

Curriculum Vitae
Alan Jay Kaufman

Notarization. I have read the following and certify that this *curriculum vitae* is a current and accurate statement of my professional record.

Signature _____ Date _____

Curriculum Vitae

I. PERSONAL INFORMATION

Name: Alan Jay Kaufman (Appointed in 2009)
Title: Professor of Geochemistry
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University of Maryland
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Born: February 24, 1960
Little Rock, Arkansas

Education: Ph.D. 1990 Biogeochemistry, Indiana University, Bloomington, IN.
Dissertation Title: Stable isotopic studies of Early Proterozoic banded iron-formations and Late Proterozoic carbonate platform sequences

M.S. 1986 Geology, Indiana University, Bloomington, IN

B.S. 1982 Geology, Louisiana State University, Baton Rouge, LA

B.A. 1982 English, Louisiana State University, Baton Rouge, LA

Employment: 2009-present Professor, Department of Geology, University of Maryland, College Park
Affiliate Faculty, Earth System Science Interdisciplinary Center (ESSIC), UMD

2003-2009 Associate Professor, Department of Geology, University of Maryland, College Park
Affiliate Faculty, Earth System Science Interdisciplinary Center (ESSIC) University of Maryland, College Park

2001-2003: Assistant Professor, Department of Geology, University of Maryland, College Park
Affiliate Faculty, Earth System Science Interdisciplinary Center (ESSIC), UMD

- 1997-2001: Assistant Professor, Department of Geology, University of Maryland, College Park
- 1995-1997: Research Associate, Department of Earth & Planetary Sciences, Harvard University, Cambridge, MA
- 1992-1995: Research Associate and Mass Spectrometry Facility Manager, Department of Earth & Planetary Sciences, Harvard University, Cambridge, MA
- 1990-1992: Post-doctoral Fellow, Department of Earth & Planetary Sciences, Harvard University, Cambridge, MA
- 1983-1990: Research Assistant, Biogeochemical Laboratories, Indiana University, Bloomington, IN
- 1981: Research Assistant, Louisiana State University, Baton Rouge, LA

II. RESEARCH, SCHOLARLY, & CREATIVE ACTIVITIES

a. Books

b. Articles in Refereed Journals

First author is lead author.

*Denotes graduate student at time of submission.

Denotes undergraduate student at time of submission.

In review

- 91.** Guy, B., Gutzmer, J., **Kaufman, A.J.**, Lin, Y., Fogel, M., and Beukes, N.J. (in review) A multiple-sulfur and organic carbon isotope record from non-conglomeratic sedimentary rocks of the Mesoarchean Witwatersrand Supergroup, South Africa. *Precambrian Research*.
- 90.** Zelanko, P., Yu, Z., Bebout, G. and **Kaufman, A.J.** (in review) Early Holocene outburst floods and climate oscillations at Silver Lake, New Jersey. *Palaeogeography, Palaeoclimatology, Palaeoecology*.
- 89.** Loyd, Sean J., Marenco, Pedro J., Hagadorn, James W., Lyons, Timothy W., **Kaufman, Alan J.**, Sour-Tovar, F. and Corsetti, Frank A. (in review) Local $\delta^{34}\text{S}$ variability in ~580Ma carbonates of northwestern Mexico and the Neoproterozoic marine sulfate reservoir. *Precambrian Research*.
- 88.** Loyd, S.J., Marenco, P.J., Hagadorn, J.W., Lyons, T.W., **Kaufman, A.J.**, Sour-Tovar, F. and Corsetti, F.J. (in review) Sustained low sulfate concentration in the Neoproterozoic to Cambrian ocean: insights from carbonates of northwestern Mexico and eastern California. *Earth and Planetary Science Letters*.

87. Thompson, C.K.*, Kah, L.C., and **Kaufman, A.J.** (in review) Did ventilation of euxinic oceans herald the end of Ordovician greenhouse climate? *Nature Geoscience*.

2011

86. Xiao, S., McFadden, K.A., Peek, S.*, **Kaufman, A.J.**, Zhou, C., Jiang, G., and Hu, J. (in press) Implications of integrated chemostratigraphy and basin architecture of the Doushantuo Formation for Ediacaran stratigraphic correlation and ocean redox models. *Precambrian Research* **192-195**: 125-141.
85. Oduro, H.*, Harms, B.*, Sintim, H.O., **Kaufman, A.J.**, Cody, G., and Farquhar, J. (2011) Evidence of magnetic isotope effects during thermochemical sulfate reduction. *Proceedings of the National Academy of Sciences* **108**: 17635-17638.
84. Shen, B., Xiao, S., Bao, H., **Kaufman, A.J.**, Zhou, C., Yuan, X. (2011) Carbon, sulfur, and oxygen isotope evidence for a strong depth gradient and oceanic oxidation after the Ediacaran Hankschouglaciation. *Geochimica et Cosmochimica Acta* **75**: 1357-1373.
83. Martin, A.J., Burgoyne, K.D.*, **Kaufman, A.J.**, and Geherls, G.E. (2011) Stratigraphic and tectonic implications of field and isotopic constraints on depositional ages of Proterozoic Lesser Himalayan rocks in central Nepal. *Precambrian Research* **185**: 1-17.

2010

82. Hebert, C.L., **Kaufman, A.J.**, Penniston-Dorland, S.C., and Martin, A.J. (2010) Radiometric and stratigraphic constraints on terminal Ediacaran (post-Gaskiers) glaciation and metazoan evolution. *Precambrian Research* **182**: 402-412.
81. Kendall, B., Reinhard, C.T., Lyons, T.W., **Kaufman, A.J.**, Poulton, S.W. and Anbar, A.D. (2010) Pervasive oxygenation along Late Archaean ocean margins. *Nature Geosciences* **3**: 647-652.
80. Shen, B., Xiao, S., Zhou, C., **Kaufman, A.J.**, Yuan, X. (2010) Carbon and sulfur isotope chemostratigraphy of the Neoproterozoic Quanji Group of the Chaidam Basin, NW China: Basin stratification in the aftermath of an Ediacaran glaciation postdating the Shuram event? *Precambrian Research* **177**: 241-252.
79. Guo, Z., Li, Z., Farquhar, J., **Kaufman, A.J.**, Wu, N., Li, C., Dickerson, R.R., Wen, T., Wang, P. (2010) Identification of sources of atmospheric sulfate by

sulfur isotope and SEM measurements. *Journal of Geophysical Research* **115**, D00K07, doi: 10.1029/2009JD012893, 2010.

2009

- 78. Kaufman, A.J.**, Sial, A.N., Frimmel, H.E., Misi, A. (2009) Neoproterozoic to Cambrian palaeoclimatic events in southwestern Gondwana. In Neoproterozoic-Cambrian Tectonics, Global Change and Evolution: A Focus on Southwestern Gondwana (Eds. Gaucher, C., Sial, A.N., Frimmel, H.E. and Halverson, G.P.). *Developments in Precambrian Geology*, vol. 16: 369-388.
- 77.** Garvin, J.* , Buick, R., Anbar, A.D., Arnold, G.L., Kaufman, A.J. (2009) Response to Analysis of Archean nitrogen isotopic data. *Science* E-letter: <http://www.sciencemag.org/cgi/eletters/323/5917/1045>.
- 76.** Klochko, K.* , Cody, G., Tossell, J.A., Dera, P., **Kaufman, A.J.** (2009) Re-evaluating boron speciation in biogenic calcite and aragonite using 11B MAS NMR. *Geochimica et Cosmochimica Acta* **73**: 1890-1900.
- 75.** Ono, S., **Kaufman, A.J.**, Farquhar, J., Sumner, D.Y., Beukes, N.J. (2009) Lithofacies control on multiple-sulfur isotope records and Neoproterozoic sulfur cycles. *Precambrian Research* **169**: 58-67.
- 74.** Guo, Q., Strauss, H., **Kaufman, A.J.**, Schroder, S., Gutzmer, J., Wing, B., Baker, M.A.* , Bekker, A., Kim, S.-T., Farquhar, J. (2009) Reconstructing Earth's surface oxidation across the Archean-Proterozoic transition. *Geology* **37**: 399-402
- 73.** Shen, Y., Farquhar, J., Masterson, A. # , **Kaufman, A.J.**, Buick, R. (2009) Evaluating the role of microbial sulfate reduction in the early Archean using quadruple isotope systematics. *Earth and Planetary Science Letters* **279**: 383-391.
- 72.** Garvin, J.* , Buick, R., Anbar, A.D., Arnold, G.L., **Kaufman, A.J.** (2009) Isotopic evidence for an aerobic nitrogen cycle in the latest Archean. *Science* **323**: 1045-1048.
- 71.** Johnston, D.T.* , Farquhar, J., Summons, R.E., Shen, Y., **Kaufman, A.J.**, Masterson, A.L. # , Canfield, D.E. (2008) Sulfur isotope biogeochemistry of the Proterozoic McArthur Basin. *Geochimica et Cosmochimica Acta* **72**: 4278-4290.
- 70.** Rooker, J.R., Secor, D.H., DeMetrio, G., **Kaufman, A.J.**, Rios, A.B., Rodriguez-Marin, E., Tičina, V. (2009) Evidence of trans-Atlantic movement and natal homing of bluefin tuna from stable isotopes in otoliths. *Marine Ecology Progress Series* **368**: 231-239.

