Alan P. Lester

Department of Geological Sciences
and Continuing Education
University of Colorado, Boulder
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EDUCATION:

Ph.D., Geology, 1993, University of Colorado, Boulder
B.S., Geology, 1983, University of Oregon, Eugene

PROFESSIONAL EXPERIENCE:

Lecturer, Associate Teaching Professor, and Online Education Developer* — **2007 to Present**
Department of Geological Sciences and Continuing Education,
University of Colorado, Boulder.

Online: Created Introductory Online Geology Curriculum, Taught asynchronous intro-level courses.
On-Campus: Various field-courses (intro and upper-level), lab-courses, and Honors Seminar.

Professional Airline Pilot ** — **2007 to 2022**
United Express/SkyWest Airlines
50-80 seat Bombardier CRJ-Jet Aircraft (US., Canada,Mexico)

Senior Instructor,
Undergraduate Academic Advisor,
Departmental Liaison to Honors,
And Coordinator of Undergraduate Intro Labs — **2002 to 2007**
Course development, curriculum advising, graduate oversight.
Department of Geological Sciences, University of Colorado, Boulder

Instructor, Academic Advisor, Research Associate — **1993 to 2002**
(Advisor since1999), Dept. of Geological Sciences, and
College of Arts and Sciences Academic Advising Center,
University of Colorado, Boulder

Consulting Geologist — **1996 to 1998**
e.g., Waterstone Environmental, Boulder, Colorado
Foro Energy, Boulder, Colorado

Adjunct Faculty, Intro Geology and Astronomy — **1993 to 1998**
Front Range Community College

Graduate Research Assistant and Teaching Assistant — **1988 to 1992**
Isotope Geology, U.S. Geological Survey, Lakewood, Colorado
and University of Colorado, Boulder

* Courses Taught

Large Lecture Introductory—
Physical Geology, Historical Geology, Natural Catastrophes

Seminar—
Geology of Colorado, Kimberlites and Diamonds, Discovering Deep Time (Honors Seminar)
Physical Geology (Honors), Introductory Lab/Field (Honors)

Field—
Introductory Field, Advanced Field Geology, Field Geology of Colorado

**Aviation Experience

Licenses: Airline Transport Pilot (ATP), Commercial Pilot (CPL)
Flight Instructor Certifications-- Airplane, Instrument, Multi-Engine (CFI, CFII, MEI)
Total Time, approximately 8,400 hours (mostly SIC, in the CRJ 200 and CRJ 700)
Additional Details (PIC, SIC, etc.) on Request

Science Education and Outreach

- **Video and Broadcast Film Projects**

Many of these involve linking my experiences with rock climbing and aviation as a means to present science as enlivened by adventure, exploration, and beauty.

Alan L Mini Clips

And

IMDB Page

Sample Video Projects and Televised Appearances

Created *Deep Time: Discovering an Ancient Earth,* Massive Open Online Course, 18 Lecture Video Series.
https://www.coursera.org/learn/deep-time-discovering-an-ancient-earth
Created and presented by University of Colorado, Office of Academic Innovation and the Coursera Corporation, 2022.
(Also, see "Publications")

Regular commentator on Science and Discovery Channel program, "*What On Earth*."
Evaluating unusual and curious aerial/satellite imagery with a scientific perspective. 2017-2020

Created *Geology Mini-Lectures and Demonstrations*, Animation/Live Combinations:

- Physical Properties of Minerals I: Crystals and Cleavage,
  Sample JoVE Earth Science
- Physical Properties of Minerals II: Polymineralic Analysis,
- Determining Spatial Orientation of Rock Layers with the Brunton Compass,
- Igneous Volcanic Rock,
- Igneous Intrusive Rock,
- Using Topographic Maps to Generate Topographic Profiles,
- Making a Geologic Cross Section

Videos housed under, JoVE | Environmental Sciences Journal of Online Video Experiments; 2016.
Also in "Publications"

Discovery Channel, Curiosity Series, "*What's Beneath America*." 2015

Climbing/geology segment filmed at Pinnacles National Monument, California.
National Geographic, San Andreas Fault, episode, "Greatest Natural Disasters" 2014

Filmed aviation and climbing segments for Discovery Channel episode— "*How the Earth Works*" 2014

Combination of studio, greenscreen, and field-outings. Creating animation/live clips for Discovery Channel episode, "Geologic Origins of North America." 2013

Series of presentations and demonstrations for The Weather Channel,
Strangest Weather on Earth various episodes, including
"*Technicolor Weather*"
and "*Weather Chaos*"
and "*Noisy Nature*"
2009-2012

Mini-Video Lectures for National Geographic
Online Educational Resource Videos– "Great Photographs of the American West"
Sponsored by Museums West, Jackson, WY, and the Center for the American West, University of Colorado, Boulder, 2012

