Craig C. Lundstrom

Curriculum Vitae

Professor
Department of Geology
University of Illinois
Urbana, IL 61801
(217) 244-6293
fax (217) 244-1808
lundstro@uiuc.edu

Education:

B.A., Chemistry, Colorado College, 1987

Ph.D., Earth Sciences, University of California, Santa Cruz, 1996
Constraints on Mid-ocean Ridge Processes from Uranium Series Disequilibria

Related Work Experience:

8/13 – present	Professor, Dept. of Geology, University of Illinois
8/05 – 8/13	Associate Professor, Dept. of Geology, University of Illinois
8/07 – 8/08	Associate, Center for Advanced Study, University of Illinois
8/99 – 7/05	Assistant Professor, Dept. of Geology, University of Illinois
5/97 -7/99	NSF RIDGE post-doctoral fellow, Brown University
1/97 - 5/97	Visiting assistant professor, Colorado College
8/96 - 1/97	Post-doctoral researcher, University of California, Santa Cruz
10/91 - 6/96	Graduate researcher, University of California, Santa Cruz
9/90 - 7/91	Paraprofessional/teaching asst., Geology Department, Colorado College
9/87 - 12/89	U.S. Peace Corps Volunteer, Kenya
6/86 - 8/87	Undergraduate/graduate research assistant, Los Alamos National Laboratory

Professional Affiliations:

American Geophysical Union
Mineralogical Society of America
Geological Society of America
Geochemical Society
Society of Economic Geologists

Awards:

Achievement Reward for College Scientists Scholar (ARCS), 1994
RIDGE post-doctoral fellowship, 1997-1999
F.W. Clarke award, Geochemical Society, 2001
UIUC Incomplete list of teachers rated as excellent (numerous times)

Research Interests:

The geochemical evolution of Earth and formation of igneous rocks and associated mineral deposits through integration of experimental petrology, isotope geochemistry and numerical modeling. Application of $^{238}U/^{235}U$ and U-series disequilibria analysis to the study of reactive transport processes and Quaternary geochronology.

Funding:

1) Windows into MORB petrogenesis: Measuring U-series disequilibria from Transforms, 10/1/99 - 9/30/01. $54,800 (sole PI), NSF OCE Marine Geology and Geophysics Program. Supplemented 10/01/00 to upgrade mass spectrometer to multiple ion counting capability (+$15,000).
2) Timescales of crustal level differentiation: U-series measurements and geophysical monitoring at Arenal Volcano, Costa Rica, 10/1/99 - 9/30/00. $15,275, DOE IGPP program of Los Alamos National Laboratory. Renewal of $19,140 funded for fiscal year 2001. Renewal of $21,208 funded for fiscal year 2002 (sole PI).
3) Acquisition of a single collector thermal ionization mass spectrometer, 11/1/99 – 5/31/01. $30,000 UIUC Research Board (sole PI).
4) Measuring trace element partition coefficients between minerals and basaltic melts, 6/1/00 - 5/31/02. $94,058 (sole PI), NSF EAR Petrology and Geochemistry Program.
5) Upgrade of a JEOL 840A SEM, $28,413 (sole PI), funded fully as supplement to the above listed NSF EAR grant.
6) Observational constraints on Melt-rock reactions during melting of the upper mantle, 6/1/01 – 5/31/03, $95,800 (sole PI), NSF OCE Marine Geology and Geophysics Program.
7) Collaborative Research: Investigating the Processes and Timescales of Andesite Differentiation: A comprehensive petrological and geochemical study of Arenal Volcano, Costa Rica, co-PI with PI Frank Tepley (post doctoral researcher) (UIUC lead institution), 6/02 – 5/04, $137,655 (UIUC portion) NSF EAR Petrology and Geochemistry Program.
8) Acquisition of multicollector ICP mass spectrometer, 8/1/03 to 7/31/04. $493,640, NSF Major Research Instrumentation proposal (PI w/ T. Johnson).
9) Two Environmental council SURE awards for undergraduate research to P. Bull (2002-2003 academic year) and A. Raddatz (2003-2004 academic year) $3500
10) Technical Support for the new MC-ICPMS laboratory at UIUC, 1/15/04-1/14/07, $245,890 (PI) NSF Instrumentation and Facilities.
11) Assessing diffusive differentiation during igneous intrusion using integrated theoretical, experimental and field studies, 6/06 – 6/09, $270,442 (PI with Marshak as co-PI), NSF EAR Petrology and Geochemistry program.
12) Technical Support for the MC-ICPMS laboratory at UIUC, 9/07 – 9/09, $90,000 (PI), NSF Instrumentation and Facilities.
13) Major Earthquakes recorded by the initiation and/or regrowth of speleothems in Midwestern U.S. caves, $80,762 (PI), USGS/NEHRP, 3/08 – 3/09.
14) Collaborative research: Probing mantle plumbing beneath Pacific ridges through study of the Lamont and Vance seamount chains, 9/08 –9/10. $190,934 (PI-UIUC lead institution) NSF OCE Marine Geology and Geophysics,.
15) ^{26}Mg Evolution in A Carbonate Aquifer, 9/08 –9/10. $36,000, (PI) Northwestern University technical testing agreement.
16) U(VI) reduction by anaeromyxobacter: design of bioremediatation, 1/10 - 1/13, $330,000 (UIUC portion, co-PI with Sanford, Johnson); Department of Energy, ERSP program.

