

## **CURRICULUM VITAE**

### **BRIAN E. TUCHOLKE**

Marine Geologist  
Scientist Emeritus  
Woods Hole Oceanographic Institution  
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### **Education**

- Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program in Oceanography - Ph.D. in Oceanography (Marine Geology), 1973.
- South Dakota School of Mines and Technology - B.S., Geology, Magna Cum Laude, 1968
- Hot Springs Public Schools, Hot Springs, S.D. - Diploma, Summa Cum Laude, 1964

### **Professional Experience**

- Scientist Emeritus, Woods Hole Oceanographic Institution, 2008 - Present
- Senior Scientist, Woods Hole Oceanographic Institution, 1987 - 2008
- Senior Scientist Fellow, IFREMER, Brest, France, 2006
- Consultant to Marine Geoscience Applications and U. S. Mineral Management Service, 1983 - 1984
- Consultant to EG&G Environmental Consultants and U. S. Environmental Protection Agency, 1981
- Associate Scientist, Woods Hole Oceanographic Institution, 1979 - 1987
- Adjunct Senior Research Scientist, Lamont-Doherty Geological Observatory, 1982 - 1991
- Visiting Senior Research Associate, Lamont-Doherty Geological Observatory, 1979 - 1982
- Senior Research Associate, Lamont-Doherty Geological Observatory, 1978 - 1979
- Research Associate, Lamont-Doherty Geological Observatory, 1974 - 1978
- Post-Doctoral Fellow, Lamont-Doherty Geological Observatory, Columbia University, 1973 - 1974
- Graduate Research Assistant, Woods Hole Oceanographic Institution, 1972 - 1973
- Full-Time Teaching Assistant (Academic Years), Woods Hole Oceanographic Institution, 1970 - 1972
- Full-Time Teaching Assistant (Academic Years), Massachusetts Institute of Technology, 1968 - 1970
- Geophysicist, Western Geophysical Corporation, 1968 (Summer)
- Professional Assistant in Geophysics, Pan American Petroleum Corporation, 1966 - 1967 (Summers)
- Field Geologist, South Dakota School of Mines & Technology, Summer 1965
- Museum Assistant and preparator in paleontology, South Dakota School of Mines and Technology, 1964 - 1968

### **Professional Memberships**

- American Association for the Advancement of Science, 1989 - present; elected Fellow, 1992

- American Geophysical Union, 1969 - present
- Geological Society of America, 1971 - present; elected Fellow, 1979
- Theta Tau Professional Engineering Fraternity, 1965 - present

#### **Professional Honors, Fellowships, Awards, etc.**

- South Dakota School of Mines and Technology Distinguished Alumnus 2022.
- Robert E. Sheriff Distinguished Lecturer, Houston Geological Society and University of Houston, 2008
- National Science Foundation Accomplishment Based Renewal Grant, 2006
- Senior Scientist Fellowship, IFREMER, Brest, France, 2006
- Henry Bryant Bigelow Chair for Excellence in Oceanography, Woods Hole Oceanographic Institution, 1999 - 2003
- Elected Fellow, American Association for the Advancement of Science, 1992
- Woods Hole Oceanographic Institution Independent Study Awards, 1988, 1995
- Woods Hole Oceanographic Institution Mellon Study Awards, 1983, 1998, 2008
- Keynote speaker, Centennial lecture on Marine Geology and Geophysics, Geological Society of America Centennial Symposium, 1988
- Alan Berman Research Publication Award, Department of the Navy, Naval Research Laboratory, 1986
- Seward Johnson Chair in Oceanography, Woods Hole Oceanographic Institution, 1986 - 1988
- Elected Fellow, Geological Society of America, 1979
- Corporation Member, Woods Hole Oceanographic Institution, 1976-1979
- Lamont-Doherty Geological Observatory of Columbia University, Post-Doctoral Fellowship, 1973-1974
- National Science Foundation Graduate Fellowship award, 1968 (declined in favor of a Teaching Assistantship at MIT)
- Woods Hole Oceanographic Institution Summer Fellowship, 1969, 1970, 1971
- Elected to Sigma Xi, 1968
- Elected to Who's Who Among Students in American Universities & Colleges, 1968
- President of the Senior Class, S. D. School of Mines & Technology, 1968
- J.P. Connolly Prize in Geology, S.D. School of Mines and Technology, 1967
- Homestake Mining Company Scholarship in Geology, 1964 - 1968
- National Youth Science Camp, South Dakota State Representative, 1964
- Eagle Scout, Boy Scouts of America, 1962
- Biographee: Who's Who in the East, Who's Who in Science and Engineering, Who's Who in Frontier Science and Technology, Who's Who in Technology, Who's Who in Technology Today, Who's Who in the World, Men of Achievement, American Men & Women of Science, International Leaders in Achievement

