Daniel E. Gaskell

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PROFESSIONAL APPOINTMENTS

2026– **University of Cambridge, United Kingdom**
Research Associate (postdoctoral). Supervisor: Oscar Branson.

2023–2026 **University of California, Santa Cruz**
Postdoctoral Scholar. Supervisor: James Zachos.

EDUCATION

2016–2022 **Yale University**
Ph.D. in Paleontology (2022)
Dissertation: Improving Paleoclimate Reconstructions Using Models and Observations of Foraminifera. Adviser: Pincelli M. Hull.
M.Phil (2019)

2017 **International School on Foraminifera**
Summer intensive course on foraminiferal taxonomy and methodologies

2011–2015 **Baylor University**
B.S. Geology (2015), magna cum laude, Phi Beta Kappa
Thesis: Marine Fish Productivity Across the Paleocene-Eocene Thermal Maximum.
Adviser: Rena Bonem.

RESEARCH INTERESTS

Climate Extremes

- Biogeochemical cycles and feedbacks during climate extremes
- Impacts of climate change on marine ecosystems
- Co-evolution of ecosystems, climate, and environment

Proxy Methodologies

- Vital effects – improving proxies by better integrating the recorder's biology and ecology
- Large-dataset and multi-proxy statistical techniques for paleoclimate reconstruction
- Emerging proxy archives such as ichthyoliths and micron-scale shell chemistry

PEER-REVIEWED PUBLICATIONS

Burke, Janet E., Leanne E. Elder, Amy E. Maas, **Daniel E. Gaskell**, Elizabeth G. Clark, Allison Y. Hsiang, Gavin L. Foster, Pincelli M. Hull, 2025. Physiological and morphological scaling enables gigantism in pelagic protists. *Limnology & Oceanography* **70** (461–476).

Gaskell, Daniel E., Pincelli M. Hull, 2023. Technical note: A new online tool for δ^{18}O-temperature conversions. *Climate of the Past* **19** (1265–1274). https://doi.org/10.5194/cp-19-1265-2023.

Gaskell, Daniel E., Matthew Huber, Charlotte L. O'Brien, Gordon N. Inglis, R. Paul Acosta, Christopher J. Poulsen, Pincelli M. Hull, 2022. The latitudinal temperature gradient and its

climate dependence as inferred from foraminiferal $\delta^{18}O$ over the past 95 million years. *PNAS* 119-11 (e2111332119). https://doi.org/10.1073/pnas.2111332119

Gaskell, Daniel E., Claire L. Bowern, 2022. Gibberish after all? Voynichese is statistically similar to human-produced samples of meaningless text. *CEUR Workshop Proceedings* **3313**, International Conference on the Voynich Manuscript 2022, University of Malta.

Bowern, Claire L., **Daniel E. Gaskell**, 2022. Enciphered after all? Word-level text metrics are compatible with some types of encipherment. *CEUR Workshop Proceedings* **3313**, International Conference on the Voynich Manuscript 2022, University of Malta.

Gaskell, Daniel E., Pincelli M. Hull, 2019. Symbiont arrangement and metabolism can explain high $\delta^{13}C$ in Eocene planktonic foraminifera. *Geology* **47**-12 (1156-1160). https://doi.org/10.1130/G46304.1.

Gaskell, Daniel E., Mark D. Ohman, Pincelli M. Hull, 2019. Zooglider-based measurements of planktonic foraminifera in the California Current System. *Journal of Foraminiferal Research* **49**-4 (390-404). https://doi.org/10.2113/gsjfr.49.4.390.

Manuscripts currently in review or advanced preparation are available upon request.

SCIENTIFIC SOFTWARE AND RELATED PRODUCTS

Gaskell, Daniel E., Pincelli M. Hull, 2023. Online $\delta^{18}O$-temperature converter tool. https://github.com/danielgaskell/d18Oconverter.

Ichthyolith Taxonomy Database, Scripps Institution of Oceanography, database software developed by **Daniel E. Gaskell**, 2014. http://ichthyolith.ucsd.edu.

Gaskell, Daniel E., 2014. Ichthyolith morphology metadata classification system (version 1). Scripps Institution of Oceanography. http://ichthyolith.ucsd.edu/morphology.php.

