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EDUCATION

Ph.D., Princeton University, 1987, Geological Sciences
B.S., Yale College, 1980 (Magna Cum Laude, Distinction in Geology)

PROFESSIONAL APPOINTMENTS

Professor, Brown University, 2006- present
Associate Professor, Brown University, 1995-2005
Assistant and Associate Professor, Scripps Institution of Oceanography, 1988 to 1995
Visiting Scientist, Program in Atmospheric and Oceanic Sciences, Princeton University, 1988
Visiting Scientist, Woods Hole Oceanographic Institution, 1987
Exploration Geologist, Ammonite Petroleum Corp., 1980-1981

PUBLICATIONS

√ indicates postdoctoral advisee ***** indicates graduate or undergraduate advisee

BOOK CHAPTERS:

Herbert, T.D., 2014, Alkenone Paleotemperature Determinations, chapter, in The Oceans and Marine Geochemistry:Treatise in Marine Geochemistry v. 8, H. D. Holland and K. Turekian (eds.), Elsevier, p. 399-433.

T.D. Herbert, credited contributor to**:** Past Climate Variability and Change in the Arctic and at High Latitudes, Final Report, Synthesis and Assessment Product 1.2, A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, 2009, [Alley R.B., Brigham-Grette J., Miller G.H., Polyak L., and White J.W.C.]. U.S. Geological Survey, Department of the Interior, Washington D.C., USA.

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Herbert, T.D., I. Premoli Silva, E. Erba, and A.G. Fischer, 1995, Orbital chronology of Cretaceous- Paleogene marine strata, in D.V. Kent and W.A. Berggren (eds.), Geochronology, Time Scales, and Global Stratigraphic Correlation, SEPM Special Publication no. 54, p. 81-93.

Herbert, T.D., 1994, Reading orbital signals distorted by sedimentation: Models and examples, in P.L. deBoer and D.G. Smith (eds.), Orbital Forcing and Cyclic Sequences, Special Publication of the International Association of Sedimentologists 19, p. 483-507.

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Fischer, A.G., T.D. Herbert, and I. Premoli Silva, 1985, Carbonate bedding cycles in Cretaceous pelagic and hemipelagic sequences, In: L.M. Pratt, E.G. Kauffman, and F.B. Zelt (eds.) Deposits and Biofacies of the Cretaceous Western Interior Seaway: Evidence of Cyclic Sedimentary Processes (S.E.P.M. Field Trip Guidebook no.4), 1-10.

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Bridges, J.D., Tarduno, J.A., Rory D. Cottrell, R.D., and Herbert, T.D., Rapid Strengthening of WesterliesAccompanied Intensification of Northern Hemisphere Glaciation, submitted, Nature Communications.

Si, W., T. Herbert, M. *Wu, and Y. Rosenthal Increased biogenic calcification and accumulation under elevated pCO_2 during the Miocene: a model-data comparison, in review, Global Biogeochemical Cycles.

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Herbert, T.D., F. Bassinot, J. Gruetzner, and K. Moran, 1997, The life cycle(s) of sediment physical properties, Ceara Rise, Proceedings of the Ocean Drilling Program, Scientific Results, v. 154, p. 157-168.

Herbert, T.D., 1997, A long history of marine carbon cycle modulation by orbital climatic change, *Proceedings National Academy of Sciences*, **94**: 8362-8369.

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boundary: Consequences for magnetic lock-in depth and the loess-ocean connection, *Earth & Planetary Science Letters*, **140**: 133-146.

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*Martin, E.E., J.D. Macdougall, T.D. Herbert, *A. Paytan, and M. Kastner, 1995, Strontium and neodymium isotopic analyses of marine barite separates, *Geochimica Cosmochimica Acta*, **59**: 1353-1361.

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*Paytan, A., *E.E. Martin, M. Kastner, J.D. Macdougall and T. Herbert, 1993, Marine barite as a monitor of seawater strontium isotope composition, *Nature*, **366**: 445-449.

