

KIMBERLY ELLEN SAMUELS-CROW
SCHOOL OF INFORMATICS, COMPUTING, AND CYBER SYSTEMS
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Education

- 2014 PhD, Earth & Planetary Sciences, University of New Mexico, Albuquerque, NM
Dissertation Title: *Isotopic constraints on atmospheric moisture transport processes in South America*
- 2008 MS, Geochemistry, NM Institute of Mining & Technology, Socorro, NM
- 2006 BS, Geology, University of New Mexico, Albuquerque, NM

Academic Positions

- 2019- Assistant Research Professor, SICCS, Northern Arizona University, Flagstaff, AZ
- 2019- Program Coordinator, T³ Graduate Program in Ecological and Environmental Informatics, SICCS, Northern Arizona University, Flagstaff, AZ
- 2016- Postdoctoral Researcher Ogle Lab, SICCS, Northern Arizona University, Flagstaff, AZ
2018
- 2015 Part-time Instructor, School of Earth Sciences & Environmental Sustainability, Northern Arizona University, Flagstaff, AZ
- 2015 Part-time Researcher, Center for Ecosystem Science & Society, Northern Arizona University

Other Relevant Professional Experience

- 2010-2014 Graduate Research Assistant, Department of Earth & Planetary Sciences, University of New Mexico, Albuquerque, NM
- Spring 2011 Graduate Teaching Assistant, Department of Earth & Planetary Sciences, University of New Mexico, Albuquerque, NM
- 2008-2010 Staff Hydrogeologist, John Shomaker & Associates, Albuquerque, NM
- 2006-2008 Graduate Research Assistant, Department of Earth & Environmental Sciences, NM Institute of Mining & Technology, Socorro, NM
- 2004-2006 Undergraduate Research Assistant, EES-6 Los Alamos National Lab, Los Alamos, NM

- 2003-2006 Undergraduate Research Assistant, Department of Earth & Planetary Sciences, University of New Mexico, Albuquerque, NM
- 2001-2003 7th-grade Science Teacher, Capshaw Middle School, Santa Fe, NM
- 1997-1999 High School English Teacher, Peace Corps, Ethiopia, Fenote Selam, Ethiopia
- 1995-1997 Secondary School Social Studies Teacher, Garden School, Jackson Heights, NY

University-Level Teaching (Instructor of Record)

Northern Arizona University

<u>Date</u>	<u>Course No / Title</u>	<u>Credit Hours</u>	<u>Enrollment</u>
Spring 2015	GLG/ENV 115 Climate Change	3	114
Spring 2015	ENV 377 Humans & the Hydrosphere (online)	3	15
Fall 2015	GLG 112 Geologic Disasters	3	116

Grants

Funded Projects as PI

- 2019 NSF-EAR-1834699, Collaborative Research: Ecohydrological controls on evapotranspiration across a semiarid elevation gradient; lead PI with co-PI's Kiona Ogle (NAU SICCS), John Bradford (USGS SW Biology Science Center), Marcy Litvak (UNM Biology Department); NSF Hydrologic Sciences. \$700,000 total (\$496,555 to NAU) (FY 2019-2022)

Funded Projects as co-PI

- 2019 NSF-DEB, Supplement to: RAPID: Leveraging the 2015-2016 El Nino to evaluate drought legacy effects on tree growth responses to rare wet event; co-PI with PI Kiona Ogle (NAU SICCS) and co-PI's George Koch (NAU-ECOSS), William Anderegg (Univ Utah), Dave Auty (NAU-Forestry), Marcy Litvak (Univ. New Mexico); NSF RAPID Emerging Frontiers, \$37,767 (January to June 2019)

Pending Proposals

- 2019 SHERC: *Letter of Intent: Extreme Wind Events and Respiratory Health Outcomes in Maricopa County, Arizona* (PI with co-PI C. Hepp); Submitted September 30, 2019. *Invited – full proposal due January 10, 2020*

Publications

Google Scholar Profile:

<https://scholar.google.com/citations?user=rYbyX2AAAAAJ&hl=en>

In Progress

Samuels-Crow, K.E., Ogle, K., Litvak, M., *Submitted*, Atmosphere-Soil Interactions Govern Ecosystem Flux Sensitivity to Environmental Conditions in Semiarid Woody Ecosystems over Varying Timescales. *Submitted to JGR-Biogeosciences November 2019.*

Samuels-Crow, K.E., Liu, Y., Peltier, D., Welker, J., Anderegg, W., Koch, G.W., Ogle, K., *in preparation*, Variability in foundation tree species water sources across an elevation gradient in the semiarid Southwest. To be submitted to JGR-Biogeosciences.