2008

69. Marengo, P.J.* , Corsetti, F.A., **Kaufman, A.J.**, and Bottjer, D.J. (2008) Environmental and diagenetic variations of carbonate associated sulfate: An investigation of CAS in the Lower Triassic of the western U.S.A. *Geochimica et Cosmochimica Acta* **72**: 1570-1582.
68. McFadden, K.A.* , Jing Huang, Xuelei Chu, Ganqing Jiang, **Kaufman, A.J.**, Chuanming Zhou, Xunlai Yuan, Shuhai Xiao (2008) Redox Instability and Biological Evolution in the Ediacaran Doushantuo Formation. *Proc. Natl. Acad. Sci. USA*, **105**: 3197-3202.
67. Shen, B.* , Xiao, S., **Kaufman, A.J.**, Bao, H., Zhou, C. and Wang, H. (2008) Sulfur isotopes of the basal Ediacaran Zhamoketi cap carbon in Qurutagh Area, Chinese Tianshan: Implications for sulfur cycling in a post-Marinoan basin. *Earth and Planetary Science Letters* **265**: 209-228.
66. Marengo, P.J.* , Corsetti, F.A., Hammond, D.E., **Kaufman, A.J.**, and Bottjer, D.J. (2008) Oxidation of pyrite during extraction of carbonate associated sulfate. *Chemical Geology* **247**: 124-132.

2007

65. **Kaufman, A.J.**, Johnston, D.T.* , Farquhar, J., Masterson, A.L. # , Lyons, T.W., Bates, S., Anbar, A., Arnold, G.L., Garvin, J.* , and Buick, R. (2007) Late Archean biospheric oxygenation and atmospheric evolution. *Science* **317**: 1900-1903.
64. Anbar, A.D., Duan, Y.* , Lyons, T.W., Arnold, G.L., Kendall, B.* , Creaser, R.A., **Kaufman, A.J.**, Gordon, G.W., Garvin, J.* , and Buick, R. (2007) A whiff of oxygen before the great oxidation event? *Science* **317**: 1903-1906.
63. Jiang, G., **Kaufman, A.J.**, Christie-Blick, N.J., Zhang, S., and Wu, H. (2007) Carbon isotope variability across the Ediacaran Yangtze platform in South China: Implications for a large surface-to-deep ocean $\delta^{13}\text{C}$ gradient. *Earth and Planetary Science Letters* **361**: 303-320.
62. Schiffbauer, J.D.* , Leiming Yin, Bodnar, R.J., **Kaufman, A.J.**, Fanwei Meng, Jie Hu, Bing Shen* , Xunlai Yuan, and Shuhai Xiao (2007) Ultrastructural and geochemical characterization of Archean–Paleoproterozoic graphite discs: Implications for recognizing traces of life in highly metamorphosed rocks. *Astrobiology* **7**: 684-704.
61. Farquhar, J., Peters, M., Johnston, D.T., Strauss, H., Masterson, A. # , Wiechert, U., and **Kaufman, A.J.** (2007) Isotopic evidence for Mesoproterozoic anoxia and changing atmospheric sulfur chemistry. *Nature* **449**: 706-709.

60. France, C.A.M.* , Zelanko, P.M. # , **Kaufman, A.J.**, and Holtz, T.R. (2007) Carbon and nitrogen isotopic analysis of Pleistocene mammals from the Saltville Quarry (Virginia, USA): implications for trophic relationships. *Palaeogeography, Palaeoclimatology, Palaeoecology* **249**: 271-282.
59. Bekker, A. and **Kaufman, A.J.** (2007) Oxidative forcing of global climate change: a biogeochemical record across the oldest Proterozoic ice age in North America. *Earth and Planetary Science Letters* **258**: 486-499.
58. **Kaufman, A.J.**, Corsetti, F.A. and Varni, M.A.* (2007) The effect of rising atmospheric oxygen on carbon and sulfur isotope anomalies in the Neoproterozoic Johnnie Formation, Death Valley, USA. *Chemical Geology* **237**: 47-63.
57. Misi, A., **Kaufman, A.J.**, Azmy, K., Gaucher, C., Powis, K.* , Veizer, J., Boggiani, P.C., Teixeira, J.B.G., Sanches, A.L. and Iyer, S.S.S. (2007) Chemostratigraphic correlation of Neoproterozoic successions in South America. *Chemical Geology* **237**: 143-167.

2006

56. Azmy, K., **Kaufman, A.J.**, Misi, A., and de Oliveira, T.F. (2006) Isotope stratigraphy of the Lapa Formation, Sao Francisco Basin, Brazil: Implications for Late Neoproterozoic glacial events in South America. *Precambrian Research* **149**: 231-248.
55. Klochko, K.* , **Kaufman, A.J.**, Yao, W., Byrne, R.H. and Tossell, J.A. (2006) Experimental determination of boron isotope fractionation in seawater. *Earth and Planetary Science Letters* **248**: 261-270
54. Bekker, A.* , Karhu, J.A. and **Kaufman, A.J.** (2006) Carbon isotope record of the onset of the Lomagundi carbon isotope excursion in the Great lakes area, North America. *Precambrian Research* **148**: 145-180
53. **Kaufman, A.J.**, Jiang, G., Christie-Blick, N., Banerjee, D. and Rai, V. (2006) Stable isotope record of the terminal Neoproterozoic Krol platform in the Lesser Himalayas of northern India. *Precambrian Research* **147**: 156-185.
52. Byrne, R.H., Yao, W., Klochko, K.* , Tossell, J.A. and **Kaufman, A.J.** (2006) Experimental evaluation of the isotope exchange equilibrium $^{10}\text{B}(\text{OH})_3 + ^{11}\text{B}(\text{OH})_4^- = ^{11}\text{B}(\text{OH})_3 + ^{10}\text{B}(\text{OH})_4^-$ in aqueous solutions. *Deep Sea Research Part I* **53**: 684-688.

2005

51. Johnston, D.T.*, Farquhar, J., Wing, B.A., **Kaufman, A.J.**, Canfield, D.E. and Habicht, K. (2005) Multiple sulfur isotope fractionations in biological systems. *American Journal of Science* **305**: 645-660.
50. Johnston, D.T.*, Wing, B.A., Farquhar, J., **Kaufman, A.J.**, Strauss, H., Lyons, T.W., Kah, L.C. and Canfield, D.E. (2005) Active microbial sulfur disproportionation in the Mesoproterozoic. *Science* **310**, 1477-1479.
49. Corsetti, F.A. and **Kaufman, A.J.** (2005) The relationship between the Neoproterozoic Noonday Dolomite and the Ibex Formation: New observations and their bearing on 'snowball Earth'. *Earth-Science Reviews* **73**: 63-78.
48. Bekker, A. *, **Kaufman, A.J.**, Karhu, J.A. and Eriksson, K.A. (2005) Evidence for Paleoproterozoic cap carbonates in North America. *Precambrian Research* **137**: 167-206.
47. Olcott, A.N.*, Sessions, A.L., Corsetti, F.A., **Kaufman, A.J.** and de Oliveira, T.F. (2005) Biomarker evidence for photosynthesis during Neoproterozoic glaciation. *Science* **310**: 471-474.

2004

46. Xiao, S., Bao, H., Wang, H., **Kaufman, A.J.**, Zhou, C., Li, G., Yuan, X. and Ling, H. (2004) The Neoproterozoic Quruqtagh Group in eastern Chinese Tianshan: evidence for a post-Marinoan glaciation. *Precambrian Research* **130**: 1-26.
45. Pyle, L.J.*, Narbonne, G.M., James, N.P., Dalrymple, R.W. and **Kaufman, A.J.** (2004) Integrated Ediacaran chemostratigraphy, Wernecke Mountains, northwestern Canada. *Precambrian Research* **132**: 1-27.

2003

44. Bekker, A. *, Sial, A.N., Karhu, J.A., Ferreira, V.P., Noce, C.M., Romano, A.W., **Kaufman, A.J.**, and Pimentel, M.M. (2003) Chemostratigraphy of carbonates from the Minas Supergroup, Quadrilatero Ferrifero, Brazil: implications for biogeochemical cycling of carbon in the early Paleoproterozoic. *American Journal of Science* **303**: 865-904.
43. **Kaufman, A.J.** and Xiao, Shuhai (2003) High CO₂ levels in the Proterozoic atmosphere estimated from analyses of individual microfossils. *Nature* **424**: 279-282.
42. Corsetti, F.A. and **Kaufman, A.J.** (2003) Stratigraphic investigations of carbon isotope anomalies and Neoproterozoic ice ages in Death Valley, California. *Geological Society of America Bulletin* **115**: 916-932.

