

CURRICULUM VITAE

JULIA ELLEN COLE

Biosketch:

I am a Professor of Geosciences and Atmospheric Sciences at the University of Arizona. My research centers on understanding past environmental change, highlighting regions and systems with substantial ecological or human impacts. Most of this work emphasizes the variability of tropical oceans and their influence. My current projects focus on El Niño and Pacific variability, drought in western North America, coral reef environments, and monsoons in Asia and the Americas. All of this work is motivated by the recognition that a time perspective longer than the instrumental record is essential for understanding climate variability and using climate information for wise decision-making in management of water resources, coral reefs, or any important natural resource.

I received my undergraduate degree from Brown University and master's and doctoral degrees from Columbia. Before coming to Tucson, I served on the faculty of the University of Colorado. I have served on three National Research Council committees and participated in two recent assessments of the Intergovernmental Panel on Climate Change. I hold a 2008 Leopold Leadership Fellowship in environmental communication and policy. I have written or co-written over 60 publications. I regularly teach classes on climate and environmental change. I also teach ocean sciences at both general education and undergraduate science-major levels. My favorite inspirations come from watching my two young boys (ages 5 and 8) grow up to enjoy the outdoors, and from helping students gain insight into the natural world through classes, field studies, and research.

Personal:

Born September 9, 1962, in Ann Arbor, Michigan
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Education:

1992 Ph.D., Geological Sciences, Lamont-Doherty Geological Observatory of Columbia University
1991: M.Ph., Geological Sciences, Lamont-Doherty Geological Observatory, Columbia University
1987: M.A., Geological Sciences, Lamont-Doherty Geological Observatory, Columbia University
1985: Sc.B. with honors, Geology/Biology, Brown University

Employment:

1999-pres.: Assistant, Associate and Full Professor, Department of Geosciences, University of Arizona, Tucson
2004- pres.: Joint Associate and Full Professor, Department of Atmospheric Sciences, University of Arizona, Tucson
1995-1999: Assistant Professor, Department of Geological Sciences, University of Colorado
1994-1999: Affiliated Faculty, Program in Atmospheric and Ocean Sciences, University of Colorado
1992-1999: Research Associate Institute of Arctic and Alpine Research, University of Colorado

Additional professional affiliations and experience:

2007-present: Board member, Pinhead Institute (<http://www.pinheadinstitute.org/>)

Honors/awards:

Kavli Fellow, NRC Frontiers of Science, 2008
Leopold Leadership Fellow in environmental policy and communication, 2008
National Academy of Sciences Annual Frontiers of Science, invited participant, 1998, and co-organizer 1999

Publications in peer-reviewed journals and books (since 2006)

* denotes papers whose first authors are students or postdocs I helped to advise

- *Truebe, S.A., Ault, T.R., and Cole, J.E. 2010. A forward model of cave dripwater $\delta^{18}\text{O}$ and application to speleothem records. *IoP Conference Series: Earth and Environmental Science* 9 (1): doi: 10.1088/1755-1315/9/1/012022.
- *Wagner, J. D., J. E. Cole, J. W. Beck, P. J. Patchett, G. M. Henderson, and H. R. Barnett (2010), Moisture variability in the southwestern US linked to abrupt glacial climate change, *Nature Geosciences*, 3(2).
- *Shanahan, T. M., J.T. Overpeck, K.J. Anchukaitis, J.W. Beck, J.E. Cole, D.L. Dettman, J.A. Peck, C.A. Scholz, and J.W. King (2009). Atlantic Forcing of Persistent Drought in West Africa. *Science* **324**, 377-380.
- *Conroy, J. L., J. T. Overpeck, J. E. Cole, and M. Steinitz-Kannan (2009), Variable oceanic influences on western North American drought over the last 1200 years, *Geophysical Research Letters*, 36(L17703).
- *Ault, T.R., J.E. Cole, M.N. Evans, H. Barnett, A.W. Tudhope, N. Abram, B.K. Linsley (2009) Intensified decadal variability in tropical climate during the late 19th century. *Geophysical Research Letters* 36, L08602, doi: 10.1029/2008GL036924
- *Conroy, J.L., A. Restrepo, J.T. Overpeck, M. Steinitz-Kannan, J.E. Cole, M.Bush, P.A. Colinvaux (2009). Unprecedented recent warming of surface temperatures in the eastern tropical Pacific Ocean. *Nature Geosciences* **2**, 46-50.
- Abram, N., M.K. Gagan, J.E.Cole, W.Hantoro, M. Mudelsee (2008). Coral evidence for a recent intensification of the Indian Ocean Dipole. *Nature Geosciences* **1**, 849 – 853.
- *Conroy, J.L., J.T. Overpeck, J.E. Cole, M. Steinitz-Kannan, T.R. Shanahan (2008) Abrupt changes in eastern tropical Pacific climate during the Holocene. *Quaternary Science Reviews* 27, 1166-1180.
- Wagner, A.J., T.P. Guilderson, N.C. Slowey, J.E. Cole (2009). Pre-bomb surface water radiocarbon of the Gulf of Mexico and Caribbean as recorded in hermatypic corals. *Radiocarbon* 51 (3), pp. 947-954.
- Overpeck, J.T. and J.E. Cole (2008). The rhythm of the rains. *Nature* 451, 1061-1063. (News and Views)
- Fleitman, D, R.B. Dunbar, M. McCulloch, M. Mudelsee, M. Vuille, T. McClanahan, J. Cole, S. Eggins (2007). East African soil erosion recorded in a 300 year old coral colony from Kenya. *Geophysical Research Letters* 34, L04401, doi:10.1029/2006GL028525.
- Overpeck, J.T. and J.E. Cole (2007). Lessons from a distant monsoon. *Nature* 445, 270-271. (News and Views)
- Jansen, E. et al., (2007) Palaeoclimate. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S., D. Qin, et al., eds. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA (contributing author).
- Overpeck, J.T. and J.E. Cole (2006). Abrupt change in the Earth's climate system. *Annual Reviews of Environment and Resources* 31. 1-32.
- *Damassa, T.D., J.E. Cole, H.R. Barnett, T.R. Ault, T.R. McClanahan (2006) Enhanced multidecadal climate variability in the 17th century from coral isotope records in the western Indian Ocean. *Paleoceanography* 21, PA2016, doi: 10.1029/2005PA001217.
- Cohen, A, K. Lezzar, J.E. Cole, D. Dettman, G. Ellis, M. Eagle-Gonnea, P.D. Plisnier, V. Langenberg, M. Blaauw, D. Zilifi (2006). Late Holocene linkages between decade-century scale climate variability and productivity at Lake Tanganyika, Africa. *Journal of Paleolimnology* 36, 189-209.
- *Morrill, C., J.T. Overpeck, J.E. Cole, K.-B. Liu, C. Shen and L. Tang (2006) Holocene variations in the Asian monsoon inferred from the geochemistry of lake sediments in central Tibet. *Quaternary Research* 65 (2), 232-243.

