. *ORNL/TM–7318*, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 67 pp.
14. Cerling TE and RR Turner, 1982, Formation of freshwater Fe–Mn coatings on gravel and the behavior of 60Co, 90Sr, and 137Cs in a small watershed. *Geochimica et Cosmochimica Acta* 46: 1333–1343.
15. Cerling TE and FH Brown, 1982, Tuffaceous marker horizons in the Koobi Fora region and the lower Omo Valley. *Nature* 299: 216– 221.
16. Cerling TE and BP Spalding, 1982, Distribution and relationship of radionuclides to streambed gravels in a small watershed. *Environmental Geology* 4: 99–116.
17. Brown FH, and TE Cerling, 1982, Stratigraphical significance of the Tulu Bor Tuff of the Koobi Fora Formation. *Nature* 299: 212– 215.
18. Yuretich RF and TE Cerling, 1983, Hydrogeochemistry of Lake Turkana, Kenya: mass balance and mineral reactions in an alkaline lake. *Geochimica et Cosmochimica Acta* 47: 1099–1109.
19. Cerling TE, 1983, Mineralogy of nonfibrous minerals with regard to health studies. In WL Wagner, WN Rom, and JA Merchant (eds.), *Health Issues Related to Metal and Non–metallic Mining*, Butterworth Publ., Boston, p. 34–47.
20. Cerling TE, 1984, The stable isotopic composition of modern soil carbonate and its relationship to climate. *Earth and Planetary Science Letters* 71: 229–240
21. Cerling TE, FH Brown, and JR Bowman, 1985, Low temperature alteration of volcanic glass: hydration, Na, K, 18O, and Ar mobility*. Chemical Geology (Isotope Geoscience Section)* 52: 281–293.
22. Torgerson T, WB Lyons, TE Cerling, 1985, SLEADS Group studies arid environments, *Geotimes* 30: 10-12.
23. Cerling TE, 1986, A mass balance approach to basin sedimentation: constraints on the recent history of the Turkana Basin. *Palaeogeography, Palaeoclimatology, Palaeoecology* 54: 63–86.
24. Cerling TE and RL Hay, 1986, An isotopic study of paleosol carbonates from Olduvai Gorge. *Quaternary Research* 25: 63–78.
25. Hillhouse JW, TE Cerling, and FH Brown, 1986, Magnetostratigraphy of the Koobi Fora Formation, Lake Turkana, Kenya. *Journal of Geophysical Research 91: 11581–11595.*
26. National Research Council, 1987, *Earth Materials Research*. National Academy of Sciences. Washington DC 122 pp. (Contributing author)
27. Barton CE, DK Solomon, JR Bowman, TE Cerling, and MD Sayer, 1987, Chloride budgets in transient lakes: Lakes Baringo, Naivasha, and Turkana, Kenya. *Limnology and Oceanography* 32: 745–751.
28. Solomon DK and TE Cerling, 1987, The annual carbon dioxide cycle in a montane soil: observations, modeling, and implications for weathering. *Water Resources Research* 23: 2257–2265.
29. Cerling TE and AJ Alexander, 1987, The chemical composition of hoarfrost, rime, and snow during a winter inversion in Utah, USA. *Water, Air, and Soil Pollution* 35: 373–379.
30. Bye BA, FH Brown, TE Cerling, and I McDougall, 1987, Increased age estimate for the Lower Palaeolithic hominid site of Olorgesailie Kenya. *Nature* 329: 237–239.
31. Morrison SJ and TE Cerling, 1987, Survey of metal, radionuclide, and organic contamination at 20 Waste Area Groups (WAGs) Oak Ridge, Tennessee. *ORNL/RAP/Sub–87/27463/1*. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 212 pp.
32. Poreda RJ, TE Cerling, and DK Solomon, 1988, Use of tritium and helium isotopes as hydrologic tracers in a shallow unconfined aquifer. *Journal of Hydrology* 103: 1–9.
33. Cerling TE, JR Bowman, and JR O'Neil, 1988, An isotopic study of a fluvial–lacustrine sequence: The Plio–Pleistocene Koobi Fora Formation, East Africa. *Palaeogeography, Palaeoclimatology, Palaeoecology* 63: 335–356.
34. Quade J, TE Cerling, and JR Bowman, 1989, Systematic variations in the carbon and oxygen isotopic composition of pedogenic carbonate along elevation transects in the southern Great Basin, USA. *Geological Society of America Bulletin* 101: 464–475.
35. Cerling TE, 1989, Amber. *McGraw–Hill Yearbook of Science and Technology*, New York. p. 8–9.
36. Cerling TE, BL Pederson, KL Von Damm, 1989, Sodium–calcium ion exchange in the weathering of shales: implications for global weathering budgets. *Geology* 17: 552–554.
37. Cerling TE, 1989, Does the gas content of amber reveal the composition of palaeoatmospheres? *Nature* 339: 695–696.
38. Cerling TE, J Quade, Y Wang, and JR Bowman, 1989, Carbon isotopes in soils and paleosols as ecologic and paleoecologic indicators. *Nature* 341: 138–139.
39. Quade J, TE Cerling, and JR Bowman, 1989, Development of Asian monsoon revealed by marked ecological shift during the latest Miocene in northern Pakistan. *Nature* 342: 163–166.
40. Cerling TE, SJ Morrison, RW Sobocinski, and IL Larsen, 1990, Sediment–water interaction in a small stream: adsorption of 137Cs by bedload sediments. *Water Resources Research* 26: 1165–1176.
41. Sobocinski RJ, TE Cerling, SJ Morrison, and IL Larsen, 1990, Sediment transport in a small stream based on 137Cs inventories of the bedload fraction. *Water Resources Research* 26: 1177–1187.
42. Cerling TE, 1990, Dating geomorphologic surfaces using cosmogenic 3He. *Quaternary Research* 33: 148–156.
43. Cerling TE, BL Pedersen, and KL Von Damm, 1990, Reply to Comment on: Sodium–calcium ion exchange in the weathering of shale: implications for global weathering budgets. *Geology* 18: 190–191.
44. Quade J and TE Cerling, 1990, Stable isotopic evidence for a pedogenic origin of carbonates in Trench 14 near Yucca Mountain. *Science* 250: 1549–1552.
45. Cerling TE, 1991, Carbon dioxide in the atmosphere: evidence from Cenozoic and Mesozoic paleosols. *American Journal of Science* 291: 377–400.
46. Cerling TE, J Quade, SH Ambrose, and N Sikes, 1991, Fossil soils from Fort Ternan, Kenya: grassland or woodland? *Journal of Human Evolution* 21: 295–306.
47. Cerling TE, DK Solomon, J Quade, and JR Bowman, 1991, On the isotopic composition of carbon in soil carbon dioxide. *Geochimica et Cosmochimica Acta* 55: 3403–3406.
48. Quade J and TE Cerling, 1991, Stable isotopes in paleosols and the origins of the Asian monsoons. in JL Betancourt and VL Tharp (eds) *Proceedings of the Seventh Annual Pacific Climate (PACLIM) Workshop*, California Department of Water Resources, Interagency Ecological Studies Program Technical Report 26, p. 229–235.
49. Cerling TE and J Quade, 1992, Carbon isotopes in modern soils. In W. A. Nierenberg (editor), *Encyclopedia of Earth System Science*, Volume 1, Academic Press, San Diego. p 423–429.
50. Cerling TE, 1992, Development of grasslands and savannas in East Africa during the Neogene. *Palaeogeography, Palaeoclimatology, Palaeoecology (Global and Planetary Change Section)* 5: 241–247.
51. Quade J, TE Cerling, MM Morgan, DR Pilbeam, J Barry, AR Chivas, JA Lee–Thorp, and NJ van der Merwe, 1992, A 16 million year record of paleodiet using carbon and oxygen isotopes in fossil teeth from Pakistan*. Chemical Geology (Isotope Geoscience Section)* 94: 183–192.
52. Cerling TE, 1992, Further comments on using carbon isotopes in paleosols to estimate the CO2 content of the atmosphere. *Journal of the Geological Society, London* 149: 673–675.
53. Rogers KL, EE Larson, G Smith, D Katzman, GR Smith, TE Cerling, Y Wang, RG Baker, KC Lohmann, CA Repenning, P Patterson, and G Mackie, 1992, Pliocene and Pleistocene geologic and climatic evolution in the San Luis Valley of south–central Colorado. *Palaeogeography, Palaeoclimatology, Palaeoecology* 94: 55–86.
54. Poreda RJ and TE Cerling, 1992, Cosmogenic neon in recent lavas from the western United States. *Geophysical Research Letters* 19: 1863–1866.
55. Cerling TE, 1992, Use of carbon isotopes in paleosols as an indicator of the P(CO2) of the paleo–atmosphere. *Global Biogeochemical Cycles* 6: 307–314.
56. Cerling TE, J Kappelman, J Quade, SH Ambrose, NE Sikes, and P Andrews, 1992, Reply to comment on the paleoenvironment of Kenyapithecus at Fort Ternan. *Journal of Human Evolution* 23: 371–377.
57. McDougall I, FH Brown, TE Cerling, and JW Hillhouse, 1992, A reappraisal of the geomagnetic polarity time scale to 4 Ma using data from the Turkana Basin, East Africa. *Geophysical Research Letters* 19: 2349–2352.
58. Cerling, TE, Y Wang, and J Quade, 1993, Expansion of C4 ecosystems as an indicator of global ecological change in the late Miocene. *Nature* 361: 344–345.
59. Smith GA, Y Wang, TE Cerling, and JW Geissman, 1993, Comparison of a paleosol–carbonate isotope record to other records of Pliocene–early Pleistocene climate in the Western United States. *Geology* 21: 691–694.
60. Cerling TE and J Quade, 1993, Stable carbon and oxygen isotopes in soil carbonates. In (Ed. PK Swart, KC Lohmann, JA McKenzie, and SM Savin) *Climate Change in Continental Isotopic Records*. American Geophysical Union Geophysical Monograph 78, p. 217–231.
61. Wang Y, TE Cerling, J Quade, JR Bowman, GA Smith, and EH Lindsay, 1993, Stable isotopes of paleosol carbonates and fossil teeth as paleoecology and paleoclimate indicators: an example from the Upper Cenozoic non–marine sediments in the San Pedro Valley, Arizona. (Ed. PK Swart, KC Lohmann, JA McKenzie, and SM Savin) *Climate Change in Continental Isotopic Records*. American Geophysical Union Geophysical Monograph 78, p. 241–248.
