**Lee R. Kump**
Professor of Geosciences
John Leone Dean
College of Earth and Mineral Sciences
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*Education*

A.B. Honors, University of Chicago, 1981, Geophysical Sciences
Ph.D., University of South Florida, 1986, Marine Sciences

*Professional Experience*

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| 2017- | Dean, College of Earth and Mineral Sciences, Penn State |
| 2016-2021 | Editorial Committee, *Annual Reviews of Earth and Planetary Sciences* |
| 2011-2017 | Head, Department of Geosciences |
| 2010-2014 | Editor for Earth and Environmental Sciences, *Nature Scientific Reports* |
| 2005-2011 | Reviewing Editor, *Science* |
| 2004-2015 | Associate Director, Earth System Evolution Program, Canadian Institute for Advanced Research |
| 2003-2010 | Editor, *Virtual Journal of Geobiology* |
| 1997- | Professor of Geosciences, Penn State |
| 1996-2000 | Co-Editor, *Geology* |
| 1994-2000 | Associate Head, Department of Geosciences, Penn State |
| 1991-1997 | Associate Professor of Geosciences, Penn State |
| 1986-1991 | Assistant Professor of Geosciences, Penn State |
| 1981-1986 | Research Assistant, University of South Florida |
| 1981-1983 | Geologist, United States Geological Survey Fisher Island Station (summers) |
| 1979-1980 | Research Assistant, University of Chicago |

*Honors and Awards*

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| 2017 | Robert M. Garrels Award, Geobiology Society |
| 2014 | Fellow of the American Geophysical Union |
| 2012 | Fellow of the Geochemical Society and the European Association of Geochemistry |
| 2009 | Distinguished Alumnus, University of South Florida |
| 2007 | Wilson Research Award, Penn State College of Earth and Mineral Sciences |
| 2005 | Faculty Mentoring Award, Penn State College of Earth and Mineral Sciences |
| 2001 | Fellow, Geological Society of London |
| 2000 | Distinguished Service Award, Geological Society of America |
| 1997 | Fellow, Geological Society of America |
| 1994 | Deike Research Award, Penn State |
| 1991-1995 | Marine Biological Association of the U.K., Geophysiology Modeling Fellowship |
| 1992 | Provost's Award for Collaborative Instruction and Curricular Innovation |
| 1990 | Bursary Fellowship, Marine Biological Association of the UK |
| 1986-1987 | Faculty Research Award |
| 1985-1986 | John B. Lake Fellowship in Marine Science |
| 1982-1983 | Graduate Council Fellowship, University of South Florida |
| 1981 | National Association of Geology Teachers Summer Field Training Program Award |
| 1981 | Special Honors in Geophysical Sciences, University of Chicago |

*Membership in Professional Organizations*

Geological Society of London, Fellow
European Association of Geochemistry, Fellow
Geochemical Society, Fellow
American Geophysical Union, Fellow
Geological Society of America, Fellow
American Academy of Underwater Sciences
Member, Board of Oceans, Atmosphere and Climate, Association of Public and Land Grant Institutions

*Publications*

Articles in Referred Journals

1. Kump, L.R. and Garrels, R.M., 1986. Modeling atmospheric $O_2$ in the global sedimentary redox cycle. American Journal of Science, 286:337-370.
2. Kirwan, A.D. and Kump L.R., 1987. Models of geochemical systems from mixture theory: diffusion. Geochimica et Cosmochimica Acta, 51:1219-1227.
3. Kump, L.R., 1988. Terrestrial feedback in atmospheric oxygen regulation by fire and phosphorus. Nature, 335:152-154.
4. Byrne, R.H., Kump, L.R. and Cantrell, K.J., 1988. The influence of temperature and pH on trace metal speciation in seawater. Marine Chemistry, 25:163-181.
5. Kump, L.R., 1989. Chemical stability of the atmosphere and ocean. Global and Planetary Change, 1:123-136.
6. Kump, L.R., 1989. Alternative modeling approaches to the geochemical cycles of carbon, sulfur and strontium isotopes. American Journal of Science, 289:390-410.
7. Kump, L.R. and Byrne, R.H., 1989. Palladium chemistry in seawater. Environmental Science and Technology, 23: 663-665.
8. Bluth, G.J.S. and Kump, L.R., 1991. Phanerozoic paleogeology: A new dimension to geochemical cycling models. American Journal of Science, 291:284-308.
9. Kump, L.R., 1991. Interpreting carbon-isotope excursions: Strangelove oceans. Geology, 19:299-302.
10. Kump, L.R., Kasting, J.F., and Robinson, J.M., 1991. Atmospheric oxygen variation through geologic time--introduction. Global and Planetary Change, 97:1-3.
11. Kump, L.R. and Holland, H.D., 1992. Iron in Precambrian rocks: Implications for the global oxygen budget of the ancient Earth. Geochimica et Cosmochimica Acta, 56:3217-3223.
12. Byrne, R.H. and Kump, L.R., 1993. Comment on "Speciation of aqueous palladium (II) chloride solutions using optical spectroscopies" by C.D. Tait, et al., Geochimica et Cosmochimica Acta, 57:1151-1156.
13. Kump, L.R., 1993. Oceans of change. Nature (News and Views Section), 361:592-593.
14. Kump, L.R., 1993. Bacteria forge a new link. Nature (News and Views Section), 362:790-791.
15. Bluth, G.J.S. and Kump, L.R., 1994. Lithologic and climatologic controls of river chemistry. Geochimica et Cosmochimica Acta, 58:2341-2359
16. Gibbs, M.T. and Kump, L.R., 1994. Global chemical erosion during the last glacial maximum and the present: Sensitivity to changes in lithology and hydrology. Paleoceanography, 9:529-543.
17. Lovelock, J.E. and Kump, L.R., 1994. Failure of climate regulation in a geophysiological model. Nature, 369:732-734.
18. Slingerland, R., Kump, L.R., Arthur, M., Fawcett, P., Sageman, B., and Barron, E., 1996. Estuarine circulation in the Turonian Western Interior Seaway of North America.Bulletin of the Geological Society of America, 108: 941-952
19. Mackenzie, F.T. and Kump, L.R., 1995. Reverse weathering, clay mineral formation, and ocean element cycles. Science (Perspectives), 270: 586-587.
20. Kump, L.R. and Mackenzie, F.T., 1996. Regulation of atmospheric $O_2$: Feedback in the microbial feedbag. Science (Perspectives), 271: 459-460.