41. Jiang G.*, Christie-Blick N., **Kaufman A.J.**, Banerjee, D.M. and Rai, V. (2003) Carbonate platform growth and cyclicity at a terminal Proterozoic passive margin, Infra Krol Formation and Krol Group, Lesser Himalaya, India. *Sedimentology* **50**: 921-952.
40. Alexander, B.*, Thiemens, M.H., Farquhar, J., **Kaufman, A.J.**, Savarino, J. and Delmas, R.J. (2003) East Antarctic ice core sulfur isotope measurements over a complete glacial-interglacial cycle. *Journal of Geophysical Research* **108**(D24): 4786.
39. Bekker, A.*, Karhu, J.A., Eriksson, K.A. and **Kaufman, A.J.** (2003) Chemostratigraphy of Paleoproterozoic carbonate successions of the Wyoming Craton: tectonic forcing of biogeochemical change? *Precambrian Research* **120**: 279-326.

2002

38. Hurtgen, M.T.*, Arthur, M.A., Suits, N.S. and **Kaufman, A.J.** (2002) The sulfur isotopic composition of Neoproterozoic seawater sulfate: implications for a snowball Earth? *Earth and Planetary Science Letters* **203**: 413-429.
37. Ganqing Jiang*, Christie-Blick, N., **Kaufman, A.J.**, Banerjee, D.M. and Rai, V. (2002) Sequence stratigraphy of the Neoproterozoic Infra Krol Formation and Krol Group, Lesser Himalaya, India. *Journal of Sedimentary Geology* **72**: 524-542.
36. Halverson, G.P.*, Hoffman, P.F., Schrag, D.P. and **Kaufman, A.J.** (2002) A major perturbation of the carbon cycle before the Ghaub glaciation (Neoproterozoic) in Namibia: a trigger mechanism for snowball Earth? *Geochemistry, Geophysics, Geosystems* **3**(6): 10.1029/2001GC000244.

2001

35. Bekker, A.*, **Kaufman, A.J.**, Karhu, J.A., Beukes, N.J. Swart, Q. D., Coetzee, L.L.* and Eriksson, K.A. (2001) Chemostratigraphy of the Paleoproterozoic Duitschland Formation, South Africa: implications for coupled climate change and carbon cycling. *American Journal of Science* **301**: 261-285.
34. Bartley, J.K., Semikhatov, M.A., **Kaufman, A.J.**, Pope, M.C., Knoll, A.H. and Jacobsen, S.B. (2001) Global events across the Mesoproterozoic-Neoproterozoic boundary: C and Sr isotopic evidence from Siberia. *Precambrian Research* **111**: 165-202.

2000

33. Corsetti, F.A., Awramik, S.M., Pierce, D. and **Kaufman, A.J.** (2000) Using chemostratigraphy to correlate and calibrate unconformities in Neoproterozoic strata from the southern Great Basin of the United States. *International Geology Review* **42**: 516-533.

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32. Hayes, J.M., Strauss, H. and **Kaufman, A.J.** (1999) The abundance of ^{13}C in marine organic matter and isotopic fractionation in the global biogeochemical cycle of carbon during the past 800 Ma. *Chemical Geology* **161**: 103-125.
31. Jacobsen, S.B. and **Kaufman, A.J.** (1999) The Sr, C and O isotopic evolution of Neoproterozoic seawater. *Chemical Geology* **161**: 37-57.
30. Kah, L.C. *, Sherman, A.G. *, Narbonne, G.M., Knoll, A.H. and **Kaufman, A.J.** (1999) $\delta^{13}\text{C}$ stratigraphy of the Proterozoic Bylot Supergroup, Baffin Island, Canada: implications for regional lithostratigraphic correlations. *Canadian Journal of Earth Sciences* **36**: 1-20.
29. Myrow, P. and **Kaufman, A.J.** (1999) A newly-discovered cap carbonate above Varanger-aged glacial deposits in Newfoundland. *Journal of Sedimentary Research* **69**: 784-793.

1998

28. Hoffman, P.F., Schrag, D.P., Halverson, G.P.* and **Kaufman, A.J.** (1998) An early snowball earth? Response. *Science* **282**: 1645-1646.
27. Saylor, B.Z.* , **Kaufman, A.J.**, Grotzinger, J.P. and Urban, F. # (1998) A composite reference section for terminal Proterozoic strata of southern Namibia. *Journal of Sedimentary Research* **68**: 1223-1235.
26. Hoffman, P.F., **Kaufman, A.J.**, Halverson, G.P.* and Schrag, D.P. (1998) A Neoproterozoic snowball Earth. *Science* **281**: 1342-1346.
25. Hoffman, P.F., **Kaufman, A.J.** and Halverson, G.P.* (1998) Comings and goings of global glaciations on a Neoproterozoic tropical platform in Namibia. *GSA Today* **8**: 1-9.

1997

24. **Kaufman, A.J.**, Knoll, A.H. and Narbonne, G.M. (1997) Isotopes, ice ages, and terminal Proterozoic earth history. *Proceedings of the National Academy of Sciences* **94**: 6600-6605.

23. Xiao Shuhai*, Knoll, A.H., **Kaufman, A.J.**, Yin Leming and Yun Zhang (1997) Neoproterozoic fossils in Mesoproterozoic rocks? Chemostratigraphic resolution of a biostratigraphic conundrum from the North China Platform. *Precambrian Research* **84**: 197-220.
22. Knoll, A.H., **Kaufman, A.J.**, Semikhatov, M., Grotzinger, J.P. and Adams, W.R. # (1997) Reply: Sizing up the sub-Tommotian unconformity in Siberia. *Geology* **25**: 287.

1996

21. **Kaufman, A.J.**, Knoll, A.H., Semikhatov, M., Grotzinger, J.P., Jacobsen, S.B. and Adams, W.R. # (1996) Isotopic chemostratigraphy of Precambrian-Cambrian boundary beds in the Western Anabar Region, Northern Siberia. *Geological Magazine* **133**: 509-533.
20. Knoll, A.H., **Kaufman, A.J.**, Semikhatov, M.A., Grotzinger, J.P. and Adams, W. # (1996) Reply: Sizing up the sub-Tommotian unconformity in Siberia. *Geology* **24**: 861-862.
19. **Kaufman, A.J.** (1996) Effects of contact metamorphism on banded iron-formation: Mineralogic and isotopic evidence. *Precambrian Research* (Special Issue on the Geology and Geochemistry of the Transvaal Supergroup) **79**: 171-193.
18. Pelechaty, S.*, **Kaufman, A.J.** and Grotzinger, J.P. (1996) Evaluation of $\delta^{13}\text{C}$ isotope stratigraphy for intrabasinal correlation: Data from Vendian strata of the Olenek uplift and Kharaulakh Mountains, Siberian platform, Russia. *The Bulletin of the Geological Society of America* **108**: 992-1003.
17. **Kaufman, A.J.** and Corsetti, F.A.* (1996) Reply: Chemostratigraphy of Neoproterozoic-Cambrian Units, White-Inyo Region, Eastern California: Implications for Global Correlation and Faunal Distribution. *Palios* **11**: 86-89.
16. Smith, L.H.*, **Kaufman, A.J.**, Knoll, A.H. and Link, P.K. (1996) Reply: Chemostratigraphy of the terminal Proterozoic Pocatello Formation and Lower Brigham Group, Southeastern Idaho and Northern Utah. *Geological Magazine* **133**: 347-349.

1995

15. Grotzinger, J.P., Bowring, S.A., Saylor, B.Z.*, and **Kaufman, A.J.** (1995) Biostratigraphic and geochronologic constraints on early animal evolution. *Science* **270**: 598-604.

14. Knoll, A.H., **Kaufman, A.J.**, Semikhatov, M.A., Grotzinger, J.P. and Adams, W.R. # (1995) Sizing up the sub-Tommotian unconformity in Siberia. *Geology* **23**: 1139-1143.
13. **Kaufman, A.J.** and Knoll, A.H. (1995) Neoproterozoic variations in the carbon isotopic composition of seawater: Stratigraphic and biogeochemical implications. *Precambrian Research* **73**: 27-49.
12. Knoll, A.H., Grotzinger, J.P., **Kaufman, A.J.** and Kolosov, P. (1995) Integrated chronostratigraphy of the terminal Proterozoic successions of the Olenek Uplift, northern Siberia. *Precambrian Research* **73**: 251-270.
11. Knoll, A.H., **Kaufman, A.J.** and Semikhatov, M.A. (1995) The carbon-isotopic composition of Proterozoic carbonates: Riphean successions from the Anabar Massif and Turukhansk Uplift, Siberia. *American Journal of Science* **295**: 823-850.

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10. Narbonne, G.M., **Kaufman, A.J.** and Knoll, A.H. (1994) Integrated carbon isotope and biostratigraphy of the upper Windemere Group, MacKenzie Mountains, N.W. Territories, Canada. *The Bulletin of the Geological Society of America* **106**: 1281-1292.
9. Smith, L.H.* , **Kaufman, A.J.** , Knoll, A.H. and Link, P.K. (1994) Chemostratigraphy of the terminal Proterozoic Pocatello Formation and Lower Brigham Group, Southeastern Idaho and Northern Utah. *Geological Magazine* **131**: 301-314.
8. Corsetti, F.A.* and **Kaufman, A.J.** (1994) Chemostratigraphy of Neoproterozoic-Cambrian Units, White-Inyo Region, Eastern California: Implications for Global Correlation and Faunal Distribution. *Palios* **9**: 211-219.