Synergistic Activities:

1. National and international scientific committees, working groups and other service

- NRC Committee on Challenges and Opportunities for International Science at the USGS
 NOAA Climate Change Task Force, Coral Reef Conservation program (2008-2009)
 NCAR Scientific Steering Committee for CCSM-3, 2005-08.
 Paleoclimatology Councillor, American Quaternary Association (AMQUA), elected, 2004-08
 Climate Research Committee, National Research Council, 2003-2006.

2. Lecture series, workshops and symposia co-organized or chaired:

- Theme chair for Goldschmidt Conference, 2011
 Scientific steering committee, Pacific Science Intercongress, March 2009
 Program committee, International Society for Reef Studies meeting, July 2008
 Program committee, AMQUA Biennial meeting, August 2006

3. Contributions to recent science planning and assessment documents:

IPCC AR4, *Scientific Assessment of Climate Change*, 2007. Contributing author, "Paleoclimate"

IPCC TAR *Scientific Assessment of Climate Change*, 2001. Contributing author, "Observed climate variability and change."

4. Human resources development:

Mentor graduate students in my lab, including 9 women

Mentor undergraduates in my lab, including 9 women, one African-American, one Hispanic (past 5 years).

Interact with local high school students at various levels (email, phone, mini-internships, summer assistantships)

5. Outreach and service:

UCS "Curious for Life" campaign (http://www.ucsusa.org/assets/documents/wote_ads/Julia_Cole_Ad.pdf)

Regular interactions with media on climate change issues (NPR, local TV and newspaper)

UA Global Change lecture Series: The Oceans and Global Change (in Tucson and Phoenix)

Community presentations in Telluride CO and Tucson AZ

Coordinated exhibit on drought and ENSO for Flandrau Science Center, U of Arizona

Contributed material to museum exhibits and other science outreach, locally and nationally

Graduate and Postdoctoral advising (includes *current* and graduated students):

M.Sc. (6): *Rachel Murray*, Toby Ault, Heidi Barnett, Tom Damassa, Cristina Luis, Frank Urban, Nathalie Smith

Ph.D. (8): *Sarah Truebe*, *Diane Thompson*, *Toby Ault*, *Rachel Murray*, Nathan English, Jennifer Wagner, Carrie Morrill, Christina Clark

Postdoctoral (1): Renaud Mathieu

Courses taught:

Global Change (introductory and advanced levels); *Oceanography* (introductory and advanced), *Paleoclimatology* (graduates), *Global Change Controversies, Real and Imaginary* (graduate seminar incl. communication skills development); *Global Biogeochemical Cycles* (advanced undergraduate), graduate seminars in *Paleoclimate dynamics*, *Earth system modeling*, *Asian/African monsoons*, *North Atlantic climate*, *North American monsoon*.