21. Richards, P. and Kump, L.R., 1997. Application of geographic information systems approach to watershed mass balance studies. Hydrological Processes, 11: 671-694.
22. Gibbs, M., Barron, E.J., and Kump, L.R., 1997. An atmospheric $pCO_2$ threshold for glaciation in the Late Ordovician. Geology, 25: 447-450.
23. Machusak, D. and Kump, L.R., 1997. Environmental controls on groundwater chemistry in an offshore island aquifer: Fiesta Key, Florida. Aquatic Geochemistry, 3: 129-167.
24. Kump, L.R., Arthur, M., Patzkowsky, M., Gibbs, M., Pinkus, D.S., and Sheehan, P., 1999. A weathering hypothesis for glaciation at high atmospheric $pCO_2$ in the Late Ordovician. Palaeoclimatology Palaeoecology Palaeogeography. 152: 173-187.
25. Kump, L.R. and Arthur, M.A., 1999. Interpreting carbon-isotope excursions: Carbonates and organic matter. Chemical Geology 161: 181-198.
26. Gibbs, M.T., Bluth, G.S., Fawcett, P.J., and Kump, L.R., 1999. Chemical weathering over the last 250 Myr: Variations due to paleogeography, paleoclimate, and paleogeology. American Journal of Science 299: 611-651.
27. Corbett, D.R., Kump, L.R., Dillon, W., and Chanton, J., 2000. Fate of wastewater-borne nutrients under low discharge conditions in the subsurface of the Florida Keys, USA. Marine Chemistry 69: 99-115.
28. Kump, L.R., Brantley, S.L., and Arthur, M.A., 2000. Chemical weathering, atmospheric $CO_2$, and climate. Annual Reviews of Earth and Planetary Sciences, 28: 611-667.
29. Hotinski, R.M., Kump, L.R., and Najjar, R.G., 2000. Opening Pandora's Box: The impact of open system modeling on interpretation of anoxia. Paleoceanography 15:267-279.
30. Suits, N.S., Arthur, M.A., and Kump, L.R., in revision. A numerical simulation of sulfur isotopic fractionation during sulfate reduction and sulfide oxidation in modern sediments. American Journal of Science.
31. Dillon, K.S., Corbett, D.R., Chanton, J.P., Burnett, W.C., and Kump, L.R., 2000. Bimodal transport of a wastewater plume injected into saline ground water of the Florida Keys. Ground Water 38(4): 624-634.
32. Hotinski, R.M., Bice, K.L., Kump, L.R., Najjar, R.G., Arthur, M.A., 2001. Ocean stagnation and end-Permian anoxia. Geology, 29: 7-10.
33. Kump, L.R., Kasting, J.F., and Barley, M.E., 2001. Rise of atmospheric oxygen and the "upside-down" Archean mantle. Geochem. Geophys. Geosyst., 2, Paper number 2000GC000114.
34. Kump, L.R., 2001. What drives climate? Nature (News and Views section) 408: 651-652.
35. Kump, L.R., 2001. Chill taken out of the tropics. Nature (London), vol.413, no.6855, pp.470-471, 04 Oct 2001.
36. Beerling, D.J., Lomax, B.H., Royer, D.L., Upchurch, G.R. Jr., and Kump, L.R., 2002. New constraints on atmospheric $CO_2$ changes following the terminal Cretaceous biotic crisis. Proc. Nat'l. Acad. Sci. **99**, 7844-7847.
37. Kump, LR. 2002. Reducing uncertainty about carbon dioxide as a climate driver. Nature, v. 419, pp. 188-190.
38. Hotinski, R.M., Kump, L.R., and Bice, K.L., 2002. Comment on "Could the Late Permian deep ocean have been anoxic?" by R. Zhang et al. Paleoceanography 17: 1052, doi:10.1029/2001PA000680.
39. Dillon, K., Burnett, W., Kim, G., Chanton, J., Corbett, D.R., Elliott, K., and Kump, L., 2003. Groundwater flow and phosphate dynamics surrounding a high discharge wastewater disposal well in the Florida Keys. *Journal of Hydrology*, 284: 193-210.
40. Hotinski, R.M., Kump, L.R., and Arthur, M.A., 2004. A $\delta^{13}C$ gradient from platform carbonates of the Pethei Group (Great Slave Lake Supergroup, N.W.T. Bull. Geol. Soc. Amer. 116: 539-554.
41. Griggs, E.M., Kump, L.R., and Bohlke, J.K., 2003. The fate of wastewater-derived nitrate in the subsurface of the Florida Keys: Key Colony Beach, Florida. Est. Coastal Shelf Sci. 58: 517-539.
42. Richards, P. and Kump, L.R., 2003. Soil pore-water distributions and the temperature feedback of weathering in the field. Geochim. Cosmochim. Acta. 67: 3803-3816.

43. Kurtz, A.C., Kump, L.R., Arthur, M.A., Zachos, J.C., and Paytan, A., 2003. Early Cenozoic decoupling of the global carbon and sulfur cycles. Paleoceanography 18(4), 1090, doi:10.1029/2003PA000908.
44. Anderson, S.P., Blum, J., Brantley, S.L., Chadwick, O., Chorover, J., Derry, L., Drever, J., Hering, J., Kirschner, J., Kump, L., Richter, D., and White, A., 2004. Proposed initiative would study Earth's weathering engine. EOS 85: 265-269.
45. Herman, E.K. and Kump, L.R., 2005. Numerical models of microbial mats under Precambrian oceanic conditions: a modeling study. Geobiology 3: 77-92.
46. Zachos, J.C. and Kump, L.R., 2005. Carbon cycle feedbacks and the initiation of Antarctic glaciation in the earliest Oligocene. Global and Planetary Change 47: 51-66.
47. Kump, L.R. and Seyfried, W.E., 2005. Hydrothermal Fe fluxes during the Precambrian: Effect of low oceanic sulfate concentrations and low hydrostatic pressure on the composition of black smokers. Earth and Planetary Science Letters 235: 654-662.
48. Kump, L.R., 2005. Ironing out the oxidation of the biosphere. Science (Perspectives) 307: 1058-1059.
49. Panchuk, K.M., Holmden, C., and Kump, L.R., 2005. Sensitivity of the epeiric sea carbon isotope record to local-scale carbon cycle processes: Tales from the Mohawkian Sea. Palaeogeography Palaeoclimatology Palaeoecology 228: 320-337.
50. Kump, L.R., 2005. Foreshadowing the glacial era. Nature (News and Views) 436: 333-334.
51. Melezhik, V.A., Fallick, A.E., Hanski, E.J., Kump, L.R., Lepland, A., Prave, A.R., and Strauss, H., 2005. Emergence of the aerobic biosphere during the Archean-Proterozoic transition: Challenges of future research. GSA Today 15: 4-11.
52. Bowen, G.J., Bralower, T.J., Dickens, G.R., Delaney, M., Kelly, D.C., Koch, P.L., Kump, L.R., Meng, J., Sloan, L.C., Thomas, E., Wing, S.L., and Zachos, J.C., 2006. Eocene hyperthermal event offers insight into greenhouse warming. EOS 87: 165, 169.
53. Kump, L.R., Pavlov, A., and Arthur, M.A., 2006. Reply to Berner and Ward comment on Kump et al., 2005. Geology, on line forum.
54. Riccardi, A.L., Arthur, M.A., Kump, L.R., and D'Hondt, S., 2006. Sulfur isotopic evidence for chemocline upwater excursions during the end-Permian. Geochimica et Cosmochimica Acta 70: 5740-5752.
55. Riccardi, A.L., Kump, L.R., Arthur, M.A., and D'Hondt, S., 2007. Carbon isotopic evidence for chemocline upward excursions during the end-Permian event. Palaeogeograpy Palaeoclimatology Paleoecology 248: 73-81.
56. Payne, J.L., Lehrmann, D.J., Follett, D., Seibel, M., Kump, L.R., Riccardi, A., Altiner, D., Sano, H., Wei, J., 2007. Erosional truncation of uppermost Permian shallow-marine carbonates and implications for Permian-Triassic boundary events. Bulletin of the Geological Society of America 119: 771-784.
57. Payne, J.L. and Kump, L.R., 2007. Evidence for recurrent Early Triassic massive volcanism from quantitative interpretation of carbon isotope fluctuations. Earth and Planetary Science Letters 256: 264-277.
58. Kump, L.R. and Barley, M.E., 2007. Continental tectonics, increased subaerial volcanism and the rise of atmospheric oxygen. *Nature* 448: 1033-1036.
59. Panchuk, K.M., Ridgwell, A., and Kump, L.R., 2008. Sedimentary response to Paleocene-Eocene Thermal Maximum carbon release: A model-data comparison. *Geology* 36: 315-318.
60. Hilting, A. K., Kump, L.R., and Bralower, T. J., 2008. Variations in the oceanic vertical carbon isotope gradient and their implications for the Paleocene-Eocene biological pump. *Paleoceanography* 23(3) PA3222, doi:10.1029/2007PA001458.
61. Meyer, K. J. and Kump, L. R., 2008. Oceanic euxinia in Earth history: Causes and Consequences. *Annual Reviews of Earth and Planetary Sciences* 36:251–88.
62. Meyer, K.J., Kump, L.R., and Ridgwell, A., 2008. The biogeochemical controls on photic-zone euxinia during the end-Permian mass extinction. *Geology* 36: 747-750.
63. Kump, L.R., 2008. The rise of atmospheric oxygen. *Nature* v. 451: 277-278.