Peltier, D.M.P., Bangs, M., Wilson, M., Guo, J., **Samuels-Crow, K.E.**, Yocom, L., Liu, Y., Fell, M., Auty, D., Anderegg, W., Koch, G.W., Litvak, M.E., Shaw, J., Ogle, K., *in preparation*, Seasonal controls on canopy and tree ring non-structural carbohydrates in southwestern US forest species. *For submission to Functional Ecology.*

Peer Reviewed

Liu, Y., Schwalm, C.R., **Samuels-Crow, K.E.**, Ogle, K., 2019, Ecological memory in daily carbon exchange across the globe and its importance in drylands. *Ecology Letters*, 1806-1816. <https://doi.org/10.1111/ele.13363>.

Hepp, C.M., Cocking, J.H., Valentine, M., Young, S.J., Damian, D., **Samuels-Crow, K.E.**, Sheridan, K., Fofanov, V.Y., Furstenau, T.N., Busch, J.D., Erickson, D.E., Lancione, R.C., Smith, K., Will, J., Townsend, J., Keim, P.S., Engelthaler, D.M., 2018, Phylogenetic analysis of West Nile Virus in Maricopa County, Arizona: Evidence for dynamic behavior of strains in two major lineages in the American Southwest. *PLoS One*. doi: <https://doi.org/10.1371/journal.pone.0205801>

Samuels-Crow, K.E., Ogle, K., Ryan, E., Pendall, E., 2018, Temporal coupling of subsurface and surface soil CO₂ fluxes: Insights from a non-steady state model and cross-wavelet coherence analysis. *Journal of Geophysical Research – Biogeosciences*. doi: <https://doi.org/10.1002/2017JG004207>.

Ryan, E., Ogle, K., Kropp, H., **Samuels-Crow, K.**, Carrillo, Y., Pendall, E., 2018, Modelling soil CO₂ production and transport with dynamic source and diffusion terms: Testing the steady-state assumption using DETECT v1.0. *Geoscientific Model Development*.

Galewsky, J. and **Samuels-Crow, K.E.**, 2015, Summertime moisture transport to the southern South American Altiplano: Constraints from in-situ measurements of

water vapor isotopic composition: *Journal of Climate*, v. 28, pp. 2635–2649, doi: <http://dx.doi.org/10.1175/JCLI-D-14-00511.1>

Samuels-Crow, K.E., Galewsky, J., Sharp, Z.D., Dennis, K., 2014b, Deuterium-excess in subtropical free troposphere water vapor: continuous measurements from the Chajnantor Plateau, northern Chile: *Geophysical Research Letters*, v. 41, doi:10.1002/2014GL062302.

Galewsky, J. and **Samuels-Crow, K.E.**, 2014, Water vapor isotopic composition of a stratospheric air intrusion: Measurements from the Chajnantor Plateau, Chile: *Journal of Geophysical Research – Atmospheres*, v. 119, 16, pp. 9679-9691, doi: 10.1002/2014JD022047.

Samuels-Crow, K.E., Galewsky, J., Hardy, D.R., Sharp, Z.D., Worden, J., Braun, C., 2014a, Upwind convective influences on the isotopic composition of atmospheric water vapor over tropical Andean glaciers: *Journal of Geophysical Research – Atmospheres*, v. 119, 12, pp. 7051-7063, doi:10.1002/2014JD021487.

Samuels-Crow, K.E., Lueth, V.W., Peters, L., McIntosh, W.C., 2012, 40Ar/39Ar geochronology of jarosite: The effectiveness of HF in removing silicate contaminants: *Chemical Geology*, v. 314-317, p. 23-32.

Galewsky, J., Rella C., Sharp, Z.D., **Samuels, K.**, Ward, D., 2011, Surface measurements of upper tropospheric water vapor isotopic composition: *Geophysical Research Letters*, v. 38, doi:10.1029/2011GL048557.

Samuels, K.E., Broxton, D.E., Vaniman, D.T., WoldeGabriel, G., Wolff, J.A., Hickmott, D.D., Kluk, E.C., 2007, Distribution of dacite lavas beneath the Pajarito Plateau, Jemez Mountains, New Mexico: *New Mexico Geological Society, 58th Field Conference Guidebook*, p. 121-132.

Porreca, C., Selverstone, J., **Samuels, K.E.**, 2006, Pyroxenite xenoliths from the Rio Puerco volcanic field, New Mexico: melt metasomatism at the margin of the Rio Grande rift: *Geosphere*, v. 2, p. 333-351.

Presentations & Posters (* indicates invited)

Samuels-Crow, K.E., Ogle, K., Litvak, M., 2018, Drivers, Interactions, and Timescales for carbon and water fluxes in semiarid ecosystems, Abstract, 2018 AGU Fall Meeting, Washington, DC, 10-14 Dec.

Samuels-Crow, K.E., Liu, Y., Peltier, D., Welker, J., Anderegg, W., Koch, G.W., Ogle, K., 2018, Winter vs monsoon water sources for foundation tree species across the Colorado Plateau, Abstract, Geological Society of America, 2018 Rocky Mountain and Cordilleran Joint Section Meeting, Flagstaff, AZ, 15-17 May.

