

Bernard Coakley
Geophysical Institute
University of Alaska
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Education:

- 1985-1991 Columbia University, New York, New York
Ph.D. October, 1991; **M. Phil.** October 1989; supervisor: Dr. A.B. Watts
1982-1985 Louisiana State University, Baton Rouge, Louisiana
M.S. June 1988; supervisor: Dr. Jeffrey A. Nunn
1976-1980 University of Michigan, Ann Arbor, Michigan
B.S. December 1981

Research Interests:

Arctic Basin Tectonics
Basin Analysis - how stratigraphy provides a record of tectonic and isostatic processes
Collection, Analysis and Reduction of Gravity Anomaly Data.

Work Experience:

- 05/02 - present Geophysical Institute; **Associate Professor**
01/99 – 05/02 Tulane University; **Assistant Professor**
10/94 - 12/98 Lamont-Doherty Earth Observatory; **Associate Research Scientist**
08/93 - 10/94 Lamont-Doherty Earth Observatory; **Post Doctoral Research Scientist**
04/91 - 07/93 University of Wisconsin-Madison, Wisconsin; **Research Associate**
09/85 - 04/91 Columbia University-New York, New York; **Graduate Fellow**
09/82 - 08/85 Louisiana State University-Baton Rouge, Louisiana; **Graduate Student**

Field Experience:

- 1999-2001 RV Acadiana and RV Eugenie - co-chief scientist - 43 days mapping in the Mississippi River during five different campaigns
1999 USS Hawkbill – co-chief scientist SCICEX 99 – Arctic Ocean Basin (4/16 - 5/20)
1995 USS Cavalla - SCICEX 95 cruise - Arctic Ocean basin (3/6 - 5/28)
1994 ODP Leg 157 - Mass-wasted sediments near the Canary Islands (7/29 - 9/23)
1994 R/V Atlantis-II - Underway gravimetry with Alvin on the EPR (4/6 - 5/25)
1993 USS Pargo - SCICEX 93 cruise - Arctic Ocean basin (8/11 - 9/22)
1990 Airborne gravity survey of West Antarctica (CASERTZ) (11/4 - 2/3)
1988 Gravity survey of the Dead Sea and the Sea of Galilee. (10/4 - 10/22)
1988 R/V Thomas Washington Single channel seismic, seabeam, gravity and magnetics survey of the flexural moat of the Hawaiian Islands. (5/17 - 6/10)
1986 Mapping in high-grade metamorphic rocks on the Island of Naxos, Greece. (8/15 - 9/16)
1983 Gravity survey in northeastern Wisconsin. (9/25 - 10/28)

Committees:

Basin Research - Editorial Board
IASC (International Arctic Science Committee/IIOC/IHO (International Hydrographic Organization)) - Editorial Board for the International Bathymetric Chart of the Arctic Ocean
IASC/IAG/NIMA – project committee on Arctic Gravity Data Compilation
InterRidge - Arctic Ridges Working Group
Nansen Arctic Drilling Program – Chair
International Conference on Arctic Research Planning II (ICARP II) – Deep Basin Working Group Chair
Barrow Arctic Science Consortium – Digital Working Group

Societies:

American Geophysical Union, Geological Society of America, American Association of Petroleum Geologists, American Hydrographic Society, Society of Exploration Geophysicists

Languages:

C, Fortran, French.

In Prep:

Coakley, B.J., S. Forman, R. Murray and J. Tarduno, Amerasian Basin Workshop Report; Integrating Study of the Arctic Continents and Ocean, for EOS.

Coakley, B.J., and J.R. Cochran, Collection, reduction and analysis of gravity anomaly data from submarines, for Geophysics.

Articles:

Kristoffersen, B. Coakley, W. Jokat, M. Edwards, H. Brekke, and J. Gjengedal, 2004, Seabed erosion on the Lomonosov Ridge, central Arctic Ocean: A tale of deep draft icebergs in the Eurasia Basin and the influence of Atlantic water inflow on iceberg motion?, **Paleoceanography** 19, doi:10.1029/2003PA000985.

Edwards, M.H., and B.J. Coakley, 2003, SCICEX Investigations of the Arctic Ocean System, **Chemie der Erde** 63, 281-392.