#### **Invited and Keynote Lectures (Post 2006)**

- 'Plate Tectonics', 'Geologic Map of North America' and 'Geological Evolution of the North Atlantic Ocean'. National Youth Science Camp, Bartow, West Virginia, 6-7/2013 (Invited, Directed Study program).
- 'Plate Tectonics', 'Geological Evolution of the North Atlantic Ocean Basin', and 'Structure of the Mid-Atlantic Ridge'. National Youth Science Camp, Bartow, West Virginia, 6-7/2012 (Invited, Directed Study program).
- 'Detachment Faulting and Oceanic Core Complexes.' Department of Geophysics, Peking University, Beijing, China, 11/2011 (Invited).
- 'Evolution of the Newfoundland-Iberia Rift.' Conference on Conjugate Margin Structure and Evolution in the North Atlantic and Other Margins, South China Sea Institute of Oceanology CAS, Guangzhou, China, 11/2011 (Keynote).

- 'Transitional Crust in Magma-Limited Rifts.' Conference on Conjugate Margin Structure and Evolution in the North Atlantic and Other Margins, South China Sea Institute of Oceanology CAS, Guangzhou, China, 11/2011 (Keynote).
- 'Detachment Faulting and Oceanic Core Complexes.' Conference on Conjugate Margin Structure and Evolution in the North Atlantic and Other Margins, South China Sea Institute of Oceanology CAS, Guangzhou, China, 11/2011 (Keynote).
- 'Crustal Extension and Mantle Exhumation in Weakly Magmatic Rifts and Mid-Ocean Ridges.' Conference on Alpine Ophiolites and Modern Analogs, Parma, Italy, 10/2009 (Keynote).
- 'Crustal Extension and Mantle Exhumation in Weakly Magmatic Rifts and Mid-Ocean Ridges.' Houston Geological Society and University of Houston, Robert E. Sheriff Distinguished Lecturer, 11/2008 (Keynote), *cited in* Houston Geological Society Bulletin, 51(3), p. 17, 2008.
- 'The Crustal Section Exhumed by Oceanic Detachment Faults.' AGU Fall Meeting, Session T51F on 'Generation of Oceanic Lithospheric in Areas of Low Effusive Magmatism: Where Has All the Crust Gone?', 12/2007 (Invited).
- 'Crustal Extension and Mantle Exhumation in Weakly Magmatic Rifts and Mid-Ocean Ridges.' GSA Penrose Conference on 'Extending a Continent: Architecture, Rheological Coupling and Heat Budget', Naxos, Greece, 10/2007 (Invited).
- 'Newfoundland-Iberia Rift: From Continental Extension to Seafloor Spreading in a Magma-Limited Environment.' Académie des Sciences International Meeting on the Ocean Continent Transition, Paris, 9/2007 (Keynote).
- 'Evolution of the Newfoundland-Iberia Rift.' CMOS/CGU/AMS Congress, session on 'North Atlantic Rifted Margin: Geophysical Processes and Constraints', St. Johns, Newfoundland, 5/2007 (Keynote).

### **Other Honors & Awards**

- Silver Trout Award from Massachusetts/Rhode Island Council of Trout Unlimited (for outstanding contributions to preservation of cold-water fisheries), 1988
- President of Cape Cod Chapter Trout Unlimited, 1987-88, selected by national office of Trout Unlimited for 1988 Gold Trout Award as outstanding chapter of 435 chapters in the nation