1993

7. **Kaufman, A.J.**, Jacobsen, S.B. and Knoll, A.H. (1993) The Vendian record of C- and Sr-isotopic variations: Implications for tectonics and paleoclimate. *Earth and Planetary Science Letters* **120**: 409-430.

1992

6. **Kaufman, A.J.** , Knoll, A.H. and Awramik, S.M. (1992) Biostratigraphic and chemostratigraphic correlation of Neoproterozoic sedimentary successions: Upper Tindir Group, northwestern Canada, as a test case. *Geology* **20**: 181-185.

5. Derry, L.A.*, **Kaufman, A.J.** and Jacobsen, S.B. (1992) Sedimentary cycling and environmental change in the Late Proterozoic: evidence from stable and radiogenic isotopes. *Geochimica et Cosmochimica Acta* **56**: 1317-1329.

1991

4. **Kaufman, A.J.***, Hayes, J. M., Knoll, A.H. and Germs, G.J.B. (1991) Isotopic compositions of carbonates and organic carbon from Upper Proterozoic successions in Namibia: Stratigraphic variation and the effects of diagenesis and metamorphism. *Precambrian Research* **49**: 301-327.
3. **Kaufman, A.J.***, Hayes, J.M. and Klein, C. (1991) Primary and diagenetic controls of isotopic compositions of iron-formation carbonates. *Geochimica et Cosmochimica Acta* **54**: 3461-3473.

1990

2. Beukes, N.J., Klein, C., **Kaufman, A.J.*** and Hayes, J.M. (1990) Carbonate petrography, kerogen distribution, and carbon and oxygen isotope variations in an Early Proterozoic transition from limestone to iron-formation deposition, Transvaal Supergroup, South Africa. *Economic Geology* **85**: 663-690.

1986

1. Knoll, A.H., Hayes, J.M., **Kaufman, A.J.***, Swett, K. and Lambert, I.B. (1986) Secular variations in carbon isotope ratios from Upper Proterozoic successions of Svalbard and East Greenland. *Nature* **321**: 832-838.

b. **Book Reviews, Other Articles, and Notes.**

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Kaufman, A.J. (1997) An ice age in the tropics. *Nature* **386**: 227-228.

Kaufman, A.J., "Using scientific tools, scholars cast doubt on individual crafting of ancient bronze sculptures." *The San Jose Mercury News and the Mercury Center*, Tuesday, March 25, 1997, p. F1-F2.

Kaufman, A.J., "Setting back the clock on a simple ancestor." *The Washington Post*, Monday March 10, 1997, p. A3.

Kaufman, A.J., "The big belch." *Earth*, December 1996, p. 19-20.

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Kaufman, A.J., "Ocean mix blamed in ancient loss of marine life." *The Washington Post*, Monday November 27, 1995, p. A3.

c. Talks, Abstracts, and Other Professional Papers Presented

i. Invited talks, etc.

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Kaufman, A.J. (2011) The use of Neoproterozoic chemostratigraphy for global correlation of environmental change Neoproterozoic sedimentary basins: Stratigraphy, Geodynamics and Petroleum Potential. Proceedings of the international Conference (Novosibirsk, 30 July – 02 August, 2011).

Kaufman, A.J. (2011) Irreversible oxidation of the exosphere and acceleration of the biosphere across the Archean-Proterozoic transition. NASA Astrobiology Institutes Director's seminar, April 25. (see <http://connect.arc.nasa.gov/p25791532/>)

Kaufman, A.J. (2008) Extreme Carbon Isotope Anomalies of the Proterozoic Eon: Fact or Fiction? , EOS Trans. AGU, 89(53), Fall Meet. Suppl., Abstract PP31D-07.

Kaufman, A.J. (2008) Atmospheric, climatic, and biological evolution at both ends of the Proterozoic Eon. 33rd International Geological Congress. xx (x): xx.

Kaufman, A.J., Geboy, N., Walker, R.J., Miller, K., Sievers, N., de Oliveira, T.F., and Misi, A. (2008) Re-Os ages of black shale in the glaciogenic Vazante Group: Evidence for Mesoproterozoic ice ages in Brazil? 33rd International Geological Congress. xx (x): xx.

Kaufman, A.J. (2007) Evolution of oxygen on Earth: Evidence from sulfur isotopes. Montgomery College SPECTRUM lecture series.

Kaufman, A.J. (2005) Atmospheric, climatic, and biological evolution at both ends of the Proterozoic Eon. National Academy of Sciences Frontiers of Science 17th annual meeting, Irvine, CA.

Kaufman, A.J., Wing, B.A., Johnston, D.T. and Farquhar, J. (2005) Microbial sulfur cycling in the aftermath of Neoproterozoic glaciation. *GSA Abstracts with Programs* 37(7): 42.

Corsetti, F.A., Pruss, S.B., Marenco, P.J., **Kaufman, A.J.** and Bottjer, D. (2003) Calcium carbonate seafloor fans from Neoproterozoic and Lower Triassic strata, Death Valley region and snowball Earth. *GSA Abstracts with Programs* xx(x): xx.

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Kaufman, A.J. and Xiao, S. (2002) An empirical estimate of Proterozoic CO₂ levels. *Sixth International Symposium on the Geochemistry of the Earth's Surface*.

Corsetti, F.A., **Kaufman, A.J.** and Marengo, P.J. (2002) A re-evaluation of the number and magnitude of Neoproterozoic ice ages, GSA South Central Section Meeting, Cedar City.

Kaufman, A.J. and Corsetti, F.A. (2001) Carbon isotope evidence for enhanced surface oxidation following a potential Neoproterozoic ice age in Death Valley, California, Earth Systems Process Meeting (joint GSA-GSL), Edinburgh, Scotland.

Kaufman, A.J. (2000) The biogeochemical aftermath of 'Snowball Earth' conditions. *31st International Geological Congress* symposium on Neoproterozoic Orogenic Systems, and Assembly of Gondwana Supercontinent.

Kaufman, A.J. (1998) Neoproterozoic chemostratigraphy: Key events in Earth history ordered by detailed intra- and inter-basinal correlation. Brazilian Geological Congress keynote address.

Kaufman, A.J. (1993) Secular variations in the C and Sr isotope composition of Neoproterozoic and Late Paleozoic oceans: Implications for paleoenvironmental and biological evolution. *Canadian Society of Petroleum Geologist Pangea Conference* symposium on "Supercontinents: A comparison of Pangea and Rodinia," p. 157.

Kaufman, A.J. (1992) The biogeochemistry of banded iron-formations. *American Association for the Advancement of Science Gordon Conference* on "Origins of Life" at Colby-Sawyer College, New London, New Hampshire.

Kaufman, A.J. (1990) Stratification of Proterozoic oceans: Biogeochemical and carbon-isotopic evidence. *American Association for the Advancement of Science, Abstracts with Programs 19*.

ii. Academic, Government and Research Institutions.

2012 University of Tennessee, Knoxville, TN

Old Dominion University, Norfolk, VA

2011 Johns Hopkins University, Baltimore, MD

Gordon Research Conference, Ventura Beach, CA

University of Miami, Miami, FL

2010 Bryn Mawr College, Bryn Mawr, PA

2009 University of Missouri, Columbia, MO

Dartmouth College, Hanover, NH

Smithsonian Institution, Washington, D.C.

2008 Rheinisch Westfälische Technische Hochschule Aachen, GERMANY

University of Newcastle, UNITED KINGDOM

Frei Universität Berlin, GERMANY
 Universität Bern, SWITZERLAND
 University of Oregon, Eugene, OR
 Cambridge University, UNITED KINGDOM
 China University of Geosciences, CHINA
 Nanjing Institute of Geology and Paleontology, CHINA
 2007 Geological Survey of Brazil, Belo Horizonte, BRAZIL
 University of the Witwatersrand, Johannesburg, SOUTH AFRICA
 University of Johannesburg, Johannesburg, SOUTH AFRICA
 Seoul National University, Seoul, SOUTH KOREA
 Korea Institute of Geology and Minerals, Daejeon, SOUTH KOREA
 Westfälische Wilhelms-Universität Münster, GERMANY
 2006 Virginia Polytechnic Institution and State University, Blacksburg, VA
 2005 Geological Survey of Brazil, Belo Horizonte, BRAZIL
 2004 Virginia Polytechnic Institution and State University, Blacksburg, VA
 Smithsonian Institution, Washington, DC
 2003 Yale University
 2002 Johns Hopkins University, Baltimore, MD
 University of Southern California, Los Angeles, CA
 University of Colorado, Boulder, CO
 Tulane University, New Orleans, LA
 2001 State College of West Georgia, Carrollton, GA
 2000 College of William & Mary, Williamsburg, VA
 Oberlin College, Oberlin, OH
 1999 North Carolina State University, Charlottesville, NC
 Rutgers University, Brunswick, New Jersey
 Pennsylvania State University, State College, PA
 Johns Hopkins University, Baltimore, MD
 1998 University of Kansas, Lawrence, KS
 Universidade Federal da Bahia, Salvador, Bahia, BRAZIL
 George Washington University, Washington, D.C.:
 1997 Virginia Polytechnic Institution and State University, Blacksburg, VA
 Smithsonian Institution, Washington, DC

- Carnegie Institution of Washington, Washington, D.C.
 Geological Society of Washington, Washington, D.C.
 Lamont Doherty Earth Observatory/Columbia University, Palisades, NY
 Harvard University, Cambridge, MA
 University of New Delhi, New Delhi, India
 University of Maryland, College Park, MD
 University of Pennsylvania, Philadelphia, PA
- 1996 Boston University, Brookline, MA
 Lamont Doherty Earth Observatory/Columbia University, Palisades, NY
 Cornell University, Ithaca, NY
 University of Pennsylvania, Philadelphia, PA
- 1993 University of Florida, Gainesville, FL
- 1991 Michigan State University, East Lansing, MI
 Chinese Geological Survey, Liaoning, CHINA
- 1990 Geological Survey of Namibia, Windhoek, NAMIBIA
 Louisiana State University, Baton Rouge, LA
- 1986 University of New Mexico, Albuquerque, NM

iii. Contributed talks, etc.