62. Wang Y, TE Cerling, and WR Effland, 1993, Stable isotope ratios of soil carbonate and soil organic matter as indicators of forest invasion of prairie near Ames, Iowa. *Oecologia* 95: 365–369.
63. Quade J, TE Cerling, JR Bowman, and MA Jah, 1993, Paleoecologic reconstruction of floodplain environments using paleosols from upper Siwalik Group sediments, northern Pakistan. (In: JF Shroder, ed.), *Himalayas to the Sea: Geology and Geomorphology*. Rutledge Press. p. 213–226.
64. National Research Council, 1993, *Solid-Earth Sciences and Society.* Contributing author. National Academy of Sciences. 346 pp. . (Contributing author)
65. Cerling TE and H Craig, 1994, Cosmogenic production rates of 3He from 39 to 46 °N latitude, western USA and France. *Geochimica et Cosmochimica Acta* 58: 249–255.
66. Cerling TE and H Craig, 1994, Geomorphology and in–situ cosmogenic isotopes. *Annual Review of Earth and Planetary Sciences* 22: 273–317.
67. Cerling TE, RJ Poreda, and SL Rathburn, 1994, Cosmogenic 3He and 21Ne age of the Big Lost River Flood, Snake River Plains, Idaho. *Geology* 22: 227–230.
68. MacFadden BJ, Y Wang, TE Cerling, and R Anaya, 1994, South American fossil mammals and carbon isotopes: a 25 million year sequence from the Bolivian Andes. *Palaeogeography, Palaeoclimatology, Palaeoecology* 107: 257–268.
69. Wang Y, TE Cerling, and BJ MacFadden, 1994, Fossil horses and carbon isotopes: new evidence for Cenozoic dietary, habitat, and ecosystem changes in North America. *Palaeogeography, Palaeoclimatology, Palaeoecology* 107: 269–279.
70. Wang Y and TE Cerling, 1994, A model of fossil tooth enamel and bone diagenesis: implications for stable isotope studies and paleoenvironment reconstruction. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 107: 281–289.
71. Quade J, N Solounias, and TE Cerling, 1994, Stable isotopic evidence from paleosol carbonates and fossil teeth in Greece for forest or woodlands over the past ll Mya. *Palaeogeography, Palaeoclimatology, Palaeoecology* 108: 41–53.
72. MacFadden BJ and TE Cerling, 1994, Fossil horses, carbon isotopes, and global change. *Trends in Ecology and Evolution* 9: 481–485.
73. Cerling TE, J Quade, and Y Wang, 1994, Expansion and emergence of C4 plants. *Nature* 371: 112.
74. Cerling TE, 1995, Chemistry of closed basin lake waters: a comparison between African Rift Valley lakes and some central North American lakes. in K Kelts and E Gierlowski–Kordesch (eds.) *Global Geological Record of Lake Basins*. IGCP–219 Monograph, p. 29–30.
75. Cerling TE, 1995, Lake Turkana and its precursors in the Turkana Basin, East Africa (Kenya and Ethiopia) in K Kelts and E Gierlowski–Kordesch (eds.) *Global Geological Record of Lake Basins*. IGCP–219 Monograph, p. 341–343.
76. Quade J, and TE Cerling, 1995, Expansion of C4 grasses in the late Miocene of northern Pakistan: evidence from stable isotopes in paleosols. *Palaeogeography, Palaeoclimatology, Palaeoecology* 115: 91–116.
77. Quade J, TE Cerling, P Andrews, B Alpagut, 1995, Paleodietary reconstruction of Miocene faunas from Pasalar, Turkey, using stable carbon and oxygen isotopes of fossil tooth enamel. *Journal of Human Evolution* 28: 373–384.
78. Thompson GA, TE Cerling, GB Dalrymple, et al. (17 authors total), 1995, *Ward Valley: An Examination of Seven Issues in Earth Sciences and Ecology*. National Academy Press. Washington DC. 212 pp.
79. Ehleringer JR and TE Cerling, 1995, Atmospheric CO2 and the ratio of intercellular to ambient CO2 concentrations in plants. *Tree Physiology* 15: 105–111.
80. Cerling TE, 1996, Pore water chemistry of an alkaline lake, In TC Johnson and E Odada, (Eds), *The Limnology, Climatology, and Paleoclimatology of East African Lakes.* Cambridge University Press, p. 225–240.
81. Cerling TE and Y Wang, 1996, Stable carbon and oxygen isotopes in soil CO2 and soil carbonate: theory, practice, and application to some prairie soils of the upper Midwestern North America. In (TW Boutton and S–I Yamasaki, eds), *Mass Spectrometry of Soils,* Marcel Dekker, New York. Pp. 113–131.
82. Slate JL, GA Smith, Y Wang, and TE Cerling, 1996, Carbonate–paleosol genesis in the Plio–Pleistocene St. David Formation, Southeastern Arizona. *Journal of Sedimentary Petrology* 66: 85–94.
83. MacFadden BJ and TE Cerling, 1996, Mammalian herbivore communities, ancient feeding ecology, and carbon isotopes: a 10 million–year sequence from the Neogene of Florida. *Journal of Vertebrate Paleontology* 16: 103–115.
84. Sharp ZD and TE Cerling, 1996, A laser GC–IRMS method for *in situ* carbon and oxygen isotope analysis of of carbonates and phosphates. *Geochimica et Cosmochimica Acta* 60: 2909–2916.
85. MacFadden BJ, TE Cerling, and J Prado, 1996, Cenozoic terrestrial ecosystem evolution in Argentina: evidence from carbon isotopes of fossil mammal teeth. *Palaios* 11: 319–327.
86. Cerling TE and ZD Sharp, 1996, Stable carbon and oxygen isotope analysis of fossil tooth enamel using laser ablation. *Palaeogeography, Palaeoclimatology, Palaeoecology* 126: 173–186.
87. Leakey MG, CS Feibel, RL Bernor, JM Harris, TE Cerling, KM Stewart, GW Stoors, A Walker, L Werdelin, and AJ Winkler, 1996, Lothagam: A record of faunal change in the Late Miocene of East Africa. *Journal of Vertebrate Paleontology* 16: 556–570.
88. Cerling TE, 1997, Late Cenozoic vegetation change, atmospheric CO2, and tectonics. In WF Ruddiman (ed), *Tectonic Uplift and Climate Change*. Plenum Publishing Corp. p. 313–327.
89. Fowell SJ, J Peck, TE Cerling, A Donnellan, J Feng, B Hallet, 1997, Data collected in Mongolia offer key clues to past climate. *EOS* 78: 320–321.
90. Cerling TE, JM Harris, BJ MacFadden, MG Leakey, J Quade, V Eisenmann, JR Ehleringer, 1997, Global change through the Miocene/Pliocene boundary. *Nature* 389: 153–158.
91. Ehleringer JR, TE Cerling, B Helliker, 1997, C4 photosynthesis, atmospheric CO2, and climate. *Oecologia* 112: 285–299.
92. Cerling TE and H Craig, 1997, Geomorphology and in–situ cosmogenic isotopes, in (W Dietrich and G Sposito, eds) *Hydrologic Processes from Catchment to Continental Scales*. Annual Reviews, Menlo Park, California. (Reprint of : Cerling TE and H Craig, 1994, Geomorphology and in–situ cosmogenic isotopes. Annual Review of Earth and Planetary Sciences 22: 273–317.)
93. Cerling TE, JM Harris, SH Ambrose, MG Leakey, N Solounias, 1997, Dietary and environmental reconstruction with stable isotope analyses of herbivore tooth enamel from the Miocene locality of Fort Ternan, Kenya. *Journal of Human Evolution* 33: 635–650.
94. Cerling TE, JM Harris, BJ MacFadden, 1998, Carbon isotopes, diets of North American equids, and the evolution of North American C4 grasslands. In (H Griffiths, Ed.)*Stable Isotopes and the Integration of Biological, Ecological, and Geochemicial Processes*. Bios Scientific Publishers, Oxford, p. 363–379.
95. Cerling TE, JR Ehleringer, and JM Harris, 1998, Carbon dioxide starvation, the development of C4 ecosystems, and mammalian evolution. *Philosophical Transactions of the Royal Society B* 353:159–171.
96. Sharp ZD and TE Cerling, 1998, Fossil records of seasonal climate and ecology: straight from the horses' mouth. *Geology* 26: 219–222.
97. Cerling TE, JM Harris, BJ MacFadden, MG Leakey, J Quade, V Eisenmann, JR Ehleringer, 1998, Miocene/Pliocene shift: one step or several? Reply. *Nature* 393: 127.
98. Webb RH, TS Melis, PG Griffiths, JG Elliott, TE Cerling, RJ Poreda, TW Wise, and J Pizzuto, 1998, Lava Falls Rapid in Grand Canyon: Effects of Late Holocene debris flows on the Colorado River. *US Geological Survey Professional Paper 1591*. 90 pp.
99. Cerling TE and CS Cook, 1998, You are what you eat: a traveler's diet in Mongolia. *Finnigan Analytical News* 1998 (2): 4–5.
100. Cerling TE, 1999, Paleorecords of C4 plants and ecosystems. In: (RF Sage and RK Monson, Eds.), *C4 Plant Biology.* Academic Press, San Diego. p. 445–469.
101. Handwerger DA, TE Cerling, and RL Bruhn, 1999, Cosmogenic 14C in carbonate rocks: preliminary results. *Geomorphology* 27: 13–24.
102. Cerling TE, RH Webb, RJ Poreda, AD Rigby, and TS Melis, 1999, Cosmogenic 3He ages and frequency of late Holocene debris flows from Prospect Canyon, Grand Canyon, USA. *Geomorphology* 27: 93–111.
103. MacFadden BJ, N Solounias, TE Cerling, 1999, Ancient diets, ecology, and extinction of 5–million–year old horses from Florida. *Science* 283: 824–827.
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332. Huth TE, B Young, TE Cerling, MA Chan, DW Marchetti. (in press). Geological map of the Torrey Utah 7.5’ Quadrangle. *Utah Geological Survey Geological Map Series*. Utah Geological Survey, Salt Lake City.
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**Patents**

