

John Ryan Banta

U.S. Geological Survey
5563 De Zavala, Suite 290
San Antonio, TX 78249
(210) 691-9226
jbanta@usgs.gov

Education

Ph.D., University of Nevada, Reno, Hydrology, 2006
M.S., University of Nevada, Reno, Hydrology, 2004
B.S., University of California, Davis, Soil and Water Science, 1996
- minor, University of California, Davis, Environmental Toxicology, 1996

Research Interests

Dr. Banta's research interests are based in the earth sciences. He received his bachelors degree from University of California, Davis majoring in Soil and Water Science with an Environmental Toxicology minor. He performed his graduate work at the University of Nevada, Reno where he received an M.S. and Ph.D. in Hydrology. His graduate and postdoctoral current research focuses on interdisciplinary approaches to investigate implications of high resolution trace element ice core and surface snow records from Greenland and Antarctica, with specific attention to tracers of dust, sea salt, anthropogenic pollution, and climate change. Dr. Banta's current research focuses on lower latitude interests related to hydrologic cycle, geochemistry and water quality, as well as surface water and ground water interactions. He is working with issues related to water quality and water quantity in cooperation with local partners to better understand hydrologic processes.

Teaching Interests

Dr. Banta has demonstrated a strong desire to teach at both the undergraduate and graduate level. He has taught an upper graduate level course at the University of Nevada, Reno on "Applied Data Analysis" and has guest lectured at the University of Texas, San Antonio Civil Engineering course. He has keen interests in teaching courses in hydrology, geography, climate change, and general earth sciences.

Professional History

U.S. Geological Survey, Hydrologist, 2010 - present
Desert Research Institute, Post-Doctoral Fellow, 2006 - 2010
Desert Research Institute, Graduate Research Assistant, 2002-2006
ENTRIX, Inc., Staff Scientist, 2000-2002
ENTRIX, Inc., Asst. Staff Scientist, 1999-2000
Villa Mt. Eden Winery, Chemist, 1997-1999
Telecom New Zealand, Information Coordinator, 1996
University of California, Davis, Student Laboratory Technician, 1995-1996
Novo Nordisk Entotech, Inc., Advanced Testing Biolaboratory Technician, 1993-1995

John Ryan Banta (cont.)

Publications

- Banta, J.R., J.R. McConnell, M. Frey, R. Bales, and K. Taylor (2008), Spatial and temporal variability in snow accumulation at the West Antarctic Ice Sheet Divide over recent centuries, *Journal of Geophysical Research*, *113*, D23102, doi:10.1029/2008JD010235.
- Banta, J.R., J.R. McConnell, R. Edwards, and J.P. Engelbrecht (2008), Delineation of carbonate dust, aluminous dust, and sea salt deposition in a Greenland glaciochemical array using positive matrix factorization, *Geochemistry, Geophysics, Geosystems*, *9*, Q07013, doi:10.1029/2007GC001908.
- Banta, J.R., and J.R. McConnell (2007), Annual accumulation over recent centuries at four sites in central Greenland, *Journal of Geophysical Research*, *112*, D10114, doi:10.1029/2006JD007887.
- Banta, J.R. (2006), Interpretation of glaciochemical records from an array of Greenland ice cores, *Ph.D. Dissertation*, Hydrologic Sciences Program, University of Nevada, Reno.
- McConnell, J.R., R. Edwards, G.L. Kok, M.G. Flanner, C.S. Zender, E.S. Saltzman, J.R. Banta, D.R. Pasteris, M.M. Carter, and J.D.W. Kahl (2007), 20th century industrial black carbon emissions altered Arctic climate forcing. *Science*, August 9, 2007, DOI: 10.1126/science.1144856.
- McConnell, J.R., A.J. Aristarian, J.R. Banta, P.R. Edwards, and J.C. Simões (2007), 20th Century Doubling in Atmospheric Dust over the Antarctic Peninsula Parallels Climate Change and Desertification in South America, *Proceedings of National Academy of Science*, *104*(14):5743-5748, doi:10.1073/pnas.0607657104.
- McGwire, K.C., J.R. McConnell, R.B. Alley, J.R. Banta, G.M. Hargreaves, and K.C. Taylor (2008), Dating annual layers of a shallow Antarctic ice core with an optical scanner, *Journal of Glaciology*, *54*(188), 831-838.
- McGwire, K.C., K.C. Taylor, J.R. Banta, J.R. McConnell (2011), Identifying annual peaks in dielectric profiles with a selection curve, *Journal of Glaciology*, *57*(204), 763-769.