17) EAGER: Collaborative Investigations of Isotopic Fractionation by Thermal Diffusion and Thermal Migration, 9/1/09 –8/31/10. $60,000, (PI) NSF-EAR Petrology and Geochemistry program.
18) Using $^{235}U/^{238}U$ Analysis to understand U ore deposit formation at redox fronts. 6/1/10 - 5/31/10. $54,863, (PI) USGS Mineral Resources External Research Program.
19) Collaborative research: Integrated investigations of isotopic fractionation in magmatic systems, 9/1/10 - 8/31/13. $197,000, (PI; UIUC portion of $700k grant), NSF-EAR Petrology and Geochemistry.
20) Rifle IFRC Uranium Isotope Characterization, 12/15/10 - 9/30/11. $12,530, (PI) Pacific Northwest National Laboratory.
21) Collaborative Research: Investigating MORB differentiation through Non-traditional stable isotope analyses, 4/1/11-3/31/14, $248,000, (PI; UIUC lead on $478k grant), NSF-OCE Marine Geology and Geophysics program.
22) Development of U Isotope fractionation as an indicator of U(VI) reduction in U plumes, 10/11 – 10/14, $535k, (PI with T. Johnson as co-PI) USDOE Subsurface Biogeochemical Research program.
23) Acquisition of a laser ablation sampling device for isotopic analysis, 8/1/14-8/1/15, $278,000, (PI with Johnson, Guenthner and Ambrose Co-PIs) NSF-EAR Instrumentation and Facilities.
24) Integrating Experiments With Observations at Oldoinyo Lengai; Insights Into Alkalic Magmatic Processes, 9/1/14-9/1/17, $210,000, (sole PI), NSF EAR Petrology and Geochemistry.
25) Acquisition of ICPMS for geochemical analysis in the Dept of Geology, UIUC. $75,000, VCR instrument program, UIUC.

Review Panels (e.g., for Governmental Agencies, Educational Institutions)

NSF EAR Petrology and Geochemistry Panel 2003
NSF OCE Marine Geology and Geophysics Panel 2010
NA-22 Dept of Homeland Security, LLNL Uranium project review 2008

Books and Journals Edited:

Reviews in Mineralogy and Geochemistry volume #52: Uranium Series Geochemistry, Editors B. Bourdon, G. Henderson, C. Lundstrom, and S. Turner, 2003.

Elements Theme Issue: "The Volcanic-Plutonic Connection" April 2016.

Peer-reviewed publications: Google Scholar H-index=33; 2959 citations

1. K.W. Sims, E.S. Gladney, C.C. Lundstrom and N.W. Bower, Elemental concentrations in Japanese silicate rock standards: A comparison with the literature, *Geostandards Newsletter*, 12, 2, 379-389, 1988.
2. C.C. Lundstrom, H.F. Shaw, F.J. Ryerson, D.L. Phinney, J.B. Gill and Q. Williams, Compositional controls on the partitioning of U, Th, Ba, Pb, Sr and Zr between clinopyroxene and haplobasaltic melts: Implications for uranium series disequilibria in basalts, *Earth and Planetary Science Letters,* 128, 407-423, 1994.
3. C.C. Lundstrom, J. Gill, Q. Williams and M.R. Perfit, Mantle melting and basalt extraction by equilibrium porous flow, *Science*, 270, 1958-1961, 1995.