Kaufman, A.J., Passey, B., Peng, Y. (2011) Mineralogical control on carbonate clumped isotope temperatures from a Neoproterozoic cap carbonate in Brazil. Geological Society of America *Abstracts with Programs*, Vol. 43, No. 5, p. 321.

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Kaufman, A.J., Sovetov, J.K., Peek, S., Sievers, N., Agbebakun, K. (2011) Carbon, oxygen, and strontium isotope stratigraphy of the Oselok Group, Sayan Mountains, Siberia. Neoproterozoic sedimentary basins: Stratigraphy, Geodynamics and Petroleum Potential. Proceedings of the international Conference (Novosibirsk, 30 July – 02 August, 2011), p. 33-34.

Peek, S., Xiao, S., McFadden, K.A., Zhou, C., Jiang, G., Hu, J., **Kaufman, A.J.** (2011) Integrated chemostratigraphy and basin architecture of the Ediacaran Doushantuo Formation and implications for global correlation and ocean redox models. Neoproterozoic sedimentary basins: Stratigraphy, Geodynamics and Petroleum Potential. Proceedings of the international Conference (Novosibirsk, 30 July – 02 August, 2011), p.67.

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Thompson, C.K., Kah, L.C., **Kaufman, A.J.** (2010) Sulfur cycling in the Late Middle Ordovician: Implications for ocean circulation and the onset of Late Ordovician glaciation. Geological Society of America *Abstracts with Programs* 42 (5): 513.

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Misi, A., Azmy, K., **Kaufman, A.J.**, Oliveira, T.F., Pinho, J., Sanches, A.L. (2010) Metallogenic and Phosphogenic Events in the Intracratonic and Passive-Margin Proterozoic Basins of the São Francisco Craton: The Bambuí/Una and Vazante Groups. VII SSAGI conference abstracts, 25-28 July, p. 584-587.

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Miller, K.E., **Kaufman, A.J.**, Misi, A. and de Oliveira, T. (2009) Evaluating the environmental and ecological setting of a Mesoproterozoic ice age through the analysis of lipid biomarkers. Geological Society of America *Abstracts with Programs* 41 (7): 46.

Xiao, S., Bykova, N., Grazhdankin, D., **Kaufman, A.J.**, Nagovitsin, K., Kochnev, B., Peek, S. and Rogov, V. (2009) Ontogeny and asexual reproduction of discoidal Ediacaran organisms: Why so many discs but so few fronds? Geological Society of America *Abstracts with Programs* 41 (7): 684.

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- Aliyeva, E., Huseynov, D., Babazadeh, A., **Kaufman, A.J.**, and Nummendal, D. (2008) Microfossil records of climatic and depositional environment changes in lower Pliocene South Caspian succession. *33rd IGC Abstracts with Programs* **xx** (x): xx.
- Strauss, H., Guo, Q., Peters, M., Farquhar, J., and **Kaufman, A.J.** (2008) Earth system evolution across the Archean-Proterozoic transition: Sulphur isotope evidence. *33rd IGC Abstracts with Programs* **xx** (x): xx.

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McFadden, K.A., Huang, J., Chu, X., Jiang, G., **Kaufman, A.J.**, Zhou, C., Yuan, X. and Xiao, S. (2007) Carbon and sulfur isotopes, redox conditions, and biological evolution in the Ediacaran Doushantuo Formation. *GSA Abstracts with Programs* **39** (6): 450.

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Wang, J., Xiao, S., Jiang, G., Li, Q., **Kaufman, A.J.**, Wei, Q., Chen, Q. and Wang, X. (2007) Carbon isotope evidence for methane seeps in the 635 Ma Doushantuo cap carbonate at multiple geographic localities in South China. *GSA Abstracts with Programs* **39** (6): 496.

Kaufman, A.J., Farquhar, J., Johnston, D.T., Lyons, T.W., Buick, R., Anbar, A.D., Arnold, G.L., Garvin, J. and Bates, S. (2006) The preservation of non-mass dependent sulfur isotope anomalies in a deep time Astrobiology drill core from Western Australia. *GSA Abstracts with Programs* **38** (7): 56.

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Marengo, P.J., Corsetti, F.A., Bottjer, D.J., Baud, A., **Kaufman, A.J.** (2006). Sulfur isotope anomalies and the biotic recovery from the End-Permian mass extinction. Second International Palaeontological Congress, Beijing, China.

- Schiffbauer, J.D., Xiao, S., Bodnar, R.J., Yin, L., Yuan, X., Meng, F., Hu, J. and **Kaufman, A.J.** (2006) Can organic-walled microfossils survive high metamorphic heating? Characterization of experimentally-heated acritarchs using Raman spectroscopy. *GSA Abstracts with Programs* 38 (7): 305.
- Geboy, N.J., **Kaufman, A.J.** and Walker, R.J. (2006) A stable isotope and Re-Os study of organic-rich mudstones across a Proterozoic glacial cycle in Brazil. *GSA Abstracts with Programs* 38 (7): 125.
- Olcott, A.N., Sessions, A.L., Corsetti, F.A., **Kaufman, A.J.** (2006). Photosynthesis during Snowball Earth, Snowball Earth Conference 2006
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- Duan, Y., Anbar, A.D., Arnold, G.L., Lyons, T.W., **Kaufman, A.J.**, Gordon, G., Buick, R. and Garvin, J. (2006) Molybdenum concentration and isotopic composition in the ~2.5 Ga McRae Shale, Hamersley Basin, Western Australia. *GSA Abstracts with Programs* 38 (7): 124.
- Kaufman, A.J.**, Farquhar, J., Johnston, D.T., Lyons, T.W., Arnold, G.L. and Anbar, A. (2006) Rapid time series $\Delta^{33}\text{S}$ profiles of deep time drill cores by EA combustion techniques. AbSciCon
- Brody, K.B., **Kaufman, A.J.**, Eigenbrode, J.L., Cody, G.D. and Johnston, D.T. (2006) Neoproterozoic molecular and sulfur isotopic records: Do they reflect biogeochemical shifts associated with extreme climate change? AbSciCon.
- Kaufman, A.J.**, Shuhai Xiao and Leiming Yin (2006) Ion microprobe carbon isotope analysis of Archean microfossils? *Geochimica et Cosmochimica Acta* 69 (10): A550.
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- Marenco, P.J., Corsetti, F.A., Baud, A., Bottjer, D.J. and **Kaufman, A.J.** (2005) Sulfur isotopic variability of CAS along an Early Triassic environmental transect, *GSA Abstracts with Programs* 37(7): 184.
- Schiffbauer, J.D., Yin, L., Yuan, X., **Kaufman, A.J.** and Xiao, S. (2005) Possible fossils preserved in Archean amphibolite-facies metapelites? *GSA Abstracts with Programs* 37(7): 122.
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- Marenco, P.J., Corsetti, F.A., Bottjer, D.J., Baud, A., **Kaufman, A.J.** (2005). Sulfur isotope anomalies across the Permo-Triassic boundary and through the Early Triassic. International Symposium on Triassic Chronostratigraphy and Biotic Recovery, Chaohu, China, Albertiana, vol. 33.
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iv. Unrefereed conference proceedings.

Kaufman, A.J. (2001) Correlations between Neoproterozoic carbonate sequences of African and South American continents. Proterozoic Base Metal Deposits of Africa and South America. Organizers Aroldo Misi and Joao Batista G. Teixeira. Belo Horizonte: CNPq and UNESCO/IUGS 2001, p. 61.

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Kaufman, A.J. and Knoll, A.H. (1992) "Biostratigraphic and chemostratigraphic correlation of Neoproterozoic sedimentary successions." Geological Society of America Penrose Conference on "Late Precambrian Tectonics and the dawn of the Phanerozoic" in Death Valley, California.

Knoll, A.H., Butterfield, N.J. and **Kaufman, A.J.** (1990) The Neoproterozoic Akademikerbreen Group, Spitsbergen: Characteristics and correlation. Geological Association of Canada NUNA Research Conference, p. 21-22.

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Kaufman, A.J., Hayes, J.M. and Knoll, A.H. (1987) "Secular variations in the carbon isotope composition of Neoproterozoic seawater." American Association of Petroleum Geologists Research Conference on "Chemostratigraphy and the Evolution of the Ocean-Atmosphere System" at Taos, New Mexico.

d. Exhibits, Performances, Demonstrations, and other Creative Activities.