Samuels-Crow, K.E., Liu, Y., Peltier, D., Welker, J., Anderegg, W., Koch, G.W., Ogle, K., 2017, Variability in foundation tree species water sources across an elevation gradient in the semiarid Southwest, Abstract, 2017 ESA Annual Meeting, Portland, OR, 6-11 Aug.

Liu, Y., Schwalm, C., **Samuels-Crow, K.E.**, Ogle, K., 2017, Ecological memory and environmental responses of daily net ecosystem exchange (NEE) across the globe, Abstract, 2017 ESA Annual Meeting, Portland, OR, 6-11 Aug.

Peltier, D., Guo, J., **Samuels-Crow, K.E.**, Yocum-Kent, L., Liu, Y., Anderegg, W., Fell, M. Koch, G.W., Ogle, K., 2017, Does drought stress constrain the response of pinyon-juniper woodlands during El Niño and La Niña periods?, Abstract, 2017 ESA Annual Meeting, Portland, OR, 6-11 Aug.

***Samuels-Crow, K.E.**, 2016, Isotopic constraints on atmospheric moisture transport processes in South America: U.S. Geological Survey Astrogeology Center, Flagstaff, AZ, August 31, 2016.

Samuels-Crow, K.E., Ogle, K., Ryan, E., Pendall, E., 2016, Modeling temporal relationships between soil CO₂ production and efflux in grasslands, Abstract, 2016 AGU Fall Meeting, San Francisco, CA, 12-16 Dec.

Fan, N., Posmentier, E.S., Worden, J., **Samuels-Crow, K.E.**, Feng, X., 2015, Recent Trends Of The Tropospheric Vapor Deuterium To Hydrogen Ratio And Their Climatological Significance, Abstract, 2015 AGU Fall Meeting, San Francisco, CA 14-18 Dec.

***Samuels-Crow, K.E.**, 2015, Isotopic constraints on atmospheric moisture transport processes: Western Regional Climate Center, Desert Research Institute, Reno, NV, February 26, 2015.

Samuels-Crow, K.E., Galewsky, J., Worden, J., 2014, Vertical variations in the isotope amount effect: South American Summer Monsoon region, Abstract, 2014 AGU Fall Meeting, San Francisco, CA 15-19 Dec.

Galewsky, J. and **Samuels-Crow, K.E.**, 2014, Convective influences on paleoelevation proxies: Implications for the uplift history of the Central Andean Plateau, Abstract, 2014 AGU Fall Meeting, San Francisco, CA 15-19 Dec.

Samuels-Crow, K.E., Galewsky, J., Hardy, D.R., Sharp, Z.D., Worden, J., Braun, C., 2013, Pacific sea-surface temperature, convective intensity, and atmospheric

water-vapor δD over tropical Andean glaciers, Abstract, 2013 AGU Fall Meeting, San Francisco, CA, 9-13 Dec.

***Samuels-Crow, K.E.**, Galewsky, J., Hardy, D., Sharp, Z., Worden, J., Braun, C., 2013, Pacific sea-surface temperature, convective intensity, and atmospheric water-vapor δD in the tropical Andes: New Mexico Geographic Information Council, Albuquerque, NM, October 25, 2013.

Samuels-Crow, K.E., Galewsky, J., Hardy, D., Sharp, Z., Braun, C., 2013, Comparison of dry and wet season HDO/H₂O at Quelccaya Ice Cap using TES data: TES Science Team Meeting, Cambridge, MA, March 18-19, 2013.

Samuels-Crow, K.E., Galewsky, J., Hardy, D.R., Braun, C., 2011, Hydrogen isotope composition of dry season atmospheric water vapor on Quelccaya Ice Cap, Peru, Abstract, 2011 AGU Fall Meeting, San Francisco, CA, 5-9 Dec.

Samuels, K.E., Galewsky, J., Sharp, Z.D., Rella, C., Ward, D., 2010, Stable isotope tracers of water vapor sources in the Atacama Desert, Northern Chile: a pilot study on the Chajnantor Plateau, Abstract, 2010 AGU Fall Meeting, San Francisco, CA.

Galewsky, J., **Samuels-Crow, K.E.**, Ward, D., 2010, Constraining large-scale mixing in the subtropical southern hemisphere free troposphere with stable isotopologues of water vapor: Results from the Chajnantor Plateau, Chile, Abstract, 2010 AGU Fall Meeting, San Francisco, CA.

Samuels, K.E., Lueth, V.W., Campbell, A.R., Peters, L., 2008, Landscape evolution of northern New Mexico as recorded in jarosite, Abstract, Goldschmidt Conference, Vancouver, B.C., 13-18 July.