Cochran, J.R., G.J. Kurras, M.H. Edwards, and B.J. Coakley, 2003, The Gakkel Ridge: Bathymetry, gravity anomalies and crustal accretion at extremely slow spreading rates, **J. Geophys. Res.**, 108(B2), doi 10.1029/2002JB001830.

Coakley, B.J., 2002, The Plate Tectonic Revolution (a review of two related books), **American Scientist**, 385-386.

Polyak, L., M.H. Edwards, B.J. Coakley and M. Jakobsson, 2001, Glacigenic bedforms in the deep Arctic Ocean: Evidence of Pleistocene Arctic Ice Shelves. **Nature** 410, 453-457.

Edwards, M.H., G.J. Kurras, M. Tolstoy, D. Bohnenstiehl, B.J. Coakley and J.R. Cochran, 2001, Evidence of recent volcanic activity on the ultra-slow spreading Gakkel Ridge. **Nature** 409, 808-812.

Jakobsson, M., N.Z. Cherkis, J. Woodward, R. Macnab and B. Coakley, 2000, New Grid of Arctic Bathymetry Aids Scientists and Mapmakers. **EOS** 81, 89.

Cochran, J.R., D. Fornari, B.J. Coakley, R. Herr and M.A. Tivey, 1999, Continuous Near-Bottom Gravity Measurements made with a BGM-3 Gravimeter in DSV Alvin on the East Pacific Rise Crest near 9° 30' N and 9° 50' N, **JGR** 104, 10841-10862.

Coakley, B.J., and J.R. Cochran, 1998, Gravity evidence of very thin crust at the Gakkel Ridge (Arctic Ocean), **EPSL** 162, 81-95.

Pyle, T., M. Ledbetter, B.J. Coakley and D. Chayes, 1997, Arctic Ocean Science, **Sea Technology** 39, 10-15.

Pratson, L., and B.J. Coakley, 1996, A model for the headward erosion of submarine canyons induced by downslope-eroding sediment flows. **Geol. Soc. Am. Bull.** 107, 225-234.

Coakley, B.J., and M. Gurnis, 1995, Far-field tilting of Laurentia during the Ordovician and constraints on the evolution of a slab under an ancient continent. **JGR** 100, 6313-6327.

Coakley, B.J., G. Nadon, and H.F. Wang, 1994, Spatial variations in Ordovician tectonic subsidence across the Michigan basin, **Basin Research** 6, 131-140.

Rees, B.A., Detrick, R.S., and B.J. Coakley, 1993, Seismic stratigraphy of the Hawaiian flexural moat, **Geol. Soc. Am. Bull.** 105, 189-205.

Bell, R.E., B.J. Coakley, D.D. Blankenship, S.M. Hodge and J.M. Brozena, 1992, Airborne Gravimetry from a Light Aircraft: CASERTZ 1990-1991, in **Recent Progress in Antarctic Earth Science**, Y. Yoshida ed., Terra Scientific Publishing Company, Tokyo, 571-577.

Bell, R.E., B.J. Coakley and R.W. Stemp, 1991, Airborne Gravimetry from a small twin engine aircraft over the Long Island Sound, **Geophysics** 56, 1486-1493.

Reynolds, D.J., M.S. Steckler, and B.J. Coakley, 1991, The role of sediment load in sequence stratigraphy: The influence of flexural isostasy and compaction, **JGR** 96, 6931-6949.

Sinclair, H., B.J. Coakley, P.A. Allen, and A.B. Watts, 1991, Stratigraphic simulation of the Molasse basin, Central Switzerland, **Tectonics** 10, 599-620.

Coakley, B.J., and A.B. Watts, 1991, Tectonic controls on the development of unconformities, North Slope Alaska, **Tectonics** 10, 101-130.

Grey Literature Reports:

- Coakley, B.J., S. Forman, R. Murray and J. Tarduno, in prep, Report from the Amerasian Basin Workshop.
- Coakley, B., 2000, White Paper on the Renewal of Dedicated Data Collection Cruises by US Navy Nuclear Submarines in the Arctic, Report from an ONR-funded Workshop, 29 p.
- Edwards, M.H., B. Coakley, D. Chayes, S. Okkonen, D. Stockwell, T. Whittedge and M. Rognstad, 1999, Cruise Report SCICEX 1999, unpublished 30 p.

