

# JOHN D. KESSLER

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<http://scholar.google.com/citations?user=IzFBI8AAAAJ&hl=en>

## I. EDUCATION AND EXPERIENCE

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### EDUCATION

Postdoctoral Research Geoscience, September 2005-August 2008  
Princeton University

Ph.D., Earth System Science, September 2005  
University of California, Irvine

M.S., Earth System Science, December 2003  
University of California, Irvine

B.S., Chemistry and Mathematics, May 1998  
Gettysburg College

### PROFESSIONAL EXPERIENCE

University of Rochester, Dept of Earth & Environmental Sciences, Rochester, NY  
Department Chair January 2020– Present  
Associate Department Chair September 2019-December 2019  
PROFESSOR July 2019– Present

University of Rochester, Dept of Earth & Environmental Sciences, Rochester, NY Sept 2014-June 2019  
ASSOCIATE PROFESSOR

Texas A&M University, Department of Oceanography, College Station, TX August 2008 -August 2012  
ASSISTANT PROFESSOR

Princeton University, Department of Geosciences, Princeton, NJ September 2005 -August 2008  
POSTDOCTORAL RESEARCH ASSOCIATE

University of California Irvine , Earth System Science Department, Irvine, CA  
GRADUATE RESEARCH ASSISTANT August 2000 -September 2005

National Institute of Standards and Technology, Gaithersburg, MD June 1998 -July 2000  
Atmospheric Chemistry Group, Surface and Microanalysis Science Division  
RESEARCH CHEMIST

National Institute of Standards and Technology, Gaithersburg, MD May 1996– June 1998  
Microanalysis Research Group, Surface and Microanalysis Science Division  
PHYSICAL SCIENCE TRAINEE



14) National Science Foundation (OCB 39203), "EAGER: Development of a portable water flux system for methane," July 15, 2014-June 30, 2014; PI: Dr. Shari Yvoron Lewis, Co-PI: Dr. John D. Kessler

15) Gulf of Mexico Research Initiative Gulf Integrated Spill Research Consortium," September 1, 2014-August 31, 2015, PI: Dr. Piers Chapman, Co-PI: Dr. John D. Kessler

SHIPBOARD & FIELD EXPERIENCE: Total (25), as Chief Scientist (9)

R/V Hugh Sharp, US Atlantic Margin, USA Chief Scientist Future Funded Cruise June, 2024

R/V Blue Heron, Lak(e)4.2 ( F)2.6 (u)12 (nd.9 (.)-4.9 ((l)6.9 (ue)4.2 ( H)5.1 (e)4.2 (r)0.3 (r)9.5 ([P (a)o.6 (u)1.002 Tc 0.002

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50) Joung, D.-J., Ruppel, C. D., Southon, J., & Kessler, J. D. (2021). Elevated levels of radiocarbon in methane dissolved in seawater reveal likely local contamination from nuclear powered vessels. *Science of The Total Environment*, 806(2), 150456. <https://doi.org/10.1016/j.scitotenv.2021.150456>

49) Garcia Tigreros, F., Leonte, M., Young, B.\*, & Kessler, J. D. (2021). Estimating the impact of seep methane oxidation on ocean pH and dissolved inorganic radiocarbon along the WOUO Okf C vncpvke Dki j v0. *Journal of Geophysical Research: Biogeosciences*, 26, e2019JG005621. <https://doi.org/10.1029/2019JG005621>

48) Joung, D.-J., Leonte, M., Valentine, D. L., Sparrow, K., Weber, T., & Kessler, J. (2020). Radiocarbon in marine methane reveals patchy impact of seeps on surface waters. *Geophysical Research Letters*, 47, e2020GL089516. <https://doi.org/10.1029/2020GL089516>

47) Wilson, S. T., Alhaj, A. N., Bourbonnais, A., Frey, C., Fulweiler, R. W., Kessler, J. D., Marchant, H. K., Milucka, J., Ray, N. E., Suntharalingham, P., Thornton, B. F., Ussler, R. C., Weber, T. S., Arévalo Martínez, D. L., Bange, H. W., Benway, H. M., Bianchi, D., Borges, A. V., Chang, B. X., Crill, P. M., del Valle, D. A., Fariás, L., Joye, S. B., Kock, A., Labidi, J., Manning, C. C., Pohlman, J. W., Rehder, G., Sparrow, K. J., Tortell, P. D., Treude, T., Valentine, D. L., Ward, B. B., Yang, S., and Yurganov, (2020). Ideas and perspectives: A strategic assessment of methane and nitrous oxide measurements in the marine environment. *Biogeosciences*, 17, 5809-5828. <https://doi.org/10.5194/bg-17-5809-2020>