64. Kump, L.R. and Pollard, D., 2008. Brevia: Amplification of Cretaceous warmth by biological cloud feedbacks. ***Science***, 320: 195.
65. Ohmoto, Hiroshi; Runnegar; Bruce; Kump, Lee R.; Fogel, Marilyn L.; Kamber, Balz; Anbar, Ariel D.; Knauth, Paul L.; Lowe, Donald R.; Sumner, Dawn Y.; Watanabe, Yumiko, 2008. Biosignatures in Ancient Rocks: A Summary of Discussions at a Field Workshop on Biosignatures in Ancient Rocks. **Astrobiology** 8: 883-907.
66. Kump, L.R., 2009. Tipping pointedly colder. Science (Perspectives) 323: 1175-1176.
67. Kump, L.R., Bralower, T.J., and Ridgwell, A., 2009. Ocean acidification in deep time. Oceanography 22: 94-107.
68. Luo, Genming , Lee R. Kump, Jinnan Tong , Yongbiao Wang , Michael A. Arthur , Yang Hao , Qinxian Wang , Junhua Huang , Hongfu Yin , Shucheng Xie, 2010. Isotopic evidence for an anomalously low oceanic sulphate concentration following end-Permian mass extinction. Earth and Planetary Science Letters 300: 101-111.
69. Jiang, S., Bralower, T.J., Patzkowsky, M.E., Kump, L.R., and Schueth, J.D., 2010. Geographic controls on nannoplankton extinction across the Cretaceous/Palaeogene boundary. Nature Geoscience doi:10.1038/ngeo775.
70. Zerkle, A., Kamyshny, A. Jr., Kump, L.R., Farquhar, J., Oduro, H., and Arthur, M., 2010. Sulfur cycling in a stratified euxinic lake with moderately high sulfate: Constraints from quadruple S isotopes. Geochimica Cosmochimica Acta 74: 4953–4970.
71. Kump, L.R., 2010. Earth's second wind. Science (Perspective) 330: 1490-1491.
72. Saltzman, M., Young, S., Kump, L., Gill, B., Lyons, T. and Runnegar, B., 2011. A pulse of atmospheric oxygen during the late Cambrian and implications for plankton and animal biodiversification. *Proc. Nat'l Acad. Sci.* 108: doi/10.1073/pnas.1011836108
73. Gill, B., Lyons, T., Young, S., Kump, L., Knoll, A., and Saltzman, M.R., 2011. Geochemical evidence for widespread euxinia in the Later Cambrian ocean. *Nature* 469: 80-83.
74. Young, S.A., Saltzman, M.R., Foland, K.A., Linder, J.S., and Kump, L.R., 2009. A major drop in seawater $^{87}Sr/^{86}Sr$ during the Middle Ordovician (Darriwilian): Links to volcanism and climate. *Geology* 37: 951-954.
75. Luo, G., Yongbiao Wang, Hao Yang, Thomas J. Algeo, Lee R. Kump, Junhua Huang, Shucheng Xie, 2011. Stepwise and large-magnitude negative shift in $\delta^{13}C_{carb}$ preceded the main marine mass extinction of the Permian–Triassic crisis interval. Palaeogeography Palaeoclimatology Palaeoecology 299: 70-82.
76. Luo, Genming, Yongbiao Wang, Thomas J. Algeo, Lee R. Kump, Xiao Bai, Hao Yang, Le Yao and Shucheng Xie, 2011. Enhanced nitrogen fixation in the immediate aftermath of the latest Permian marine mass extinction. *Geology* 39: 647-650.
77. Konhauser, K.O., Stefan V. Lalonde, Noah J. Planavsky, Ernesto Pecoits, Timothy W. Lyons, Stephen J. Mojzsis, Olivier J. Rouxel, Mark E. Barley Carlos Rosìere, Phillip W. Fralick, Lee R. Kump, and Andrey Bekker, 2011. Aerobic pyrite oxidation and acid-rock drainage during the Great Oxidation Event. *Nature* 478: 369-373.
78. Charles, A., Daniel J. Condon, Ian C. Harding, Heiko Pälike, John E. A. Marshall , Ying Cui, Lee Kump, Ian W. Croudacea, and the WUN pACE Group, 2011. Constraints on the numerical age of the Paleocene/Eocene boundary. *Geochem. Geoph. Geosys*. 12, Q0AA17, 19 PP., 2011 doi:10.1029/2010GC003426
79. Cui, Y., Kump, L.R., Ridgwell, A., Charles, A.J., Junium, C.K., Diefendorf, A.F., Freeman, K.H., Urban, N.M., and Harding, I.C., 2011. Slow release of fossil carbon during the Palaeocene-Eocene Thermal Maximum. *Nature Geosciences* 4: 481-485 DOI: 10.1038/NGEO1179.
80. Meyer, K.M., Kump, L.R., Macalady, J., Schaperdoth, I., and Freeman, K., 2011. Carotenoid biomarkers as an imperfect reflection of the anoxygenic phototrophic community in meromictic Fayetteville Green Lake. *Geobiology* 9: 321-329.
81. Honisch, B., Ridgwell, A., Schmidt, D., Thomas, E., Gibbs, S., Sluijs, A., Zeebe, RE., Kump, L., Martindale, R., Greene, S., Kiessling, W., Ries, J., Zachos, J., Royer, D., Barker, S., Marchitto, T.,