Presentations

2011

- Banta, J.R. (2011), Examining paleoclimates using high resolution glaciochemical ice core records from Greenland and Antarctica, Edwards Aquifer Authority Philosophical Society, San Antonio, TX.
- Banta, J.R. (2011), Examining paleoclimates , U.S. Geological Survey National Webex, Austin, TX
- Banta, J.R., R. Slattery (2011), Effects of Brush Management on the Hydrology: A Paired Watershed StudyWorld Lake Conference, Austin, TX.

2009

- Banta, J.R., J.R. McConnell, R. Edwards, and J.P. Engelbrecht (2009), Proxies of sea salt, carbonate dust, and aluminous dust deposition in a Greenland glaciochemical array over recent centuries, *PAGES 3rd Open Science Meeting*, Corvallis, OR.
- Banta, J.R., J.R. McConnell, T. Cahill, J. Burkhart, R. Bales (2009), Year-round measurements and interpretations at Greenland Environmental Observatory at Summit (GEOSummit), *NOAA Global Monitoring Annual Conference*, Boulder, CO.

John Ryan Banta (cont.)

- Banta, J.R., R. Bales, J.R. McConnell, L. Zhao, and C. Moon (2009), Year-round major ion measurements at Greenland Environmental Observatory, Summit (GEOSummit), *American Geophysical Union, Fall Meeting*, San Francisco, CA.
- Banta, J.R., A. McKay, and C. Shope (2009), Using ultra-trace chemistry to characterize surface water and groundwater in the Truckee River system, *Truckee River Symposium*, Reno, NV.
- Bisiaux, M., R. Edwards, J. McConnell, D. Pasteris, K. Sterle, and R. Banta (2009), Spectral analysis of the WAIS black carbon record, *WAIS Divide Science Meeting*, San Diego, CA.
- Edwards, R., J.R. McConnell, M. Bisiaux, D. Pasteris, K. Sterle, E. Saltzman, M. Lawler, and R. Banta (2009), Increased black carbon deposition to WAIS during the Medieval Warm period, *WAIS Divide Science Meeting*, San Diego, CA.
- McConnell, J.R., D. Koch, R. Miller, J.R. Banta, C. Wake, and K. Kreutz (2009), Assessment of Asian dust emission and transport variability to the Arctic during the past 120 years using the NASA GISS ModelE and an array of ice core dust records, *European Geosciences Union, Geophysical Research Abstracts*, Vol. 11, Vienna, Austria.
- McConnell, J.R., J.R. Banta, R. Edwards, D. Pasteris (2009), Aerosol concentrations during recent centuries from ice cores, *PAGES 3rd Open Science Meeting*, Corvallis, OR.
- McConnell, J.R., R. Edwards, R. Banta, M. Bisiaux, H. Anschutz, D. Pasteris, K. Sterle, T. Neumann (2009), High-Resolution Accumulation and Aerosol Records during the Past 2000 Years from an East Antarctic Ice Core Array, *American Geophysical Union, Fall Meeting*, San Francisco, CA.
- McConnell, J.R., R. Edwards, D. Pasteris, J.R. Banta, M. Bisiaux, T. Cox, K. Sterle, H. Anschutz (2009), The high-resolution WAIS Divide chemistry record as the cornerstone for Antarctic-wide glaciochemical research, *WAIS Divide Science Meeting*, San Diego, CA.
- Pasteris, D., J.R. McConnell, R. Edwards, and J.R. Banta (2009), A novel technique for high resolution ice core acidity measurements reveals details of anthropogenic influence on arctic acid deposition, *PAGES 3rd Open Science Meeting*, Corvallis, OR.
- Pasteris, D., J.R. McConnell, R. Edwards, and J.R. Banta (2009), High-resolution direct measurement of acidity in the WAIS Divide deep ice core, *WAIS Divide Science Meeting*, San Diego, CA.
- Pasteris, D., J.R. McConnell, and J.R. Banta (2009), High-resolution direct measurement of acidity in the WAIS Divide deep ice core, *American Geophysical Union, Fall Meeting*, San Francisco, CA.
- Taylor, K., J.R. Banta, J. McConnell (2009), Dating the WAIS Divide ice core with annual layers, *WAIS Divide Science Meeting*, San Diego, CA.