4. C.C. Lundstrom, J. Gill, Q. Williams and B.B. Hanan, Investigating solid mantle upwelling rates beneath mid-ocean ridges using U-series disequilibria: II. a local study at 33°S Mid-Atlantic Ridge, *Earth and Planetary Science Letters*, 157, 167-181, 1998.
5. C.C. Lundstrom, Q. Williams and J. Gill, Investigating solid mantle upwelling rates beneath mid-ocean ridges using U-series disequilibria: I. a global approach, *Earth and Planetary Science Letters*., 157, 151-165, 1998.
6. J.M. Brenan, E. Neroda, C.C. Lundstrom, H.F. Shaw, F.J. Ryerson and D.L. Phinney, Behavior of boron, beryllium, and lithium during melting and crystallization: constraints from mineral-melt partitioning experiments, *Geochimica Cosmochimica Acta*, 62, 2129-2141, 1998.
7. C.C. Lundstrom, H.F. Shaw, F.J. Ryerson, Q. Williams and J. Gill, Crystal chemical control of clinopyroxene-melt partitioning in the Di-Ab-An system: implications for elemental fractionations in the depleted mantle, *Geochimica Cosmochimica Acta*., 62, 2849-2862, 1998.
8. A. Andrews, K. Coale, C. Lundstrom, Z. Palacz, J. Nowicki and G. Cailliet, Application of a new ion-exchange separation technique and thermal ionization mass spectrometry to ^{226}Ra determination in otoliths for the purpose of radiometric age determination in long-lived fishes, *Canadian Journal of Fisheries and Aquatic Sciences,* 56, 1329-1338, 1999.
9. C.C. Lundstrom, D.E. Sampson, M.R. Perfit, J. Gill, and Q. Williams, Insights into MORB petrogenesis, U-series disequilibria from the Siqueiros Transform, Lamont Seamounts, and East Pacific Rise, *J. Geophys Res*., 104, 13035-13048, 1999.
10. C.C. Lundstrom, Q. Williams and J. Gill, A geochemically consistent hypothesis for MORB generation, *Chemical Geology*, 162, 105-126, 2000.
11. C.C. Lundstrom, Rapid diffusive infiltration of sodium into partially molten peridotite, *Nature*, 403, 527-530, 2000.
12. C.C. Lundstrom, Models of U-series disequilibria generation in MORB: the effects of two scales of melt porosity, *Physics of the Earth and Planetary Interiors*, 121, 189-204, 2000.
13. C.C. Lundstrom, Acceptance of the F.W. Clarke Award, *Geochim. Comochim. Acta*., 66, 559-560, 2002.
14. C.C. Lundstrom, Uranium Series Disequilibria in Mid-Ocean Ridge Basalts: observations and models of basalt genesis, Reviews in Mineralogy and Geochemistry volume #52: Uranium Series Geochemistry (Editors B. Bourdon, S. Turner, G. Henderson and C. Lundstrom), 175-214, 2003.
15. B. Bourdon, S. Turner, G. Henderson and C.C. Lundstrom, Introduction to U-series Geochemistry, Reviews in Mineralogy and Geochemistry volume #52: Uranium Series Geochemistry (Editors B. Bourdon, S. Turner, G. Henderson and C. Lundstrom), 1-21, 2003.
16. C.C. Lundstrom, An experimental investigation of the diffusive infiltration of alkalis into partially molten peridotite: implications for mantle melting process, *Geochem., Geophys. Geosys,* DOI10.1029/2001GC000224, 2003.
17. C.C. Lundstrom, K. Hoernle, and J. Gill, Major and trace element and U-series disequilibria in Holocene volcanic rocks from the Canary Islands: the role and mechanism of lithospheric melting, *Geochim. Comochim. Acta,* 67, 4153-4177, 2003.
18. F. J. Tepley III, C.C. Lundstrom, K. Sims, and R. Hekinian, U-series Disequilibria in MORB From the Garrett Transform and Implications for Mantle Melting**,** *Earth and Planetary Science Letters,* 223, 79-97, 2004.