National Geographic, Animation Educational Video, Content Consultant for,
"Down to The Earth's Core," Pioneer Productions, 2011

"*What is Science*" A short film produced by Continuing Education, University of Colorado, Boulder, via Dean's Fund for Excellence Grant, 2010

Rock Climbing and flying film sequences on Rocky Mountain geology for
The History Channel (Pioneer Productions), "*How the Earth Was Made*" 2009

Rock Climbing and flying film sequences on Rocky Mountain geology for
Discovery Channel, produced by Canadian Broadcasting Company,
Episode on "*The Rocky Mountains*" part of the series "*The Nature of Things with David Suzuki.*" 2008

Geology Rocks (Great8 Productions), Flying, Climbing, and Geology in Boulder's Flatirons, 2002

Science Education and Outreach

➢ Presentations, Field Trips, Workshops

Field Trip Leader, e.g. Citrus College, CA, "*Bridge to Geosciences Program*" (2022, 2019), with Val Sloan, "*Geology at Red Rocks Amphitheater*," Golden, CO, (Part of Research for Undergraduates Discussion Program), 2016
https://ncar.ucar.edu/what-we-offer/education-outreach/faculty-resources/past-workshops/2016-geo-reu-workshop/red-rocks-field-trip

Presentation, University of Colorado, Graduate Teacher Program Workshop Series— "*Online Teaching of Introductory Science Courses*" 2015

Research and Presentation, with Alaina Feltenberger, School of Education, University of Coloardo, Boulder, "*Developing Student Presentation Abilities in Online Courses*" 2013

Presentation, University of Colorado, Graduate Teacher Program Workshop Series— "*Teaching the History of Science as Part of Teaching Science*" 2012

Collaborative Research Project, group meetings with 8th grade teachers within Boulder Valley School District, in conjunction with (and supported by NSF Broader Impacts, EAR 0643240) Professor G. Tucker, "*The Role of Debris Flows in Shaping Mountainous Terrain— Geomorphology Instruction and Classroom Projects*" 2010

Presentations and Group Meetings with various teachers in Boulder Valley School District, and with Sandra Laursen (Cooperative Institute for Research in Environmental Sciences) and Karl Mueller (Department of Geological Sciences), CU Boulder, working on two projects—
"*Geology at Our Doorstep*" and "*Mountains and Moraines: Front Range Landscapes*".
2005-2007

Presentations for "*Earthworks*" a Summer Outreach Program for K-12 Educators, with Sandra Laursen (sponsored by CIRES, Cooperative Institute for Research in Environmental Sciences), 2003

Seminar Presentation Program, "*How to Teach Geology for Boulder Valley*," as part of the "Teachers as Scholars Program," 2002

Sole Representative from the University of Colorado, Boulder, to "*Project Kaleidoscope*" for STEM (Science Technology Engineering Math) Education, 1999

RESEARCH INTERESTS AND PROJECTS
(Primarily 1990-2010)

Colorado Front Range, Colorado Mineral Belt:
Ph.D., Dissertation, "Mineralogic, Isotopic, and Paleomagnetic Variations in the Contact Aureole of the Audubon-Albion Stock, Front Range, Colorado"
Paleo-temperature gradients in the vicinity of a cooling epizonal pluton were assessed using a variety of techniques including fission-track dating, paleomagnetic, and stable-isotope (O/H) analysis. Characterization Al-Si ordering and micro-textures in K-feldspars. These features control Ar-diffusion in feldspars and are, therefore, of importance to the interpretation of K-Ar and $^{40}Ar/^{39}Ar$ isotopic dates.

Southwest Wyoming:
With faculty, staff, and students of the University of Colorado Museum, Paleontology Section,1998-2000. Mapping, stratigraphy, and rock magnetic analysis of fluvial and lacustrine sediments in the Middle Eocene Bridger Formation. Determination of paleo-lake boundaries and sources of sediment influx. Magnetic and heavy mineral separates were used to identify two possible volcaniclastic source regions.

Kimberlite Geochronology and Lower Crustal Xenoliths, in Colorado Front Range:
Various geochronologic tools (K-Ar, $^{40}Ar/^{39}Ar$, Nd/Sm, and Rb/S) applied to Front Range kimberlite samples. This work (2000-2003) helped to demonstrate, a previously unrecognized episodic nature of Front Range kimberlite emplacement. Additionally, isotopic data for both kimberlite and entrained lower crustal xenoliths provided a means to evaluate the process of crust formation in this portion of the Rocky Mountains. In conjunction with petrographic and geochemical data, we assessed lower crustal compositions in the Front Range and identified several possible melt sources for Laramide igneous activity.