"Strange Sounding Places with Far Away Names," an exhibition of photographs from geological studies from around the world, at FastFrame in Cambridge and Boston, USA, February 24-March 17, 1993.

e. Contracts and Grants

i. External

Harvard University

- 1991-1993 NSF-DEB 90-17747 “The Neoproterozoic Record of Eukaryotic Evolution and Biogeochemical Change”. (\$136,315/3-91 to 8-93) Co-investigator* with Knoll A.H. (P.I., Harvard University).
- 1992-1994 NSF-EAR 91-18628 “Isotopic Evolution of Proterozoic Sediments and Seawater.” (\$258,156/1-92 to 6-94) Co-investigator* with Jacobsen, S.B. (P.I., Harvard University).
- 1994-1996 NSF-EAR 93-16238 “Isotopic Chemostratigraphy of the Neoproterozoic Mackenzie Mountains and Windermere Supergroups, Northwestern Canada.” (\$99,498/3-94 to 8-96) Co-investigator* with Knoll, A.H. (P.I., Harvard University).
- 1995-1997 NSF-EAR 94-18445 “Renewal: Isotopic Evolution of Proterozoic Sediments and Seawater.” (\$69,450/8-95 to 1-97) Co-investigator* with Jacobsen, S.B. (P.I., Harvard University).
- 1995-1996 NSF-ESH 95-10339 “The most severe glaciations in Earth history: presaged by greenhouse conditions?” (\$95,979/7-95 to 6-96) Co-investigator* with Hoffman, P.F. (P.I., Harvard University).
- NSF-ESH 96-30928 “Renewal: The most severe glaciations in Earth history: presaged by greenhouse conditions?” (\$99,835/8-96 to 7-97) Co-investigator* with Hoffman, P.F. (P.I., Harvard University).

*Harvard University does not allow Post-doctoral Fellows or Research Associates to be P.I. on grants.

Westfälische Wilhelms Universität Münster

- 2008-2009 Deutsche Forschungsgemeinschaft (DFG) GZ: STR 281/31-1 “Biospheric oxygenation and atmospheric evolution across Earth’s earliest glacial episodes” (21,448 € ~ \$33,701/4-08 to 3-09) Co-investigator with Harald Strauss (P.I., Westfälische Wilhelms-Universität Münster)

University of Maryland

- 1997-1999 NSF-EAR 96-14070 “Integrated sequence and chemostratigraphy of the Neoproterozoic Krol Platform, Lesser Himalaya, India.” (\$210,000/3-97 to 2-99) Principal Investigator Christie-Blick, N. (Columbia University), subcontract Principal Investigator (University of Maryland).
- 1999-2001 NSF-EAR 98-17348 “Acquisition of a gas source stable isotope mass spectrometer and peripheral inlet systems”. (\$247,500/3-99 to 2-01) Principal Investigator with Co-P.I.s K. Prestegard and M. Palmer.
- 1999-2001 NSF-OCE 99-77095 “Acquisition of a multi-collector inductively coupled plasma mass spectrometer”. (\$350,000/9-99 to 8-00). Co-

Principal Investigator with R.J. Walker, P. Candela, C. Gallup, and M. Brown.

- 2000-2001 State of Maryland – Department of Natural Resources “Use of stable isotopes to track sources of water”. (\$30,000/06-00 to 05-01). Co-Principal Investigator with Karen Prestegaard.
- 2001-2002 State of Maryland – Department of Natural Resources “Use of stable isotopes to track sources of acid mine drainage”. (\$30,000/07-01 to 06-02). Co-Principal Investigator with Karen Prestegaard.
- 2002-2004 NSF-EAR 01-26378 “The Biogeochemical Aftermath of Neoproterozoic Ice Ages”. (\$163,954/01-02 to 12-04). Principal Investigator.
- 2002-2005 NASA-Exobiology NAG5-12337 “Empirical Estimates of Proterozoic CO₂ Levels by *In-Situ* Ion Microprobe Carbon Isotope Analysis of Organic-Walled Microfossils”. (\$128,859/07-02 to 06/05) Principal Investigator.
- 2003-2004 CRDF NG1-2539-BA-03 “Depositional Rhythms in Clastic Sequences of the Closed Basins under Orbital Control - Application to Caspian Sea Pliocene Reservoirs Architecture”. (\$12,200/10-03 to 9-04) Co-Principal Investigator with D. Nummendam.
- 2004-2007 NSF-Instrumentation and Facilities 03-45612 “Technical Support for the Stable Isotope Facility at the GL at UMCP”. (\$225,000/06-04 to 05-07) Co-Principal Investigator with J. Farquhar.
- 2004-2006 NSF-EAR 04-18005 “COLLABORATIVE RESEARCH: Presaging Paleoproterozoic Global Change: Geobiology of the Late Archean Eon (\$64,874/09-04 to 08-06) Co-Principal Investigator with A. Anbar (ASU), R. Buick (Washington), A. Knoll (Harvard), R. Summons (MIT) and T. Lyons (UC Riverside).
- 2005-2007 NSF-Surface Earth Processes 04-46580 “COLLABORATIVE RESEARCH: Investigating Early Triassic Ocean Chemistry, Stratigraphy, and Paleobiologic Response During the Protracted Biotic Recovery from the Permo-Triassic Mass Extinction”: (\$80,023/02-05 – 03/07) Co-Principal Investigator with F. Corsetti (USC) and D. Bottjer (USC).
- 2005-2008 NASA-Exobiology NAG5-12337 “Empirical Estimates of Proterozoic CO₂ Levels by *In-Situ* Ion Microprobe Carbon Isotope Analysis of Organic-Walled Microfossils”. (\$128,859/07-05 to 06/08) Principal Investigator.
- 2006-2008 NSF-Instrumentation and Facilities 05-49300 “Acquisition of a State-of-the-Art Thermal Ionization Mass Spectrometer”. (\$265,000/03/06-02/08) Co-Principal Investigator with R. Walker, I. Puchtel, M. Brown, and R. Rudnick.

- 2008-2010 ACS-Petroleum Research Fund 08-433551 “Biomarker studies of organic-rich Neoproterozoic shale from glaciogenic successions in Brazil”. (\$100,000/09/08-08/10). Principal Investigator.
- 2009-2012 NSF-Sedimentary Geology and Paleontology 08-44270 “Collaborative Research: Stratigraphic, geochemical, and paleobiological tests of the co-evolution of multicellular life and environment in the late Ediacaran Period”. (\$248,000/06/09-05/12). Principle Investigator.
- 2009-2010 NSF-Instrumentation and Facilities 08-42268 “Acquisition of instrumentation for biogeochemical research at the University of Maryland”. (\$87,143/04/09-03/10). Principal Investigator.
- 2009 ACS-Petroleum Research Fund SUMR 08-433551 “Biomarker studies of organic-rich Neoproterozoic shale from glaciogenic successions in Brazil”. (\$5,000/05/09-08/09). Principal Investigator.
- 2009-2013 Agouron Institute AIGB16096 “Australian Drilling Program”. (\$290,117/10/09-09/13). Principal Investigator.
- 2010-2013 NASA-Exobiology NNH09ZDA001N-EXOB Geochronological and Paleomagnetic Constraints on the Origin of Animals (\$491,277/08/10 - 08/13). Principal Investigator.

ii. Internal.

- 1998 “Comings and goings of ancient ice ages in southern Africa.” (\$3625) UMCP General Research Board. Awarded July 1998.
- 1999 “Testing the ‘Snowball Earth’ hypothesis in the Neoproterozoic of Brazil.” (\$6500) UMCP General Research Board. Awarded July 1999.
- 1999 “A high resolution carbon and sulfur isotope study of terminal Paleozoic ‘superanoxic’ deep ocean cherts in Japan.” (\$1300) UMCP International Travel Fund. Awarded December 1999.

f. Fellowships, Prizes, and Awards

- 1990-1992 Harvard University Postdoctoral Fellowship, Cambridge, MA
- 2007-2008 Deutsche Forschungsgemeinschaft Mercator Guest Professor, Westfälische Wilhelms-Universität Münster, GERMANY

g. Editorships, Editorial Boards, & Reviewing Activities for Journals and Other Learned Publications

i. Editorships

Associate Editor, Precambrian Research, 1996-2006
 Neoproterozoic Geobiology and Paleobiology (2007). In: Topics in Geobiology (Xiao, S. and Kaufman, A.J., eds.), vol. 27, 300pp.

ii. Reviewing Activities.

American Journal of Science
 Basin Research

Canadian Journal of Earth Science
Chemical Geology
Earth Science Reviews
Geochimica et Cosmochimica Acta
Geology
Geological Society of America Bulletin
Geological Magazine
Earth and Planetary Science Letters
Journal of Geology
Journal of Sedimentary Research
Nature
Nature Geosciences
Palaeoclimatology, Palaeogeography, Palaeoceanography
Paleoceanography
Precambrian Research
Science
Sedimentary Geology
Sedimentology

III. TEACHING, MENTORING, AND ADVISING

a. Courses taught in the last five years.

i. Generalized.