Moyer, R., Pelejero, C., Ziveri, P., Foster, G., and Williams, B., 2012. The geological record of ocean acidification. *Science* 335: 1058-1063.
82. Schneider, L.J., Bralower, T.J., and Kump, L.R., 2011. Response of nannoplankton to early Eocene ocean destratification. *Palaeogeogr. Palaeoclim. Palaeoecol.* 253: 152-162.
83. Falkowski, P.G. and 17 others (including Kump), 2011. Ocean deoxygenation: Past, present, and Future. *EOS* 92: 409-410.
84. Kump, L.R., Junium, C., Arthur, M.A., Brasier, A., Fallick, A., Melezhik, V., Lepland, A., Crne, A., Luo, G., 2011. Isotopic evidence for massive oxidation of organic matter following the Great Oxidation Event. *Science* 334: 1694-1696.
85. Horodyskyj, L.B., White, T.S., and Kump, L.R., 2012. Substantial biologically mediated phosphorus depletion from the surface of a Middle Cambrian paleosol. *Geology* 40: 503-506.
86. Haluszczak, L.O., Rose, A., and Kump, L.R., 2013. Geochemical evaluation of flowback and production waters from Marcellus gas wells in Pennsylvania. *Applied Geochemistry* 28: 55-61.
87. Loope, G., Kump, L.R., and Arthur, M.A., 2013. Shallow-water redox conditions from Permian-Triassic boundary microbialites. Chemical Geology 351: 195-208.
88. Kump, L.R., 2013. Sulfur isotopes and the stepwise oxygenation of the biosphere. Elements 8: 410-411.
89. Weiczorek, R., Fantle, M.S., Kump, L.R., and Ravizza, G., 2013. Osmium isotopic evidence for volcanic activity prior to and enhanced terrestrial weathering during the Paleocene Eocene Thermal Maximum. *Geochimica et Cosmochimica Acta* 119: 391-410.
90. Olson, S.L., Kump, L.R., and Kasting, J.F., 2013. Quantifying the areal extent and dissolved oxygen concentrations of Archean oxygen oases. *Chemical Geology* 362: 35-43.
91. Cui, Y., Kump, L.R., and Ridgwell, A., 2013. Initial assessment on the carbon emission rate and climatic consequences during the Permian-Triassic mass extinction. *Palaeogeography, Palaeoclimatology, Palaeoecology* 389: 128-136..
92. Schneider, L.J., Bralower, T.J., Kump, L.R., and Patzkowsky, M.E., 2013. Calcareous nannoplankton ecology and community change across the Paleocene-Eocene Thermal Maximum. *Paleobiology* 39: 628-647.
93. Pollard, D., Kump, L.R., Zachos, J.C., 2013. Interactions between carbon dioxide, climate, weathering and the Antarctic ice sheet in the earliest Oligocene. Global and Planetary Change 111: 258-267.
94. Song, H., Tong, J., Algeo, T.J., Song, H., Qiu, H., Zhu, Y., Tian, L., Bates, S., Lyons, T.W., Luo, G., Kump, L.R., 2014. Early Triassic seawater sulfate drawdown. *Geochim. Cosmochim. Acta* 128: 95-113. doi: http://dx.doi.org/10.1016/j.gca.2013.12.009.
95. Luo, G., Junium, C.K., Lee R. Kump, Junhua Huang, Chao Li, Yuansheng Du, Qinglai Feng, Xiaoyin Shi, Xiao Bai, Shucheng Xie, 2014. Stratified shallow ocean prevailed from late Paleoproterozoic to middle Mesoproterozoic: Evidence from organic carbon isotopic composition. *Earth and Planetary Science Letters* 400: 219-232.
96. Kump, L.R., 2014. Hypothesized link between Neoproterozoic greening of the land surface and the establishment of an oxygen-rich atmosphere. Proceedings of the National Academy of Sciences, 111(39), doi/10.1073/pnas.1321496111.
97. Cui, Y. and Kump, L.R., 2015. Global warming and the Permian-Triassic extinction event: proxy and modeling perspectives. *Earth-Science Reviews* 149: 5-22.
98. Bachan, A. and Kump, L., 2015. The rise of oxygen and siderite oxidation during the Lomagundi Event. *Proc. Nat'l Acad. Sci.* 112: 6562-6567.
99. Havig, J., McCormick, M., Hamilton, T., and Kump, L., 2015. The behavior of biologically important trace elements across the oxic/euxinic transition of meromictic Fayetteville Green Lake, New York, USA. *Geochim. Cosmochim. Acta* 165: 389-406.
100. Rybacki, K., Kump, L.R., Hanski, E.J., and Melezhik, V.A., 2016. Weathering during the Great Oxidation Event: Fennoscandia Arctic Russia, 2.0 Ga. *Precambrian Research* 275: 513-525.
101. Cui, Y., Bercovici, A., Yu, J., Kump, L., Freeman, K., Shangguo, S., and Vajda, V., 2016. Carbon cycle perturbation expressed in terrestrial Permian-Triassic Boundary sections in South China. *Global*

