

**Beth Weinman**  
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## **TEACHING EXPERIENCE**

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### ***Vanderbilt University, Nashville, TN***

#### ***Adjunct Teaching Corps, Summer and Fall 2008***

Student Mentor for Vanderbilt's Center for Science Outreach, which integrates Nashville public high school students in the scientific process by including them in interdisciplinary, collegiate level research. My student, Poojitha Matta, earned a 4th place honor for her poster: "Testing for provenance differences in aquifer sands from arsenic infected regions of Nepal using REE and zircon geochronology."

#### ***Department of Student Athletics Tutor Program, Summer and Fall 2008***

Provide tutoring to student athletes taking "Oceanography" and "Geology"

#### ***Teaching Assistant - with Steven Goodbred in "Sedimentology," Spring 2007 and Fall 2008***

Teach and develop curriculum for an upper level undergraduate lab that focuses on familiarizing students to a range of sampling and analytical techniques used to reconstruct past sedimentary environments. I put together a field component where students investigate the uplift of the Appalachians with several trips to local carbonate outcrops with both interpreted (published) and uninterpreted (newly uncovered) Nashville limestone sequences.

#### ***Teaching Assistant - to Brendan Bream in "Geology," Spring 2006 & Fall 2007***

Taught geology lab, collaborated on curriculum and exam development, met with students, and graded all written work, including lab, essay, and exam papers.

#### ***Teaching Assistant - to Steven Goodbred and Kinzly Moore in "Oceanography," Fall 2005 & Spring and Fall 2008***

Taught oceanography lab, collaborated on curriculum and exam development, met with students, and graded all written work, including lab, essay, and exam papers.

### ***Stony Brook University, Stony Brook, NY***

#### ***Teaching Assistant - to Professor Mohammed Akhtar in "Chemistry," Sep '02 - May '03***

Taught ACS-certified introductory chemistry labs, met with students upon request, and graded all written work, including lab and exam papers.

## **AWARDS**

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2008-2009 American Geophysical Union Horton Research Award

2008 Student Paper Award by GSA's Geology and Health Division

Vanderbilt Graduate School Travel Grant to University of Manchester's Workshop on  
"Arsenic in Asian Aquifers"

Fall 2007 internship and India's Physical Research Laboratory

Vanderbilt Graduate School Travel Grant to GSA, Philadelphia

NSF/AGU Student Travel Grant to Guangzhou, China

Summer 2006 internship at India's Physical Research Laboratory

Kenneth Kupferberg Memorial Scholarship

Long Island Sound Conservancy Research Award.

Phi Beta Kappa Inductee

2002 Queens College Women's Club Award

Golden Key National Honor Society Inductee

2001 Howard Hughes Medical Institute Grant Summer Program for Undergraduate  
Research

Queens College Transfer Scholarship Award

US DOE Institute of Biotechnology, Environmental Science, and Computing Intern

2000 Nassau Community College Foundation Academic Area Award in Physical Science

## **EDUCATION**

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**Doctor of Philosophy** (Environmental Sciences)

*Vanderbilt University, Nashville, TN May '09*

Thesis: The evolution of aquifers and arsenic in Asia--a study of the fluvio-deltaic processes leading to aquifer formation and arsenic cycling and heterogeneity in Bangladesh, Vietnam, and Nepal

**Master of Science** (Atmospheric and Marine Sciences)

*Stony Brook University, Stony Brook, NY Aug '05*

Thesis: "Controls of Floodplain Sediments and Evolution on Shallow Aquifer Development and the Distribution of Groundwater Arsenic: Araihasar, Bangladesh."

**Bachelor of Science** (Geology)

*CUNY Queens College, Flushing, NY Jun '02*

Senior Thesis: "The geochemical significance of the breakwater in Flushing Bay: The effects of reoxidation of sulfide-bound metals."

## RESEARCH

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### PEER REVIEWED PUBLICATIONS

**Weinman, B**, SL Goodbred, Y Zheng, A van Geen, Z Aziz, A Singhvi, and M. Steckler. Controls of Floodplain Evolution on Shallow Aquifer Development and the Resulting Distribution of Groundwater Arsenic: Araihasar, Bangladesh. *GSA Bulletin*, 120(11/12): 1567-1580, 2008.