2008

- Banta, J.R., J.R. McConnell, T. Cahill, J. Burkhart, and R. Bales (2008), Greenland Environmental Observatory at Summit (GEOSummit): Year-Round Measurements and Results, *American Geophysical Union, Fall Meeting*, Abstract A11A-0098, San Francisco, CA.
- Banta, J.R., J.R. McConnell, R. Edwards, J. Burkhart, R. Bales (2008), GEOSummit baseline measurements: results and interpretations of year-round monitoring, *NOAA Global Monitoring Annual Conference*, Boulder, CO.
- Brown, T.J., J.R. Banta, and B.L. Hall (2008), Looking for patterns in global sea surface temperatures and North American fire danger with positive matrix factorization, *American Meteorological Society 19th Conference on Probability and Statistics*, Boise, ID.

John Ryan Banta (cont.)

- McConnell, J.R., and J.R. Banta (2008), Temporal and spatial variability in snow accumulation at WAIS Divide over recent centuries, *American Geophysical Union, Fall Meeting*, Abstract C31B-0493, San Francisco, CA.
- McConnell, J.R., A.J. Aristarain, M.A.J. Curran, E.R. Thomas, J.R. Banta, and R. Edwards (2008), New high-resolution records of dustiness over recent centuries from Greenland and Antarctic ice cores, *Geochemica et Cosmochimica Acta*, 72, 12.
- McConnell, J.R., J.R. Banta, T. Cahill, J. Burkhart, R. Bales (2008), GEOSummit baseline measurements (Greenland Environmental Observatory at Summit), *Arctic Observatory Network (AON) Meeting*, Palisades, NY.
- McConnell, J.R., R. Edwards, and J.R. Banta (2008), Ultra-trace chemistry in the WAIS Divide ice core, *WAIS Divide Science Meeting*, Denver, CO.
- Taylor, K.C., J.R. Banta, and K.C. McGwire (2008), Dating the WAIS Divide ice core, *WAIS Divide Science Meeting*, Denver, CO.