INVITED TALKS

2025-01-17 **Gaskell, Daniel E.**, *The biological carbon pump in warmer worlds, or: why it matters that your proxies are alive.* Stanford University, CA

2024-05-17 **Gaskell, Daniel E.**, *The biological carbon pump response to rapid warming at the PETM.* National Oceanographic Center Southampton, UK

2022-03-28 **Gaskell, Daniel E.**, Pincelli M. Hull. *$\delta^{13}C$ vital effects and calcifying fluid pH.* Foraminifera Boron Isotope CO_2 3rd Virtual Workshop, Virtual

2021-09-15 **Gaskell, Daniel E.**, Matthew Huber, Charlotte L. O'Brien, Gordon N. Inglis, R. Paul Acosta, Christopher J. Poulsen, Pincelli M. Hull. *Constraining Cretaceous-Modern SSTs and latitudinal gradients from foraminiferal $\delta^{18}O$.* PhanTASTIC Workshop, Virtual

2020-04-08 **Gaskell, Daniel E.**, *Your proxy is alive: Improving carbon-cycle reconstructions by modeling foraminiferal vital effects.* Columbia University, NY

2018-06-27 **Gaskell, Daniel E.**, *Morphological controls on vital effects can explain high $\delta^{13}C$ in muricate foraminifera.* National Oceanographic Center Southampton, UK

CONFERENCE TALKS

Gaskell, Daniel E., Steven M. Bohaty, Magali Siri, Sandra Kirtland Turner, James C. Zachos, Dec 2024. The biological carbon pump at the PETM: evidence from stable isotopes. American Geophysical Union Annual Meeting, Washington, DC

Gaskell, Daniel E., Raina Lakhamraju, Serena Manildi, Shreya Malhotra, Dec 2024. Diagnosing PMOC activity with global Pliocene-modern CCD reconstructions. American Geophysical Union Annual Meeting, Washington, DC

Gaskell, Daniel E., May 2024. Metabolic rates during chamber formation and dormancy in cultured planktonic foraminifera. TMS-CFFR Spring Meeting, Cologne, DE

Gaskell, Daniel E., Claire L. Bowern, November 2022. Gibberish after all? Voynichese is statistically similar to human-produced samples of meaningless text. International Conference on the Voynich Manuscript 2022, University of Malta, Virtual.

Gaskell, Daniel E., Gavin Foster, Pincelli M. Hull, June 2021. pH-sensitive CO_2 diffusion drives the "carbonate ion effect". Carbon Isotope Conundrum Working Group Meeting, Virtual.

Gaskell, Daniel E., Pincelli M. Hull, December 2021. Interpreting foraminiferal $\delta^{13}C$: pH interactions and a mechanism for the carbonate-ion effect. American Geophysical Union Fall Meeting, New Orleans, LA

Gaskell, Daniel E., Pincelli M. Hull, October 2021. Extracting temperatures from foraminiferal $\delta^{18}O$: model-data approaches and a new online tool. Geological Society of America Annual Meeting, Portland, OR

Gaskell, Daniel E., Pincelli M. Hull, August 2021. CO_2 capture explains $\delta^{13}C$ vital effects in foraminifera. The Micropaleontological Society Foraminifera Festival 2021, Virtual
***Best Early Career Talk award**

Gaskell, Daniel E., Matthew Huber, Charlotte L. O'Brien, Gordon N. Inglis, R. Paul Acosta, Christopher J. Poulsen, Pincelli M. Hull, July 2021. Constraining polar amplification with a global compilation of planktonic foraminiferal $\delta^{18}O$. Goldschmidt 2021, Virtual

Gaskell, Daniel E., Pincelli M. Hull, October 2020. Beyond symbiosis: what does the $\delta^{13}C$:size relationship of planktonic foraminifera really indicate? Geological Society of America Annual Meeting, Virtual

Gaskell, Daniel E., Mojtaba Fakhraee, Noah Planavsky, Pincelli M. Hull, June 2020. Ecological Adaptation Moderates the Temperature-Sensitivity of the Biological Carbon Pump. Goldschmidt 2020, Virtual