19. S.V. Panno, B.B. Curry, H. Wang, K.C. Hackley, C-L Liu, C. Lundstrom, and J. Zhou[1]. Climate change in southern Illinois, USA, based on the age and $\delta^{13}C$ of organic matter in cave sediments. *Quaternary Research,* 61, 301-313, 2004.

20. A.H. Andrews, G.M. Cailliet, L.A. Kerr, K.H. Coale, C. Lundstrom, and A. DeVogleare. Investigations of age and growth of three species of deep-sea coral from the Davidson Seamount off central California. *Proceedings of the Second International Symposium on Deep Sea Corals*. Erlangen, Germany. September 8-13. (Peer reviewed proceedings), 2004.

21. M.M. Stevens, A.H. Andrews, G.M. Cailliet, K.H. Coale, C. Lundstrom. Age, growth and radiometric age validation of the blackgill rockfish, Sebastes melanostomus, *Fisheries Bulletin,*102, 711–722, 2004.

22. C.C. Lundstrom, M. Chaussidon, A.T. Hsui, P. Kelemen and M. Zimmerman, Observations of Li isotopic variations in the Trinity Ophiolite: Evidence for isotopic fractionation by diffusion during mantle melting, *Geochim. Comochim. Acta*, 69, 735-751, 2005.

23. T.F. Kokfelt, C. C. Lundstrom, K. Hoernle, F. Hauff, and R. Werner, Plume-Ridge Interaction studied at the Galapagos Spreading Centre: Evidence from ^{226}Ra-^{230}Th-^{238}U and ^{231}Pa-^{235}U Isotopic Disequilibria, *Earth Planet Sci. Lett*. 234, 165-187, 2005.

24. J. Zhou, C.C. Lundstrom, B. W. Fouke, S. Panno, K. Hackley, and B. Curry, Geochemistry of speleothem records from southern Illinois: development of $(^{234}U)/(^{238}U)$ as a proxy for paleoprecipitation, *Chemical Geology,* 221, 1-20, 2005.

25. A.H. Andrews, E.J Burton, L.A. Kerr, G.M. Cailliet, K.H. Coale, C.C. Lundstrom, and T.A. Brown, Bomb radiocarbon and lead-radium disequilibria in otoliths of bocaccio rockfish (*Sebastes paucispinis*): a determination of age and longevity for a difficult-to-age fish, *J. Mar. Fresh. Res*. 56, 517-528, 2005

26. C.C. Lundstrom, A. Boudreau and M. Pertermann, Diffusion-reaction in a thermal gradient: Implications for the genesis of anorthitic plagioclase, high alumina basalt and igneous mineral layering, *Earth Planet Sci. Lett*. 237, 829-854, 2005.

27. C. C. Lundstrom, A.L. Sutton, M. Chaussidon, W.F. McDonough and R. Ash, Trace Element Partitioning Between Type B CAI Melts and Melilite and Spinel: Implications for Trace Element Distribution during CAI Formation, *Geochim. Comochim. Acta*. 70, 3421-3435, 2006.

28. F. Huang, C.C. Lundstrom, and W. F. McDonough. Effect of melt structure on trace element partitioning between clinopyroxene and silicic, alkaline, aluminous melts, *Amer. Mineral*. 91, 1385-1400, 2006.

29. M. Pertemann, and C.C. Lundstrom, Phase Equilibrium Experiments at 0.5 GPa and 1100-1300°C on a Basaltic Andesite From Arenal Volcano, Costa Rica, *J. Volcan. Geotherm. Res*. 157, 222-235, 2006.

30. C.C. Lundstrom and F.J. Tepley, Investigating the origin of anorthitic plagioclase through a combination of experiments and natural observations, *J. Volcan. Geotherm. Res*. 157, 236-251, 2006.

31. F.J. Tepley, C.C. Lundstrom, J. Gill and R.W. Williams, U-Th-Ra disequilibria and the time scale of fluid transfer and andesite differentiation at Arenal Volcano, Costa Rica (1968-2003), *J. Volcan. Geotherm. Res*. 157, 147-165, 2006.

32. L. Rademacher, C. Lundstrom, T. Johnson, R. Sanford, J. Zhou, and Z. Zhang Experimentally determined uranium isotope fractionation during biotic and abiotic reduction, *Envir. Sci. Tech*. 40 (22), 6943 -6948, 2006.

33. F. Huang, C.C. Lundstrom, ^{231}Pa excesses in arc volcanic rocks: Constraint on melting rates at convergent margins, *Geology*, 35, 1007-1010, 2007.