Selected Recent Abstracts

- Cochran, J.R., M.H. Edwards and B.J. Coakley, 2003, Differing Forms of Continental Rifting on the Eurasian and Amerasian Margins of the Lomonosov Ridge, Arctic Ocean, *Eos Trans. AGU* 84(46), Fall Meet. Suppl., Abstract T12A-0450.
- Edwards, M.H., L. Polyak, J.L. Engels and B.J. Coakley, 2004, Seafloor Surveys Provide Circum-Basin Evidence for Thick Pleistocene Ice in the Arctic Ocean, *Eos Trans. AGU* 84(46), Fall Meet. Suppl., Abstract PP42A-0851.
- Coakley, B., Y. Kristoffersen, M. Edwards and L. Johnson, 2003, Opportunities and Challenges for Arctic Geosciences in the IPY (International Polar Year), *Eos Trans. AGU* 84(46), Fall Meet. Suppl., Abstract C32C-06.
- Palmer-Felgate, A., S. Gupta, J. Collier, J. Pye, B. DeMol, J. Dickinson and B. Coakley, 2003, Submarine Geomorphology of Incised Valleys on the Northern English Channel Shelf, *Eos Trans. AGU* 84(46), Fall Meet. Suppl., Abstract OS52A-0890.
- Campanella, R, B.J. Coakley and M.A. Allison, 2001, Spatial and Temporal Analysis of Lower Mississippi River Bathymetry, 1921-1992, *Eos Trans. AGU* 82(47), Fall Meet. Suppl., Abstract H41D-0304.
- Coakley, B.J., 2001, A Model for Wilson Cycles, *Eos Trans. AGU* 82(47), Fall Meet. Suppl., Abstract T42G-10.
- Kristoffersen, Y., B.J. Coakley and J. Hall, 2001, Lomonosov Ridge, Arctic Ocean: New MCS Data for the Definition of Targets for Scientific Drilling, *Eos Trans. AGU* 82(47), Fall Meet. Suppl., Abstract T11B-0860.
- Smith, W.H.F., B.J. Coakley, D.W. Forsyth, S.T. Gille, E.G. Hensen, S.R. Jayne, J.R. Jensen, G.D. Karner, S.E. Kruse, J.L. Lillibridge, G.A. Newmann, D.L. Porter, R.K. Raney, D.T. Sandwell, C.K. Shum, K.A. Soofi, M. Talwani and P. Wessel, 2001, The ABYSS Mission: Satellite Altimetry Optimized for Seafloor Geophysics, *Eos Trans. AGU* 82(47), Fall Meet. Suppl., Abstract OS12C-0438.
- Allison, M.A., and B.J. Coakley, submitted, Seasonal and Interannual Storage of Fine-Grained Sediment in the Lower Mississippi River: Evidence from Acoustic Mapping and Bottom Sampling. Winter ASLO, 2001.
- Cochran, J.R., B.J. Coakley, M.H. Edwards and G.J. Kurras, 2000, Swath-Bathymetry and Gravity Investigations of a Segment of the Gakkel Ridge, Arctic Ocean, , *Eos Trans. AGU* 81(48), Fall Meet. Suppl., Abstract T51D-19.
- Polyak, L., M.H. Edwards, B.J. Coakley and M. Jakobsson, 2000, Pleistocene Arctic Ice Shelves: a New Perspective, *Eos Trans. AGU* 81(48), Fall Meet. Suppl., Abstract H52C-05.
- Edwards, M.H., B.J. Coakley, D.N. Chayes, S. Okkonen, M.R. Rognstad, D. Stockwell and T.E. Whittedge, 1999, Arctic Basin Insights 1: New Data for the Amerasian Basin from SCICEX-99, *Eos Trans. AGU* 80(48), Fall Meet. Suppl., Abstract T31F-08.
- Coakley, B.J., M.H. Edwards, D.N. Chayes, S. Okkonen, M.R. Rognstad, D. Stockwell, and T.E. Whittedge, 1999, Arctic Basin Insights 2; New Data for the Eurasian Basin and the Lomonosov Ridge from SCICEX-99, *Eos Trans. AGU* 80(48), Fall Meet. Suppl., Abstract T31F-09.
- Cochran, J.R., B.J. Coakley, M.H. Edwards and G.J. Kurras, 1999, The Structure of the Ultra-Slow Spreading Gakkel Ridge: Insights from SCICEX SCAMP Swath Bathymetry and Gravity Data, *Eos Trans. AGU* 80(48), Fall Meet. Suppl., Abstract T32B-09.
- Coakley, B.J., J.R. Cochran, and M.H. Edwards, 1999, Internal Structure of the Lomonosov Ridge and Location of the Continent-Ocean Boundary from SCICEX data, *Eos Trans. AGU* 80(48), Fall Meet. Suppl., Abstract T32B-12.