1. US Patent No. 8,725,428. Device and system to reconstruct travel history of an individual. DW Podlesak, JR Ehleringer, TE Cerling. Issued 13 May 2014 to the University of Utah.

**Reports to Congress as member of the US Nuclear Waste Technical Review Board**

1. NWTRB, 2003, *Report to the Secretary of Energy and the Congress. April 2003*, Government Printing Office, 159 pp.
2. NWTRB, 2003, *Board Technical Report on Localized Corrosion. November 25, 2003*, Government Printing Office, 22 pp.
3. NWTRB, 2004, *Report to Congress and the Secretary of Energy. May 2004*, Government Printing Office, 152 pp.
4. NWTRB, 2005, *Report to Congress and the Secretary of Energy. May 2005*. Government Printing Office, 172 pp.
5. NWTRB, 2006, *Report to Congress and the Secretary of Energy. June 2006.* Government Printing Office, 134 pp.
6. NWTRB, 2007, *Technical Evaluation of U.S. Department of Energy Yucca Mountain Infiltration Estimates: A Report to Congress and the Secretary of Energy.* Government Printing Office, 22 pp.
7. NWTRB, 2008, *Report to Congress and the Secretary of Energy, September 2008*. Government Printing Office, 231 pp.
8. NWTRB, 2009, *Survey of National Programs for Managing High–Level Radioactive Waste and Spent Nuclear Fuel*. Government Printing Office, 63 pp.
9. NWTRB, 2011, *Technical Advancement and Issues Associated with the Permanent Disposal of High Activity Wastes: Lessons Learned from Yucca Mountain and Other Programs*. Government Printing Office,130 pp.
10. NWTRB, 2011, *Experience Gained From Programs to Manage High–Level Radioactive Waste and Spent Nuclear Fuel in the United States and Other Countries*. Government Printing Office, 72 pp.

**Book Reviews**

1. Cerling TE, 1980, *Modern and Ancient Lake Sediments*. Jour. Sed. Petrol. 50: 668-669.
2. Cerling TE, 1982, *Absorption from Aqueous Solutions*, Jour. Geol. Education 30: 326.
3. Cerling TE, 1983, *Climate in Earth History*, Jour. Geol. Education 31: 399-400.
4. Cerling TE, 1983, *Trace Element Speciation in Surface Waters*, Jour. Geol. Education 31: 399.
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6. Cerling TE, 1984, *New Interpretations of Ape and Human Ancestry*, Jour. Geol. Education 32: 341.
7. Cerling TE, 1992, *Miocene Paleosols and Ape Habitats of Pakistan and Kenya.* Geoarcheology 7: 494-497.
8. Cerling TE, 1992, *Proceedings of a U.S. Geological Survey Workshop on Environmental Geochemistry*. Geochimica Cosmochimica Acta 56: 1423.
9. Cerling TE, 1993, *Stable Isotope Geochemistry: A Tribute to Samuel Epstein*. Geochimica Cosmochimica Acta 57: 500.

**PAPERS AND LECTURES PRESENTED**

**Lectures - 1979**

Use of Fe-Mn coated stream gravels as radionuclide monitors in streams. Geological Society of America, Annual Meeting, San Diego. 8 November

Hydrogeochemistry of the Lake Turkana Basin, Eastern Rift Valley, Kenya. Geological Society of America, Annual Meeting, San Diego. 8 November

Geochemical evidence for Lake Pleistocene climatic change in East Africa. SIG-UNEP Workshop on African Limnology. Nairobi, Kenya. 17 December

Stable isotopes and anthropological studies. The International Louis Leakey Memorial Institute for African Prehistory. Nairobi, Kenya. 21 December

**Lectures - 1980**

Potassium loss from rhyolite volcanic glass and its relation to oxygen isotope exchange and apparent K-Ar age. American Geophysical Union, Fall Meeting, San Francisco. 12 December

**Lectures - 1981**

Sodium and chloride balance in an alkaline lake, American Geophysical Union, Fall Meeting, San Francisco. 10 December

**Lectures - 1982**

Geochemical processes in East African Lakes. University of Wyoming. 18 February

Isotopes as geochemical tracers. University of Wyoming. 19 February

Effects of mining on health: non-fibrous minerals. Conference on health issues related to metal and non-metallic mining, Park City, Utah. 7 April

**Lectures –1983**

Recent history of an African lake: geochemical processes. University of Massachusetts. 17 March

Recent history of the Nile River: mass balance and geochemical constraints. Yale University, 19 March

The course of the Nile during the Holocene: geochemical and mass balance constraints. University of Utah, 12 May

The isotopic composition of soil and paleosol carbonate as a paleoclimatic indicator. Geological Society of America, Annual Meeting, Indianapolis, 30 October

Calcite deposition in modern soils: some isotopic evidence. American Geophysical Union, Fall Meeting, San Francisco, 6 December

**Lectures – 1984**

The climatic record of terrestrial environments: isotopic evidence from the Plio-Pleistocene. Chapman Conference, Tarpon Springs, Florida, 9 Januar

Climates and soil carbonate: isotopic evidence. U.C.L.A., 14 March

Changing the course of the Nile: mass balance constraints, U.C.L.A., 15 March

Calcretes and climate: the isotopic evidence. Yale University, 31 July

Calcretes and climate: the isotopic evidence. University of Melbourne, 17 September

The stable isotopic composition of modern soil carbonate and its relationship to climate. SLEADS Workshop. Picnic Point, Victoria, Australia. 25 September

A mass balance approach to basin sedimentation: constraints on the recent history of the Turkana Basin, Kenya. SLEADS Workshop. Picnic Point, Victoria, Australia. 27 September

Interaction of radionuclides between sediment and water in a fluvial watershed. American Geophysical Union, Fall Meeting, San Francisco, 6 December

**Lectures – 1985**

Mass balance constraints on the recent history of the Lake Turkana Basin, Kenya and Ethiopia. Duke Marine Laboratory, 28 January

Soils, climate, and geochemistry. Duke Marine Laboratory, 28 January

Climates and soil carbonate: the isotopic evidence. Oak Ridge National Laboratory, 30 January

Soils, climate, and geochemistry. University of Illinois, 18 February

Soils, climate, and geochemistry. State University of New York at Stony Brook, 4 March

Geochemical processes in arid environments: soils and closed basin lakes. Penrose Conference, Lake Havasu City, Arizona, 15 April

Geochemical indicators of climatic change in continental sequences. Institute for the Study of Earth and Man Workshop. Fort Burgwin, New Mexico, 26 August

Pore water chemistry of an alkaline Rift Valley lake: Lake Turkana, Kenya. Geological Society of America, Annual Meeting, Orlando, 28 October

Use of gravel to monitor active stream contamination. American Geophysical Union, Fall Meeting, San Francisco, 13 December

**Lectures – 1986**

Radionuclide and metal contamination in a small watershed: a case study. University of Utah. 16 January

Active contamination of radionuclides and metals in White Oak Creek Basin. Oak Ridge National Laboratory. 7 February

Geochemical indicators of paleoclimate. Geologic Survey of Pakistan. 1 March

Problems in isotopic studies of soils. University of Alberta, Edmonton. 26 March

Paleo-environmental Studies in East Africa. University of Alberta, Edmonton. 27 March

Sediment-water interaction in a low-order stream: studies with 137-Cs. American Geophysical Union. Fall Meeting, San Francisco, 11 December

**Lectures – 1987**

Continental Pleistocene paleoclimates -- isotopic evidence in soils. University of Chicago. 10 April

Use of tritium and helium isotopes in the study of a shallow unconfined aquifer. American Geophysical Union. Spring Meeting, Baltimore. 18 May.

Sediment-water interaction in White Oak Creek: the bedload transport problem. Oak Ridge National Laboratory. 22 May

Calcretes and climate: the isotopic evidence. University of Utah. 4 June

Isotopic evidence of paleoclimate: relationships of calcrete formation. North Dakota State University. 23 July

Calcretes and climate: the isotopic evidence. Augustana College. 24 July

**Lectures – 1988**

Chemistry of East African lakes. Scripps Institution of Oceanography. 19 January, 1988

Isotopes in soils: cleaning up a dirty business. UCLA. 20 March, 1988

Isotopic composition of soils: paleoclimates and paleoecology. Scripps Inst. Oceanography. 29 April

Carbon isotopes in soils and paleosols. SUNY Binghamton. 21 October, 1988

Bedload transport in a gravel-bottomed stream using radioisotopes as tracers. SUNY Binghamton, 22 October, 1988

Systematic variations in the stable isotopic composition of pedogenic carbonate along elevation transects in the southern Great Basin, U.S.A. Geological Society of America Annual Meeting, Denver, Colorado 3 November 1988

Forever amber: but what about oxygen? University of Utah (Dept. Biology). 14 November .

Monsoons at 7 Myr? Isotopic evidence from paleosols. 16 November, Scripps Institution of Oceanography

Dating geomorphic surfaces using cosmogenic 3He. 17 November, Scripps Institution of Oceanography

**Lectures – 1989**

Dating geomorphic surfaces using cosmogenic 3He. University of Utah. 16 February

Carbon isotopes in paleosol carbonates as paleoecologic indicators. American Association of Physical Anthropologists. Annual Meeting. San Diego, California. 6 April

Carbon in soils and paleosols: ecologic and paleoecologic implications. University of Utah (Biology Department). 21 April

Isotopic evidence for ecologic change in the Siwaliks. Peabody Museum, Harvard University. 8 April

Carbon in soils and paleosols: a guide to continental climates and ecosystems. Harvard University. 10 April

**Lectures – 1990**

Asian monsoons started seven million years ago—so say carbon isotopes in paleosols. Yale University. 22 January

Asian monsoons started seven million years ago—so say carbon isotopes in paleosols. Cornell University. 25 January

Asian monsoons started seven million years ago—so say carbon isotopes in paleosols. University of Rochester. 26 January

Fire, flood, and ice: ages of geomorphic surfaces using cosmogenic helium isotopes. Yale University. 31 January

Exchangeable sodium in soils, sediments, and rivers. Yale University. 2 February

Correlation and chronology of East African hominid localities. Yale University. 15 February

Forever Amber: The Tears of the Heliades. Yale University. 12 March.