*and Planetary Change* 148: 272-285, DOI: 10.1016/j.gloplacha.2015.10.018.
102. Blattler, C.L., Kump, L.R., Fischer, W.W., Paris, G., Kasbohm, J.J., and Higgins, J.A., 2017. Constraints on ocean carbonate chemistry and $pCO_2$ in the Archean and Palaeoproterozoic. *Nature Geoscience* 10: 41-45.
103. Lau, K.V., Maher, K., Altiner, D., Kelley, B., Kump, L., Lehrmann, D., Silva-Tamayo, J., Weaver, K., Uy, M., and Payn, J.L., 2016. Marine anoxia and delayed Earth system recovery after end-Permian extinction. *Proc. Nat'l. Acad. Sci*. 113: 2360-2365.
104. Kanzaki, Y. and Kump, L.R., 2017. Biotic effects on oxygen consumption during weathering: Implications for the second rise of oxygen. *Geology* 45: 611-614.
105. Self-Trail, J.M., Robinson, M.M., Bralower, T.J., Sessa, J.A., Hajek, E.A., Kump, L.R., Trampush, S.M., Willard, D.A., Edwards, L.E., Powars, D.S., and Wandless, G.A., 2017. Shallow marine response to global climate change during the Paleocene Eocene Thermal Maximum, Salisbury Embayment, USA. *Paleoceanograph*y 32: 710-728.
106. Bachan, A., Lau, K.V., Saltzman, M.R., Thomas, E., Kump, L.R., and Payne, J.L., 2017. A model for the decrease in the amplitude of carbon isotope excursions across the Phanerozoic. *Amer. J. Sci.* 317: 641-676.
107. Havig, J.R., Hamilton, T.L., Bachan, A., and Kump, L.R., 2017. Sulfur and carbon isotopic evidence for metabolic pathway evolution and a four-stepped Earth system progression across the Archean and Paleoproterozoic. *Earth Science Reviews* 1764: 1-21. https://doi.org/10.1016/j.earscirev.2017.06.014.
108. Turner, S.K., Hull, P.M., Kump, L.R. and Ridgwell, A., 2017. A probabilistic assessment of the rapidity of PETM onset. *Nature Communications* 8: 353 | DOI: 10.1038/s41467-017-00292-2 .
109. Havig, J.R., Hamilton, T.L., McCormick, M., McClure, B., Sowers, T., Wegter, B., and Kump, L.R. 2017. Water column and sediment carbon isotope geochemistry of permanently redox-stratified Fayetteville Green Lake, New York, USA. *Limnology and Oceanography* DOI: 10.1002/lno.10649.
110. Herndon, E., Havig, J., Singer, D., McCormick, M., and Kump, L., 2018. Manganese and iron geochemistry in sediments underlying the redox- stratified Fayetteville Green Lake. *Geochim. Cosmochim. Acta*. 231`: 50-63.
111. Lu, W., and 20 others including Kump, L.R., 2018. Late inception of a resiliently oxidized ocean. *Science* 361: 174-177.
112. Kump, L.R., 2018. Prolonged Late Permian – Early Triassic hyperthermal: failure of climate regulation? *Phil. Trans. Royal Soc. A.* 376: 20170078.
113. Li, M., Kump, L.R., Hinnov, L.A., and Mann, M.E., 2018. Tracking variable sedimentation rates and astronomical forcing in Phanerozoic paleoclimate proxy series with evolutionary correlation coefficients and hypothesis testing. *Earth Planet. Sci. Lett.* 501: 165-179.
114. Hantsoo, K. G., Kump, L. R., Haupt, B. J., & Bralower, T. J., 2018. Tracking the Paleocene-Eocene Thermal Maximum in the North Atlantic: A shelf-to-basin analysis with a regional ocean model. *Paleoceanography and Paleoclimatology, 33:* 1324-1338.
115. Bralower, T. , Kump, L.R., Robinson, M.M., Self-Trail, J.M., Lyons, S., Babila, T., Ballaron, E., Freeman, K., Hajek, E., Rush, W. and Zachos, J.C., 2018. Evidence of shelf acidification during the onset of the Paleocene-Eocene Thermal Maximum. *Paleoceanography and Paleoclimatology 33:* 1408-1426. https://doi.org/ 10.1029/2018PA003382.
116. Li, Mingsong, Kump, L.R., Hinnov, L., and Mann, M., 2018. Tracking variable sedimentation rates and astronomical forcing in Phanerozoic paleoclimate proxy series with evolutionary correlation coefficients and hypothesis testing, *Earth and Planetary Science Letters*. 501: 165-179.
117. Lyons, S.L., Baczynski, A.., Babila, T.L., Bralower, T.J., Hajek, E.A., Kump, L.R., Polites, E.G., Trampush, S.M., Vornlocher, J.R., Zachos, J.C. and Freeman, K.H., 2019. Paleocene–Eocene Thermal Maximum prolonged by fossil carbon oxidation. *Nature Geoscience* 12: 54-60.
118. Li, Mingsong, Hinnov, L.A. and Kump, L.R., 2019. Acycle: time-series analysis software for paleoclimate research and education. *Computers and Geosciences* 127: 12-22.
119. Isson, T.T., Planavsky, N.J., Coogan, L.A., Steward, E.M., Ague, J.J., Bolton, E.W., Zhang, S., McKenzie, N.R., and Kump, L.R., 2020. Evolution of the global carbon cycle and climate regulation on Earth. *Global Biogeochemical Cycles* 34*:* e2018GB006061.

120. Kanzaki, Y., Brantley, S.L., and Kump, L.R., 2020. A numerical examination of the effect of sulfide dissolution on silicate weathering. *Earth and Planetary Science Letters*. 539: 116239.
121. Ajayi, S., Kump, L.R., Ridgwell, A., Kirtland Turner, S., Hay, C.C. and Bralower, T.J., 2020. Evaluation of Paleocene-Eocene Thermal Maximum carbon isotope record completeness – An illustration of the potential of dynamic time warping in aligning paleo-proxy records. *Geochem. Geophys. Geosys*. 21 (**doi.org/10.1029/2019GC008620**).
122. Bralower, T.J. and 20 others, 2020. Origin of a global carbonate layer deposited in the aftermath of the Cretaceous-Paleogene boundary impact. *Earth and Planetary Science Letters* 548: 116476.