Gaskell, Daniel E., Ross Whiteford, Gavin L. Foster G., Pincelli M. Hull, December 2018. Geochemical Modeling of Species-Specific Vital Effects in Planktonic Foraminifera. American Geophysical Union Fall Meeting, Washington, DC

Gaskell, Daniel E., Pincelli M. Hull, June 2018. Symbiont arrangement and density may explain high $\delta^{13}C$ in Paleogene planktic foraminifera. International Symposium on Foraminifera, Edinburgh, Scotland, UK

CONFERENCE POSTER PRESENTATIONS

Gaskell, Daniel E., Steve M. Bohaty, Magali M. F. R. Siri, S. Kirtland Turner, James C. Zachos, May 2024. The biological carbon pump at the PETM: New stable-isotope records from ODP 1209/1263. MARUM Ocean Floor Symposium 2024, Bremen, DE.
***Invited**

Gaskell, Daniel E., James C. Zachos, December 2023. Statistically Reconciling Global Core Records of the PETM Carbon Isotope Excursion (CIE). American Geophysical Union Fall Meeting, San Francisco, CA

Gaskell, Daniel E., December 2022. Multi-species quantification of the "carbonate ion effect" on $\delta^{13}C$ and $\delta^{18}O$ using field data. American Geophysical Union Fall Meeting, Chicago, IL

Gaskell, Daniel E. Matt Huber, Charlotte O'Brien, Gordon N. Inglis, R. Paul Acosta, Christopher J. Poulsen, Pincelli M. Hull, May 2022. A 95-million-year record of sea-surface temperatures and polar amplification. Yale Climate Day, Peabody Museum of Natural History, New Haven, CT
***Poster competition awardee**

Gaskell, Daniel E. Matt Huber, Charlotte O'Brien, Gordon N. Inglis, R. Paul Acosta, Christopher J. Poulsen, Pincelli M. Hull, December 2021. A 95-myr continuous record of sea-surface temperatures and polar amplification from planktonic foraminiferal $\delta^{18}O$. American Geophysical Union Fall Meeting, New Orleans, LA

Gaskell, Daniel E., Mojtaba Fakhraee, Noah Planavsky, Pincelli M. Hull, May 2021. Constraining the temperature-dependence of metabolic rates for carbon cycle modeling. Yale Climate Day, Peabody Museum of Natural History, New Haven, CT
***Poster competition awardee**

Gaskell, Daniel E., Mojtaba Fakhraee, Noah Planavsky, Pincelli M. Hull, December 2019. Constraining the temperature-dependence of metabolic rates for carbon cycle modeling. American Geophysical Union Fall Meeting, San Francisco, CA

Gaskell, Daniel E., Ross Whiteford, Gavin L. Foster, Pincelli M. Hull, September 2019. A general metabolic model of intracellular vital effects in foraminifera. 13th International Conference on Paleoceanography, University of New South Wales, Sydney, AU

Gaskell, Daniel E., Ross Whiteford, Gavin L. Foster, Pincelli M. Hull, May 2019. The "dark energy" of vital effects: intracellular controls on $\delta^{13}C$ in planktonic foraminifera. Yale Climate Day, Peabody Museum of Natural History, New Haven, CT

Gaskell, Daniel E., Ross Whiteford, Gavin L. Foster, Pincelli M. Hull, March 2019. The "dark energy" of vital effects: intracellular controls on $\delta^{13}C$ in planktonic foraminifera. Northeast Geobiology Symposium, Amherst, MA

Gaskell, Daniel E., Pincelli M. Hull, May 4, 2018. Symbiont density and arrangement may bias foraminiferal proxy data, Yale Climate Day, Peabody Museum of Natural History, New Haven, CT

BOOKS

Lead author/editor for a series of research sourcebooks for high school debaters (originally sold by COG Publishing, now available from Ethos Publications: www.ethosdebate.com/downloads).

Smith, Caleb…**Daniel E. Gaskell**, et al., 2016, *China*. COG Publishing, 539 pp.

Gaskell, Daniel E., et al., 2015. *Court System*. COG Publishing, 384 pp.