Strange Bed(load) Fellows: Cesium, Sediments, and Serendipity. Yale University. 14 March

Paleosolidarity: P(CO2) in the Mesozoic and Cenozoic atmosphere. Yale University. 16 March

Carbon isotopes in soils and global climatic change. Utah State University. 24 April

Carbon isotopes in soils and global climatic change. Universität Bern, Switzerland. 26 June

Glabal ecologic and climatic change during the Neogene: stable isotopic evidence from soils. International Association of Geochemistry and Cosmochemistry. Aix-en-Provence, France. 2 July, 1990

Large lakes: the inorganic record. Penrose Conference on the Stratigraphic Record of Large Lakes. Tahoe City, California. 11 September

Application of 3He to dating geomorphic surfaces. Penrose Conference on New Methods for Dating Geomorphic Surfaces. Mammoth, California. 13 October

Stable isotopes in soils: modeling, monsoons, and paleo-atmospheres. Utah State University. 12 November

**Lectures – 1991**

Stable isotopes in soils. National Academy of Sciences - National Research Council. Panel on Hydrologic/Tectonic/ Hydrothermal Processes. Las Vegas, Nevada. 1 February

Carbon dioxide in the atmosphere: evidence from Cenozoic and Mesozoic paleosols. Penn State University. 14 February

Asian monsoon begins 7 million years ago: so say carbon isotopes in soils. Penn State University. 15 February

Isotopic indicators of changes in climate, ecology, and diet in the Old World in the late Neogene. Symposium on Light Stable Isotope Uses in the Natural and Social Sciences. American Association for the Advancement of Science. 19 February

Geopolitics and the origin of carbonates at Yucca Mountain. University of Utah. 14 March

Origin of carbonates at Yucca Mountain. University of Nevada-Reno. 22 April

Cosmogenic 3He and the dating of geomorphic surfaces. University of Nevada-Reno. 23 April

Stable isotopic constraints on atmospheric P(CO2) from paleosols. Special session: Atmospheric CO2 variability throughout geologic time. American Geophysical Union Spring Meeting, Baltimore. 31 May

Using light stable isotopic tracers to distinguish between groundwater discharge and vadose zone carbonates. Special Session: The potential of tectonism and volcanism for producing significant excursions of the water table. American Geophysical Union Spring Meeting, Baltimore. 29 May

Stable isotopes in soils. Chapman Conference on Continental Isotopic Indicators of Climate. Jackson, Wyoming. 10 June

Trench warfare at Yucca Mountain. Chapman Conference on Continental Isotopic Indicators of Climate. Jackson, Wyoming. 11 June

Did early man evolve in a grassland or woodland setting? Carbon isotope evidence. XIII INQUA. Beijing, People's Republic of China. 4 August.

In situ production rate of 3He in olivine and the ages of geomorphic surfaces. XIII INQUA. Beijing, People's Republic of China. 8 August

The history of monsoons, P(CO2) of the atmosphere, and the evolution of man: Paleosols tell all. Southern Methodist University. 13 September

Dating catastrophic flood events using cosmogenic He and Ne isotopes. Geological Society of America annual Meeting. San Diego, California. 21 October

Dating geomorphic surfaces using cosmogenic 3He. Los Alamos Scientific Laboratory. Los Alamos, New Mexico. 25 November

**Lectures – 1992**

Climate change: the terrestrial record. YMP-USGS Workshop on Climate Change in the Yucca Mountain region. Las Vegas, Nevada. 1 April

The history of monsoons, P(CO2) of the atmosphere, and the evolution of man: Paleosols tell all. University of New Mexico. 16 April

Atmospheric CO2 through geologic time: measurements, guesses, and meaning. University of Utah. 1 May

Global change during the late Neogene: isotopic records from four continents. 1992 Goldschmidt Conference, Washington DC, 9 May

Isotopic evidence for climatic, ecologic, and faunal change in the Siwaliks of Pakistan. 5th North American Paleontological Convention, Chicago, Illinois. 30 June

Paleosols: global ecologic change in the Neogene. Scripps Institution of Oceanography. 10 July

The isotopic composition of paleosols: global climate change, evolution of man, and history of CO2 in the atmosphere. University of Reading, United Kingdom. 17 July

Global Change. (Plenary talk). American Institute of Professional Geologists. 27 September

Global change, paleosols, and atmospheric P(CO2). New Mexico State University. 19 October

Global change, paleosols, and atmospheric P(CO2). University of Texas at El Paso. 20 October

Carbon isotopic composition of fossil tooth enamel and global change in the late Miocene. Society of Vertebrate Paleontologists, Toronto, Ontario. 28 October

Global change, paleosols, and atmospheric P(CO2). Massachusetts Institute of Technology. 29 October

Carbon isotopic composition of fossil tooth enamel and global change in the late Miocene.. Harvard University. 30 October

Atmospheric CO2 levels from fossil soils and horses. American Geophysical Union 9 December

**Lectures – 1993**

You are what you eat (+ a few ‰): the evolution of the atmosphere, grasslands, and man. University of Utah. 8 January

Global ecosystem change and the evolution of man. University of Lausanne, Switzerland, 15 February

Isotope geochemistry of African Lakes. IDEAL Symposium on the Limnology, Climatology, and Paleoclimatology of the East Africa Lakes. Jinja, Uganda. 18 February

Pore water geochemistry of Lakes Turkana and Malawi. IDEAL Symposium on the Limnology, Climatology, and Paleoclimatology of the East Africa Lakes. Jinja, Uganda. 18 February

Global ecologic and climate change in the Neogene and the evolution of mammals. University of Texas at Austin. 20 April

Atmospheric CO2, global ecosystem change, and the evolution of man. Rutgers University. 22 April

Atmospheric CO2 and global ecosystem change: the terrestrial record. Lamont-Doherty Geological Observatory, Columbia University. 23 April

Global change, paleosols, and atmospheric P(CO2). International Association of Geochemistry and Cosmochemistry. Geochemsitry of the Earth's Surface. 3rd Symposium. Penn State University. 2 August

Stable isotopes and absolute estimates of MAT, MAP, and MAE from continental deposits. SEPM symposium. Penn State University. 9 August

Mesozoic and Cenozoic atmospheric CO2 content from paleosols. SEPM symposium. Penn State University. 10 August

Atmospheric CO2 and global ecosystem change: the terrestrial record. University of California, Berkeley. 16 September

Stable isotopic composition of fossil horse teeth: implications for the evolution of grasslands, the atmosphere, and humans. Institute for Human Origins. Berkeley, California. 16 September

Chemistry of East African lakes. University of Utah. 15 October

Global change using carbon isotopes in paleosols and fossil tooth enamel. Geological Society of America Annual Meeting. Boston. 26 October

Siwalik sedimentology: evidence for Neogene global change. Geological Society of America Annual Meeting. Boston. 26 October

Atmospheric CO2 and global change: the terrestrial record. University of Chicago. 29 October

Geomorphology and in situ 3He and 21Ne. University of Arizona, Tucson. 18 November

**Lectures – 1994**

Atmospheric and global ecologic change: stable carbon isotopes in soils. Panjab University, Chandigarh, India. 24 January

Atmospheric CO2 and global change: the terrestrial record. UC Santa Barbara . 24 May

Geomorphology and in situ 3He and 21Ne. UC Santa Barbara . 24 May

In situ cosmogenic noble gases: production rates and applications to geomorphology, Quaternary Research Center Symposium:University of Washington. 26 May

Cosmogenic 3He and 21Ne from Tioga age surfaces, Sierra Nevada, California. ICOG-8. Berkeley, CA. 8 June

Global change at the end of the Miocene: the terrestrial and continental record. Goldschmidt Conference, Edinburgh, Scotland. 1 September

Geomorphology and in situ cosmogenic isotopes. Université de Lausanne, Switzerland. 3 November

Geomorphology and in situ cosmogenic isotopes. Free University, Amsterdam, Netherlands. 23 November

Global ecologic change from paleosols. Free University, Amsterdam, Netherlands. 24 November

Mesozoic and Cenozoic atmospheric CO2 content from paleosols. Free University, Amsterdam, Netherlands. 24 November

Geomorphology and in situ cosmogenic isotopes. Hebrew University, Jerusalem, Israel. 26 December

Global ecologic change from paleosols. Hebrew University, Jerusalem, Israel. 27 December. .

**Lectures – 1995**

Mesozoic and Cenozoic atmospheric CO2 content from paleosols. Geological Survey of Israel. 1 January

Geochemistry of East African lakes. Weizmann Institute, Rehovot, Israel. 3 January

Stable isotope chemistry of lakes. Université de Lausanne, Switzerland. 13 January

Geomorphology and in situ cosmogenic isotopes. Université de Paris 7, Paris 18 January

Global ecologic change from paleosols. Museé de Histoire Naturelle. Paris. 19 January

Mesozoic and Cenozoic atmospheric CO2 content from paleosols. École de Mines. Fontainebleau, France. 20 January

Global ecologic change in the Miocene. ETH, Zurich, Switzerland. 27 January

Environmental Geochemistry I. Chemistry of natural waters. Université de Lausanne, Switzerland. 8 March

Environmental Geochemistry II. Diffusion and advection. 9 March. Université de Lausanne, Switzerland

Environmental Geochemistry III. Stable Isotopes. 10 March. Université de Lausanne, Switzerland

Stable carbon and oxygen isotope analysis of fossil tooth enamel using laser ablation. EUG-8. Strasbourg, France. 4 April

Global change in the Miocene: the terrestrial and ocean record. CNRS-Nancy, France. 4 May

Geomorphology and in situ cosmogenic isotopes. University of Bern, Switzerland. 12 May

Dietary change in equids from Central to Western North America: Great Plains, Rocky Mountains, and Western Deserts. Society of Vertebrate Paleontologists. Pittsburg, PA. 4 November

Cosmogenic 3He exposure ages of debris flows and lava dam outburst floods in the Grand Canyon, USA. Fall AGU, San Francisco. 14 December

**Lectures - 1996**

Geomorphology and in situ cosmogenic isotopes. Dept. Geography. Univ. Utah. 26 January.

Paleodiets and global change. Geochemistry of Everything Symposium (GOES). Scripps Institution of Oceanography. 14 March.

Straight from the horses' mouth(s): stable isotopes in tooth enamel, evolution of mammals, and global ecologic change. University of Riverside. 19 April.

Geomorphology and in situ cosmogenic isotopes. SUNY Stony Brook. 23 April. .

Straight from the horses' mouth(s): stable isotopes in tooth enamel, evolution of mammals, and global ecologic change. SUNY Stony Brook. 23 April. .

Global change: straight from the horses' mouth. Yale University. 24 April. .

Straight from the horses' mouth(s): stable isotopes in tooth enamel, evolution of mammals, and global ecologic change. California Institute of Technology. 29 April.

Paleosols, fossil teeth, and the development of C4 ecosystems. Association of Applied Biologists. Newcastle, England. 11 July.