- GEOL 100 Introductory Physical Geology - lecture
(spring 1998, fall 1998, fall 1999, fall 2000, fall 2002 - average enrollment 120)
- GEOL 120 Environmental Geology – lecture
(fall 2003 – enrollment 100)
- GEOL 123 (cross listed with METO 123 and GEOG 123) Causes and Implications of Global Change – co-teaching lecture + lab course (University World Course) (spring 2000, 2001, 2002, 2003, 2004, 2006, 2007 – average enrollment 150)
- GEOL 124 Biogenesis: How to Make a Habitable Planet – lecture and discussion sections (University Marquee Course)
(fall 2008 – enrollment 60)
Evolution of Life and Environment on Planet Earth – lecture and discussion sections (University Marquee Course)

(fall 2011 – enrollment 30)

GEOL 342 Sedimentation and Stratigraphy - lecture + lab course
(spring 1999, 2000, 2004, 2005, 2006, 2007, 2009, 2010 - average enrollment 18)

GEOL 436 Principles of Biogeochemistry – lecture
(fall 2000, 2001, 2002, 2003, 2004, 2005, 2009 – average enrollment 7)

GEOL 444 Low Temperature Geochemistry – lecture + lab course
(fall 2006, 2008, 2009, 2010 – average enrollment 8)

GEOL 489H Senior Honors Seminar (spring 2001)

ii. Specialized.

GEOL 789B Recent Advances in Geology: Biogeochemistry - weekly semester seminar

GEOL 789R Geoscience Communications – weekly semester seminar

iii. Independent Study, Tutorial, Internship Supervision.

GEOL 499 – Undergraduate Special Research Projects

GEOL 799 – Master's Thesis Research

b. Course or Curriculum Development

i. Complete revision of courses listed in catalog.

GEOL 100 Introductory Physical Geology

GEOL 124 Biogenesis: How to Make a Habitable Planet

GEOL 432 Sedimentation and Stratigraphy

ii. New Courses.

GEOL 436 Biogeochemistry

GEOL 444 Low Temperature Geochemistry

GEOL 789B Recent Advances in Geology: Biogeochemistry

GEOL 789R Geoscience Communications

c. Manuals, Notes, Software, Webpages, and Other Contributions to Teaching

GeoDiscoveries – an interactive CD ROM and website to accompany the 2nd edition of John Wiley & Sons Geology Today by print authors Barbara Murck and Brian Skinner. Concept and scientific design by A. J. Kaufman, University of Maryland and N. Lindsley-Griffin, University of Nebraska. This interactive media contains lectures, interactivities, animations, simulations, and testing at various levels.

d. Teaching Awards and Other Special Recognition

2000 Dean's Award for Excellence in Teaching, CMPS, University of Maryland

e. Advising Other Than Research Direction

i. Undergraduate (Senior Theses).

Abraham Silverman (undergraduate research project) "An isotopic and geochemical study of sources, transport, and fate of nutrients associated with *Pfisteria* on Maryland's eastern shore," completed spring 1998

Christine Missell (undergraduate research project) "An oxygen isotope comparison of Hadrosaurid metabolism," completed spring 2001

ii. Graduate

Graduate Student Committee Memberships

Charles Stoner (M.S. completed 1997)

Barrett Smith (M.S. completed 1998)

Jacqueline Mann (M.S. completed 1998)

Donna Gunderson (M.S. completed 1999)

Jonathan Angier (Ph.D. completed 2001)

Daniel Earnest (M.S. completed 2002)

Kate Folk (Ph.D. completed 2003)

Jacqueline Mann (Ph.D. completed 2005)

Mark Tyra (M.S. completed 2005)

John Jamieson (M.S. completed 2005)

Jennifer Teerlink (M.S. completed 2005)

Margaret Baker (M.S. completed 2006)

David Johnston (Ph.D. completed 2007)

Kate Burgy (M.S. completed 2009)

Harry Oduro (Ph.D. completed 2012)

Nanping Wu (Ph.D. candidate)

Brian Harms (Ph.D. candidate)

iii. Member of Committee at Other Institutions.

Nicholas Rakotosolofa (Ph.D. at Rand Afrikaans University, SOUTH AFRICA, completed 1999)

Ganqing Jiang (Ph.D. at Columbia University, completed 2001)

Andrey Bekker	(Ph.D. at Virginia Polytechnic Institute and State University, completed 2001)
Kelli Powis	(Ph.D. at University of Ottawa, CANADA, completed 2005)
Kathleen McFadden	(Ph.D. at Virginia Polytechnic Institute and State University, completed 2008)
Milene Figueiredo	(Ph.D. at Universidade de São Paulo, BRAZIL, completed 2010)
Bradley Guy	(Ph.D. at University of Johannesburg, SOUTH AFRICA, completed 2012)
David Diekrup	(M.S. at Westfälische Wilhelms-Universität Münster, GERMANY, completed 2012)

f. Advising: Research Direction

i. High School (Internship).

Aarisha Shrestha	Eleanor Roosevelt High School: “Environmental setting for Earth’s earliest eukaryotes” (completed 2006; won first place in Prince Georges County Science Fair for the project, which was also presented at the Intel International Science Fair in Indianapolis, Indiana)
Natalie Sievers	Charles Herbert Flowers High School: “The distinctive isotope ratios of carbon and oxygen of the Bambui and Vazante groups” (completed 2008)
Kehinde Agbebakun	Eleanor Roosevelt High School: “A strontium isotope age estimate for a post-glacial Neoproterozoic cap carbonate from Siberia” (completed 2010)

ii. Undergraduate (Senior Theses).

Anthony Koval	(Undergraduate Research Project) “The potential relationship of high biological productivity to the onset of the Neoproterozoic ice ages,” completed spring 1998
William Richardson	(Undergraduate Research Project) “Recession of Neoproterozoic ice ages,” completed spring 1998
Craig Hebert	(Undergraduate Research Project) “Origin of a Neoproterozoic carbonate sequence in the Marshall Quadrangle of Virginia,” completed spring 1999
Elizabeth Brabson	(Undergraduate Research Project) “Sulfur Isotopic Analyses of Sulfides from the Huronian Glacial Sequence: Implications for the Evolution of the Earth’s Atmosphere and Paleoclimate,” completed spring 2002
Ruth Thompson	(Undergraduate Research Project) “Sedimentologic, sequence stratigraphic, and stable isotopic investigation of the Upper Cambrian Conococheague Limestone, Strasburg, VA,” completed 2002

Jennifer Harvey	(Undergraduate Research Project) “Post-glacial Oxidation of the Neoproterozoic Fauquier Formation,” not completed 2005.
Paula Zelanko	(Undergraduate Research Project) “Isotopic Analysis of Pleistocene Mammals in the American Southeast,” completed 2005.
Brendan Williams	(Undergraduate Research Project) “A Sulfur Isotopic Study of Neoproterozoic Evaporites in the Shaler Supergroup, Victoria Island, Northwest Territories, Canada,” completed 2006.
Kimberly Schumann	(Undergraduate Research Project) “A Chemostratigraphic Study of Ordovician Carbonates in Central Virginia,” completed 2007.
David Weinstein	(Undergraduate Research Project) “A Taphonomic Comparison between Late Pleistocene Key Largo Limestone and Living Coral Reef Counterparts,” completed 2007.
David Diekrup	(Undergraduate Research Project at Westfälische Wilhelms Universität Münster, Münster, Germany) “Organic sulfur in the glaciogenic Timeball Hill Formation,” completed 2008.
Susan Drymala	(Undergraduate Research Project) “Floral Indicators of Late PETM Climate Change in Bighorn Basin, Wyoming,” completed 2009.
Tyler Baril	(Undergraduate Research Project) “Assessment of natural gas production potential in the Devonian Marcellus Shale of Pennsylvania,” completed 2010.
Benn Breeden	(Undergraduate Research Project) “A stable isotopic investigation of resource partitioning among neosauropod dinosaurs of the Upper Jurassic Morrison Formation,” completed 2011.
Amanda Bender	(Undergraduate Research Project) “A Comparison of Modern and Cretaceous Angiosperms and Ferns through Carbon Isotope Ratios,” in progress.

iii. Laboratory Assistants.

Anthony Koval	fall 1997-spring 1998
William Richardson	fall 1997-spring 1998
Blessing Asuquo	fall 1997
Laura Baker	summer 1998-2001
Anastasia Poulos	summer 1998-present
Talia Walter	summer 1998
Christine Missell	fall 1999-summer 2001
Craig Hebert	summer 1999
Peter Berquist	summer 2000 (William & Mary undergraduate)
Jeff Harper	fall 2001
Kathleen Wright	fall 2001
Taylor Mauck	summer 2001-2004

Jason Cassara	spring 2002-2004
Kelly Krelove	spring 2002
Ruth Thompson	fall 2002
Michael Waller	fall 2002
Paula Zelanko	spring 2003-2006
Marla Hertz	spring 2004
Brendan Williams	spring 2004-2006
Keiko Yokoyama	fall 2006-2008 (Faculty Research Associate)
David Weinstein	winter 2006-2007
Aarisha Shrestha	summer 2006-2007
Emily King	summer 2006 (University of Chicago undergraduate)
Mark Walsh	spring 2008
Natalie Sievers	summer 2008-present
Eugenia Leone	summer 2008-2009 (Faculty Research Associate)
Christine France	summer 2008 (Faculty Research Associate)
Craig Hebert	fall 2008-2010 (Faculty Research Associate)
Benn Breeden	fall 2009-2011
Rebecca Ohly	summer 2010-2011
Susan Drymala	fall 2010-2011
Michael Conlon	spring 2012-present

iv. Master's Theses.