Eiche, E., T Neumann, M Berg, **B Weinman**, S Norra, Z Berner, A van Geen, PTK Trang, PH Viet, D. Stüben, Geochemical processes underlying a sharp contrast in groundwater arsenic concentrations in a village on the Red River delta, Vietnam, *Applied Geochemistry*, 23(11): 3143-3154, 2008.

van Geen, A, K Radloff, Z Aziz, Z Cheng, MR Huq, KM Ahmed, **B Weinman**, S. Goodbred, M. Berg, PTK Trang, L Charlet, J Metral, D Tisserand, S Guillot, S Chakraborty, AP Gajurel, BN Upreti, Comparison of arsenic concentrations in simultaneously-collected groundwater and aquifer particles from Bangladesh, India, Vietnam, and Nepal, *Applied Geochemistry*, 23(11): 3244-3251, 2008.

van Geen, A, Y. Zheng, S. Goodbred, A. Horneman, Z. Aziz, Z. Cheng, M. Stute, B. Mailloux, **B. Weinman**, S.H. Chowdhury, and K.M. Ahmed. Flushing history as a hydrogeological control on the regional distribution of arsenic in shallow groundwater of the Bengal Basin. *Environmental Science and Technology*, 42(7): 2283-2288, 2008.

Bower, J, K Savage, **B Weinman**, M Barnett, W Hamilton, and W Harper. Immobilization of Mercury by Pyrite (FeS). *Environmental Pollution*, 156: 504-514, 2008.

Aziz, Z, A van Geen, M Stute, R Versteeg, A Horneman, Y Zheng, SL Goodbred, M Steckler, **B Weinman**, I Gavrieli, MA Hoque, M Shamsudduha, and KM Ahmed. Impact of local recharge on arsenic concentrations in shallow aquifers inferred from the electromagnetic conductivity of soils in Araihasar, Bangladesh. *Water Resources Research*, 44: W07416, doi:10.1029/2007WR006000.

van Geen A, Y Zheng, Z Cheng, Z Aziz, A Horneman, RK Dhar, B Mailloux, M Stute, **B Weinman**, SL Goodbred, AA Seddique, MA Hoque, and KM Ahmed. A transect of groundwater and sediment properties in Araihasar, Bangladesh: Further evidence of decoupling between As and Fe mobilization. *Chemical Geology*, 228(1-3): 85-96, 2006.

van Geen, A., Z. Aziz, A Horneman, **B Weinman**, RK Dhar, Y Zheng, S Goodbred, R Versteeg, AA Seddique, MA Hoque, and KM Ahmed. Preliminary evidence of a link between surface soil properties and the arsenic content of shallow groundwater in Bangladesh. *Journal of Geochemical Exploration*, 88: 157-161, 2006.

Zheng Y, **B Weinman**, T Cronin, MQ Fleisher, and RF Anderson. A rapid procedure for the determination of thorium, uranium, cadmium and molybdenum in small sediment samples by inductively coupled plasma-mass spectrometry: application in Chesapeake Bay. *Applied Geochemistry*, 18 (4): 539-549, April 2003.

### PUBLICATIONS IN PREP

Savage, K, S Webb, B Weinman, and A Covey. Real-time synchrotron x-ray diffraction monitoring of colloidal transport in quartz and calcite sands. Submitted to *Environmental Science and Technology*, in submission.

Weinman, B, Y Zheng, SL Goodbred, A Horneman, Z Cheng, Z Aziz, M Stute, and A van Geen. Young Sediments and Aquifer Arsenic in Araihasar, Bangladesh: the affect of sedimentary facies on recharge and arsenic evolution in the shallow aquifer of the Old Brahmaputra floodplain. In prep, expect submission to *Geochim Cosmochim Acta*, Dec 2008.

*PROFESSIONAL ABSTRACTS (\*PRESENTER)*

\*Weinman, B, S Goodbred, K Savage, Y Zheng, K Radloff, A Singhvi, L Charlet, M Berg, E Eiche, W Cribb, and A van Geen. The Co-Evolution of Asian Aquifers and Arsenic: How Understanding Sedimentary History Can Help Predict Patterns of Arsenic Heterogeneity. Oral Presentation. Session H71: Arsenic and Other Metals as Contaminants in Hydrologic Systems at AGU's Fall 2008 meeting. Moscone Center, San Francisco. December 19, 2008.

\*Weinman B, Covey A, Savage K, Zheng Y, van Geen A, Singhvi A, Goodbred S. Sediment Age and Arsenic Availability: Leaching Experiments on Aquifer Sands and Implications for Arsenic Mobilization. Oral Presentation. Groundwater Arsenic: A Global Environmental Health Problem and Sustainable Mitigation II session at GSA's Fall 2008 Meeting. George Brown Convention Center, Houston. October 8, 2008.

\*Weinman B, Goodbred SL, Zheng Y, Berg M, Kipfer R, Charlet L, Radloff K, Aziz Z, Jung HB, Frei F, Trang PK, Viet PH, Singhvi A, and van Geen A. Depth Transects of Sediment Age, Reflectance, and Aquifer Arsenic in Bangladesh, Nepal, and Vietnam: Implications for Arsenic Mobilization. Poster Presentation. Geologic and Hydrologic Controls on Subsurface Redox Conditions I session at American Geophysical Union's Fall 2007 Meeting. Moscone Center, San Francisco. December 10, 2007.