Stable isotopes and paleoenvironments of terrestrial deposits. Mongolian Academy of Science. Ulaan Baatar, Mongolia. 3 September.

New plants, animals, and soils: an exmpale of global change in the Neogene. Geological Society of America. Denver. 27 October .

Soils, paleosols, and the history of atmospheric CO2. Geological Society of America. Denver. 28 October .

Rates of Geologic Processes in the Holocene: Introduction. Geological Society of America. Denver. 29 October .

Geomorphology and in situ cosmogenic isotopes. Brigham Young University. Provo, Utah. 21 November .

**Lectures - 1997**

Global change: straight from the horses' mouth. Harvard University. 3 February .

History of atmospheric CO2 from paleosols. Harvard University. 3 Feb .

Global change: straight from the horses' mouth. Univ. Texas, Austin. 17 February .

Isotopes and diets: where next? Univ. Texas, Austin. 18 Feb .

Carbon isotopes in soils and paleosols. Univ. Texas, Austin. 18 Feb .

Straight from the horses' mouth(s): stable isotopes in tooth enamel, evolution of mammals, and global ecologic change. Utah State University. 22 April.

Geological record of C4 ecosystems. Royal Society, London. 22 May .

Citation for Ken Farley for the 1997 F. G. Houtermans award. Goldschmidt Conference, Tuscon, Arizona. 2 June.

Citation for Edouard Bard for the 1997 Donath Medal award. Geological Society of America Annual Meeting. Salt Lake City. 17 October .

Quaternary C3 and C4 ecosystem response to changes in atmospheric CO2. Geological Society of America Annual Meeting. Salt Lake City. 18 October.

Tooth enamel as a recorder of hydrologic and climate change. Geological Society of America Annual Meeting. Salt Lake City. 18 October.

Why don't elephants eat grass? Wildlife Conservation Society. New York. 20 Nov.

Global change: straight from the horses' mouth. Lamont-Doherty Geological Observatory. 21 November

Aridity, temperature, and CO2 in paleoclimate interpretations in tropical to subtropical regions. American Geophysical Union. Annual Meeting. 11 December.

**Lectures - 1998**

Global change: straight from the horses' mouth. Los Angeles County Museum. 12 February.

Stable isotope ecology. Centre Austral de Investigaciones Cientific. Ushuaia, Tierra del Fuego, Argentina. 2 April.

Global change: straight from the horses' mouth. University of New Mexico. 24 April. .

Why don't elephants eat grass? Applications in Stable Isotope Ecology Conference, Saskatoon, Saskatchewan. 20 April.

Stable isotope ecology: straight from the horses' mouth. UU Biology Dept. 10 September.

Carbon isotopes in bioapatite of ungulate mammals: implications for ecological and paleoecological studes. Society for Vertebrate Paleontology. Snowbird, Utah. 30 September.

Carbon isotopes in soils and paleosols as (paleo)pCO2, climate and ecological indicators. University of Tennessee. Klepser Lecture. 8 October.

Stable Isotope Ecology Short Course. University of Tennessee. 9 October.

Carbon dioxide starvation, the development of C4 ecosystems, and mammalian evolution. Yale University. 19 October.

Paleosol CO2 barometers and Phanerozoic atmospheric CO2. Yale University. 19 October.

Global Biogeochemistry. Geological Society of America. 27 October .

Grand Canyon - Grand Events. Geological Society of America. 28 October

Global ecological change - straight from the horse’s mouth. University of Kansas. 19 November.

**Lectures - 1999**

Stable isotope ecology: straight from the horses' mouth. Dept. Fish and Wildlife, Utah State Univ. 13 January.

Global change: straight from the horses' mouth. BYU. 18 Feb.

Noble gases. Workshop on in situ cosmogenic nuclides. Purdue 27 February

Global change in the Miocene: straight from the horses' mouth. SUNY Binghamton. 9 April .

Development of neotropical C4 savannas. Evolución Neotropical del Cenozoico. La Paz, Bolivia. 21 May.

Plenary Lecture: Atmospheric CO2, terrestrial ecology, and mammalian evolution. INQUA, Durban, South Africa.

Plenary Lecture: Atmospheric CO2, terrestrial ecology, and mammalian evolution. International Geochemical Society Meeting. Reykavic, Iceland.

Terrestrial ecology and mammalian evolution in the late Neogene. Geological Society of America. Denver. .

**LECTURES (2000)**

Welcome to the C4 World. Paleodiet Conference. Albarraccin, Spain.

Isotope ecology of elephants. 2nd International Conference on Stable Isotope Ecology. Braunschwieg, Germany.

Isotope ecology and paleoecology in the Turkana Basin. Royal Academy of Sweden, Stockholm.

The development of C4 grasslands. Paleoecology of Grasslands. Wesleyn College. 2 June.

Stable isotope ecology. Kenya Wildlife Service, Nairobi, Kenya 1 Aug.

Stable isotope ecology. National Museums of Kenya. Nairobi, Kenya 4 Aug.

Welcome to the C4-world. Paleontology Society Short Course on Phanerozoic Ecosystems. 11Nov. Reno GSA meeting

**LECTURES (2001)**

Stable isotope ecology: straight from the horses' mouth. Carleton College. 24 Jan.

Global change: straight from the horses' mouth. Univerity of Wyoming 29 Jan.

Cosmogenic isotopes. Physics Department, Univ Utah.7 March

Stable isotope ecology and global change in the Miocene. Stanford University 23 April

Stable isotope ecology. University of Cape Town. 17 July.

Stable isotopes and elephant ecology. Save-the-Elephants Foundation. Nairobi. 20 July.

Stable isotope ecology of East Africa. Mpala Research Center, Kenya. 25 July.

Stable isotopes and sourcing of poached ivory. Kenya Wildlife Service. 2 August.

Scale Effects of global climate change on mammalian herbivores. International Mammal Congress, Sun City, South Africa. 13 August.

Dietary preferecnes of East African bovidae based on stable isotope analysis. International Mammal Congress, Sun City, South Africa. 16 August.

An orphan’s tale: seasonal diet changes of elephants based on stable isotope analyses of hair International Mammal Congress, Sun City, South Africa. 16 August.

LeHigh University. Of Pigs, Elephants, and Men: Stable Isotope Ecology and Paleoecology in Africa. 18 October.

Yale University. Welcome to the C4-World. 25 October.

**LECTURES (2002)**

You are what you eat (+ a few ‰). Distinguished Professor Lecture. Rosenblatt House, May.

Stable isotopes: applications to forensics. Forensic Short Course for Law Enforcement. U Utah. 4 Sept.

Stable isotopes in human tissues. Forensic Short Course for Law Enforcement. U Utah. 5 Sept.

Stable isotope signatures in forensic applications. CIA, Washington DC. 16 October

Ecological and evolutionary change in East Africa during the Neogene. Yale University. 9 Nov.

Stable isotopes of hair. Los Alamos National Laboratory. 6 November.

**LECTURES (2003)**

Ecological and evolutionary change in East Africa during the Neogene. University of Southern California. 18 February.

Lava dams and outburst floods in the Grand Canyon. UC Santa Barbara. 19 Feb.

Trends in extant and fossil East African mammalian diets from stable isotopes. International Symposium on Human Origins and Environmental Backgrounds. Kyoto, Japan. 21 March

Welcome to the C4-World: ecological and evolutionary change in East Africa during the Neogene. 11 April. University of Colorado.

Stable isotopes in Hair. European Academy of Forensic Science. Istanbul. 24 Sept.

Isotopes and Ivory. European Academy of Forensic Science. Istanbul. 25 Sept.

Ecological and evolutionary change in East Africa during the Neogene. Columbia University. 3 October.

Ecological and evolutionary change in East Africa during the Neogene. Purdue University. 23 October.

Lava dams and outburst floods in the Grand Canyon. Purdue University 24 October

C4 grasses and mammalian evolution: the East African evidence (Pardee Symposium). GSA Annual meeting, Seattle. 3 November.

Ecological and evolutionary change in East Africa during the Neogene. 20 November. University of Illinois, Chicago.

Ecological and evolutionary change in East Africa during the Neogene. 8 December. Smithsonian

Stable Isotopes in Forensics:. 10-11 December. FBI Academy. (1. Isotope gradients in O and H; 2. Humans: bones, hair, teeth; 3. Instrumentation; 4. Movements of humans and other animals; 5. Arts: gems, marble, ivory)

Interpretation of stable isotope profiles in mammals. 12 December. Harvard University.

**LECTURES (2004)**

Ecological and evolutionary change in East Africa during the Neogene. 12 Feb. University of Florida

Ecological and evolutionary change in East Africa during the Neogene. 13 Feb. Florida State University

Stable isotopes as natural tracers in forensic sciences. NITECRIME Workshop. Wellington, New Zealand. 2 April, 2004.

Stable Isotope Ecology and Paleoecology in East Africa. Princeton University. 3 May, 2004

Isotopes and Elephants: the potential for ivory sourcing, diet changes, and elephant ecology. Save-The-Elephants Foundation. Samburu Reserve. 6 July 2004

Isotopes and Elephants: the potential for ivory sourcing, diet changes, and elephant ecology. Kenya Wildlife Service. Nairobi. 16 July 2004.

Ten million years of ecological change in East Africa. University of Cape Town. 4 October 2004

Surface exposure dating using cosmogenic isotopes. University of Cape Town. 12 October 2004

The disposal of nuclear waste. Koeburg Power Station, Koeburg, South Africa. 8 October 2004

The disposal of nuclear waste. The Owl Club, Cape Town, South Africa. 19 Oct. 2004.

Geology of East African hominid sites: problems and prospects. INQUA Workshop 1 December, 2004. Pretoria, South Africa.

**LECTURES (2005)**

10 million years of diet history in East Africa. University of Addis Ababa. 4 January 2005.

Stable isotope wildlife ecology. University of Addis Ababa. 5 January, 2005.

Ethiopia: two Christmases in seven years in one month – and thirteen months of sunshine. Community lecture, Kalk Bay, South Africa. 25 January 2005.

Stable Isotopes in Paleosols: the Good, the Bad, and the Ugly. University of Cape Town. 21 Feb 2005.

Isotope Ecology in Africa. National Center for Scientific Research – Lwiro. Democratic Republic of Congo. 18 March. 2005.

10 million years of ecological change in East Africa. SUNY Stony Brook. 7 May 2005

Living with a volcano and wildlife conservation in a failed state: report from DR Congo. Community lecture. Kalk Bay, South Africa. 15 May 2005.