Gaskell, Daniel E., et al., 2015. *Trade Policy*. COG Publishing, 411 pp.

Gaskell, Daniel E., et al., 2014. *Middle East Policy*. COG Publishing, 449 pp.

Gaskell, Daniel E., et al., 2014. *Electronic Surveillance Law*. COG Publishing, 233 pp.

Gaskell, Daniel E., et al., 2013. *Federal Election Law*. COG Publishing, 353 pp.

Gaskell, Daniel E., et al., 2013. *Marine Natural Resources*. COG Publishing, 380 pp.

Gaskell, Daniel E., et al., 2012. *United Nations*. COG Publishing, 323 pp.

Gaskell, Daniel E., et al., 2012. *Foreign Military Presence*. COG Publishing, 464 pp.

Gaskell, Daniel E., et al., 2011. *Criminal Justice System*. COG Publishing, 402 pp.

Gaskell, Daniel E., et al., 2011. *Revenue Generation Policy*. COG Publishing, 360 pp.

Gaskell, Daniel E., et al., 2010. *Russia*. COG Publishing, 447 pp.

Gaskell, Daniel E., et al., 2009. *Environmental Policy*. COG Publishing, 280 pp.

AWARDS

Fellowships and Grants

2023 **NSF OCE Postdoctoral Research Fellowship**: Resolving pH Effects in Foraminifera and Developing the $\delta^{13}C$ pH Proxy, $167,000 *[declined award offer due to other commitments]*

2019 **YIBS Doctoral Dissertation Improvement Grant**, Yale Institute for Biospheric Studies, funding a field study culturing foraminifera, $3,000

2018 **GSA Conference Travel Fellowship** for FORAMS 2018, $500

2016 **Yale University Bateman Fellowship Grant**, $2,000

Professional Recognition

2022 **Poster Competition Awardee**, Yale Climate Day

2021 **Best Early Career Talk**, the Micropaleontological Society's Foraminifera Festival

2021 **Science Photo Contest Winner**, Yale Climate Day

2021 **Poster Competition Awardee**, Yale Climate Day

2020 **Karl Turekian Prize**, Yale University, for excellence in geochemical studies

2016 **Bateman Fellowship Grant**, Yale University, for outstanding qualifications as an incoming graduate student

2015 **Academic Honors Convocation**, Baylor University, honored as one of the top two outstanding geology students of the Class of 2015

STUDENT PROJECT MENTORSHIP

Master's Magali Siri (UCSC/Utrecht University)

Undergraduate Ana Hom (UCSC)

High School Raina Lakhamraju, Shreya Malhotra, Serena Manildi (Santa Cruz, CA)

TEACHING EXPERIENCE

2024 **UCSC Science Internship Program**, Project Mentor
Mentored a team of high school students in an intensive 7-week research internship; designed and taught daily modules in oceanography, paleoclimate, and data science

2021 (Fall) **Paleoecology**, Teaching Fellow
Led class discussions, tutoring, technological assistance (hybrid in-person and virtual)

2021 (Spring)	**History of Life**, Lead Teaching Fellow Designed and taught lab exercises and discussions for a section of 14 students; supervised a team of five Teaching Fellows serving a total of 76 students (virtual)
2019 (Fall)	**Fossil Fuels & World Energy**, Teaching Fellow (tutoring and grading)
2019 (Spring)	**Earth System Science**, Teaching Fellow Helped lead class discussions for 17 students, tutoring and grading
2018–2019	**The Mystery of the Voynich Manuscript**, regular guest lecturer Guest lecturer on statistics and cryptography; designed and led class exercises
2017 (Fall)	**Global Warming: Climate Physics**, Teaching Fellow Helped lead class discussions for 25 students, tutoring and grading
2017 (Spring)	**History of Life**, Teaching Fellow Taught and led laboratory exercises for 8-12 students; tutoring and grading
2013	**Baylor University Student Athlete Services**, Tutor Tutored student athletes in Mineralogy and World Oceans
2009–2011	**Austin Rhetoric Club**, Research Instructor Regular lecturer and tutor on research skills for high school debaters