34. A.H. Andrews, C.C. Lundstrom, G.M. Cailliet, and A.P. DeVogelaere. Investigations of bamboo coral age and growth from Davidson Seamount. *Technical Report Monterey Bay National Marine Sanctuary. Monterey, California*. 34 pp., 2007.

35. A.H. Andrews, L.A. Kerr, G.M. Cailliet, T.A. Brown, C.C. Lundstrom, and R.D. Stanley. Age validation of canary rockfish (*Sebastes pinniger*) using two independent otolith techniques: lead-radium and bomb radiocarbon dating. *Marine and Freshwater Research*. 58: 531-541, 2007.

36. Sims K.W.W., Gill J., Dossoto A., Hoffmann D.L., Lundstrom C., Williams R., Ball L., Tollstrup D., Turner S., Prytulak J., Glessner J., Standish J. and Elliott T., An interlaboratory assessment of the Th Isotopic Composition of Synthetic and Rock standards, *Geostandards and Geoanalytical Research*, 32, 65-91 2008.

37. F. Huang, L. Gao, C. C. Lundstrom, The effect of assimilation and fractional crystallization on U-series disequilibria in arc lavas, *Geochim. Comochim. Acta*. 72, 4136-4145, 2008.

38. L. Gao, B. Chen, J. Wang, H. P. Scott, M. Lerche, J. Zhao, W. Sturhahn, F. Huang, Y. Ding, C. Lundstrom, J. Bass, J. Li, Pressure-induced Magnetic Transition and Sound Velocities of Fe_3C, *Geophys. Res. Lett*. 35, doi:10.1029/2008GL034817, 2008.

39. T.F. Kokfelt, K. Hoernle, C. Lundstrom, F. Hauff, and P. van den Bogaard, Time-scales for magmatic differentiation at the Snaefellsjökull central volcano, western Iceland: Constraints from U–Th–Pa–Ra disequilibria in post-glacial lavas, *Geochim. Comochim. Acta*. 73, 1120-1144, 2009.

40. F. Huang, C.C. Lundstrom, J. Glessner, A. Ianno, A. Boudreau, J. Li, E. C. Ferré, S. Marshak, J. DeFrates, Chemical and isotopic fractionation of wet andesite in a temperature gradient: Experiments and models suggesting a new mechanism of magma differentiation. *Geochim. Comochim. Acta*. 73, 729–749 2009.

41. H. Wang, C.C. Lundstrom, Z. Zhang, D.A. Grimley, and W.L. Balsam, A Mid–Late Quaternary loess–paleosol record in Simmons Farm in southern Illinois, USA. *Quaternary Sci. Rev*. 28, 93-106, 2009.

42. E. Hostetter, B.W. Fouke, M. Pieramonte, and C.C. Lundstrom. Timing of the last flow of water in the Baths of Caracalla, Rome, Italy. in press, *Bulletino de Archieologico*, 2009.

43. S.V. Panno, C. Lundstrom, K.C. Hackley, B.B. Curry, B. W. Fouke and Z. Zhang, Major Earthquakes Recorded by Speleothems in Midwestern U.S. Caves, *Bulletin of Seismological Society of America*, 99, 2147-2154, 2009.

44. C. Bopp, C. Lundstrom, T. Johnson, J. Glessner, Variations in $^{238}U/^{235}U$ in Uranium Ore Deposits: isotopic signatures of the U reduction process? *Geology* 37, 611-614, 2009.

45. X. Ding, W. Sun, F. Huang, C. Lundstrom, J. Li, High mobility and fractionation of Nb and Ta under a large thermal gradient, *International Geology Review*. 51, 473-501, 2009.

46. F. Huang, Lundstrom, C.C., Glessner, J.G.J, Ianno, A., and Zhang, Z.F. Magnesium isotopic composition of igneous rock standards measured by MC-ICP-MS, *Chemical Geology* 268, 15-23, 2009.

47. C.C. Lundstrom, Hypothesis for origin of convergent margin granitoids and Earth's continental crust by thermal migration zone refining, *Geochim. Comochim. Acta*. 73, 5709-5729, 2009.