Books, Book Chapters, and non-refereed Publications

1. Kump, L.R. and Hine, A.C., 1986. Ooids as sea-level indicators. In: van de Plassche, O. (ed.), Sea Level Research, Geobooks, Norwich, England. (Principal Author)
2. White, T.S., Morrison, J.L., and Kump, L.R., 1990. Formation of iron sulfides in modern salt marsh sediments (Wallops Island, Virginia). Chapter 11 in: Orr, W.L. and White, C.M. (eds.) Geochemistry of Sulfur in Fossil Fuels, ACS Symposium: Series 429, pp. 204-217.
3. Kump, L.R., 1990. Neogene geochemical cycles; Implication concerning phosphogenesis. In: Burnett, W. and Riggs, S.R. (eds.), Phosphate Deposits of the World, Vol. 3, Cambridge University Press, England, pp. 273-282.
4. Kump, L.R. and Volk, T., 1991. Gaia's garden and BLAG's greenhouse: global biogeochemical climate regulation. In: Schneider, S.H. and Boston, P.J.0 (eds.), Scientists on Gaia, MIT Press, p. 191-199.
5. Kump, L.R., 1991. Biogeochemical cycle of oxygen. In: Nierenberg, W.A. (ed.) Encyclopedia of Earth System Science, Vol. 3 (M-Re), Academic Press, NY.
6. Kump, L.R., 1992. Coupling of the carbon and sulfur biogeochemical cycles over Phanerozoic time. In: Wollast, R. (ed.), Interactions of C, N, P and S Biogeochemical Cycles, NATO ASI Series, Springer-Verlag, Berlin, pp. 475-490.
7. Kasting, J.F., Holland, H.D., and Kump, L.R., 1992. Atmospheric evolution: the rise of oxygen. Chapter 4.6 in Schopf, J.W. and Klein, C. (eds.), The Proterozoic Biosphere: A Multidisciplinary Study. Cambridge University Press, England, pp. 159-165.
8. Kump, L.R., and Alley, R.B., 1994. Global chemical weathering on glacial time scales. In: Usselman, T.M. and Hay, W.W. (eds.), Material Fluxes on the Surface of the Earth, National Research Council, Washington, DC, pp. 46-60.
9. Kump, L.R. and Lovelock, J.E., 1995. The geophysiology of climate. In: Henderson-Sellers, A. (ed.), Future Climates of the World, V. 16, World Survey of Climatology, Elsevier Science BV, Amsterdam, Chapter 14p. 537-553.
10. Kump, L.R., Gibbs, M., Arthur, M., Patzkowsky, M., and Sheehan, P., 1995. Hirnantian glaciation and the carbon cycle. In: Ordovician Odyssey: Short Papers for the Seventh International Symposium on the Ordovician System, Society of Sedimentary Geology, p. 299-302.
11. Kump, L.R. and Arthur, M.A., 1997. Global chemical erosion during the Cenozoic: Weatherability balances the budget. In: W. Ruddiman (ed.), Tectonics Uplift and Climate Change, Plenum Publishing Co., pp. 399-426.
12. Kump, L.R., Kasting, J.F., and Crane, R.H., 1999. The Earth System. Prentice Hall, New Jersey, 350 pp.
13. Kump, L.R. and Slingerland, R.L., 1999. Circulation and stratification of the Early Turonian Western Interior Seaway: Sensitivity to a variety of forcings. In: Barrera, E. and Johnson, C. (eds.), The Evolution of Cretaceous Ocean/Climate Systems, Special Paper of the Geological Society of America 332: 181-190.
14. Gibbs, Mark T; Bice, Karen L; Barron, Eric J; Kump, Lee R, 2000. Glaciation in the early Paleozoic "greenhouse"; the roles of paleogeography and atmospheric $CO_2$. In: Huber, B.T., MacLeod, K.G., and Wing, S.L., eds., Warm Climates in Earth History,Cambridge Univ. Press, U.K., 386-422.

15. Kump, L.R., Kasting, J.F., and Crane, R.G., 2004. The Earth System, 2/e. New Jersey: Prentice Hall, 419 pp.
16. Kump, L.R., 2004. Self-regulation of ocean composition by the biosphere. In: Schneider, S.H., Miller, J.R., Crist, E. and Boston, P.J. (eds.) Scientists Debate Gaia II. MIT Press, Cambridge Mass. pp. 93-100..
17. Kump, L.R., 2004. The geochemistry of mass extinction. In: Turekian, K.K. and Holland, H.D. (eds.) Treatise on Geochemistry. Holland: Elsevier, Ch. 7.14, p. 351-368.
18. Kump, L. R., 2008. The role of seafloor hydrothermal systems in the evolution of seawater composition during the Phanerozoic. In: Lowell, R.P., Seewald, J.S., Metaxas, A., and Perfit, M.R. (eds.), Magma to Microbe: Modeling Hydrothermal Processes at Ocean Spreading Centers. Geophysical Monograph Series 178, Amer. Geoph. Union, pp. 275-284.
19. Mann, M. and Kump, L., 2008. Dire Predictions: Understanding Global Warming. DK Publishing, New York, 208 pp.
20. Slingerland, R.L. and Kump, L.R., 2011. Mathematical Modeling of Earth's Dynamical Systems: A Primer. Princeton University Press, 231 pp.
21. Kump, L.R., Kasting, J.F., and Crane, R.G., 2010. The Earth System, 3/e. New Jersey: Prentice Hall, 420 pp.
22. Kump, L.R., 2011. The last great global warming. Scientific American, July, 2011, pp. 56-61.
23. Melezhik, V., Prave, A., Hanski, E., Fallick, A., Lepland, A., Kump, L., Strauss, H. (eds.), 2012. Reading the Archive of Earth's Oxygenation. Volume 1: The Palaeoproterozoic of Fennoscandia as Context for the Fennoscandian Arctic Russia - Drilling Earth Project. Springer, Heidelberg, 490 pp.
24. Melezhik, V., Prave, A., Fallick, A., Hanski, E., Lepland, A., Kump, L., Strauss, H. (eds.), 2012. Reading the Archive of Earth's Oxygenation. Volume 2: The Core Archive of the Fennoscandian Arctic Russia - Drilling Early Earth Project. Springer, Heidelberg, 550 pp.
25. Melezhik, V., Kump, L., Fallick, A., Strauss, H., Hanski, E., Prave, A., Lepland, A. (eds.), 2012. Reading the Archive of Earth's Oxygenation. Volume 3: Global Events and the Fennoscandian Arctic Russia - Drilling Earth Project. Springer, Heidelberg, 512 pp.
26. Canfield, D.E., and Kump, L.R., 2013. Carbon cycle makeover. Science 339: 533-534.
27. Kump, L.R., 2014. The Geochemistry of Mass Extinction. Chapter 6.12 in Holland, H.D. and Turekian, K. (eds.) Treatise on Geochemistry, 2nd ed., Oxford University Press, UK, vol. 6, pp. 269-280, http://dx.doi.org/10.1016/B978-0-08-095975-7.01313-9.
28. Cui, Y., Kump, L.R., and Ridgwell, A., 2015. Spatial and temporal patterns of ocean acidification during the end-Permian mass extinction – an Earth system model evaluation. In: Schmidt, A., Fristad, K.E., and Elkins-Tanton, L.T. (eds.), Volcanism and Global Environmental Change. Cambridge University Press, Cambridge, UK, pp. 291-306.
29. Mann, M. and Kump, L.R., 2016. Dire Predictions: Understanding Climate Change (A Visual Guide to the Findings of the IPCC), 2/e. DK/Pearson, New York, 224 pp.
30. Kump, L.R., 2016. Resilient planet: Reading the Earth's medical chart. In: Lovelock, J.E. (ed.) *The Earth and I*, Taschen, Cologne, Germany, 42-49.
31. Kump, L.R., 2016. Rock Stars: Robert M. Garrels. GSA Today Feb. 2016, p. 20-21.
32. Larsen, L., Hajek, E.,Maher, K., Paola, C., Merritts, D., Bralower, T., Montanez, I., Wing, S., Snyder, N., Hochella, M., Kump, L., and Person, M., 2015. Taking the pulse of Earth's surface systems. *Eos, 96*, doi:10.1029/2015EO040525. Published on 2 December 2015.
33. Kump, L.R., 2016. Mineral clues to past volcanism. Science (Perspectives) 352: 411-412.
34. Kump, L.R., 2018. Climate change and marine mass extinction. Science (Perspectives) 362: 1113-1114.