Samuels, K.E., Lueth, V.W., Peters, L., McIntosh, W.C., 2008, ⁴⁰Ar/³⁹Ar geochronology of jarosite: The effectiveness of HF in removing silicate contaminants: New Mexico Geological Society spring meeting, Socorro, NM.

Samuels, K.E., Brearley, A.J., Selverstone, J., 2006, Metasomatic fluid compositions recorded by Cr-diopside pyroxenite xenoliths from the Colorado Plateau-Rio Grande rift transition zone: 2006 AGU Fall Meeting, San Francisco, CA.

Samuels, K.E., Broxton, D.E., Vaniman, D.T., WoldeGabriel, G., Wolff, J.A., Hickmott, D.D., Kluk, E.C., 2006, Distribution of intermediate volcanic rocks in the Pajarito

Plateau, Jemez Mountains, NM: New Mexico Geological Society spring meeting, Socorro, NM.

Perkins, G., Porreca, C., Selverstone, J., Sharp, Z., and **Samuels, K.**, 2005, Subduction and rift-related silicate-carbonatite metasomatism beneath the Colorado Plateau-Rio Grande rift transition recorded in the Rio Puerco xenoliths, New Mexico: 2005 GSA Annual Meeting, Salt Lake City, UT.

Organized Conference Sessions or Workshops

Co-convener ***Introduction to Bayesian and Hierarchical Bayesian Modeling Applications in Environmental Science*** Workshop with Kiona Ogle and Drew Peltier at 2019 Biennial Conference for Science & Management on the Colorado Plateau, Flagstaff, AZ, 9 September 2019.

Co-chaired ***Chemical and Isotopic Tracers of Water Sources in Semiarid Regions: From the Mantle to the Atmosphere*** session with Laura Crossey (UNM) and Abraham Springer (NAU), Geological Society of America, 2018 Rocky Mountain and Cordilleran Joint Section Meeting, Flagstaff, AZ, 17 May 2018.

Community Outreach

- 2019 Tree rings and Climate presentation. One-hour presentation for first-grade class at Marshall Elementary School, Flagstaff, AZ (March 2019)
- 2019 Science Fair Judge, Marshall Elementary School, Flagstaff, AZ (March 2019)
- 2019 Climate-tree Growth Interactions, co-organizer with Kiona Ogle (lead organizer) and Drew Peltier (NAU). Invited half-day workshop for the Highlands Center for Natural History, Prescott, AZ (February 2019).
- 2018 Scientists in the Classroom program (helped with research-based science lessons, developed by Ecos researchers for 6th-graders at Sinagua Middle School); Spring 2018.
- 2017 Skype a Scientist program participant (paired with 4th-grade class in Laramie, WY), Fall 2017.
- 2015 Organized and ran interactive exhibit for The Wonder Factory at 2015 Science in the Park, Flagstaff, AZ, September 19, 2015.
- 2015 Judge, NAU Undergraduate Research Symposium, Flagstaff, AZ, April 24, 2015.
- 2014 Science Fair Judge, Van Buren Middle School, Albuquerque, NM, April 22, 2014.

- 2013 Climate change: the data behind the conclusions: New Mexico League of Women Voters, Albuquerque, NM, October 28, 2013 (<http://www.dailylobo.com/article/2013/10/student-presents-climate-data>).
- 2013 Interview with Charles Maynard for noon features: KSFR radio, Santa Fe, NM, October 28, 2013 (<http://ksfr.org/post/oct-28-noon-todays-top-local-news-headlines-features-ksfr-newsroom-listen>)
- 2013 Climate (and climate change) overview: Manzano High School, Albuquerque, NM, February 11-12, 2013.
- 2007 Assistant coordinator and instructor for Rockin' Around New Mexico 2007, a Geology and Mineral Education Workshop for K-12 teachers sponsored by the NM Bureau of Geology and Mineral Resources, Los Alamos, NM July 18-20, 2007

Honors, Scholarships, and Awards

- 2015 NAU First Scholars Advocate (Spring 2015)
- 2014 Outstanding PhD graduate award, Department of Earth and Planetary Sciences, University of New Mexico
- 2011-2014 Departmental Scholarships, Department of Earth and Planetary Sciences, University of New Mexico
- 2014 American Federation of Mineralogical Societies (Rocky Mountain Federation of Mineralogical Societies) Scholarship
- 2004, 2007 New Mexico Geological Society Fall Field Conference Scholarship (2004, 2007)
- 2006 New Mexico Geological Society Fall Field Conference Scholarship (2006)
- 2006-2008 Kottlowski Fellowship, NM Bureau of Mines and Mineral Resources (2006-2008)
- 2006 Best student poster, New Mexico Geological Society Spring Conference (2006)
- 2005 Outstanding Woman Geoscience Student Award, The Association for Women Geoscientists (2005)