Herbert, T.D., 1993, Differential compaction in lithified deep-sea sediments is not evidence for "diagenetic unmixing", *Sedimentary Geology*, **84**: 115-122.

Herbert, T.D., 1992, Paleomagnetic calibration of Milankovitch cyclicity in lower Cretaceous sediments, *Earth & Planetary Science Letters*, **112**: 15-28.

Herbert, T.D., *B.A. Tom, and *C. Burnett, 1992, Precise major component determinations in deep-sea sediments using Fourier Transform Infrared Spectroscopy, *Geochimica Cosmochimica Acta*, **56**: 1759-1763.

Herbert, T.D., and L. Mayer, 1991, Long climatic time series from DSDP/ODP physical property measurements, *Journal of Sedimentary Petrology*, **61**: 1089-1108.

Herbert, T.D., and J.L. Sarmiento, 1991, Ocean nutrient distribution and oxygenation: Limits on the formation of warm, saline bottom water over past 91 M.y., *Geology*, **19**: 702-705.

Herbert, T.D., and S.L. D'Hondt, 1990, Precessional climate cyclicity in late Cretaceous- early Tertiary marine sediments: a high resolution chronometer of Cretaceous-Tertiary boundary events, *Earth & Planetary Science Letters*, **99**: 263-275.

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Sarmiento, J.L., T.D. Herbert, and J.R. Toggweiler, 1988, Causes of anoxia in the world ocean, *Global Biogeochemical Cycles*, **2**: 115-128.

Herbert, T.D., 1987, Eccentricity and precessional orbital climate cycles in a mid-Cretaceous deep-sea sequence: application to quantitative paleoclimatology, Ph.D. dissertation, Princeton University.

Park, J., and T.D. Herbert, 1987, Hunting for paleoclimatic periodicities in a sedimentary series with uncertain time scale, *Journal of Geophysical Research*, **92B**: 14,027-14,040.

Keller, G., T. Herbert, R. Dorsey, S. D'Hondt, M. Johnsson, and W.R. Chi, 1987, Global distribution of late Paleogene hiatuses, *Geology*, **15**: 199-203.

Fischer, A.G., and T.D. Herbert, 1986, Stratification rhythms: Italo-American studies in the Umbrian facies, *Mem. Soc. Geol. Italy*, **31**: 45-51.

Herbert, T.D., R.F. Stallard, and A.G. Fischer, 1986, Anoxic events, productivity rhythms, and the orbital signature in a mid-Cretaceous pelagic core, *Paleoceanography*, **1**: 495-506.

Herbert, T.D., and A.G. Fischer, 1986, Milankovitch climatic origin of mid-Cretaceous black shale rhythms in central Italy, *Nature*, **321**: 739-743.

Scientific Staff of the Bannock cruise, including T.D. Herbert, 1985, Gypsum precipitation from cold brines in an anoxic basin in the eastern Mediterranean, *Nature*, **314**: 152-154.

OTHER:

Dowsett, H. J., Foley, K. M., Robinson, M. M., And Herbert, T. D., 2017.

PRISM late Pliocene (Piacenzian) alkenone - derived SST data. *U.S. Geological Survey Data Release*. https://doi.org/10.5066/F7959G1S

Invited Lectures last 5 years:

PLIOVAR Barcelona 2014, PEN Crew Hall UK 2015, American Geophysical Union 2015 (2), Southampton Oceanographic Center 2016, Keynote speaker 12th International Conference on Paleoceanography (Utrecht, Netherlands) 2016, Keynote speaker MEDSALT conference (Palermo, Italy) 2016; Keynote speaker SALTGIANT training course (Palermo, Italy) 2019; Keynote speaker, Danish Geological Survey (Copenhagen, Denmark) 2019; Keynote speaker, Miocene paleoclimate conference (Stockholm, Sweden) 2019; Trainer, EU Ph.D. SALTGIANT program (Sicily, Italy) 2019