*Book Reviews*

Kump, L.R., 1988. It's a small world (Review of "Global Biogeochemical Cycles"). Nature, 335:466.
Kump, L.R., 1989. Review of "History of Earth's Atmosphere." Terra Nova, 1, 383-384.

Kump, L.R., 1992. Review of "Numerical Adventures with Geochemical Cycles." Journal of Geological Education, 40, p. 33.

Kump, L.R., 2009. A second opinion for our planet. Science (Book Reviews) 325: 539-540.

Kump, L.R., 2011. "Paleoclimates: Understanding Climate Change Past and Present" (by T. Cronin). EOS 92: 318-319.

Kump, L.R., 2014. Earth's oxygen unraveled. *Nature Geoscience* 7: 248.

*Departmental and Program Reviews*

Eckerd College, Program in Marine Sciences, 2000
University of Kansas, Dept. of Geology (AAAS Review), 2000
Northwestern University, Dept. of Geological Sciences, 2001
University of South Carolina, EPSCOR review, 2001
University of North Carolina, Dept. of Geological Sciences, 2006
University of Toronto, Dept. of Earth Sciences, 2013
University of Minnesota, School of Earth Sciences, 2019
Harvard University, Dept. of Earth and Planetary Sciences, 2020
NSF ANT Committee of Visitors Chair, 2020

*Grants and Contracts*

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|---|---|
| 1983-1984 | American Association of Petroleum Geologists, Grant-in-Aid, $700, A Study of the Geology of West Florida |
| 1986-1987 | Pennsylvania State University, Faculty Research Award, $3,000, A Study of the Iron Stable Isotopes |
| 1987-1989 | Petroleum Research Fund, $18,000, A Study of the Iron Stable Isotopes |
| 1988-1990 | National Science Foundation, $140,000, Coupled Models of Geochemical Cycles and Climate (with E. Barron) |
| 1988-1989 | Texaco, $15,000, Isotopic Modeling of Carbon and Sulfur Cycles |
| 1989-1992 | National Science Foundation, $145,900, Minority Recruitment Outreach Demonstration Project (J.J. Cahir, Principal Investigator) |
| 1989-1990 | National Science Foundation, $23,611, Global Change Course Development (NCAR) |
| 1990-1991 | National Science Foundation, $13,406, Natural Variability in Iron Stable Isotopes |
| 1990-1992 | Gas Research Institute, $130,000, Clay Conversion in the Formation of Pressure Chambers in Sedimentary Basins |
| 1990-1992 | National Science Foundation, $97,000, Phanerozoic Chemical Weathering and Paleoclimate (with E. Barron) |
| 1991-1992 | PAC of Clays, $2,500, Faculty Research Award |
| 1992 | Gas Research Institute, $360,213, Clay Conversion in the Formation of Pressure Chambers in Sedimentary Basins |
| 1992-1994 | National Science Foundation, $250,000, Global Change in Cretaceous Seaways (one of four co-PIs) |
| 1992-1995 | National Science Foundation, $218,695, Kinetics of Smectite-Illite Transformation |

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| 1992-1996 | Shell Research Limited (Marine Biological Association of the UK), $40,000, Geophysiology Modeling |
| 1993-1995 | National Science Foundation, $112,768, Atmospheric $CO_2$ and Glaciation |
| 1994-1997 | Penn State University, $45,000, Nutrient Behavior in Saline Groundwater of the Florida Keys |
| 1994-present | NASA, $1,830,000, Global Water Cycle: Extension Across the Earth Sciences (E.J. Barron, Principal Investigator) |
| 1995-1997 | Environmental Protection Agency, $100,000, Fate of Wastewater Nutrients in the Florida Keys. |
| 1996-1997 | NASA, $9480, Investigation of isotopic evidence for an active planktonic biota in the Paleoproterozoic (seed grant) |
| 1997-1999 | EPA, $100,000, Behavior of Wastewater Nutrients in Groundwater of the Florida Keys. |
| 1998-2000 | NSF, $97,203, Quantitative Assessment of Ocean Stagnation Hypotheses. |
| 2002-2006 | NASA, ~$4.5M, Penn State Astrobiology Research Center (co-PI; H. Ohmoto, Principal Investigator) |
| 2002-2005 | NSF, $158,047, Upgrading Computing Hardware to Support Geoscience Initiatives, (one of 11 co-PIs) |
| 2002-2007 | NSF, $260,936, The Consequences of Greenhouse Warming on Biocomplexity and Biogeochemical Cycles across the Paleocene-Eocene Boundary (Penn State share; J. Zachos, UC Santa Cruz PI, 6 other co-PIs) |
| 2002-2006 | NSF, $250,000, Extremes of Ocean Biogeochemistry: Focus on the Permian-Triassic Boundary (Kump, PI; M. Arthur, co-PI) |
| 2003 | Florida Dept. of Environmental Protection, $90,000, Assessment of the impact of wastewater injection on nearshore waters of the Florida Keys |
| 2005-2007 | Understanding carbon isotope excursions in the Paleozoic (co-PI with M. Saltzman, Ohio State) NSF, $61,946 (PSU part) |
| 2006-2010 | *Collaborative Research; The Dynamics Of Carbon Release And Sequestration: Case Studies Of Two Early Eocene Hyperthermals.* NSF-Carbon and Water Cycle, (T. Bralower, Co-I), $605,145. |
| 2008-2012 | Collaborative Research: The Siberian Traps and the end-Permian Extinction: Coincidence and Causality, one of several co-PIs, NSF Continental Dynamics, Kump part $410,732, funded. |
| 2007-2008 | FAR-DEEP: Fennoscandian Arctic Russia Drilling Early Earth Project, NSF and NASA, Kump PI on US part, $76,250 to each agency, funded. |
| 2007-2009 Boundary | Numerical Modeling of the Greenhouse-Icehouse Transition: Eocene-Oligocene (D. Pollard, co-PI), NSF Geobiology and Environmental Geochemistry, $250,266, funded. |
| 2008-2010 | *Collaborative Research: Environmental and Biogeochemical Reorganization During the Rise of Atmospheric Oxygen* (NASA/NSF; Kump, PI; PSU part $100,000) funded. |
| 2009-2013 | *Signature of Life from Earth and Beyond* (Kump one of several co-PIs, NASA Astrobiology Institute, Kump part $349,342) funded. |