FIELD EXPERIENCE

2023	**Catalina Island**, 3 weeks, field season culturing live planktonic foraminifera
2019	**Yukon**, 2 weeks, Yale Department of Geology & Geophysics graduate field trip
2018	**Bermuda**, 3 weeks, field season culturing live planktonic foraminifera
2014	**Western U.S.**, 5 weeks, Baylor University field camp

PUBLIC COMMUNICATION OF SCIENCE

2024-04-22	*Surviving the Last Fire: What Past Climates Tell Us About Our Climate Future*, UCSC-CAN Earth Day event, Santa Cruz, CA
2021-09-30	*100 Million Years of Climate Change: Reconstructing Earth's Past from Seafloor Mud*, Yale Peabody Museum Graduate Research Spotlight, Virtual
2019	*Ancient Climate Change*, regular public exhibit tour for the Yale Peabody Museum of Natural History, New Haven, CT, May-December 2019
2019-04-16	*Meet the Scientist*, Yale Peabody Museum of Natural History
2019-04-30	*A Paleontologist and a Linguist walk into BAR*, Yale Peabody Museum Science Cafe event with linguist Dr. Claire Bowern, BAR, New Haven, CT
2018	*From Fieldwork to Facebook: Climate Change, Public Health, and Misinformation in the Media*, Yale Science Diplomats presentation, March 2018 (Guilford Free Library, March 15, 2018; New Canaan Library, March 20, 2018; New Haven Free Public Library, March 22, 2018; Schiller Shoreline Institute for Lifelong Learning, April 4, 2018; Yale SPLASH Program, April 7, 2018), discussing paleoclimate and the scientific process
2015-04-17	Speaker at Baylor Honors Week, discussing research on ichthyoliths

PROFESSIONAL SERVICE

- Session chair for: AGU 2024 PP11E, PP13E
- Reviewer for: NSF, *PNAS, Nature Communications Earth & Environment*, *EPSL*, *Paleoclimatology & Paleoceanography, Biogeosciences*, *Geobiology*, CEUR, *Manuscript Studies*

OTHER RELEVANT PROFESSIONAL EXPERIENCE

2015-2016 **Support Services Group**, IT Support Technician

- Responsible for maintaining servers, databases, and networks for a telecomm company distributed across five states and handling over 1,000,000 calls per year
- Helped coordinate a network overhaul that improved stability by 15x
- Developed custom software that sped up call queue administration by 40x

2009-2016 **COG Publishing**, Co-Founder and Publishing Director

- Grew company to 2nd largest of its type (high school debate sourcebooks)
- Managed teams of 3–12 researchers; edited & typeset over 5,000 pg. of research
- Responsible for accounting and meeting regulatory requirements

SKILLS

Special Areas of Expertise

- Geochemical model development
- Culturing planktonic foraminifera
- Isotope geochemistry

Programming

- 20+ years of experience with major projects in Python, R, C, PHP, VB.NET, Inform, etc.
- Other languages: SQL, Javascript, C++, FreeBASIC, x86/6502/Z80 assembly language, etc.

Technical Skills

- Training and inference workflows with LLMs and diffusion models (offline and online)
- Linux server and database administration; enterprise-scale networks and virtualization
- 1 year of classes in ArcGIS and spatial data analysis; ESRI training certifications in Python for ArcGIS, Network Analysis, Regression Analysis, and Surface Modeling
- Web, print, and publishing design (HTML/CSS, raster/vector graphics, desktop publishing)
- Video production, editing, and visual effects compositing

MEDIA COVERAGE

Shelton, Jim. "Core aspects of climate models are sound—the proof's in the plankton," March 7, 2022, *Yale News*, Yale University. https://news.yale.edu/2022/03/07/core-aspects-climate-models-are-sound-proofs-plankton

Petersen, Alicia. "Decoding Early Modern Gossip," July 8, 2021, *The Collation*, Folger Shakespeare Library. https://collation.folger.edu/2021/07/decoding-early-modern-gossip.

"The Ocean's Tiny Records of Climate Change," November 2018, *Currents*, Bermuda Institute of Ocean Sciences. http://www.bios.edu/currents/the-oceans-tiny-records-of-climate-change.