### **Professional Service Outside Woods Hole Oceanographic Institution**

- National Youth Science Camp, Directed-Study Lecturer, 2012, 2013
- IODP-MI Ocean Drilling Consortium Steering Committee, Member, 2008
- Ad Hoc Committee on MCS Greatest Hits, Lamont-Doherty Earth Observatory, 2005-2007
- Co-Convener, Crustal Accretion and Tectonic Extension in Magma-Limited Environments, AGU Fall Meeting, San Francisco, 2005
- Co-Convener, Structure and Evolution of Non-Volcanic Rifted Margins, AGU Fall Meeting, San Francisco, 2003
- Convener-Host, ONR Acoustic Reverberation Special Research Program, 1995 Research Symposium, Woods Hole Oceanographic Institution, 1995
- Co-Convener, Geological, Geophysical, and Acoustics Studies in the ONR Atlantic Natural Laboratory, Mid-Atlantic Ridge 23°-27.5° North, AGU Fall Meeting, San Francisco, 1995
- Co-Convener, Fine-Scale Seafloor Investigations of Mid-Oceanic Ridges Using ROV and Deep-Towed Instruments, AGU Fall Meeting, San Francisco, 1993
- Convener-Host, ONR Acoustic Reverberation Special Research Program, 1992 Fall Research Symposium, Woods Hole Oceanographic Institution, 1992
- Editorial Board, *Geology*, 1991-1993

- Convener-Host, ONR Acoustic Reverberation Special Research Program, 1991 Fall Research Symposium, Woods Hole Oceanographic Institution, 1991
- JOIDES North Atlantic Rifted Margins Detailed Planning Group, PCOM Liaison, 1990-1991
- Office of Naval Research Special Research Project on Bottom/Subbottom Acoustic Reverberation, Executive Committee Member, 1989-1995
- JOI/USSAC Workshop on the Role of ODP Drilling in the Investigation of Global Changes in Sea Level, Steering Committee Member; Chairman, Clastic Margins Working Group, 1988
- IUGS Circum-Atlantic Map Project, Western North Atlantic Working Group, Member, 1988-1991
- JOIDES Tectonics Panel, Planning Committee Liaison, 1988-1992
- American Geophysical Union Committee on Paleooceanography, Member, 1987-1988
- American Association of Petroleum Geologists Committee on Marine Geology, Member, 1987-1990
- JOIDES Planning Committee, Alternate Member, 1986-1987; Member 1987-1992
- Co-Convener, Symposium on Eustatics and Continental Margins: Second International Conference on Paleooceanography, Woods Hole, Sept. 1986
- Co-Convener, South Atlantic/Indian Ocean: Geology and Physical Oceanography: AGU-ASLO Ocean Science Meeting, New Orleans, January, 1986
- Associate Editor, *Geological Society of America Bulletin*, 1985-1988
- JOIDES Atlantic Regional Panel, Member, 1984-1987
- Interim U.S. Science Advisory Committee for the Advanced Ocean Drilling Program, Member, 1983
- IOC GAPA Project: North Atlantic Sediment Thickness, Compiler-Curator, 1982 -1990
- NECOR Sea Beam Committee, Member, 1982-1987
- North American Ocean-Continent Transects, Corridor E2 Team, 1982-1986
- Project Co-Leader: Geologic Map of North America, Decade of North American Geology, Geological Society of America, 1982-2005
- COSOD Working Group on Origin and Evolution of Marine Sedimentary Sequences, Member, 1981
- JOIDES Passive Margin Panel, Member, 1981-1983
- Project Co-Leader and Co-Editor: Decade of North American Geology - Western North Atlantic Region, Geological Society of America, 1980-1986.
- Sandia National Laboratories Sub-Seabed Site Assessment Committee, Member, 1979-1986
- U.R.I. Long-Coring Facility Program, Steering Committee, Member, 1979
- NSF Research Initiation and Support (RIAS) Panel, 1977
- Technical Session Chairman: GSA - Marine Geology, 1975; AGU - Abyssal Seafloor, 1978; AGU - Benthic Boundary Layer, 1980; GSA - Marine Geology, 1981; AGU/ASLO - South Atlantic/Indian Ocean: Geology and Physical Oceanography, 1986; AGU - Fine-Scale Seafloor Investigations, 1993; AGU - ONR Atlantic Natural Laboratory, 1995; AGU - Non-Volcanic Rifted Margins, 2003; AGU - Crustal Accretion and Tectonic Extension, 2005