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| 2013 | Evaluating atmospheric oxygen levels during the Great Oxidation Event. NASA Astrobiology Director's Discretionary Fund, $19,997. |
| 2009-2013 | *Collaborative Research: Environmental and Biogeochemical Reorganization During the Rise of Atmospheric Oxygen* (NSF and NASA, Kump part $102,000). |
| 2008-2014 | *Collaborative Research: The Siberian Traps and the end-*<br>*Permian Extinction: Coincidence and Causality*, one of several co-PIs, NSF Continental Dynamics, Kump part $410,732. |
| 2014-2017 | *Evaluating Atmospheric Oxygen Levels During the Great Oxidation Event*, Kump PI, NSF Geobiology and Environmental Geochemistry, $228,174. |
| 2014-2017 | *Perturbation of the Marine Food Web and Extinction During the Oceanic Anoxic Event at the Cenomanian/Turonian Boundary*, NSF Earth-Life Transitions (Bralower PI, Kump co-PI), $407,640. |
| 2014-2017 | *Ocean Acidification: during the Paleocene-Eocene Thermal Maximum: Observing and modeling the impact on nannoplankton in a shelf transect* (NSF, co-PI with T. Bralower and K. Freeman), $747,063 |
| 2016-2017 | *Modeling of Earth's Dynamic Systems: Letting Genie out of the Box: A Short Course* (Heising-Simons Foundation) $15,000. |
| 2016-2017 | Modeling of Earth's Dynamic Systems: Letting Genie out of the Box: A Short Course (Agouron Institute) $15,000. |
| 2016-2019 | *iMUDS: Instigating a Mechanistic Understanding of the Dynamics of the Sedimentary record* (Heising-Simons Foundation, co-PI with A. Ridgwell and S. Kirtland-Turner), Kump part $319,444 |
| 2016-2020 | *Paleoclimate data assimilation for deep time* (Heising-Simons Foundation, co-PI with many others non-PSU) Kump part $340,026. |
| 2020-2023 | *Quantifying the impact of shallow wastewater injection on groundwater nutrient fluxes to surface waters in the Florida Keys National Marine Sanctuary: a pilot study* (US EPA, Miquela Ingalls, PI, $322,946). |

*Course Instruction*

Sedimentary Geochemistry, Geosciences 523
Field Methods in Sedimentary Geochemistry, Geosciences 597B
Gaia - The Earth System, Earth 2
Chemical Evolution of Atmosphere and Ocean, Earth 402
Marine Biogeochemistry, Geosciences 497D
Modeling the Carbon Cycle, Geosciences 497A
Advanced Earth System Science Seminar, Geosciences 597C
Physical and Chemical Sedimentology, Geosciences 497A
Mathematical Modeling in the Geosciences, Geosciences 561
The Cause of Coral Reef Demise, Earth 497 (CAUSE Ô97)
Evolution of the Biosphere, Geosc 502
Ocean Biogeochemical Dynamics, Geosc 597
Astrobiology Seminar, Geosc 597
Himalayan Uplift: Tectonic and Climate Implications, Geosc 597
Freshman Seminar, EMS 100S

Introductory Geochemistry, Geosc 202
Astrobiology Field Course, ABIOL 570

*Membership on Graduate Degree Candidates' Committees*

Doctoral Candidates in Progress

| | |
|---|---|
| Seyi Ajayi | Major Advisor |
| Benjamin Barnes | Major Advisor |

Doctoral Candidates, Program Completed

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|---|---|
| Kyle Rybacki | Major Advisor |
| Jonathon Schueth | Member |
| Elizabeth Denis | Co-Advisor with Freeman |
| Ying Cui | Major Advisor |
| Heather Graham | Co-Advisor with Freeman |
| Lev Horodyskyj | Major Advisor |
| Leah Schneider | Co-Advisor (with Bralower) |
| Katja Meyer | Co-Advisor (with Freeman) |
| Karla Panchuk | Major Advisor |
| Matt Bachmann | Major Advisor (BRIE Advisor: Regan, CEE) |
| Anthony Riccardi | Co-Advisor (with Arthur) |
| Roberta Hotinski | Major Advisor |
| Mark Gibbs | Major Advisor |
| Gregg Bluth | Major Advisor |
| Paul Richards | Co-Advisor |
| Shelby Lyons | Member |
| Gregory Wong | Member |
| Heather Jones | Member |
| Rebecca McCauley | Member |
| Karen Whelley | Member |
| Clayton Magill | Member |
| Jennifer Williams | Member |
| Moshe Rhodes | Member |
| Joel Moore | Member |
| Vyllinniskii Cameron | Member |
| Daniel Hummer | Member |
| Heidi Albrecht | Member |
| Aaron Diefendorf | Member |
| Chris Junium | Member |
| Jamey Fulton | Member |
| Libby Hausrath | Member |
| Pushker Kharecha | Member |
| Erin McMullin | Member (Biol) |
| Nikolai Pedentchouk | Member |
| Aubrey Zerkle | Member |
| Heather Buss | Member |
| Alex Pavlov | Member |
| Kosei Yamaguchi | Member |
| Jennifer Lewicki | Member |
| Alexander Pavlov | Member |
| Byong-Hun Jeon | Member (CEE) |

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|---|---|
| Shuhei Ono | Member |
| Persa Batra | Member |
| Atsu Ennyu | Member |
| Matt Hurtgen | Member |
| Benjamin Turner | Member |
| Timothy White | Member |
| Mark Pagani | Member |
| Yingje Guo | Member |
| Karen Bice | Member |
| Richard Pancost | Member |
| Neil Suits | Member |
| Greg Tucker | Member |
| Tetsuya Kato | Member |
| Wolfgang Albrecht | Member |
| Susan Altman | Member |
| Peter Fawcett | Member |
| Daniel Greeman | Member |
| Michael Guebert | Member |
| Rigel Lustwerk | Member |
| Wofgang Polster | Member |
| Armando Ramirez | Member |
| Martin Schoonen | Member |
| Chie Soong | Member |
| Peter Schultz | Member |
| Ruth Robinson | Member |

Masters Degree Candidates, Program In Progress

Masters Degree Candidates, Program Completed

| | |
|---|---|
| Brandon Clark | Major Advisor |
| Chloe Stanton | Major Advisor |
| Kalev Hantsoo | Major Advisor |
| Stephanie Olson | Major Advisor |
| Garrison Loope | Major Advisor |
| Stamatina Hunter | Major Advisor |
| Anna Hilting | Co-Advisor (with Bralower) |
| Ellen Herman | Co-Advisor (with White) |
| Kay Elliott | Major Advisor |
| Mike Moreland | Major Advisor |
| Erin Griggs | Major Advisor |
| Lea Monaghan | Major Advisor |
| Don Machusak | Major Advisor |
| Virginia Seymour | Major Advisor |
| Elizabeth Andrews | Member |
| Melinda Foland | Member |
| Katie Brennan | Member |
| Louise Miltich | Member |
| Mary Howard | Member |
| Jennifer Aring | Member |
| Sharon Givens | Member |

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|---|---|
| Stacey Hoeltje | Member (Agriculture) |
| Erin Matlack | Member |
| Jaime Whitlock | Member |
| Jane Lock | Member |
| Simmy Yau | Member |
| Myrna Martinez | Member |
| Jennifer DeLurio | Member |
| Egide Nizeyemana | Member |
| Wanda Kapsner | Member |
| Rebecca Mellinger | Member |
| Melissa Nugent | Member |