2007

- Bales, R., J. Burkhart, T. Cahill, J. McConnell, and J.R. Banta (2007), Baseline measurements and results from the Greenland Environmental Observatory (GEOSummit), *European Geosciences Union, Geophysical Research Abstracts*, Vol. 9, 09984, Vienna, Austria.
- Banta, J.R., J. McConnell, T. Cahill, J. Burkhart, and R. Bales (2007), GEOSummit baseline measurement results and long term plans, *NOAA Global Monitoring Annual Conference*, Boulder, CO.
- Banta, J.R., J.R. McConnell, and R. Edwards, Spatial and temporal variability in snow accumulation at WAIS Divide over recent centuries (2007), *WAIS Divide Science Meeting*, Kings Beach, CA.
- Banta, J.R., J.R. McConnell, R. Edwards, J. Burkhart, and R. Bales (2007), GEOSummit Baseline Measurements: Results and Interpretations of Surface Snow Elemental Concentrations, *American Geophysical Union, Fall Meeting*, Abstract A53B-1152, San Francisco, CA.
- Brown, T., J.R. Banta, and B. Hall (2007), Global sea surface temperatures and North American fire danger variability, *American Meteorological Society Annual Meeting*, San Antonio, TX.
- Brown, T., J.R. Banta, and B. Hall (2007), Predictability of sea surface temperatures for fire danger, *Seventh Symposium on Fire and Forest Meteorology*, Bar Harbor, ME.
- McConnell, J.R., and J.R. Banta (2007), Accumulation studies in southern Greenland, *2007 PARCA/NASA Workshop at the Jet Propulsion Laboratory*, Pasadena, CA.
- McConnell, J.R., A. J. Aristarian, J.R. Banta, M. Curran, P.R. Edwards, P. Ginoux, D. Pasteris, J. Pedro, and L. Thomas (2007), Preliminary ultra-trace results: The WAIS Divide Dust Record in the context of an Antarctic Ice Core Array, *WAIS Divide Science Meeting*, Kings Beach, CA.
- McConnell, J.R., R.C. Bales, and J.R. Banta (2007), GEOSummit (Greenland Environmental Observatory at Summit), *Arctic Observing Network Meeting*, Boulder, CO.
- McConnell, J.R., R. Edwards, G.L. Kok, M.G. Flanner, C.S. Zender, E.S. Saltzman, J.R. Banta, D.R. Pasteris, M.M. Carter, and J.D.W. Kahl (2007), Concentrations and Sources of Soot in Greenland Precipitation from 1788 to 2002: Implications for Radiative Forcing, *American Geophysical Union, Fall Meeting*, San Francisco, Abstract A44B-01.

John Ryan Banta (cont.)

Spikes, V.B., J.R. McConnell, J.R. Banta (2007), Annual layer mapping and net snowfall measurements across the southern Greenland ice sheet using shallow radar and ice cores, *American Geophysical Union, Fall Meeting*, Abstract C11A-0087, San Francisco, CA.

2006

Banta, J.R., J.R. McConnell, and R. Edwards (2006), The influence of Arctic Oscillation variability on Greenland glaciochemical ice core records, *American Geophysical Union, Fall Meeting*, Abstract U43B-0859, San Francisco, CA.

McConnell, J.R., A.J. Aristarian, J.R. Banta, and R. Edwards (2006), Atmospheric dust over the Antarctic Peninsula and climate change in South America, *American Geophysical Union, Fall Meeting*, Abstract PP31C-1757, San Francisco, CA.

McConnell, J.R., and J.R. Banta (2006), Ultra trace element ice core laboratory at the Desert Research Institute, *Nevada System of Higher Education Board of Regents Meeting*, Las Vegas, NV.

2005

Banta, J.R., J.R. McConnell, and R. Edwards (2005), High-resolution sea salt and dust records over past centuries from Greenland ice cores, *American Geophysical Union, Fall Meeting*, Abstract C51B-0297, San Francisco, CA.

Edwards, R., J.R. McConnell, and J.R. Banta (2005), Changes in atmospheric flux of iron to the Arctic over past 100 yr, *American Geophysical Union, Fall Meeting*, Abstract PP33C-1582, San Francisco, CA.

2004

Banta, J.R., J.R. McConnell, and R. Edwards (2004), Source Apportionment mixing models for high resolution trace element ice core records over the past 350 years at Siple Dome, Antarctica, *American Geophysical Union, Fall Meeting*, Abstract PP23B-1410, San Francisco, CA.

Banta, J.R. (2004), High-resolution trace element dust flux records from Siple Dome, Antarctica, *Siple Dome Science Meeting*, Reno, NV.