Never Summer Mountains Volcanic Field, Rock Mountain National Park
Assisted with field- and lab-work, 2008 and 2010, collection of samples for a collaborative project under direction of Professor G.L. Farmer. Utilization of geochemical and geochronologic studies as a means to decipher the origin and evolution of a large Mid-Tertiary eruptive center in northern Colorado.

GRANTS, AWARDS, AND RECOGNITIONS:

- **POST-DOCTORAL**

Fellow, Center for American West, 2008

CU-Boulder Outreach Grant, 2004
Mountains and Moraines: Front Range Landscapes

University of Colorado, Marinus Smith Faculty Recognition Award, 2003

CU-Boulder Outreach Grant, 2003
Geology at Our Doorstep

Dean's "Fund for Excellence" Grant, 2002
Funding for video productions—see (under Video Work) "Geology Rocks" Great8 Productions

Excellence in Teaching Award, 2000
University of Colorado, Boulder Faculty Assembly,

Center for Humanities and the Arts, Fellowship, UC-Boulder, 1999-2000
(Funding and participation, faculty and graduate-student seminar, "Rethinking Time")

CU-Boulder's Representative to Project Kaleidoscope, 1999
"Faculty for 21st Century," A nationwide assembly of college and university faculty working to establish science, math, and technology teaching goals.

Faculty of the Year, Colorado Electronic Community College, 1998
(Distance Learning branch of Arapahoe Community College)

SOAR Teaching Recognition Award, University of Colorado, 1998
(University-wide award presented by Student Organization for Alumni Relations)

Mentor Program Funding, Department of Geological Sciences, 1995-1997
University of Colorado
(Multiple grants for the involvement of undergraduates in research)

NSF Funding for NATO "Advanced Study Institute", 1993
Feldspars and Their Reactions, Edinburgh, Scotland
(Paper given on Ar-loss in Plutonic Alkali Feldspars)

- **AS GRADUATE STUDENT**

Student Paper Award, American Geophysical Union, Front Range, 1992

Steven Oriel Memorial Grant, 1989
(Given by the Colorado Scientific Society)

Sigma Xi Research Grant, 1988

Texaco Oil Corporation Fellowship, 1987

Geological Society of America Research Grant, 1986

Amoco Oil Corporation Fellowship, 1985

PUBLICATIONS, TALKS, AND AUTHORED MEDIA

Lester, A., 2022, *Deep Time: Discovering an Ancient Earth,* Massive Open Online Course, 18 Lecture Video Series. Created and presented by University of Colorado, Office of Academic Innovation and the Coursera Corporation, 2022
SEE https://www.coursera.org/learn/deep-time-discovering-an-ancient-earth

Lester, A., 2020, *Physical Geology Textbook*, Revision and Rewrite and Repurpose (addition of media) to **Open Educational Resource**, Lumen Learning Corporation, for use with GEOL 1010-581 and -641 Sections. (Course Specific Textbook.)

Lester, A., 2016, *Geology Mini-Lectures and Demonstrations*, 5-10 min animation/live combinations, Presented, Produced, and Published by JoVE, The Journal of Online Video Experiments;

- Physical Properties of Minerals I: Crystals and Cleavage,
- Physical Properties of Minerals II: Polymineralic Analysis,
- Determining Spatial Orientation of Rock Layers with the Brunton Compass,
- Igneous Volcanic Rock,
- Igneous Intrusive Rock,
- Using Topographic Maps to Generate Topographic Profiles,
- Making a Geologic Cross Section

Lester, A., October 2013, Annual GSA Meeting (Discipline Session, S266, History and Philosophy of Geology)—"The Mechanical Clock, the Quantification of Time, And the Age of the Earth"

Lester, A., October 2013, Annual GSA Meeting (Topical session, T131, Geoscience Education), Session Co-Chair— "Using Outdoor-Adventure Videos in Online Geology: Enhancing Motivation, Attitude, and Immediacy"

Lester, A., November 2013, 29th Boulder Conference on the History and Philosophy of Science, Topic: Measurement Across the Sciences— "Measuring the Age of the Earth: The Rise of Quantification, Mechanical Philosophy, and the Discovery of Deep Time."

Lester, A., February, 2013 CU Boulder, Committee on History and Philosophy of Science, Colloquium— "The Importance of Teaching the *History of Science* When Teaching Science: An Example From the Discovery of Deep Time"

Lester, A., Geological Sciences Colloquium, March, 2011— "The Case for History in Teaching Science (a suggestion) And How the Earth Got Old (a story)"

Sloan, V., Birkeland, P., Lester, A., 2007, Introduction to Physical Geology, Lab Manual and Field Trip Guide, Pearson Custom Publishing (McGraw-Hill).