Research Cruises:

R/V Bannock (1985), R/V New Horizon (1991), R/V Joides Resolution (Leg 154, 1994), R/V Knorr (2009)

RESEARCH IN PROGRESS:

Alkenone paleotemperature estimates from marine sediments; History of the El Nino phenomenon from geological records, Evolution of pre-Pleistocene "Milankovitch" climate sensitivity; Application of orbital cyclicity to quantitative stratigraphy; Sediment fluxes in the ocean on 10^4-10^7 yr time scales; Simple ocean carbon-nutrient-oxygen models for paleoceanography; Carbonate diagenesis.

RESEARCH GRANTS

National Science Foundation 2202760 "Collaborative Proposal: Tectonic degassing as a possible solution to the Miocene climate enigma", $543,482, 2022-2025.

National Science Foundation OCE-1930651, "A global climatic context (6.5 to 5 Ma) for the Mediterranean Messinian Salinity Crisis", $206,804, 2019-2022.

National Science Foundation 1635127, "Tectonic control of the carbon cycle and climate: Measuring global spreading-rate variations with high temporal resolution over the past 20 Myr" , $360,959, 2017-2020.

National Science Foundation 1602331, “Collaborative Research: Did the SE Pacific Gyre become a Hot Spot for N_2 Fixation during Dusty Glacial Conditions?”, $177,703, 2016-2019.

National Science Foundation 1545859, “DUST PIRE: Dust stimulated drawdown of atmospheric CO_2 as a trigger for Northern Hemisphere Glaciation”, ($366,000), 2016-2020.

National Science Foundation 1459280, “A New View of Pliocene Glaciations”, ($409,242) 2015-2018.

Rhode Island Research Alliance, “Understanding Coastal Environmental Change, Past, Present and Future: A Novel Approach Combining Algal Physiology, Genetics and Lipid Biomarkers”, P.I. Herbert , Co-PI(s) Amaral-Zettler (MBL), and Rynearson (U.R.I.), ($199,000) 2012-2013.

National Science Foundation OCE- 1003387, “Collaborative Research: High resolution paleoceanography in the heart of the Equatorial Pacific Cold Tongue”, ($750,000) 2010-2013.

National Science Foundation, “SGER: Coring in the Eastern Equatorial Pacific to Obtain Long Climate Records”, ($80,600) 2009.

Project SEED of the American Chemical Society, ($7500) 2010.

Petroleum Research Fund of the American Chemical Society PRF 48032-AC2 "Preservation of Biomarker Environmental Proxies in Uplifted Marine Sections: a Test from the Mediterranean Region," ($149,791) 2008-2011.

National Science Foundation Educational Division, “GK-12: Physical Processes in the Environment”, ($3,000,000) 2007-2012.

National Science Foundation, “Collaborative Research: High Latitude Temperature and Biological Responses to Plio-Pleistocene Global Change” ($325,948), 2006-2009.

National Science Foundation, “SGER: The Deuterium-Hydrogen Ratio in Alkenones as a Proxy for the Paleo-hydrological Cycle”, ($85,000) 2005-2006.

National Science Foundation, “A polar signal dominating the tropical oceans, 1.2-1.8 Ma?” ($294,657) 2004-2007.

National Science Foundation, “Collaborative Research: Decadal to orbital links between climate, productivity, and denitrification on the Peru margin” (with M. Altabet, U. Mass Dartmouth) ($180,000) 2003-2005.

National Science Foundation, “Collaborative Research: Decadal to orbital links between climate, productivity, and denitrification on the Peru margin” (with M. Altabet, U. Mass Dartmouth) ($18,500) 2002.

National Science Foundation, “Acquisition of equipment for high through-put biomarker analyses at Brown University”, ($55,766) 2002.