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- 38) Sparrow, K. J., J. D. Kessler, J. R. Southon, Garcia-Tigreros, K. M. Schreiner, C. D. Ruppel, J. B. Miller, S. J. Lehman, and X. Xu (2018). Limited contribution of ancient methane to surface waters of the U.S. Beaufort Sea shelf. *Science Advances* 4(1), eaao4842. <https://doi.org/10.1126/sciadv.aao4842>
- 37) Shiller, A. M., E. W. Chan, D. J. Joung, M. C. Redmond, and J. D. Kessler (2017). Light rare earth element depletion during Deepwater Horizon blowout methanotrophy. *Nature: Scientific Reports* 7, 10389. <https://doi.org/10.1038/s41598-017-11060-z>
- 36) Sparrow, K. J. and J. D. Kessler (2017). Efficient collection and preparation of methane from low concentration waters for natural abundance radiocarbon analysis. *Limnology & Oceanography: Methods* 5(7), 601-617. <https://doi.org/10.1002/lom3.10184>
- 35) Leonte, M., J. D. Kessler, M. Y. Kellerman, E. C. Arrington, D. L. Valentine, and S. P. Sylva (2017). Rapid rates of aerobic methane oxidation at the feather edge of gas hydrate stability in the waters of Hudson Canyon, US Atlantic Margin. *Geochimica et Cosmochimica Acta*, 2017, 375-387. <https://doi.org/10.1016/j.gca.2017.01.009>
- 34) Ruppel, C. D. and J. D. Kessler (2017). The Interaction of Climate Change and Methane Hydrates. *Reviews of Geophysics* 55(1), 126-168. <https://doi.org/10.1002/2016RG000534>
- 33) Weinstein, A.\*, L. Navarrete\*, C. Ruppel, T. C. Weber, M. Leonte, M. Y. Kellerman, E. C. Arrington, D. L. Valentine, M. I. Scranton, and J. D. Kessler (2016). Determining the flux of methane into Hudson Canyon at the edge of methane clathrate hydrate stability. *Geochem. Geophys. Geosyst* 17(10), 3882-3892. <https://doi.org/10.1002/2016GC006421>
- 32) Garcia-Tigreros Kodovska, F., K.J. Sparrow, S.A. Yvon-Lewis, A. Paytan, N.T. Dimova, A. Lecher, and J.D. Kessler (2016). Dissolved methane and carbon dioxide fluxes in Subarctic and Arctic regions: Assessing measurement techniques and spatial gradients. *Earth and Planetary Science Letters* 436, 435-445. <https://doi.org/10.1016/j.epsl.2015.12.002>
- 31) Chan, E., J. D. Kessler, A. Shiller, D.J. Joung, and F. Colombo (2016). Aqueous mesocosm techniques enabling the realtime measurement of the chemical and isotopic kinetics of dissolved methane and carbon dioxide. *Environmental Science & Technology* 50(6), 3039-3046. <https://doi.org/10.1021/acs.est.5b04304>
- 30) Christian, K.M., L.K. Lutz, G.D. Hoke, D.I. Siegel, Z. Lu, and J. Kessler (2016). Methane occurrence is associated with sodium-rich valley waters in domestic wells overlying the Marcellus shale in New York. *Water Resources Research* 52(1), 2062-2076. <https://doi.org/10.1002/2015WR017805>
- 29) Lecher, A.L., J.D. Kessler, K. Sparrow, F. Garcia-Tigreros Kodovska, N. Dimova, J. Murray, S. Tulaczyk, and A. Paytan (2016). Methane transport through submarine groundwater discharge to the North Pacific and Arctic Ocean at two Alaskan sites. *Limnology and Oceanography*, 63, 344-355. <https://doi.org/10.1002/lno.10118>
- 28) Dimova, N.T., A. Paytan, J.D. Kessler, K. Sparrow, F. Garcia-Tigreros Kodovska, A.L. Lecher, J. Murray, and S.M. Tulaczyk (2015). Current Magnitude and Mechanisms of Groundwater Discharge in the Arctic: Case Study from Alaska. *Environmental Science & Technology*, 49(20), 12036-12043. <https://doi.org/10.1021/acs.est.5b02215>
- 27) Paytan, A.A. Lecher, N. Dimova, K. Sparrow, F. Garcia-Tigreros Kodovska, and J.D. Kessler (2015). Methane transport from the active layer to lakes in the Arctic using Toolik Lake, Alaska, as a case study. *Proceedings of the National Academy of Sciences* 112(12), 3636-3640. <https://doi.org/10.1073/pnas.1417392112>
- 26) Pack, M.A., X. Xu, M. Lupascu, J.D. Kessler, and C. Czimczik (2015). A rapid method for preparing low volume CH<sub>4</sub> and CO<sub>2</sub> gas samples for <sup>14</sup>C AMS analysis. *Organic Geochemistry* 78, 89-98. <https://doi.org/10.1016/j.orggeochem.2014.10.010>

25) Kessler, J.D. (2014). Atlantic Bubble Bath. *Nature: Geoscience*, 7(9), 625-626.  
<https://doi.org/10.1038/ngeo2238>