\*Weinman B, Goodbred SL, Radloff K, Aziz Z, Jung HB, Frei F, Kipfer R, Berg M, Trang PK, Viet PH, Singhvi A, van Geen A. Detailed depth-transects of As concentrations in groundwater and aquifer particles combined with sediment and groundwater ages from the Bac Bo Plain, Vietnam. Poster Presentation. Workshop on "Arsenic in Southeast Asian Aquifers with emphasis on Cambodia and Vietnam, University of Manchester, UK. October 29-30, 2007.

\*Weinman B, Goodbred SL, Zheng Y, Singhvi A, Nagar Y, Aziz Z, van Geen L. Fluvio-deltaic Processes and Geomorphic Development at the Scale of 100 to 1000m: Their Importance in Governing the Heterogeneity of Groundwater Arsenic in Araihasar, Bangladesh. Oral Presentation. Session on Distribution of Arsenic and Related Metalloids in Surface and Ground Waters: Controls and Challenges at the Geological Society of America's 2006 Annual Meeting. Pennsylvania Convention Center, Philadelphia. October 23, 2006.

Savage K, Weinman B. Colloidally Mediated Arsenic Transport Experiments Analyzed with Synchrotron X-Ray Techniques. Oral Presentation. Session on Distribution of Arsenic and Related Metalloids in Surface and Ground Waters: Controls and Challenges at the Geological Society of America's 2006 Annual Meeting. Pennsylvania Convention Center, Philadelphia. October 23, 2006.

\*Weinman B, Goodbred SL, Zheng Y, van Geen L, Aziz Z. The importance of fluvial processes and local geomorphology to the fate of groundwater arsenic in Asian delta systems. Oral Presentation. Session on Hydrological Science and Engineering for Solving Water Problems at the Hydrological Sciences for Managing Water Resources in the Asian Developing World June 8-10th Meeting. Guangdong International Hotel, Guangzhou, China. June 9, 2006.

\*Weinman B, Goodbred SL, Zheng Y, van Geen A, Aziz Z, Svirasta P. The Effect of Floodplain Evolution on the Distribution of Arsenic in the Shallow Aquifer of Araihasar, Bangladesh. Oral Presentation. Session on Arsenic in the Environment at American Geophysical Union's Fall 2004 Meeting. Moscone Center, San Francisco. December 15, 2004.

Zheng Y, \*Weinman B, Goodbred SL, Horneman A, van Geen A, Cheng Z, and Aziz Z. Depth Transects Of Sediment Properties And Aquifer Arsenic In Araihasar, Bangladesh: Implications For Arsenic Mobilization. Oral Presentation. Session on Arsenic in the Environment at American Geophysical Union's Fall 2004 Meeting. Moscone Center, San Francisco. December 15, 2004.

Aziz Z, van Geen A, Goodbred SL, Zheng Y, Horneman A, Dhar RK, Weinman B, Cheng Z, Stute M, Hoque MA, Seddique AA, and Ahmed KM. Regional and Local Control of Arsenic Concentrations in Shallow Aquifers by the Permeability of Surface Soils. Oral Presentation. Session on Arsenic in the Environment at American Geophysical Union's Fall 2004 Meeting. Moscone Center, San Francisco. December 15, 2004.

Goodbred SL, Weinman B, van Geen A, Versteeg R, Zheng Y, Stute M, and Ahmed KM. Geological controls on the occurrence and distribution of high arsenic in shallow groundwater: Araihasar, Bangladesh. Abstracts of papers of the American Chemical Society, 226: U583-U584 017-GEOC Part 1, September 2003.

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### ***PEER REVIEW***

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Reviewer for Environmental Science & Technology

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### ***GRANT SUPPORT***

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2008-2009 AGU Horton Graduate Research Grant Award: "The co-evolution of arsenic and aquifers: Linking shallow groundwater arsenic heterogeneity with sediment ages in Bangladesh, Vietnam, and Nepal." B Weinman.

Dec 1, 2009 Submission to NSF Hydrological Sciences: "Vulnerability of low-arsenic aquifers in southern Asia to intrusion of high-arsenic groundwater: a case-study in Vietnam south of Hanoi." A van Geen, M Berg, R. Kipfer, PH Viet, PTK Trang, T Eglinton, B Bostick, B Weinman, and P Oates.

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### ***PROFESSIONAL AND COMMUNITY SERVICE***

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L.I.F.T. Mentor in Tennessee Gov. Bredesen's outreach program for children in foster-care.

Adjunct Teaching Corps Member for Vanderbilt's Center for Science Outreach