



Faculty Directory

The College

AS News

# Christopher A. Scholz

Professor of Earth  
Sciences



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**Earth Sciences**

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Laboratory

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**Scholz CV**

## Research and Teaching Interests

[rifts.syr.edu](http://rifts.syr.edu)

My research focuses on recovering records of past climate from lake basins, and on the sedimentary basin analysis of extensional systems, with emphasis on lacustrine basins. Current research efforts are concentrated on the large lakes of tropical Africa and the Finger Lakes of Central New

York. Lake basins contain some of the highest quality archives of climate change on the continents, and new drill core records from the low-latitude lakes of Africa are revealing new details about the Pleistocene record of climate change.

The world's large rift valley lakes are outstanding laboratories for understanding the interaction of tectonic, climatic, and depositional processes, and are particularly useful for developing models for hydrocarbon exploration in ancient rift systems. These large, deep lakes contain thick accumulations of sediment dating back millions of years, and are among the best places on the continents for reconstructing past climates. Recent field programs have involved scientific drilling in tropical lake basins, the recovery of high-resolution sediment cores from lakes, and the imaging of sedimentary lake basins at various scales, using seismic reflection datasets techniques.

Support for the research comes from the National Science Foundation and a consortium of oil and gas companies.

## Courses

Sedimentary Basin Analysis  
History of Earth and Life  
Sedimentary Processes and Systems  
Special Topics in Paleoclimatology  
Earth Science of Energy  
Special Topics in Extensional Tectonics

## Students

**Mattie Friday**

**Stoney Gan**

**Tannis McCartney**

**Amy Morrissey**

**Douglas Wood**

**Xuwei Zhang**

# Facilities

## **Sedimentology/Geochemistry**

### **Equipment:**

- Beckman-Coulter Automated Grain Size Analyzer: Model LS230
- COSTECH Elemental Analyzer, connected to Finnigan MAT 252 stable isotope ratio mass spectrometer w/ continuous flow device
- Walk-in core storage facilities
- Complete sedimentology facility (granulometry/textural/compositional studies; smear slide analysis, coulometry studies; XRD; etc)
- Sediment x-radiography imaging and core epoxy impregnation systems
- Major Seismic Laboratory Equipment:
  - Complete seismic processing and interpretation facility (Syracuse University is a Landmark University Partner) (consists of dual-head LINUX/PROMAX processing workstations and LANDMARK SEISWORKS/CAEX interpretation workstations, HP DesignJet Plotter; desktop mapping/GIS workstations 18 kW UPS backup power in seismic analysis lab, assorted tape drives including AIT, 3480, 8 mm, 4 mm tape drives)
  - Chesapeake Technologies Sidescan Sonar Mosaic Workstation
  - Assorted ARCGIS workstations

### **Major Field Equipment:**

- 48 Ch 1200 m Digital Hydroscience Technologies MCS streamer & acquisition system
- 48 Ch. 600 m Analog ITI Stealth array seismic streamer
- OYO DAS-1 48-channel, Digital Seismic acquisition system
- Chesapeake high-resolution seismic acquisition system
- ELICS Delph2 high-res seismic/side-scan sonar acquisition system
- Assorted airgun arrays, including BOLT, I/O sleeve guns
- Two diesel-powered seismic air compressors (65 SCFM total)
- ITI ST-5 single channel streamer
- Teledyne 24 channel hi-res streamer (150 m, 300 m active sections)
- Rossfelder deepwater electric vibracoring system (1200 m working depth)
- Assorted single-channel seismic streamers