### **Non-Professional Activities**

- West Falmouth Library, President 2017-2019
- West Falmouth Library, Board of Directors 2014-2020
- Barnstable County Sheriff's Citizens Academy, 2009
- Massachusetts Hunter Education Program, Certified Instructor, 2007-present
- Falmouth Citizens Police Academy, 1996
- Trout Unlimited, National Embrace-A-Stream Committee, 1993-1995
- Trout Unlimited, National Resource Board, 1993-1996
- Trout Unlimited, National Board of Directors, 1992

- Citizens for Protection of Waquoit Bay, Board of Directors, 1986-1989; Vice President, 1986-1987
- Trout Unlimited, Board of Directors, Cape Cod Chapter, 1984-1989; Vice President, 1986; President, 1987-1988

## **Activities Within Woods Hole Oceanographic Institution**

### ***Education:***

- Educational Council, 1986-88
- Ad Hoc Committee on JPMGG Guide, 1986-87
- Joint Committee Marine Geology and Geophysics, 1986-1988; Chairman, 1987
- J. Seward Johnson Chair in Oceanography, 1986-88
- Educational Council, 1982-84
- Joint Committee for Marine Geology and Geophysics, 1981-82
- Graduate Admissions Committee, 1980-81
- Ad Hoc Committee on Joint Program in Marine Geology and Geophysics Guide, 1979-81
- Courses taught: 12.798 Special Problems, 1979; 12.73 Marine Geology, 1979; 12.791 Marine Geology, 1982
- Member or chair of 43 examination committees (preliminary exam, oral exam, general exam, thesis proposal exam, thesis defense), member of 14 thesis committees, advisor (academic, thesis, and/or research project) for 27 students (Joint Program and external)

### ***Summer Student Advisor:***

- Amanda Babson - Summer Student Fellow, 1997
- Karen Worminghaus - Summer Student Fellow, 1995
- Ian Malin, ONR Summer High School Apprentice, 1995
- Elizabeth Tyndale, ONR Summer High School Apprentice, 1993
- Gary Jaroslow - Summer Student Fellow, 1989
- Ana Macario - Summer Student Fellow, 1984
- Barbara Wall - Summer Minority Trainee, 1980

### ***Thesis Advisor or Co-Advisor:***

- Tingting Zheng (Ph.D. 2019, Tongji University)
- Tingting Wang (Ph.D. 2015, Peking University)
- Amy R. McKnight (M.S. 2001, MIT/WHOI)
- Gary E. Jaroslow (Ph.D. 1997, MIT/WHOI)
- Mary L. Bremer (Ph.D. 1982, MIT/WHOI)
- Kenneth G. Miller (Ph.D. 1982, MIT/WHOI)
- Gregory S. Mountain (Ph.D. 1981, Columbia U.)

### ***Postdoctoral Advisor:***

- Dr. Gwenn Peron-Pinvidic, Postdoctoral Fellow, 2006-2008
- Dr. Alexei Milkov, Postdoctoral Scholar, 2002-2003
- Dr. Martin C. Kleinrock, Postdoctoral Investigator, 1988-1989
- Dr. Steve Swift, Postdoctoral Investigator, 1986
- Dr. R. Mark Leckie, Postdoctoral Scholar, 1984-1985

### ***Scientific Sponsor:***

- Dr. Kantaro Fujioka (JAMSTEC, Japan), Guest Investigator, 1998
- Dr. Gary Jaroslow, Guest Investigator, 1997
- Ms. Tamara Osychny, Guest Investigator, 1995
- Mr. Jens Grutzner (GEOMAR, Kiel), Guest Student Investigator, 1992
- Dr. Tom Reed (University of Hawaii), Guest Investigator, 1990-91
- Dr. John Jemsek (WHOI), Visiting Investigator, 1988
- Mr. Michael Fisk (University College, London), Guest Student Investigator, 1984

- Dr. S. P. Srivastava (Bedford Institute of Oceanography), Guest Investigator, 1984
- Dr. Tjeerd van Weering (Nederlands Instituut voor Onderzoek der Zee), Guest Investigator, 1983
- Dr. Michel Cousin (Université Pierre et Marie Curie), Guest Investigator, 1981