Lester, A.P, and Farmer, G.L, 2004, "Front Range Kimberlites: New Dates, Crustal Xenoliths, and a View into Mountain Roots": Abstracts Program, Braddock Symposium on the Geology of the Front Range, ed. Coates, M., and Evanoff, E., Colorado Scientific Society Publication, p. 19.

Lester, A. 2003, "Geology of the Black Canyon" (book chapter): in "Rock Climbs of the Black Canyon" ed. R. Williams, Sharp End Press, Boulder, CO

Laursen, S., Cannon, E., and Lester, A., 2002, "Geology at Our Doorstep: A Rock kit and Resource Notebook for Teaching Front Range Geology": Cooperative Institute for Research in Environmental Sciences Publication.

Lester, A.P., Larson, E.E., Farmer, G.L., Stern, C.R., and Funk, J.A., 2001, "Neoproterozoic Kimberlite Emplacement in the Front Range, Colorado": Rocky Mountain Geology, v. 36, n. 1, p. 1-12.

Lageson, D.R., Lester, A.P., and Trudgill, B.D., eds., 2001, "Field Guides to Colorado and Adjacent Areas": Geological Society of America Field Guide Series, v.1, p.1-201.

Farmer, G.L., Lester, A., Christensen, N., Bowring, S., Matzel, J., Stevens, L., Williams, M., 1999, "Geochemical and Geophysical Studies of Mid- to Lower Crustal Xenoliths in Support of the Continental Dynamics of Rocky Mountains (CD-ROM) Experiment: EOS, Trans. Am. Geophys. Union, S11A-06.

Murphey, P., Lester, A., Bohor, B., Robinson, P., Evanoff, E., and Larson, E., 1999, "$^{40}Ar/^{39}Ar$ Dating of Volcanic Ash Deposits in the Bridger Formation (Middle Eocene), Southwestern Wyoming": Geol. Soc. Am. Abstracts with Programs, v.31, #7, p.233.

Lester, A.P., and Escovitz, D.L., 1999, Magnetic Susceptibility Variations in the Sage Creek White Layer, Bridger Formation, Southwest Wyoming: Geological Society of America, Abstract with Programs.

Wilson, D., Burns, S., Jarrell, W., Lester, A., and Larson, E., 1999, "Natural Ground-Water Discharge of Orthophosphate in the Tualatin Basin, Northwest Oregon": Environmental and Engineering Geoscience, v. 5, no.2, p.189-197.

Lester, A.P., and Farmer, G.L., 1998, "Lower Crustal and Upper Mantle Xenoliths Along the Cheyenne Belt and Vicinity": Rocky Mountain Geology, v. 33, p.293-304.

Lester, A., and Larson, E., 1996, "New Geochronologic Evidence for Late Proterozoic Emplacement in the Colorado-Wyoming Kimberlite Belt": EOS, Trans. Am. Geophys. Union, v.77, #46, p.821.

Lester, A., 1993, "Heating-Induced Disordering in K-Feldspars": Applications to Thermal History Studies: The Mountain Geologist, Rocky Mountain Association of Geologists, v. 30, p.119-124.

Lester, A., 1992, "$^{40}Ar/^{39}Ar$ and Paleomagnetic Age Constraints for the Green Mountain Diatreme, Front Range, Colorado": Trans. Am. Geophys. Union, Front Range, Boulder, CO.

Lester, A., 1991, "$^{40}Ar/^{39}Ar$ and Oxygen Isotope Analysis of Alkali Feldspars in a Contact Aureole": Geol. Soc. Am. Abstracts with Programs, p.A393.

Lester, A., 1990, "Hydrothermal Fluid Circulation in a Contact Aureole: Ordering and Exsolution Characteristic s in K-Feldspar, Paleomagnetic, and Oxygen Isotope Data": EOS, Trans. Am. Geophys. Union, v.71, #45, p.1663.

Lester, A., 1989, "K-Feldspar Disordering and Hydrothermal Circulation in the Contact Aureole of the Audubon-Albion Stock, Front Range, Colorado": EOS, Trans. Am. Geophys. Union, v.70, #43, p.1391.

Lester, A., and Larson, E., 1988, "Temperature and Fluid Conditions Marginal to a Cooling Epizonal Pluton: Analysis of Thermal Effects at the Audubon-Albion Stock, Front Range, Colorado": Geol. Soc. Am. Abstracts with Programs, v.20 #6, p.427.

Lester, A., 1988, "Temperature and Fluid Controls on the Microcline-Orthoclase Transition in a Contact Aureole": EOS, Trans. Am. Geophys. Union, v.69, #44, p.1513.

Lester, A., 1987, "The Microcline-Orthoclase Transition in the Contact Aureole of the Audubon-Albion Stock, Front Range, Colorado": Geol. Soc. Am. Abstracts with Programs, v.19, #5, p.314.