Monahan, D., and B.J. Coakley, 1999, Continuing Refinement of Arctic Ocean Bathymetry Based on New Data from SCICEX, Eos Trans. AGU 80(48), Fall Meet. Suppl., Abstract T32B-03.

Active Research Awards

From the National Geospatial Intelligence Agency

Gravity Data Acquisition from the US Coast Guard Icebreaker Healy; Summer 2004
January 1, 2004 to December 31, 2004 \$22,555

From NSF - Arctic Natural Sciences Program

Mining SCICEX Geophysical Data in the Arctic Ocean to constrain the Structure and Geologic
Development of the Amerasian Basin*
April 14, 2003 to March 31, 2005. \$77,496

Workshop: Geodynamics and Paleoclimate of the Amerasian Basin and its Margins; Washington DC;
June 6-8, 2004.

March 15, 2004 to February 28, 2005 \$48,201

A Geophysical Transect Across the Arctic Ocean: Multi-Channel Seismic Reflection and Seismic
Refraction data Acquisition on the US Coast Guard Icebreaker Healy, Summer 2005.
August 15, 2004 to July 31, 2007 \$357,771

Collaborative Proposal submitted in conjunction with John Hopper (Texas A&M University).

From NSF – Arctic Cyberinfrastructure and Sensors Program

Engineering Study for a Cabled Observatory on the Beaufort Shelf; Co-PI Tom Weingartner
August 1, 2004 to July 31, 2005

Collaborative Proposal submitted in conjunction with Dale Chayes (Lamont-Doherty Earth Observatory)
and Andre Proshutinsky (Woods Hole Oceanographic Institution). \$99,080

From the Swedish Polar Research Secretariat

Support for SCICEX Data Acquisition and Reduction \$25,000

*Collaborative Proposal submitted in conjunction with Margo Edwards (University of Hawai'i) and Jim
Cochran (Lamont-Doherty Earth Observatory).

Research Awards - last Five Years

From the Margaret Kendrick Blodgett Foundation

Support for MCS data acquisition from the icebreaker Oden \$50,000

From the Joint Oceanographic Institutions

Site Augmentation Proposal in Support of ODP proposal #533; Five days of Seismic Reflection Data Acquisition over the Lomonosov Ridge
May 1, 2001 to April 31, 2002 \$30,992

From NSF - Arctic Natural Sciences Program

Analysis of the Lomonosov Ridge to Characterize Ancient Plate Boundaries in the Arctic: An Integrated Geophysical Study Utilizing SCAMP*
April 15, 1999 to March 31, 2002 \$117,528

Integrated Geophysical Study of the Arctic Mid-Ocean Ridge and Alpha Ridge from a Nuclear Submarine*
June 1, 1997 to February 29, 2000 * \$225,492

From ONR

A Proposal to Fund a Workshop to Discuss Renewal the SCICEX Program
July 1, 2000 to June 30, 2001 \$10,202

Repeat Acoustic Imaging on the Mississippi River bed; Direct Observation of Sediment Flux as a Consequence of River Discharge Variations co-PI M. Allison (Tulane University)
September 1, 1999 to August 31, 2000 \$400,000

From the Norwegian Petroleum Directorate

Support for SCICEX Data Acquisition and Reduction \$100,000

From the USGS

Acoustic Mapping in Support of USGS Lower Mississippi River program
co-PI M. Allison (Tulane University)
June 1, 2001 - May 31, 2002 \$30,000

*Collaborative Proposal submitted in conjunction with Margo Edwards (University of Hawai'i) and Jim Cochran (Lamont-Doherty Earth Observatory).