U.S. Geological Survey, “Characterizing Holocene and Isotope Stage 11 variance in the Gulf of Mexico” ($24K) 2001-2002.

National Science Foundation, “A new generation, user-friendly Cretaceous time scale”, ($63,000) 2001-2003.

National Science Foundation, ”Investigation of the sea-surface temperature- ice volume connection in the 41 kyr world”, ($238,567), 2000-2003.

National Science Foundation, “Testing the concordance of alkenone and Mg/Ca paleothermometers in the eastern equatorial Pacific”, ($47,594), 2000.

National Science Foundation, “Reconstructing the Glacial Ice Volume Effect Through Paired Planktonic (18O and Uk’37” ($103,000), 1998-1999.

U.S. Geological Survey, “Characterizing Climate Variance During Recent Warm Geological Intervals via Alkenone Paleotemperature Determinations” ($71,000), 1998-2000.

JOI-USSAC, “Paleotemperatures and paleoproductivity over the past 700 ka at Sites 1012 and 1020, ODP Leg 167” ($14,500), 1997

U.S.-Mexico Science Foundation, “California Current and North Pacific Thermocline Variability: Record from the Baja California Continental Margin for the Last 18 Ka” ($75,000), 1995-1997

National Science Foundation “Towards an Astronomically Calibrated Late Cretaceous-Early Paleocene Timescale” ($85,000), 1995-1997

National Science Foundation “Collaborative Research: Apticore Project” ($55,000), 1994-1997

National Oceanic and Atmospheric Administration Award, “High Resolution Sea Surface Temperature Reconstructions from Varved Marine Sediments” ($150,000), 1994-1995

Petroleum Research Fund, "Compositional Controls on Porosity and Compaction in Fine-Grained Marine Sediments" ($50,000), 1993-1995

National Science Foundation Award, "Building a Global Data Base to Test the Astronomical Calibration of the Plio-Pleistocene Timescale" ($41,000), 1993

INCOR U.C.-wide Collaborative Climatic Research Award, "Tropical Paleotemperatures", ($57,000), 1991-1993

National Science Foundation Ocean Sciences Award, "Spectral Stratigraphy of the Equatorial Pacific", ($87,500), 1991-1992

National Science Foundation Ocean Sciences Award (Lisa Tauxe, co-P.I.), "Anatomy of Eocene-Oligocene Climate Change", ($140,000), 1990-91

Petroleum Research Fund Award, "An Aptian-Cenomanian Chronostratigraphy Based on Orbital Cycles in Marine Sediments" ($40,000), 1990-1992

National Science Foundation International Award, "Paleomagnetic Calibration of Early Cretaceous Milankovitch Cycles in Southern Switzerland and Italy", ($24,000), 1987-1989

Petroleum Research Fund, "Anatomy of Mid-Cretaceous Anoxic Events", (R.F. Stallard, P.I.) ($35,000), 1985-1987

SERVICE

TO THE UNIVERSITY:

Committee on Minority Faculty Recruitment (1996- 2000)
Chair, CMFR (1999-2000)
Committee on Student Life (Fall, 1998, 2000-2003)
Freshman Advisor (2001-)
Panelist in Career Services event for graduate students, Fall 2000, 2002
Member, Global Environmental Change ad hoc committee (1999-2003)
MBL-Brown Joint Ph.D. Program steering committee (2003-2004)
Committee on the Status of Women (2005- 2006)
Sharpe Assistant Professor Search in Environmental Studies (2006-2007)
Environmental Change Initiative Board (2006- present)
Environmental Change faculty search (2007)
Environmental Council (2007-8)
Brown University Community Council (2008-2011)
Search Committee for Dean of the Graduate School (2010)
Chair DEEPS (2008-2015)
Speaker, Brown Alumni clubs (5 events 2011-2016)
Faculty Executive Committee (incoming Chair) 2016-

TO THE DEPARTMENT:

Curriculum Committee (1995-1997)
Geology-Biology Concentration Advisor (1995-1996; 2006-present)
Faculty search committee (1997)
Chair, departmental search committee (1998-1999)
Chair's Advisory Council (2000-2003)
Chair, Admissions & Awards (2001- 2006)
Chair, Ad-hoc committee for appointment of Steven Clemens as Associate Professor of Research (2004)
Chair, departmental Assistant Professor search committee (2004-2005)
Chair (2008-2015)

TO THE PROFESSION:

Reviewer of approximately 5 journal articles/year
Member, Ocean History Panel, Ocean Drilling Program (1991-1994)
Co-director, SIO summer undergraduate research program for minorities in science
National Science Foundation Marine Geology and Geophysics panelist
Member, United States Scientific Advisory Committee for the Ocean Drilling Program (1997-2000)
Member, "Extreme Climates" international advisory group to the O.D.P. (1998-2000)
Editorial Board Member, *Geology* (Journal of the Geological Society of America) (2002-2005)
External Review Committee, U.C. Santa Cruz Earth Science (2009)
External Review Committee, Wesleyan University Earth & Environmental Sciences

(2016)
External Review Committee, LeHigh University Geological Sciences (2017)

TO THE COMMUNITY:

Principal Investigator, N.S.F. GK-12 "Physical Processes in the Environment" outreach program (2007- 2013)
Faculty Advisor, Geological Sciences volunteer outreach program to Vartan Gregorian Elementary School (2005-present)
Joint Oceanographic Institutions Distinguished Lecturer (2010-2011)

HONORS AND AWARDS

Yale College Wilde Prize in Marine Geology, 1980
National Science Foundation Graduate Fellowship, 1982-1985
Joint Oceanographic Institutions Distinguished Lecturer
Fellow, AAAS

TEACHING AND MENTORING

COURSES (UNDERGRADUATE & GRADUATE)

GE0240 (Introduction to Earth Systems History) Spring 2010 enrollment 35; Spring 2011 enrollment 37; Spring 2012 enrollment 47, Spring 2013 enrollment 49, spring 2014 enrollment 46, spring 2015 enrollment 42, spring 2017 enrollment 45
GE1130 (Global Biogeochemical Cycles in the Ocean) Fall 2008 enrollment 21; Fall 2010 enrollment 23; Fall 2012 enrollment 14, Fall 2014 enrollment 19, Fall 2016 enrollment 29
GE1240 (Stratigraphy and Sedimentation), Fall 2013 enrollment 19
GE2920 (The Enigma of Warm Geological Climates) Spring 2008 enrollment 9; Fall 2011 enrollment 7; Fall 2017 enrollment 12

INDEPENDENT STUDY PROJECTS (LAST 3 YEARS):

Samantha Sandwick (2019)
Cameron Tripp (2020)

PH.D. STUDENTS:

Zhonghui Liu (2004)
Lorraine Lisiecki (2005)
Kira Lawrence (2006)
Laura Cleaveland (2008)
Caitlin Chazen (2011)
Rocio Caballero-Gill (2015)
Jeffrey Salacup (2015)
Alexandrina Tzanova (2015)
Samantha Bova (2016)

POST-DOCTORAL SCHOLARS:

Jeffrey Schuffert (1996-1998)
Zhonghui Liu (2004-2006)
Rocio Caballero-Gill (2015-)
Alexandrina Tzanova (2015-)
James Dillon (2016-2018)
Allison Jacobel (2018-)
Weimin Si (2018-)

HIGH SCHOOL STUDENTS:

Sara
Lester
Nelsey Reyes (2010)
Anthony Gutierrez (2010)

CURRENT PH.D. STUDENTS: Primary advisor, Anson Cheung, Sarabeth George, Kristin Kimble, Bryce Mitsunaga, and Xiangming Zhao; member of 7 other graduate student advisory/thesis committees.

DATE OF PREPARATION

January 30, 2020