#### **WHOI Committees:**

- WHOI Ad Hoc Committee on Strategic Planning for Library Services, 2004-2005
- Chairman, G&G Ad Hoc Margins/Coastal Geology Search Committee, 2000-2001
- Senior Scientists Executive Committee Subcommittee on Alternative Funding, 2000
- MBL-WHOI Library Joint Users Committee, 1999-2005
- G&G Ad Hoc Selection Committee for Seward Johnson Chair, 1999
- Chairman, WHOI Ad Hoc Scientific Data Advisory Committee, 1997-1999
- G&G Ad Hoc Committee on Ocean Drilling Program, 1994
- Acting G&G Representative, WHOI Marine Operations Committee, 1994
- G&G Ad Hoc Committee on Space Needs, 1994
- G&G Shinkai 6500 Ad Hoc Working Group, 1993-1994, 1997-1998
- WHOI Sea Beam Committee, 1993-2003
- G&G Ad Hoc Committee on Marine Geology, 1993-1994
- G&G Ad Hoc Committee on Sea Beam 2100, 1994-1999
- G&G Digital Image Analysis Laboratory Committee, 1989-2003
- Deep Submergence Advisory Committee, 1993-2003
- Center for Marine Exploration Review Committee, 1992
- Geodynamics Committee, 1989-2000
- WHOI Senior Scientist Ad Hoc Committee on Restricted Research, 1990
- WHOI Ad Hoc Committee for Science Strategy, 1989-1990
- Chairman, Center for Marine Exploration Planning Committee, 1987-1989
- Chairman, Ad Hoc Committee for Center for Marine Exploration, 1986
- WHOI Promotion Review Committees (Member or Chair), 1985, 1988, 1990, 1991, 1992, 1993, 1995, 1996, 1997, 1998, 1999, 2001, 2002, 2007
- WHOI Ad Hoc Committee for Independent Study Awards, 1986, 1989
- WHOI Ad Hoc Committee for Mellon/Senior Study Awards, 1982
- WHOI 50th Anniversary Open House Committee, 1980

#### **Research Interests**

- Tectonic and magmatic development of oceanic crust
- Structure and evolution of rifted continental margins
- Seismic stratigraphy and rock stratigraphy, with applications to paleoceanography
- Sedimentary processes and benthic boundary layer processes
- Physical properties of sediments

#### **Seagoing Experience**

- 30 research cruises, including 19 as Chief Scientist/Co-Chief Scientist, two on Glomar Challenger for the Deep Sea Drilling Project, and one on JOIDES Resolution for the Ocean Drilling Program

- 2004 30. Co-Chief Scientist, R/V KNORR 180-2. Jason II, ABE, and dredging study of Kane megamullion on the Mid-Atlantic Ridge, 14 November - 17 December 2004
- 2003 29. Co-Chief Scientist, JOIDES RESOLUTION, ODP Leg 210. Deep-sea drilling in the Newfoundland Basin. 6 July - 6 September 2003
- 2001 28. Co-Chief Scientist, R/V EWING 01-02. Multichannel seismic reflection/refraction and geophysical investigation of Atlantis, Dante's Domes, and Kane megamullions on the Mid-Atlantic Ridge. 10 March - 5 April 2001