Allegra M. Jabo	(M.S.) "The fractionation of carbon and nitrogen isotopes in scleractinian corals" – graduated fall 2001
Michael A. Varni	(M.S.) "The sulfur isotopic composition of structurally-bound sulfate in Neoproterozoic carbonates: Implications for sources of alkalinity" – graduated summer 2002
Craig Hebert	(M.S.) "Stratigraphic and geochemical investigations of Neoproterozoic glaciation in the Appalachian Mountains of Virginia" – graduated summer 2003
Nick Geboy	(M.S.) "Rhenium-Osmium age determinations of glaciogenic shales from the Mesoproterozoic Vazante Formation, Brazil" – graduated winter 2006
Kristina Bartlett Brody	(M.S.) "Biomarkers in Neoproterozoic shale from Brazil," – graduated summer 2007
Yadviga Zhelezinskaya	(M.S. not yet advanced to candidacy; Fullbright Scholar)

Sara Peek (M.S., not yet advanced to candidacy)

v. Ph.D. Theses

Christine France (Ph.D.) “Isotopic investigations of metabolism in ancient animals” – graduated spring 2008

Kateryna Klochko (Ph.D.) “Novel B isotopic measurements of carbonate by laser ablation ICP-MS techniques” – graduated summer 2009

Kate Scheiderich (Ph.D.) “Mo isotopic studies of Modern and ancient sediments” co-advised with Prof. R.J. Walker – graduated fall 2010

Kristen Miller (Ph.D.) “An integrated isotopic and biomarker analysis of the glaciogenic Vazante Group, Brazil” – graduated winter 2012

Palma Botterell (Ph.D., not yet advanced to candidacy)

Huan Cui (Ph.D., not yet advanced to candidacy)

g. Mentee awards

Christine (Missell) France – **2000**: Goldwater Fellowship; **2001**: University of Maryland Honors Research Grant; **2003**: University of Maryland Flagship Fellowship; **2004**: Geological Society of America Research Grant; **2007**: University of Maryland Distinguished Teaching Award

Kristina (Bartlett) Brody – **2004**: Geological Society of America Research Grant

Aarisha Shrestha – **2006**: Grand Prize, Prince Georges County Science Fair for laboratory project titled “Environmental Setting for Earth’s Earliest Eukaryotes”; Competed with project in the Intel International Science Fair in Indianapolis

Nick Geboy – **2006**: Geological Society of America Travel Grant

David Weinstein – **2007**: J.R. Dorfman Prize in Undergraduate Research in the College of Computer, Math and Physical Sciences; **2008**: University of Miami Fellowship; **2009**: SE Geological Society of America Research Grant; **2010**: NSF Graduate Student Fellowship, Sigma Xi Grants-in-Aid of Research; Geological Society of America Research Grant, AUAS Zale Parry Scholarship; **2011**: Sigma Xi Grants-in-Aid of Research

Kateryna Klochko – **2005**: Geological Society of America Research Grant; **2009**: University of Maryland Wylie Dissertation Completion

Fellowship; **2010**: Geological Society of America SUBARU
Outstanding Woman in Science Award

Natalie Sievers – **2008**: The American Chemical Society - Petroleum Research Fund
SUMR internship; **2011**: Geological Society of America
SUBARU minority fellowship

Kristen Miller – **2009**: Center for Teaching Excellence Distinguished Teaching
Award; **2010**: The Society of Organic Petrography Spackman
Award; **2011**: University of Maryland Green Scholarship

Sara Peek – **2010**: Geological Society of America Research Grant

IV. SERVICE

a. Professional

i. Offices and committee memberships held in professional organizations.

Council Officer: Geological Society of Washington, 1999-2000; 2005-2007

Program Committee, Chair: Geological Society of Washington, 2007

First Vice President: Geological Society of Washington, 2009

President: Geological Society of Washington, 2010

Finance Committee, Chair: Geological Society of Washington, 2011

ii. Other.

Session co-chairman: American Geophysical Union, Spring Meeting, 1995

Organizer: Special Session: “Carbonate Chemostratigraphy as a Chronostratigraphic,
Paleoenvironmental and Exploration Tool.” American Association of Petroleum
Geologists/Society of Economic Mineralogists and Petrologists, Spring Meeting,
1998.

Organizer: Special Session: “Shifting Paradigms: Interpreting Pre-Mesozoic Isotopic
Records of Climatic, Oceanographic, and Biogeochemical Change.” American
Geophysical Union, Fall Meeting, 1998

Session co-chairman: “Precambrian Oceans and Atmospheres.” 31st V.M. Goldschmidt
Conference, Cambridge, MA, 1999

Organizer: Special Session (with Tim Lyons): “Sulfur Cycling in the Precambrian to
Recent Ocean-Atmosphere Systems: A Session Honoring the Career of William T.
Holser.” Geochemical Society, GSA International Division. Geological Society of
America Annual Meeting, Boston, MA 2001.

Organizer: Pardee Symposium (with Shuhai Xiao): “Neoproterozoic Geobiology:
Fossils, Rocks, Isotopes, and Clocks.” Geological Society of America Annual
Meeting, Seattle, WA, 2003.

Member: NASA Astrobiology Institute Mission to the Early Earth (July 1 – July 11, 2001)

Chair of Website, Program, and Student Worker committees for the Eastern Section American Association of Petroleum Geologists annual meeting (Arlington, VA, September 24-29, 2011)

iii. Reviewing activities for agencies.

National Science Foundation, EAR (Sedimentary Geology and Paleontology & Geobiology and Low Temperature Geochemistry programs)

National Science Foundation, Instrumentation

National Science Foundation, Education

National Science Foundation, Biocomplexity

National Science Foundation, Ocean Sciences

NASA, Exobiology

National Geographic Society

Civilian Research Defense Fund

Natural Environment Research Council

iv. Other non-University committees, commissions, panels, etc.

National Science Foundation, Sedimentary Geology and Palaeontology panel (2005-2009)

v. Society Memberships.

American Geophysical Union

Geological Society of America

Geological Society of Washington

Sigma Xi

Phi Beta Kappa

vi. Paid consultancies.

John Wiley & Sons, publisher, New York, NY

b. Campus

i. Departmental.

Seminar Coordinator (1997-2000)

Graduate Review Committee (1998-present)

Merit Pay Committee (1998-present)

Search Committee for Faculty (1998, 1999, 2000, 2001, 2004 (x3), 2010, 2011)

Mass Spectrometry Facility Coordinator (1999-present)

Teaching Assistant Coordinator (1999, 2002)

Geological Society of America Recruitment and Poster (2000)

Departmental Alumni Newsletter: GeoGram (2004, 2005, 2006, 2008, 2009)

Graduate Director (2010-2011)

ii. College.

Search Committee for ESSIC Chairman (1999-2000)

Search Committee for ESSIC faculty (1999-2000)

Review Committee for Geology Chairman (2000)

Dean's representative for Ph.D. defence by Gregory Foltz: "Tropical Atlantic Seasonal Variability" (2003)

Review Committee for Geology Chairman (2004)

Committee for Dean's Award for Excellence in Teaching (2006)

Dean's representative for Ph.D. defence by Hengmao Wang: "Inferring Radiative Fluxes from a New Generation of Satellites: Model Updates" (2007)

Geology representative on the CMNS Graduate Council (2010-2011)

iii. University.

First Annual Biosciences Research/Technology Review Day poster presentation on "The Biogeochemical Aftermath of Neoproterozoic Ice Ages." (2000)

Second Annual Biosciences Research/Technology Review Day poster presentation on "An Empirical Estimate of Proterozoic CO₂ levels." (2001)

CORE Committee for Interdisciplinary Studies (2004, 2005)

University Marquee Faculty (2008-present)

Graduate Council (fall 2010-present)

Graduate Education Working Group: Faculty Affairs Committee (fall 2010-present)

NSF-MRI Pre-Proposal Review Committee (2010)

University I-Series Faculty Board (fall 2010-present)

Middle States Periodic Review Report Subcommittee 4: Learning Outcomes Assessment and Educational Effectiveness (fall 2011-present)

The Marquee Lecture Series in Science and Technology: A Special Series for Undergraduate Students, "The Evolution of Life and Environment on Planet Earth" (November 14, 2011)

iv. Community, State, National.

Judge, Prince Georges County Science Fair (1999-2000)

Judge, University Park Elementary Science Fair (2001)

Speaker, Rachel Carson Elementary School "Science University Conference" (2002)

Speaker, Children's Learning Center, Wheaton, MD (2002, 2003, 2004)

Speaker, VIP K-16 Cohort Conference IIIB: Earth Space Systems, Matter and Energy Teachers. Special Presentation "How to bring a 'snowball earth' into the classroom. February 15, 2005. Rockville, MD (funded by the NSF).

Speaker, St. Andrews Apostle, Wheaton, MD (2005)

Speaker, Farquhar Middle School, Olney, MD (2010)