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## LOUIS A. DERRY

### Biography

Louis Derry received a BA in Geology from Colorado College in 1981 and a Ph.D. in Geological Sciences from Harvard University in 1990. He also worked in the mineral exploration (Homestake Mining Co.) and petroleum (Chevron) industries. Following his doctoral work, Derry was a post-doctoral researcher at the Centre de Recherches Péetrographiques et Géochimiques (CNRS) Nancy, France. He came to Cornell as a Snee Research Fellow in 1994 and joined the faculty in 1996. He is a Senior Scientist with the Kohala Center, Hawaii, and a Fellow of the Canadian Institute for Advanced Research.

### Research Interests

Derry's research includes studying biogeochemical processes at multiple time scales, from modern environments to the evolution of couple biogeochemical cycles over Earth history. Recent work includes elemental speciation and cycling in soil-plant-water systems, and the role of atmospheric deposition. Longer time scale problems include work to quantify CO<sub>2</sub> and elemental fluxes in the Himalayan and island arc systems. Derry is actively involved in developing models for the interpretation of carbon, nitrogen, sulfur and strontium isotopic variations in the ancient oceans and how those can be used to constrain critical environmental conditions during major evolutionary and/or extinction events.

### Teaching Interests

Derry teaches biogeochemistry at the undergraduate and graduate levels. In both cases Derry seeks to integrate observation and a system-level understanding of coupled processes with quantitative models (both



*Louis A. Derry*

Dept: Earth and Atmospheric Sciences

Title: Associate Professor

Address: 4140 Snee Hall

Phone: 607 255-9354

email:

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analytical and numerical) to allow the students to deepen their understanding of biogeochemical processes. By integrating quantitative methods with observations in the field, laboratory, and from the literature, students develop both a better understanding of biogeochemical phenomena as well as a more intuitive understanding of the use of mathematics and simulations to solve diverse problems. This year Derry and Larry Cathles developed a new course on fluid migration and reaction in the subsurface with applications to CO<sub>2</sub> sequestration and petroleum systems.

### Service Interests

Derry is involved in both University service and service to the larger scientific community and public. University service includes committees in the SES Major, Faculty DSR for Snee Hall, ACSF Faculty Fellow, and teaching in the Cornell Adult University program. Derry was Director of the IGERT Biogeochemistry program at Cornell from 2003-09. Current service to the academic community includes Editor for Geochemistry, Geophysics, Geosystems (AGU), Special Topics Editor for Proceedings of the National Academy of Sciences, and NSF Steering Committee for the Critical Zone Observatory program. Public outreach includes frequent interaction with the reporters and blogs at the New York Times on climate change and the recent nuclear crisis in Japan.

### Selected Publications

- ▶ Cosentino, N. J., T. E. Jordan, Louis A. Derry, J. Phipps-Morgan. 2013. "<sup>87</sup>Sr/<sup>86</sup>Sr in gypsic soils of hyperarid settings as an altitude proxy: results for northern Chile (19-24° S)." Earth and Planetary Science Letters .
- ▶ Trostle, K. D., Louis A. Derry, N. Vigier, O. A. Chadwick. 2013. "Magnesium isotopic fractionation in arid Hawaiian soils." Paper presented at Geological Society of America Abstracts with Programs
- ▶ Derry, Louis A. 2013. "Mass, isotopic, and redox balance constraints on the oxidation rate of ancient sedimentary organic carbon." Paper presented at Geological Society of America Abstracts with Programs
- ▶ Bland, K., K. Bitan, B. Finneran, K. Kirk, E. Reed, M. Walsh, V. Winkler, Louis A. Derry, A. Moore. 2013. "The relationship between carbon fluxes, precipitation, and soil properties along a climate gradient, Kohala volcano, Hawaii." Paper presented at Geological Society of America Abstracts with Programs
- ▶ Huh, Y., Y. Han, Louis A. Derry. 2013. "Source assessment of dissolved silica in the eastern Tibetan Plateau rivers using Ge/Si and implications for chemical weathering." Paper presented at Proc. 11th Int Conf. Paleoceanography

[see more publications](#)

### Selected Awards and Honors

- ▶ Fellow (Canadian Institute for Advanced Research) 1999
- ▶ Senior Fellow (Canadian Institute for Advanced Research) 2012

- ▶ Top 1 percent of most-cited geoscientists from January 1999 to October 2009 (Thompson-Reuter's Essential Science Indicators (Sciencewatch.com)) 2009

## Education

- ▶ BA (GEOLOGY), COLORADO COLLEGE, 1981
- ▶ Ph D (GEOLOGY), HARVARD UNIVERSITY, 1989

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