Stable Isotopes in Paleosols: the Good, the Bad, and the Ugly. University of Utah. 8 Sept 2005.

Isotopes in Forensic Science. Sackler Symposium. National Academey of Science. 17 Novemeber 2005. Washington DC

Paleo-aridity index using stable isotopes in mammals. Smithsonian workshop. 18 Nov. 2005. Washington DC.

Paleo-aridity index using stable isotopes of mammals. American Geophysical Union. 6 Dec. 2005. San Francisco.

Stable isotopes in Terrestrial environments as climate proxies. NSF Workshop. 9 Dec 2005, San Francisco.

**LECTURES (2006)**

History of Animals using Isotope Records: 10 days to 10 million years of elephant history. University College Dublin. Dublin Ireland. 8 March 2006

Nuclear Waste: Science and Society. University College Dublin, Dublin, Ireland. 9 March 2006.

HAIR: History of Animals from Isotope Records. BASIN Workshop. Tome, Portugal. 14 March 2006.

HAIR (History of Animals from Isotope Records): From 10 days to 10 million years. Princeton Universty. 21 April 2006

Stable isotope short course: University of Helsinki 2-6 May

1. Stable isotopes in Ecology and Paleoecology: Introduction

2. Stable isotopes in plants: Plants: fractionation, photosynthesis, and respiration.

3. O and H isotopes in water.

4. Stable isotopes in geology.

5. Stable isotope fractionation in large mammals

6. Stable Isotopes in Soils and Paleosols: the Good, the Bad, and the Ugly

7. Stable isotopes in ecology and paleoecology: welcome to the C4 world.

8. Stable isotopes in forensics.

Isotope turnover in animal tissues: the reaction progress variable. Stable Isotope in Ecology. Belfast, Northern Ireland. 11. August 2006.

Whole animal studies and the History of Animals using Isotope Records (HAIR). University of Michigan. 15 September 2006

HAIR (History of Animals from Isotope Records): Elephant diets on times scales of 10 days to 10 million years. University of Michigan. 16 Sept 2006

HAIR: History of Animals from Isotope Records. Elephant diets on times scales of 10 days to 10 million years. University of Minneapolis-Duluth. 29 November 2006

HAIR: History of Animals from Isotope Records. Elephant diets on times scales of 10 days to 10 million years. University of Minneapolis-Minneapolis. 30 November 2006

**LECTURES (2007)**

HAIR (History of Animals from Isotope Records): Examples from African Ecology. 11 Feb 2007. Mpala Research Center. Kenya.

HAIR (History of Animals from Isotope Records): applications to anthropology. 29 Mar. University of Utah. Department of Anthropology.

HAIR (History of Animals from Isotope Records). 18 May. Dartmouth College

HAIR (History of Animals from Isotope Records). 29 June. Yale University.

HAIR (History of Animals from Isotope Records). 9 July. Kenya Wildlife Service.

HAIR (History of Animals from Isotope Records). 11 July. National Museums of Kenya

Isotopes as tracers of ivory origins. Geological Society of America. 29 October. Denver

Dick Hay: a retrospective. Geological Society of America. 30 October. Denver

The reaction progress variable in ecological isotope studies. Geological Society of America. 30 Oct. Denver.

Cosmogenic isotopes and evolution of landscapes in the Western USA. University of Utah. Department of Geography. 2 November.

**Lectures (2008)**

HAIR (History of Animals from Isotope Records). Columbia University. 31 March

ISCOSCAPES: stable isotope patterns on temporal, regional, and global scales. Goddard Institute, 1 April

The reaction progress variable and its implications for stable isotope ecology turnover. Columbia University. 2 April

The reaction progress variable: sensitivity studies. Biosphere-Atmosphere Stable Isotope Network meeting. Santa Barbara. 9 April.

HAIR (History of Animals using Isotope Records). University of Potsdam (Germany). 19 May.

Stable Isotopes in Paleosols. University of Potsdam (Germany). 22 May

Insights into ecology and paleo-ecology using stable isotopes. 18 August. US International Univeristy. Nairobi (Kenya)

Some thoughts on climate change from a geology perspective. 19 October. Society for Vertebrate Paleontology.

HAIR (History of Animals using Isotope Records). 7 November. University of Rochester.

**Lectures (2009)**

HAIR (History of Animals from Isotope Records). University of Cape Town. 10 January

African climates and isotopes. 5th Int. Humboldt Conf. on climate. Cape Town, 16 January

HAIR (History of Animals from Isotope Records). Utah Valley University. April 7

HAIR (History of Animals from Isotope Records). UU alumni. Denver. April 8

Topography, isotopes, and climate. WHOI, Woods Hole, Mass. April 24

A Royal Diet: A 6-year history of one elephant family. National Museums of Kenya. 5 May

Future directions in temporal studies in mammals. 5th International Meeting on Bone Diagenesis. Bonn, Germany. 21 September

**Lectures (2010)**

HAIR (History of Animals from Isotope Records). Northwestern University. Chicago. 15 January

HAIR (History of Animals from Isotope Records). University of Western Michigan. Kalamazoo. 15 March

HAIR (History of Animals from Isotope Records). University of Utah – Biology. 16 Sept.

HAIR (History of Animals from Isotope Records). New York Univ. 7 October

Paleoecology and Human Evolution. New York Univ. 8 October

HAIR (History of Animals from Isotope Records). SUNY – Stony Brook. 15 October

Stable Isotopes and environmental interpretations of African mammal sites. Symposium on Neogene Paleontology. Cape Town, South Africa. 16 November.

Paleo-shade. AGU, San Francisco. 16 Dec 2010.

**Lectures (2011)**

Hair: History of Animals Using Isotope Records. Los Alamos National Lab. 8 Feb

Hair: History of Animals Using Isotope Records. Geriatrics Department. UU. 21 Feb.

Isotopes and animal behavior. Hogel Zoo, Salt Lake City. 24 February

Environments of human evolution: stable isotope evidence. Stanford University. 28 Feb.

Hair: History of Animals Using Isotope Records. Stanford University. 1 March

Stable isotopes as indicators of hominin environments in Africa over the past 6 million years. Cairns, Australia. 14 July.

Diet of Paranthropus boisei. Addis Ababa. EAAPP. 9 August

Determination of woody cover in hominin environments. Addis Ababa, EAAPP. 11 August

Paleoecology and human evolution. Amsterdam, Free University 29 August

Isotopes and anthropology. Turkana Basin Institute, Lodwar. 8 November

**Lectures (2012)**

Nuclear power: mining, power production, and waste in Utah's future. Engineering Forum of Utah. Alta Club. 19 Jan.

Environments of human evolution: stable isotope evidence. Cal Tech. 13 Feb.

HAIR: History of Animals using Isotope Records. Cal Tech. 29 Feb.

Isotopes and forensics: clumped isotopes and site‑specific information. Cal Tech. 8 March.

Physiological and ecological aspects of plants and animals in the context of C4 and C3 plants. Natural History Museum of Los Angeles. 9 March.

Environments of human evolution: stable isotope evidence. U Virginia. 15 March

HAIR: History of Animals Using Isotope Records. U Virginia. 16 March

Reaction Progress - Isotope speedometers and other things. Carlton College. 2 April.

Iso-Forensics. Or, NCIS (Never Contest Isotope Science). Carlton College. 3 April.

Environments of Human Evolution: The Isotope Evidence. Carlton College. 3 April.

Cosmic rays and landscape change in Western USA. Carlton College. 4 April.

Environments of Human Evolution: The Isotope Evidence. U Southern California. 9 April.

Environments of Human Evolution: The Isotope Evidence. UCLA 11 April.

HAIR: History of Animals Using Isotope Records. UCLA 11 April.

A day in the life of a hominid. Lamont‑Doherty Earth Observatory. 19 April.

HAIR: History of Animals Using Isotope Records. U Utah - Math. 17 October.

**Lectures (2013)**

Environments of Human Evolution: The Isotope Evidence. U Utah – Geology. 28 Feb

The real paleo-diet. Arizona State University. Tempe AZ. 27 April.

Environments of Human Evolution: The Isotope Evidence. NSF. 3 May.

The Chemistry of Australopithecine Foods. Cleveland Museum of Natural History. 20 Sept.

Mixing of isotope signals due to sampling and physiology: deconvolution. Geological Society of America, Denver. 30 October.

Carbon isotope record of Plio-Pleistocene diet change in East African herbivores. Society for Vertebrate Paleontology. Los Angeles, 1 November.

Isotopes and forensics. UN Office on Drugs and Crime, Vienna, Austria. 5 December

**Lectures (2014)**

HAIR: History of Animals Using Isotope Records. UC Riverside. 22 January

Environments of Human Evolution: The Isotope Evidence. UC Riverside. 23 January

Environments of Human Evolution: The Isotope Evidence. U Utah. Frontiers of Science Lecture. 5 February.

Isotope Ecology and Paleoecology (9 lectures - U Helsinki, Finland). Introduction; Water; Plants; Atmosphere; Oceans; Animals; Fossils; Soils; Environments. 10-14 February

A puzzle for Mikael. Mikael Fortelius Fête. U Helsinki, Finland. 12 Feb

HAIR: History of Animals Using Isotope Records. U Washington. 12 March

Environments of Human Evolution: The Isotope Evidence. U Washington. 13 March

How does ecology drive diet change in East African herbivores over the past 4 Ma? U Washington. 13 March

Environments of Human Evolution: The Isotope Evidence. U Utah. NAKAMA Lecture. 4 April.

Environments of Human Evolution: The Isotope Evidence. Yale University. 7 April.

Environments of Human Evolution: The Isotope Evidence. Harvard University. 9 April.

HAIR: History of Animals Using Isotope Records. Harvard University. 10 April.

How "Old" is the Earth's Surface? Utah Geology and Cosmic Ray Dating. OSHER. 16 April.

Environments of Human Evolution: The Isotope Evidence. Stony Brook University. 24 April.

HAIR: History of Animals Using Isotope Records. Chinese Academy of Sciences, Beijing. 9 May.

HAIR: History of Animals Using Isotope Records. Northwest University, Xi'an. 12 May.

Isotope evidence for diet of early hominins. The African Human Fossil Record: a Symposium in honor of Meave Leakey, Paul Sabatier University, Toulouse. 27 September.

Diet and ecological change in the Turkana Basin over the past 4 Ma. Geological Society of America. Vancouver. 23 October.