48. A.H. Andrews, R.P. Stone, C.C. Lundstrom, and A.P. DeVogelaere, Growth rate and age determination of bamboo corals from the northeastern Pacific Ocean using refined ^{210}Pb dating, *Mar. Ecol. Prog. Ser*. 397:173-185, 2010.

49. F.J. Tepley, C.C. Lundstrom, W.F. McDonough and A.M. Thompson, Trace element partitioning between high-An plagioclase and basaltic to basaltic andesite melt at 1-atmosphere, *Lithos*. 118, 82-94, 2010.

50. F. Huang, P. Chakraborty, C.C. Lundstrom, C.E. Lesher, C. Holmden, J.J.G. Glessner, and S. Kieffer, Isotopic fractionation in silicate melts by thermal diffusion, *Nature*, 464, 396-400, 2010.

51. A. Jacobson, Z. Zhang, C. Lundstrom and F. Huang, Behavior of Mg isotopes during dedolomitization in the Madison Aquifer, South Dakota, *Earth Planet Sci. Lett*. 297, 446-452, 2010.

52. C.J. Bopp IV, C. C. Lundstrom, T.M. Johnson, R. Sanford, P. Long and K. Williams Uranium $^{238}U/^{235}U$ Isotope Ratios as Indicators of Reduction: Results from an *in situ* Biostimulation Experiment at Rifle, CO, USA, *Envir. Sci. Tech*. 44, 5927–5933, 2010.

53. C. M. Brooks, Allen H. Andrews, Julian R. Ashford, Nakul Ramanna, Christopher Jones, Craig C. Lundstrom, Gregor M. Cailliet, Age estimation and lead-radium dating of Antarctic toothfish (*Dissostichus mawsoni*) in the Ross Sea. *Polar Biology*, 34, 329, 2011.

54. C.C. Lundstrom, S. Marshak, J. DeFrates and J. Mabon, Alternative processes for developing fabric and mineral compositional zoning in intrusive rocks, *Intl. Geology Review*. 53, 377-405, 2011.

55. F. Huang, Z. Zhang, C.C. Lundstrom, and X. Zhi, Iron and magnesium isotopic compositions of peridotite xenoliths from Eastern China, *Geochimica et Cosmochimica Acta,* 75, 3318-3334, 2011.

56. F. Huang, C.C. Lundstrom, H. Siggurdsson, and Z.F. Zhang, U-series disequilibria in Kick'em Jenny submarine volcano lavas: a new view of time-scales of magmatism in convergent margins, *Geochimica et Cosmochimica Acta 75,* 195-21, 2011.

57. Jong-Sik Ryu, A. D. Jacobson, C. Holmden, C. Lundstrom, Z. Zhang, The major ion, $\delta^{26/24}Mg$, $\delta^{44/40}Ca$, and $\delta^{44/42}Ca$ geochemistry of granite weathering at pH = 1 and T = 25°C: power-law processes and the relative reactivity of minerals, in press, *Geochimica et Cosmochimica Acta* 75, 6004, 2011.

58. A.H. Andrews, J.R. Ashford, C.M. Brooks, K. Krusic-Golub,, G. Duhamel, M. Belchier, C.C. Lundstrom, and G.M. Cailliet, Lead-radium dating of otoliths provides valid age data and reveals spatial biases in age estimates for Patagonian toothfish (*Dissostichus eleginoides*). *Marine and Freshwater Research*. 62, 781, 2011.

59. F. Huang, P. Chakraborty, C. C. Lundstrom, C. Holmden, J. J. G. Glessner, S. Kieffer, and C. E. Lesher. 2011. Reply to Brief Communications Arising: Isotope fractionation in silicate melts by thermal diffusion. *Nature*, 472, pp. E2–E3, 07 April 2011, DOI: 10.1038/nature09955.

60. D. Hendin, C. C. Lundstrom, Z. White and N. Bower, Preliminary Sequencing of Herod I's Undated Coins Based on Alloy Changes over Time, *Israel Numismatic Research*. 6/2012, 93-105, 2012.

61. D. Lacks, G. Goel, Charles J. Bopp IV J. van Orman, C. Lesher and C. Lundstrom 2012, Isotope fractionation by thermal diffusion, *Physical Review Letters,*108, 065901.