Banta, J.R., J.R. McConnell, G.W. Lamorey, R. Edwards, and M. Frey (2004), Correlation of atmospheric circulation indexes with high resolution trace element flux records from West Antarctica, *SCAR Open Science Meeting*, Bremen, Germany.

Edwards, R., J.R. McConnell, J.R. Banta, and D. Solter-Goss (2004), Decadal to century scale variability in the atmospheric deposition of iron to Siple Dome during the past 400 y. *SCAR Open Science Meeting*, Bremen, Germany.

2003

Banta, J.R., J.R. McConnell, G.W. Lamorey, R. Edwards, and M. Frey (2003), High-resolution dust flux records at Siple Dome and other West Antarctic sites, *American Geophysical Union, Fall Meeting*, Abstract A11E-0026, San Francisco, CA.

McConnell, J.R., and J.R. Banta (2003), A 250-year, very high-resolution record of trace element deposition in central Greenland, *XVI INQUA Congress*, 71-4, Reno, NV.

McConnell, J.R., P.R. Edwards, J.R. Banta, and D. Solter-Goss (2003), A novel analytical approach greatly expands ice core records of climate change and industrial pollution, *SEARCH Open Science Meeting*, Seattle, WA.

John Ryan Banta (cont.)

Memberships, Affiliations, and Awards

American Geophysical Union, Member, 2002 – present
Geological Society of America, 2009 – present
American Water Resources Association, Member, 2002 – 2006
 AWRA Local Chapter President, 2003-2004
University of Nevada, Reno, Hydrologic Sciences Program, 2002 – 2006
 Outstanding Master’s Student Award, 2004
European Research Course on the Atmospheres, Grenoble, France, Participant, 2005
NASA Nevada Space Grant.
 NASA Nevada Space Grant – Fellowship Award, 2004 – 2005
 NASA Nevada Space Grant – Poster Competition Award, 2004
 NASA Nevada Space Grant – Paper Competition Award, 2004
Society of Environmental Toxicology, Member, 1999-2002

Extracurricular

Instructor

University of Texas, San Antonio, Dept. Civil and Environmental Engineering,
 Undergraduate level, Guest Lecture, “Water Resource Engineering” – Fall, 2010
University of Nevada, Reno, Dept. Atmospheric Sciences, Graduate level, Full Instructor
 ATMS 706 “Applied Data Analysis” – Fall, 2008.
University of Nevada, Reno, Dept. Atmospheric Sciences, Graduate level, Guest Lecture
 ATMS 706 “Applied Data Analysis” – Fall, 2006

Invited Guest Speaker

Edwards Aquifer Authority Philosophical Society – May, 2011
University of Texas, San Antonio, Environmental Geological Graduate Seminar Series
 Guest speaker – Spring, 2011
 Guest speaker – Fall, 2011
National BLM Public Affairs Conference – October, 2009
USGS National Research Program – May, 2009
American Meteorologic Society, Reno Local Chapter Meeting – March, 2008
KOLO TV Morning Show – February, 2008
Science Student of the Year Award Ceremony – May, 2007
Board of Regents, Nevada System of Higher Education – October, 2006
Desert Research Institute, Post-doc representative for DRI bi-laws committee – December, 2008
Desert Research Institute, assisted Chemical Safety Officer search committee – January, 2008
Western Nevada Regional Science & Engineering Fair
 Team Leader/Volunteer Judge, March, 2009
 Team Leader/Volunteer Judge, March, 2008
 Volunteer Judge, March, 2007
 Volunteer Judge, March, 2006
Nevada Department of Environmental Protection “Annual Snapshot Day”
 Team Leader - Sampling Truckee River, May, 2008
 Volunteer - Sampling Truckee River, May, 2006
Adopt a Highway, Desert Research Institute – August, 2006
Truckee Meadows Weed Coordination Group “Pulling Together Day”
 Volunteer - Dorostkar Park, May, 2006