- Portable diesel generators
- 2 Trimble AG132 Differential GPS systems
- Assorted portable GPS receivers
- Assorted field communications equipment including Iridium satellite phones with data link, assorted VHF radios etc
- 40' modular research catamaran with VHF radios, radar, 11' rigid-body inflatable boat
- Edgetech CHIRP high resolution seismic system
- Geopulse 1 kHz Boomer Seismic System
- Knudsen 28 kHz Portable Digital Echosounder
- Knudsen 200/200kHz Portable Sidescan Sonar System
- Portable diesel-driven hydraulic power pack
- Portable Seamac hydraulic-powered coring winch
- Assorted grab samplers, and lightweight coring systems
- Portable fabrication workshop with welders and assorted power tools

## Selected Publications

**Scholz**, C.A., Johnson, T.C., Cohen, A.S., King, J.W., Peck, J., Overpeck, J.T., Talbot, M.R., Brown, E.T., Kalindekaffe, L., Amoako, P.Y.O, Lyons, R.P, Shanahan, T.M., Castaneda, I.S., Heil, C.W., Forman, S.L., McHargue, L.R., Beuning, K.R., Gomez, J., and Pierson, J., 2007, East African megadroughts between 135-75 kyr ago and bearing on early-modern human origins, *Proceedings of the National Academy of Sciences*, vol. 104, pp.16416-16421.

Cohen, A.S., Stone, J., Beuning, K., Park, L., Reinthal, P., Dettman, D, **Scholz**, C.A., Johnson, T., King, J. W., Talbot, M., Brown, E., and Ivory, S., 2007, Ecological Consequences of Early Late-Pleistocene Megadroughts in Tropical Africa, *Proceedings of the National Academy of Sciences*, vol. 104, , pp. 16422-16427.

Brown, E.T., Johnson, T.C., **Scholz**, C.A., Cohen, A.S. and King, J., 2007, Abrupt Change in Tropical African Climate Linked

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Karp, T., \***Scholz**, C.A., and McGlue, M.M., in press, Structure and Stratigraphy of the Lake Albert Rift, East Africa: Observations from Seismic Reflection and Gravity Data, in press in forthcoming AAPG Memoir - Lacustrine Sandstone Reservoirs. \* corresponding author.

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Shanahan, T.M., Overpeck, J.T., **Scholz**, C.A., Sharpe, E., and Arko, J., 2007, Simulating the response of a closed basin lake to recent climate and land-use changes in tropical West Africa (Lake Bosumtwi, Ghana), *Hydrological Processes*, v. 21, pp. 1678-1691.

McGlue, M.M., \* **Scholz**, C.A., Karp, T., Lezzar, K.E., and Ongodia, B., in press, Facies Architecture of Flexural Margin Lowstand Delta Deposits In Lake Edward, East African Rift: Constraints From Seismic Reflection Imaging, *Journal of Sedimentary Research*. \* corresponding author

Lyons, R.P., \* **Scholz**, C.A., and Mullins, H.T., 2005, Seismic Stratigraphy of Skaneateles Lake: High-Resolution History of Lake Level, Paleoclimate, and Natural Hazards in Central New York, *Northeastern Geology*, in press. \* corresponding author

Brooks, K., \* **Scholz**, C.A., King, J.W., Peck, J., Overpeck, J.T., Russell, J.M., and Amoako, P.Y.O., 2005, Late-Quaternary lowstands of Lake Bosumtwi, Ghana: evidence from high-resolution seismic reflection and sediment-core data, *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 216, p. 235-249. \* corresponding author

Peck, J.A., Green R.R., Shanahan, T., King, J., Overpeck, J.T., and **Scholz**, C.A., 2004, Magnetic Mineral Record of Late Quaternary Tropical Climate Variability from Lake

Bosumtwi, Ghana, Palaeogeography, Palaeoclimatology, Palaeoecology, v. 215, p. 37-57.

**Scholz**, C.A., King, J.W., Ellis, G.S., Swart, P.K., Stager, J.C. and Colman, S.M., 2003, Paleolimnology of Lake Tanganyika, East Africa, over the past 100 kYr, Journal of Paleolimnology, v. 30., pp. 139-150.

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**Earth Sciences**

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# Research Spotlight



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