62. F. Demeter, L. Shackelford, A.M. Bacon, P. Duringer, K. Westaway, T. Sayavongkhamdy, J. Braga, P. Sichanthongtip,P. Khamdalavong, J.L. Ponche, H. Wang, C. Lundstrom, E. Patole- Edoumba, A.M. Karpoff, An anatomically modern human in Southeast Asia (Laos) by 46 ka. *Proc. Nat. Acad. Sci,* 109, 14375-80, 2012.

63. S.V. Panno, B.B. Curry, H. Wang, K.C. Hackley, Z. Zhang, C.C. Lundstrom, The effects of climate change on speleogenesis and karstification since the penultimate

glaciation in southwestern Illinois' sinkhole plain, *Carbonates Evaporites* 27, 87-94, DOI 10.1007/s13146-012-0086-5, 2012.

64. B. Lee, Y. Han, Y. Huh, C. Lundstrom, L. Siame, J.I. Lee, and B.K. Park, Chemical and physical weathering in south Patagonian rivers: a combined Sr-U-Be isotope approach, *Geochimica et Cosmochimica Acta*. 101, 173-190, 2013.

65. I.N. Bindeman, C.C. Lundstrom, C. Bopp, F. Huang, Stable isotope fractionation by thermal diffusion through partially molten wet and dry silicate rocks, Accepted, *Earth Planet Sci. Lett*. 365, 51-62, 2013.

66. N.W. Bower · D.B. Hendin · C.C. Lundstrom · M.S. Epstein · A. T. Keller · A. R. Wagner · Z. R. White, "Biblical" bronze coins: new insights from copper and lead isotopes, *Arch. Anthropol. Sci.*5, 287-298.

67. Xie, X., Johnson, T.M., Wang, Y., Lundstrom, C.C., Ellis, A., Wang, X., Duan, M., 2013. Mobilization of arsenic in aquifers from the Datong Basin, China: Evidence from geochemical and iron isotopic data. *Chemosphere* 90, 1878-1884.

68. A.E. Shiel, P. G. Laubach, T.M. Johnson, C.C. Lundstrom, P.E. Long and K.H. Williams. No measurable changes in 238U/235U due to desorption—adsorption of U(VI) from groundwater at the Rifle, Colorado Integrated Field Research Challenge Site, *Envir. Sci. Tech*. 47, 2535–2541, 2013.

69. C.C. Lundstrom and N. Gajos, Formation of the PGE reef horizon in the Sonju Lake layered mafic intrusion by thermal migration zone refining *Econ. Geol*. 109, 1257–1269, 2014.

70. Basu, RA Sanford, TM Johnson, CC Lundstrom and FE Loeffler, Uranium isotopic fractionation factors during U(VI) reduction by bacterial isolates, *Geochimica et Cosmochimica Acta*. 136, 100–113, 2014.

71. T. Zambardi, CC. Lundstrom, XX Li, M. McCurry, Fe and Si isotope variations at Cedar Butte volcano: insight into magmatic differentiation, *Earth Planet Sci. Lett.* 405, 169-179, 2014.

72. Wang Yanxin., Xianjun Xie., Johnson T. M., Lundstrom C. C., Ellis A., Wang X., Mengyu D. and Junxia L. (2014) Coupled iron, sulfur and carbon isotope evidences for arsenic enrichment in ground water. *Journal of Hydrology* **519,** 414-422.

73. Wang X., Johnson T. M. and Lundstrom C. C. (2015) Isotope fractionation during oxidation of tetravalent uranium by dissolved oxygen. *Geochimica et Cosmochimica Acta*. 150, 150-167.

74. Xie, Xianjun., Johnson T. M., Yanxin W., Lundstrom C. C., Ellis A., Wang X., Mengyu D. and Junxia L. (2014) Pathways of arsenic from sediments to ground water in the hyporheic zone; evidence from an iron isotope study. *Journal of Hydrology* **511,** 509-517.

75. Knipping J. L., Bilenker L. D., Simon A. C., Reich M., Barra F., Deditius A. P., Lundstrom C., Bindeman I. and Munizaga R. (2015) Giant Kiruna-type deposits form by efficient flotation of magmatic magnetite suspensions. *Geology (Boulder)* **43,** 591-594.

76. Abbott L. D., Lundstrom C. and Traub C. (2015) Rates of river incision and scarp retreat in eastern and central Grand Canyon over the past half million years; evidence for passage of a transient knickzone. *Geosphere (Boulder, CO)* 11, 638-659.

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