Early Hominin Diets - the stable isotope evidence. Columbia University. 5 November.

Environments of Human Evolution: The Isotope Evidence. Baylor University. 21 November.

Ecological Change in the Turkana Basin Over the Past 4 Ma. American Geophysical Union. San Francisco.

**Lectures (2015)**

Stable isotopes in ecology. Turkana Basin Institute Field School. 10 February

Environments of Human Evolution: The Isotope Evidence. TBI Field School. 11 February

Early hominin diets - the stable isotope evidence. National Museums of Kenya. 12 March.

Early hominin diets. National Academy of Sciences. Washington. 26 April.

HAIR – History of Animals using Isotope Records. National Research Council. 5 May.

Early hominin diets. SMU, Meave Leakey Symposium. 15 May.

Environments of human evolution: the isotope evidence. UC Santa Cruz. 26 May.

HAIR – History of Animals using Isotope Records. UC Santa Cruz. 27 May.

Isotopes in Wildlife Forensics - Migration and movement. Society for Wildlife Forensics Science. Missoula Montana. 23 June

Isotopes in Wildlife Forensics - Dating using 14C. Society for Wildlife Forensics Science. Missoula Montana. 23 June

Training program for research in hominin evolution. African Rift Valley Research Consortium. Cleveland. 26 Sept.

IVORY: Isotope Verification Of Region and Year. Elephant Conservation Summit, Jackson Hole. 29 Sept.

Isoscapes of North America - Evolution of grazing, mixed feeding, and browsing in Africa over 4 Ma. Grasslands Workshop. Santa Fe Institute. 1 October

NEXUS 1492: Diet change through time. Quai Branley Museum, Paris. 8 October.

How hot is it, anyway? Temperatures of early hominid environments in East Africa. Geological Society of America Annual Meeting, Baltimore. 2 November.

Environments of Human Evolution: The Isotope Evidence. King Abdullah University of Science and Technology (KAUST), Jeddah, Saudia Arabia. 8 December.

**Lectures (2016)**

Environments of human evolution: the isotope evidence. Iowa State University. 3 March.

HAIR – History of Animals using Isotope Records. Iowa State University. 3 March.

Environments of human evolution: the isotope evidence. Arizona State University. 30 March.

HAIR – History of Animals using Isotope Records. Arizona State University. 30 March.

Tracking salmon using strontium isotopes. Vernal Community Center. 21 April.

Environments of human evolution: the isotope evidence. École Normale Supérieure - Lyon, France. 16 May.

Environments of human evolution: the isotope evidence. CEREGE – Aix-en-Provence, France. 27 May.

Isotopes in wildlife forensics – Dating using 14C. INTERPOL. Lyon, France. 31 May.

History of Animals using Isotope Records. École Normale Supérieure - Lyon, France. 2 June

Isotopes forensics – dating ivory with 14C. CITES – CoP17. Johannesburg. 29 September

Isotopes forensics – geolocation using Sr-isotopes. INTERPOL. Johannesburg. 2 October.

Environments of human evolution: the isotope evidence. Utah Paleontological Society. 10 Nov

Environments of human evolution: the isotope evidence. University of Nebraska. 18 Nov

Geological evidence for C4 photosynthesis. American Geophysical Union. 16 December.

**2017**

Isotope forensics and the illegal trade in ivory. Houston Museum of Natural History. 22 February

Environments of human evolution: the isotope evidence. Texas A & M. 24 February.

Environments of human evolution: the isotope evidence. U California Davis. 31 May.

Stable isotope answers to problems of biological and terrestrial records. HiRes17. Madison, Wisconsin. 19 June.

Exploring human origins using stable isotopes. Isotopes 2017**:** The Cross-Disciplinary Conference on Stable Isotope Sciences. Ascona, Switzerland. July 11.

Stable isotopes in the Turkana Basin. ECHOES Workshop. Helsinki, Finland. 3 September

New approaches to understanding early hominin diets. Finnish Academy of Science and Letters. Helsinki, Finland. 4 September.

Collaborative Science – some thoughts on practice. President’s Medal – Geological Society of America. 25 October, Seattle.

Cosmic ray dating in Western USA. Department of Physics and Astronomy. U Utah. 2 November.

Diet Changes in the Plio-Pleistocene of East Africa. American Geophysical Union. 11 December.

**2018**

Isotopes in Environmental Forensics. Plenary Lecture. International Network of Environmental Forensics – 2018. Salt lake City. 25 June

Monitoring and Sampling Approaches to Assess Underground Coal Mine Dust Exposures. NIOSH and MSHA. National Academies of Science, Engineering, and Medicine. Washington DC. 27 June.

Monitoring and Sampling Approaches to Assess Underground Coal Mine Dust Exposures. U.S. House of Representatives – Committee on Education and the Workforce. Washington DC. 28 June.

Monitoring and Sampling Approaches to Assess Underground Coal Mine Dust Exposures. U.S. Senate – Committee on Heath, Education, Labor and Pensions. Washington DC. 28 June.

Kids and Goats for Elephants. MPESA Academy. Thika, Kenya. 11 July

HAIR – History of Animals using Isotope Record: Ecology and Forensics. Turkana Basin Institute – Turkwel. 27 July 2018

Monitoring and Sampling Approaches to Assess Underground Coal Mine Dust Exposures. Committee of Earth Resources – National Academies of Science, Engineering, and Medicine. Washington DC. 17 October.

Holocene ecologic change on the Colorado Plateau inferred from a laminated pedogenic carbonate record. American Geophysical Union. Washington DC. 10 December

Ivory, Isotopes, Interpol – a detective story. US Fish and Wildlife. Falls Church, Virginia. 12 December.

**2019**

Ivory, Isotopes, Interpol – a detective story. U Utah. Frontiers of Science. 17 January

Ivory, Isotopes, Interpol – a detective story. U Utah. Department of Chemistry. 7 June.

Ivory, Isotopes, Interpol – a detective story. U Utah. Taft-Nicholson Center. Lakeview, Montana. 11 July.

Yellowstone – Geology and Art. U Utah. Taft-Nicholson Center. Lakeview, Montana. 13 July.

New archive of Holocene and Pleistocene climate and ecologic change. ETH – Zurich. 28 October.

Environments of human evolution: the isotope evidence. ETH - Zurich. 29 October

**2020**

Elephants: Ecology and Forensics. ZOOM lecture. Arizona State University. 20 April

New archive of Holocene and Pleistocene climate and ecologic change. Geochemical Society (ZOOM lecture). 25 June.

CH4/CO2 ratios and isotope enrichment between diet and breath in mammals. Society for Vertebrate Paleontology (ZOOM Poster and discussion). 13 October.

HAIR: History of Animals using Isotope Records. ZOOM lecture. Carleton College. 3 November

HAIR: History of Animals using Isotope Records. ZOOM lecture. University of Delaware. 4 November

**2021**

The C3-C4 transition: Challenges and Opportunities. (ZOOM lecture). Ancient Trails Symposium. Deccan College postgraduate & Research Institute, Pune, India. 7 January

New archive of Holocene and Pleistocene climate and ecologic change. (ZOOM lecture) Texas A& M. 20 January.

An elephant’s tail . . . continued. (ZOOM lecture). University of Utah – School of Biological Sciences. 23 February.

New archive of Holocene and Pleistocene climate and ecologic change. (ZOOM lecture) Utah Valley University. 3 March.

CH4/CO2 ratios and isotope enrichment between diet and breath in mammals. IsoEcol–2021 (ZOOM Poster and discussion). Gaming, Austria. 27 May.

Ecological and physiological considerations related to C3 and C4 photosynthesis in Neogene ecosystems (ZOOM lecture). Seminar Series on Siwalik Geology. Geological Survey of Pakistan – Quetta, Pakistan. 15 June.

Isotope Incorporation into Animal Tissues. Stable Isotope Ecology Short Course, University of New Mexico. 3 August

Isotopes in carnivores as an integrator of ecological change through time (ZOOM lecture). Symposium in honor of Julia Lee-Thorp. Oxford, United Kingdom. 29 September.

Insights from isotopes into mammalian physiology (ZOOM lecture). Max-Planck Institute for the Science of Human History. Jena, Germany. 15 October

**2022**

Isotope Incorporation into Animal Tissues. Stable Isotope Ecology Short Course, University of New Mexico. 23 June

Rosenblatt Prize Acceptance Speech. Salt Lake City, Utah. 20 October.

Isotopes, improbable questions, an unexpected journey. First 100 Geoheritages Sites, IUGS Meeting, Zumaia, Spain. 26 October.

**2023**

Ecological and physiological considerations related to C3 and C4 photosynthesis in Neogene ecosystems (ZOOM lecture). Seminar Series on Monsoon. Woods Hole Oceanographic Institution – Monsoon working group. 22 February.

Soil carbonate pendants: new archive of detailed climate records in the Holocene and Pleistocene. University of British Columbia. 9 March.

From the illegal ivory trade to nuclear waste – an improbable journey by an accidental geologist. GCSC Seminar 4 April. University of Utah.

Fifty years of progress in understanding environments of human evolution in Africa: Some answers to difficult, improbable, and (at times) impossible questions. (Keynote). Africa: The Human Cradle: An International Conference Paying Tribute to Richard E Leakey. Stony Brook University. 8 June.

Isotope Incorporation into Animal Tissues. Stable Isotope Ecology Short Course, University of New Mexico. 24 June

Soil carbonate pendants: new archive of detailed climate records in the Holocene and Pleistocene. Goldschmidt Conference, Lyon France. 12 July.

Fifty years of progress in understanding environments of human evolution in Africa: Some answers to difficult, improbable, and (at times) impossible questions. University of Utah. Department of Anthropology. 5 October.

Condon Lecture: Isotopes, Ivory, Interpol: isotopes in forensic science. Oregon State University. 1 November.

Environments of human evolution in Africa: Some isotopic answers to intriguing, improbable, and (at times) impossible questions. Oregon State University 2 November.

Environments of human evolution in Africa: Some isotopic answers to intriguing, improbable, and (at times) impossible questions. University of Oregon. 3 November

Isotope forensics - past, present, future. Agouron Symposium. California Institute of Technology. 9 Nov.

Environments of human evolution in Africa: Some isotopic answers to intriguing, improbable, and (at times) impossible questions. University of California –Berkeley. 16 November.

Unscrambling the omelette – addressing the time-space problem in ecology and paleoecology. University of California –Berkeley. 17 November.