- 2000 27. Co-Chief Scientist, R/V EWING 00-07 (two-ship operation with R/V OCEANUS). Multichannel seismic reflection, OBS/H and geophysical investigation of the rifted continental margin at the eastern edge of the Grand Banks. 15 July - 16 August 2000
- 1998 26. Scientist, R/V YOKOSUKA. Shinkai 6500 dives on Dante's Domes megamullion and Mid-Atlantic Ridge hydrothermal sites. SeaBeam, gravity, and magnetics surveys. July - August 1998
- 1997 25. Scientist, R/V ATLANTIS 1-3. SeaBeam and 3.5-kHz seismic reflection survey of Hudson Canyon, U.S. Atlantic margin. April 1997
- 1996 24. Chief Scientist, R/V EWING 96-06. Geological-geophysical survey of east flank of Mid-Atlantic Ridge near 26°N. Hydrosweep, HMR1 sidescan sonar, 3.5-kHz seismic reflection, gravity, magnetics. July - August 1996
- 1993 23. Chief Scientist, R/V KNORR 138-14. Near-bottom geological and geophysical surveys of the Mid-Atlantic Ridge flank using DSL-120 sidescan sonar and Jason ROV survey systems. May - June 1993
- 1992 22. Chief Scientist, R/V EWING 92-08. Geological-geophysical survey of ONR Acoustic Reverberation Corridor, west flank Mid-Atlantic Ridge near 26°N. Hydrosweep, HMR1 sidescan sonar, seismic reflection, gravity, magnetics. July - August 1992
- 1988 21. Chief Scientist, R/V CONRAD 29-08. SeaMARC II sidescan/bathymetry survey of fine-scale structure of Kane Fracture Zone, rock dredging, magnetics. August - September 1988
- 1984 20. Co-Chief Scientist, R/V CONRAD 25-10. Multichannel seismic study of the continent-ocean boundary east of the Grand Banks (MCS, magnetics, gravity, sonobuoys, SeaBeam). August - September 1984
- 1980 19. Scientist, R/V KNORR 80. Multichannel seismic profiling on the continental rise off Cape Hatteras (IPOD Site Surveys). July - August 1980
- 1979 18. Chief Scientist, R/V CONRAD 22-09. Geological and geophysical studies of the Nova Scotian continental rise. July 1979
- 1978 17. Chief Scientist, R/V CONRAD 21-10. Near-bottom process studies on Greater Antilles Outer Ridge and Western Bermuda Rise. June 1978
16. Chief Scientist, R/V VEMA 34-11. OBH seismic refraction, current-meter, bottom photography, piston coring, dredging studies of Agulhas Plateau off South Africa. January 1978
- 1977 15. Chief Scientist, R/V CONRAD 20-12. Acoustics and near-bottom process studies in the Western North Atlantic. April-May 1977
- 1976 14. Co-Chief Scientist, R/V CONRAD 19-05. Acoustics and near-bottom process studies in the Western North Atlantic. January-February 1976
- 1975 13. Co-Chief Scientist, GLOMAR CHALLENGER, DSDP Leg 43. Deep-sea drilling in western North Atlantic. June-August 1975
- 1974 12. Sedimentologist, GLOMAR CHALLENGER, DSDP Leg 35. Deep-sea drilling in the Bellingshausen Basin off Antarctica. February-March 1974
- 1972 11. Co-Chief Scientist, USS PETREL. Seismic profiling, bottom sampling, and XBT surveys over Hudson Canyon in conjunction with NR-1 submersible studies. October 1972
10. Scientist, R/V KNORR. Bottom photography, coring, hydrostations on Caicos Outer Ridge. Biological investigations in Sargasso Sea. May 1972
9. Co-chief Scientist, R/V KNORR. 3.5-kHz seismic profiling, bottom photography, hydrography, giant piston coring on Greater Antilles Outer Ridge. February 1972
- 1971 8. Co-chief Scientist, R/V ATLANTIS II. Echo-sounding surveys, hydrography, coring, bottom photography on Greater Antilles Outer Ridge. August 1971
7. Scientist, MSS MT. MITCHELL. Echo-sounding surveys, coring, bottom photography, mooring of current meters on the Greater Antilles Outer Ridge North of Puerto Rico. January 1971
- 1970 6. Scientist, R/V KNORR. Giant piston coring in Gulf of Maine, testing of a 1.4-kHz seismic profiling system. November 1970

5. Scientist, R/V KNORR. Giant piston coring in Gulf of Maine. September 1970
4. Chief Scientist, CCGS JOHN CABOT. Testing of a new 3.5-kHz seismic profiling system on the continental shelf and slope between Newfoundland and Maryland. May 1970
3. Scientist, R/V CHAIN. Seismic reflection profiling, magnetic and gravity measurements in the S.E. Bahamas. April 1970
- 1969 2. Scientist, R/V DOLPHIN. 3.5-kHz seismic profiling, bottom sampling, bottom photography, and hydrocasts in the Gulf of Maine. July 1969
- 1968 1. Geophysicist, WESTERN REEF and WESTERN GULF. Multichannel seismic reflection prospecting for petroleum resources in the Gulf of Mexico. June-August 1968

**Publications (see separate list)**

- Author/editor of 8 books and special publications; author of 117 peer-reviewed research papers, 35 miscellaneous publications, 21 maps and charts, and more than 200 research abstracts in marine geology and geophysics.