

# Benjamin F. Schwartz

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**EDUCATION** Virginia Polytechnic Institute and State University, Blacksburg, VA  
Ph. D. Geosciences, *expected August 2007*.  
Dissertation: *A multi-method approach to characterizing sinkhole hydrology and recharge in agricultural settings*

Radford University, Radford, VA  
B. S. Geology, May 2003

## Professional Experience

- 2001 - 2003 Full time summer employee for Virginia Department of Conservation and Recreation, Division of Natural Heritage, Karst Program in Radford, VA. Primary duties included delineation of karst drainage basins in VA with dye tracing, water sampling, geologic field observations and interpretation. Managed and compiled data in a GIS and wrote annual progress reports for the project.
- 1999 - 2001 Part time employee at Anderson and Associates Surveyors and Engineers, Blacksburg, VA. Performed high precision GPS surveys in SW VA. Position also required extensive CAD work.
- 1995 - 1999 CNC machinist for Nicholson Precision Instruments, Gaithersburg, MD. Specialized in prototyping and machining small close tolerance parts made with aluminum, plastics and exotic materials. Also specialized in precision mold making and molding of complex silicone rubber gaskets. Managed all daily operations of an independent satellite machine shop.
- 1991 - 1995 Party chief, rodman and courthouse researcher for Jeffery Hiner, Land Surveyor, Monterey, VA. Primary duties related to rural land surveying.

## Teaching Experience

- Fall 2005 Wrote a field guide for, and led, a two-day karst hydrology field trip to Bath County, VA for a graduate Karst Hydrology class, Virginia Tech.
- Spring 2004 Teaching assistant for Groundwater Hydrology, Virginia Tech. Taught labs for upper-level undergraduates and graduate students. Wrote a karst hydrology lab section.
- Fall 2003 Taught labs for three sections of Physical Geology, Virginia Tech.

## Service

- 2005 Assisted with a Project Underground workshop and field trip for VA earth science teachers. Primary emphasis was on how to incorporate karst science into SOL materials. Presented an invited talk about my research on sinkhole hydrology and hydrogeophysics.
- 2004 - 2006 Member and Chair of Graduate Student Liaison Committee, Virginia Tech Department of Geosciences

- 2004 - 2005 Assisted with fall field trips for incoming graduate students, Virginia Tech Department of Geosciences
- 2003 - 2005 Assisted with karst field trip for Groundwater Hydrology class.
- 2003 - present Project co-manager: Powell Mountain Karst Preserve.
- 1997 - 2003 Director - Board of directors for Butler Cave Conservation Society
- 1993 - present Director - Board of directors for Virginia Speleological Survey

### Grants and Awards

- 2006 \$15,000 Cave Conservancy Foundation's Ph.D. Graduate Fellowship in Karst Studies.
- 2006 Full research assistantship and other funding - co-wrote grant proposal with Dr. Madeline Schreiber to Virginia Water Resources Research Center.
- 2006 Byron N. Cooper Graduate Fellowship award. Dept. of Geosciences, Virginia Tech.
- 2005 \$5,000 Cave Research Foundation's annual Karst Research Fellowship.
- 2005 \$2,000 National Speleological Society's Ralph W. Stone Award and Fellowship.
- 2005 \$2,000 Geological Society of America research grant.
- 2005 Award: GSA outstanding research proposal. One of 19 from 720 applications.
- 2005 Award: GSA Hydrogeology Division outstanding research proposal. One of three.
- 2005 \$300 Research grant from West Virginia Association for Cave Studies.
- 2005 \$250 Research grant from Virginia Tech Graduate Research Development Program.
- 2004 Awarded a US Dept. of Ed. GAANN Fellowship.
- 2003 \$4,600 Research grant from Cave Conservancy of the Virginias for equipment needed in hydraulic lift tube research.
- 2000 \$5,000 Cave Conservancy Foundation's Undergraduate Fellowship in Karst Studies
- 1999 Fellow award - National Speleological Society

### Publications

Orndorff, W., Hypes, R., Lucas, P., Fagan, J, Zokaites, C., Orndorff, Z., Lucas, C., **Schwartz, B.**, 2005, Protecting Virginia's Caves and Karst through the Environmental Review Process. Proceedings of the *National Cave and Karst Management Symposium*, November 2005.