**GRANTS**

National Science Foundation

Plio-Pleistocene Paleoclimatology and Correlation between East Africa Hominid Localities. $149,118. July 1980 to June 1982. (F.H. Brown Co.-P.I.)

Foundation for Research on the Origin of Man

Climatic Change in the East African Pleistocene: Isotopic Evidence. $3,000. July 1980 to June 1981.

LSB Leakey Foundation

Geologic studies of the Olorgesailie Beds $3,000. July 1981-June 1982.

National Science Foundation

Stratigraphic studies in the Turkana Basin with emphasis on the Koobi Fora region. $135,256. July 1982 to June 1984. (F.H. Brown Co.-P.I.)

National Science Foundation

Continued stratigraphic studies in the Turkana Basin, Kenya. $110,780. July 1984 to June 1986. (F.H. Brown Co.-P.I.).

University Research Committee

The seasonal CO2 cycle in soils. $1,000. June 1984 to June 1985.

Research Corporation

Seasonal CO2 cyclic processes in soils. $7,000. Oct. 1984 to Oct. 1986.

Oak Ridge National Laboratory (Martin Marrietta)

Investigation of Bedload Transport of Contaminated Gravel in the White Oak Creek Drainage. $53,988. July 1985 to July 1986.

Amoco Research

Grant for lacustrine research. $2500. January 1986.

Miffilin and Associates, Inc.

Isotopic studies in the Great Basin (J. R. Bowman, Co-P.I.). $20,900. October 1986 to July 1987.

Oak Ridge National Laboratory (Martin Marrietta)

Investigation of bedload transport of contaminated gravel in The White Oak Creek Drainage. Continuation. $174,000. July, 1986 to September, 1987.

National Science Foundation

3He as an indicator of the terrestrial exposure age of minerals and implications for surface processes. $60,900. July 1987 to December, 1988.

National Science Foundation

Paleosols as indicators of paleoclimates:oxygen and carbon isotopes in pedogenic carbonates. $125,000. July 1987 to June 1989.

Oak Ridge National Laboratory

Tritium and helium isotopes as hydrologic tracers. $120,000. January 1988 to December 1990.

National Science Foundation. Continued studies of the exposure ages of geomorphologic surfaces using cosmogenic 3He. $105,000. July 1989 to June 1991.

National Science Foundation. Continued studies using the isotopic composition of paleosol carbonates and organic matter as paleoecologic and paleoclimatic indicators. $160,000. July 1989 to June 1991.

National Science Foundation. Carbon dioxide content of Mesozoic and Cenozoic atmospheres using paleosols. $175,000. July 1991 to June 1993.

Lawrence Berkeley Laboratory. $15,261. Study of secondary minerals associated with the Yucca Mountain proposed nuclear waste repository. August 1991 to October 1991.

National Science Foundation

Absolute dating of limestone scarps created by paleoearthquakes using cosmogenic 14C. $176,468. July 1992 to January 1996. (R.L. Bruhn co P.I)

National Science Foundation

Continued use of cosmogenic 3He and 21Ne for dating geomorphic surfaces. $77,000. March, 1993 to July, 1996.

University of Utah Research Committee

Study of pore fluids from Lake Malawi, Africa. $5000. January to December, 1993.

National Science Foundation

Carbon isotopic composition of fossil tooth enamel and the development of global ecosystems. $198,000. August, 1993 to Jan 97.

Oak Ridge National Laboratory

Noble gas tracers of hydrology. $183,997. September 1993 to August 1995. (D.K. Solomon, co-P.I.)

National Science Foundation:

Isotopic studies of global change on continents: atmospheric CO2. $140,000. February 1994 to February 1997

National Science Foundation:

Radiogenic helium as a chronologic tracer for younger groundwater.

$160,000 (EAR-9628627), 1 Sept 1996 to 31 August 1999, D.K Solomon (co PI)

National Science Foundation

Studies of carbon and oxygen isotopes in fossil and modern tooth enamel. $120,000. April 1997 to March 1999.

National Science Foundation.

Noble gas mass spectrometer purchase $228,704. Sept 1996 to Aug 1998. (with D. K. Solomon)

National Park System

Paleontological resources and their management in natural areas and other components of the National Park System. $30,000. May 1996 to May 1997.

National Science Foundation

Stable isotope mass spectrometer purchase. $129,000. Jan 1998 to Dec 1999 (with J. R. Ehleringer.

National Science Foundation

4He concentrations in enamel apatite for dating fossils. $90,000. July 1999 to December 2002.

National Science Foundation

Lava-Dam Outburst Floods and Related Volcanic Features in Western Grand Canyon. $160,000. Jan 2000 to Jan 2003

National Science Foundation

Test of the synchronicity of alpine glacial responses to regional high amplitude climate reversals: Southern Andes. $177,000. (Collaborative Research with John Gosse, Univ. Kansas). Jan 2000 to Dec 2003

Packard Foundation.

Atmospheric CO2 Controls Over Animal Evolution and Extinction.

$960,000. July 1999 to Dec 2003.

(T.E. Cerling, J. R. Ehleringer, D. M. Dearing, J. M. Harris)

National Science Foundation 0129299

Proposal for Conference on the History of Atmospheric CO2 and its Effect on the Evolution of Plants, Animals, and Ecosystems.

$25,000. Dec 2001 – Dec 2002

M. Denise Dearing CO-PI(s) James Ehleringer, Thure Cerling

Natoinal Science Foundation 0125663

Ecological Diversity of Miocene Mammals of Pakistan

$20,000. Feb 2002 – Feb 2005

Principal Investigator Catherine Badgley CO-PI(s) John Barry, Anna Behrensmeyer Thure Cerling

National Science Foundation

Stable isotope mass spectrometer purchase.

$196,000. May 2001 to April

PI: J. R. Ehleringer. co-PI T. E. Cerling

National Science Foundation.

Stable Isotope Studies of Vegetation Change and Mammal Evolution in Australia. $240,000. July 2002-June 2005.

PI: L. Ayliffe. co-PI: T. E. Cerling

National Science Foundation 0309695

Stable Isotopes in Archaeological Research: An Experimental Study of Diet-Tissue Fractionation

$138,282. Aug 2003 – July 2005.

Principal Investigator Matt Sponheimer, CO-PI(s) Thure Cerling

National Science Foundation. 0345693

Enamel Maturation in Mammals and Implications for Stable Isotope Analysis for Diet and Climate Signals

$180,000. June 2004 – May 2007

Principal Investigator Thure Cerling

USGS. EDMAP

Constructing surficial geologic maps of the Government Point and Blind Lake quadrangles (Utah) with emphasis on landslide hazards.

$15,000. May 2004 – April 2005

Principal Investigator Thure Cerling

TSWG. Technical Science Working Group

Stable Isotope Analysis of Hair.

$309,000. March 2004 – March 2006.

(Ehleringer, Cerling. co-PIs)

National Geographic Society.

Stable Isotope Ecology of Central African Rain Forests..

$19,000. (March 2004-Feb 2005).

Thure Cerling, John Hart and Nick van der Merwe, co-PIs

LSB Leakey Foundation.

Isotopic study of paleosols from the Shungura Formation, Ethiopia. $15,000.

Nov. 2004 – Nov 2005

National Science Foundation

*“Graduate Student Training Grant:* ***“WEST”*** *(****W****ater, the* ***E****nvironment,and* ***T****eaching) GK-12 Project”*

Principal Investigator: David Chapman.

Co-Principal Investigators: Thure Cerling, Margaret Chan, Jaimie Creola, Denise Dearing, Scot Sampson, Kip Solomon, Edward Zipster.

Total Costs: $1,500,000. Start date: 5/01/04 Duration 4 yrs.

National Science Foundation

Hominids, geology, geochronology, and isotope ecology in the Omo-Turkana Basin, East Africa.

$2,500,000. August 2006 – July 2011.

Brown, Cerling, and Bruhn, co-PIs.

National Science Foundation.

Quantitative estimates of paleo-aridity using stable isotopes

$180,000. August 2006 – August 2008.

National Science Foundation

Isotope Ratio Mass Spectrometers for Environmental Research

$420,000. August 2007-August 2008

Cerling, Ehleringer, Bowling. co-PIs.

National Science Foundation.

Life history of elephants using stable isotopes.

$200,000. August 2008-July 2010.

Cerling, Podlesak, co-PIs.

IsoForensics

Analytical Support for Geochemistry

$200,000. April 2009-April 2012.

Cerling, PI.

National Science Foundation.

Multi-Collector ICPMS for Geology/Geophysics

$740,048. Jan 2010 – Dec 2012

Cerling, Fernandez, Johnsons, co-PIs.

National Science Foundation.

Integrated Training for Continental Ecology (ITCE): Bridging scales and systems

with isotopes

$2,187,251. Jan 2012‑Dec 2017.

Ehleringer, Cerling co‑PIs.

IsoForensics

Analytical Support for Geochemistry

$200,000. April 2012-April 2015.

Cerling, PI.

National Science Foundation: Major Research Instrumentation Program

Acquisition of Isotope Ratio Mass Spectrometers for Environmental Research

$350,000. Oct 2013-Oct 2017

GJ Bowen, D Bowling, TE Cerling, JR Ehleringer, D Pataki, co-PIs

National Science Foundation

Late Pleistocene paleoclimatology from soil carbonate pendants in the Colorado Plateau

$425,219. 1 Sept 2013 to 31 Aug 2017.

Cerling Fernandez, co-PIs.

LSB Leakey Foundation

Stable isotopes in the Turkana Basin

$18,410. Jan-Dec 2015.

EDMAP

Geologic map of the Torrey Utah 7.5' Quadrangle.

$16,962. April 2014 - March 2015.

Cerling, Chan, PIs.

IsoForensics

Analytical Support for Geochemistry

$120,000. April 2015-April 2018.

Cerling, PI.

U Utah Seed Grant

Mg and Zn isotopes as environmental indicators

$33,105. Jan 2016 – Jan 2017.

Cerling, PI.

National Science Foundation

Isotope ecology and paleoecology in East Africa in the past 4 Ma

$608,204. February 2018 – January 2023

Cerling, PI.

Elephant Crisis Fund

Age of ivory from 2017-2019 Seizures.

$25,000. December 2020 – December 2021

Cerling, PI.

National Science Foundation

Collaborative Research: Laminated soil carbonate rinds as a tool for investigating late Quaternary climate-vegetation links

$153,380. August 2021 – July 2023

Cerling, PI.