24) Du, M., S. Yvon-Lewis, F. Garcia-

12) Valentine, D.L., J.D. Kessler, M.C. Redmond, D. Mendes, M.B. Heintz, C. Farwell, L. Hu, F.S. Kinnaman, S.A. Yvon-Lewis, M. Du, E.W. Chan, F. Garcia-Tigreros, and C.J. Villanueva (2010). Propane respiration jump-starts microbial response to a deep oil spill. *Science*, 330(6018), 2032-2034. doi:10.1126/science.1192223







Title: Oceans and Rapid Climate Change: A Look at the Greenhouse Effect

- 13) February 8, 2013  
University of Rochester, Sustainability Seminar Series  
Title: Oceanic Secrets Revealed by the Deepwater Horizon Disaster
- 14) January 24, 2013  
Syracuse University, Department of Earth Sciences  
Title: Oceanic Secrets Revealed by the Deepwater Horizon Disaster
- 15) November 15, 2012  
University of Waterloo, Department of Earth and Environmental Sciences  
Title: Death of a Hydrocarbon Plume
- 16) November 9, 2012  
University of Southern Mississippi, Department of Marine Science  
Title: Death of a Hydrocarbon Plume
- 17) October 12, 2012  
University of Texas at Austin, Institute for Geophysics  
Title: Challenges when Assessing Hydrocarbon Degradation via Isotopic Fractionation
- 18) October 11, 2012  
University of Texas at Austin, Jackson School of Geosciences  
Title: Death of a Hydrocarbon Plume
- 19) April 17, 2012  
TAMU-CS Department of Atmospheric Science Seminar Series  
Title: The Death of a Hydrocarbon Plume
- 20) December 10, 2010  
TAMU Research Foundation Councilors and Board of Trustees Meeting  
Title: Oceanic Secrets Revealed by the Deepwater Horizon Disaster
- 21) November 9, 2010  
TAMU-Galveston Department of Oceanography Seminar Series  
Title

26) August 26, 2010

Rice University, Department of Earth Science Seminar Series

Title: Using the Deepwater Horizon Disaster to Investigate the Biogeochemical Cycling

Ph.D.: Mengran Du (2009-2014)

Title of Dissertation: Determining the fate of methane released from the seafloor in deep and shallow water environments

Current Position: Associate Scientist, Sanya Institute of Deepsea Science and Engineering, Chinese Academy of Sciences, Sanya, China

M.S. Amy Eisenstadt (2016-2018)

Title of Thesis: Methane and Carbon Dioxide in Surface Waters of Lake Ontario and Lake Superior: Evaluation of Vacuum Extraction System, Airake Flux, and Relationship with Chlorophyll

M.S.: David Jaenike (2013-2014)

Title of Thesis: Changes in evaporation caused by increasing concentrations of dissolved CO<sub>2</sub>: a kinetic and isotopic effect

Current Position: TTM Technologies, Stafford, CT

Ph.D. Kathryn Gregory (2019-Present)

Ph.D. Madeline Every (2019-Present)

Ph.D. Jesse Dugan (2020-Present)

Ph.D. Sydney Loudon (2021-Present)

#### UNDERGRADUATE STUDENTS ADVISED WITH THESIS RESEARCH IN THE LAB AND FIELD

B.S.: Stephanie Hendrickson (Spring 2011)

Michele Ebbole (Spring 2012)

Adam Solomon (Spring 2012)

Lili Schachter (Spring 2013)

Daniel Diaz Etchevehere (Spring 2016)

Gabryella Pulsinelli (Spring 2016)

Jacob Schmidt (Spring 2021)

Anesse Pinpokintr (Spring 2022)

Rebecca Rust (Spring 2023)

Authors: Mihai Leonte\*, B. Wang, SA. Scolofsky

Authors Eric W. Chan\* and J. Kessler  
Conference Goldschmidt Prague CZ, August 16-21, 2015

Title: Efficient Collection of Methane from Extremely Large Volumes of Water for Natural Radiocarbon Analysis  
(Poster)

Authors Katy Sparrow\* and J. Kessler  
Conference American Geophysical Union, San Francisco, CA, December 19, 2014

Title: Comparison of Two Techniques to Calculate Methane Concentrations in Samples Obtained from the Hudson  
Canyon Seep Field in the North Atlantic (Poster)

Authors Mihai Leonte\*, J. Kessler, A. Chepigin, T. Weber, C. Ruppel, M. Kellerman, Arrington, D.  
Valentine, S. Silva

Conference American Geophysical Union, San Francisco, CA, December 19, 2014

Title: High resolution measurements of methane concentrations and  $\delta^{13}C$  in the Hudson Canyon Seep Field in the North Atlantic

Valentine,

March 31, 2021  
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DEPARTMENTAL AND UNIVERSITY SERVICE