**Schwartz, B. F.** and Schreiber, M. E., 2005, New Applications of Differential Electrical Resistivity Tomography and Time Domain Reflectometry to modeling infiltration and soil moisture in agricultural sinkholes. Proceedings of the *10<sup>th</sup> Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst*. September 2005.

**Schwartz, B. F.**, 1999, Exploring Barberrry Cave. *National Speleological Society News*, September, v. 57 no. 9. A report documenting the history of exploration in Barberrry Cave, Bath County, Virginia.

**Schwartz, B. F.**, 1999, Project Caving and Permanent Rigging. *National Speleological Society News*, October, v. 57 no. 10. A technical report dealing with solutions to problems encountered with rigging in long-term project caving.

**Schwartz, B. F.**, 1993 - present, Many reports, maps and articles in *The Virginia Cellars*, the official publication of the Virginia Speleological Survey.

## **Presentations**

**Schwartz, B.**, Schreiber, M., 2006, Integrating Differential Electrical Resistivity Tomography and Time Domain Reflectometry as a tool for modeling soil moisture and infiltration in sinkholes. Oral presentation at the *Geological Society of America Annual meeting*, October, 2006

**Schwartz, B.**, Schreiber, M., 2006, Integrating Differential Electrical Resistivity Tomography and Time Domain Reflectometry as a tool for modeling soil moisture and infiltration in sinkholes. Poster presented at the *SEG 2006 Hydrogeophysics Workshop*. August, 2006

**Schwartz, B. F.**, 2006, Techniques for measuring soil moisture in sinkholes. Oral presentation at the *Graduate Student Research Symposium*, Virginia Tech Dept. of Geosciences, March, 2006

**Schwartz, B. F.** and Schreiber, M. E., 2005, Using TDR and 2D Differential ERT to monitor changes in soil moisture in mantled agricultural sinkholes. Oral presentation at the *Geological Society of America Annual meeting*, October, 2005

**Schwartz, B. F.**, 2005, A multi-method approach to characterizing sinkhole hydrogeology and recharge mechanisms in agricultural settings. Oral presentation at the *Graduate Student Research Symposium*, Virginia Tech Dept. of Geosciences, March, 2005

**Schwartz, B. F.**, Schreiber, M. E., Orndorff, W. D., 2004, Hydrologic Characterization of Sinkholes in Agricultural Settings. Oral presentation at the *Geological Society of America annual meeting*, November 2004.

**Schwartz, B. F.**, Schreiber, M. E., Orndorff, W. D., 2004, Hydrologic Characterization of Sinkholes Using a Multi-method Approach. Oral presentation at the *Virginia Water Resources Research Center symposium*, October 2004.

**Schwartz, B. F.**, Schreiber, M. E., Orndorff, W. D., 2004, Hydrologic Characterization of Sinkholes Using a Multi-method Approach. Poster presented at *Geological Society of America NE-SE meeting*, March 2004.

Orndorff, W. D., **Schwartz, B. F.**, Orndorff, Z. W., 2004, Patterns of Karst Hydrological Systems Developed in Ordovician-aged Carbonates of the Southwestern Virginia Valley and Ridge. Oral presentation at the *Geological Society of America NE-SE meeting*, March 2004.

**Schwartz, B. F.**, 2004, Hydrologic characterization of sinkholes using a multi-method approach. Oral presentation at the *Graduate Student Research Symposium*, Virginia Tech Dept. of Geosciences, March, 2004

## **Invited Presentations**

**Schwartz, B. F.**, 2006, Karst, hydrology and geophysics - (How to turn a sinkhole into a complex hydrogeophysical problem). Weekly seminar speaker at Appalachian State University, Department of Geology, Boone, N.C.

## **Professional Affiliations**

Geologic Society of America  
American Geophysical Union  
National Speleological Society