



Anne Dekas

Assistant Professor of Earth System Science and, by courtesy, of Oceans and of Earth and Planetary Sciences

Bio

BIO

Anne Dekas is a geomicrobiologist interested in how microbial life affects the chemistry and climate of our planet today and throughout time. She obtained her PhD in Geobiology at the California Institute of Technology in 2013, and her AB in Earth and Planetary Sciences at Harvard University in 2004. She joined the Earth System Science Department at Stanford University as an assistant professor in September 2015.

ACADEMIC APPOINTMENTS

- Assistant Professor, Earth System Science
- Assistant Professor (By courtesy), Oceans
- Assistant Professor (By courtesy), Earth & Planetary Sciences

ADMINISTRATIVE APPOINTMENTS

- Assistant Professor, Earth System Science, Stanford University, (2015- present)
- Lawrence Postdoctoral Fellow, Lawrence Livermore National Laboratory, (2013-2015)
- NSF Graduate Research Fellow, Geological and Planetary Sciences, California Institute of Technology, (2006-2009)
- Technical Assistant, Planetary Protection Group, Jet Propulsion Laboratory, (2005-2006)

HONORS AND AWARDS

- Early Career Investigator in Marine Microbial Ecology and Evolution Award, Simons Foundation (2017-2020)
- Outstanding Poster Presentation Award, Lawrence Livermore National Laboratory Poster Symposium (2014)
- Lawrence Postdoctoral Fellowship, Lawrence Livermore National Laboratory (2013-2015)
- Outstanding Oral Presentation, Southern California Geobiology Symposium (2009)
- Tech Brief Award, NASA Jet Propulsion Laboratory (2009)
- Graduate Research Fellowship, National Science Foundation (2006-2009)
- Harvard College Award, Harvard University (2002, 2003)
- John Harvard Award, Harvard University (2001)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Geophysical Union (2008 - present)
- Member, International Society for Microbial Ecology (2008 - present)

PROFESSIONAL EDUCATION

- PhD, California Institute of Technology , Geological and Planetary Sciences, Geobiology (2013)
- AB, Harvard University , Earth and Planetary Sciences, Biogeochemistry (2004)

LINKS

- Dekas Lab website: <https://earth.stanford.edu/dekaslab/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Environmental microbiology, deep-sea microbial ecology, marine biogeochemistry

Teaching

COURSES

2022-23

- Microbes and Climate: ESS 122, ESS 222 (Aut)

2021-22

- Life at the Extremes: From the Deep Sea to Deep Space: EARTHSYS 36N (Win)
- Techniques in Environmental Microbiology: BIO 201, ESS 210 (Aut)

2020-21

- Fundamentals of Geobiology: EARTHSYS 205A, ESS 205, GEOLSCI 205 (Aut)
- Topics in Geobiology: ESS 208, GEOLSCI 208 (Win)

2019-20

- Life at the Extremes: From the Deep Sea to Deep Space: EARTHSYS 36N (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Colette Kelly, Stephanie Lim, Hanon McShea

Postdoctoral Faculty Sponsor

Steffen Buessecker, Alex Jaffe

Master's Program Advisor

Mikaela Salvador

Doctoral (Program)

Emily Paris, Rebecca Salcedo, Amanda Semler

Publications

PUBLICATIONS

- **Evidence for phylogenetically and catabolically diverse active diazotrophs in deep-sea sediment.** *The ISME journal*
Kapili, B. J., Barnett, S. E., Buckley, D. H., Dekas, A. E.
2020

- **Characterizing Chemoautotrophy and Heterotrophy in Marine Archaea and Bacteria With Single-Cell Multi-isotope NanoSIP.** *Frontiers in microbiology*
Dekas, A. E., Parada, A. E., Mayali, X., Fuhrman, J. A., Wollard, J., Weber, P. K., Pett-Ridge, J.
2019; 10: 2682
- **Microbial Community Composition in Deep#Subsurface Reservoir Fluids Reveals Natural Interwell Connectivity** *Water Resources Research*
Zhang, Y., Dekas, A., Hawkins, A., Parada, A., Gorbatenko, O., Li, K., Horne, R.
2019
- **High-quality genome sequences of uncultured microbes by assembly of read clouds.** *Nature biotechnology*
Bishara, A., Moss, E. L., Kolmogorov, M., Parada, A. E., Weng, Z., Sidow, A., Dekas, A. E., Batzoglou, S., Bhatt, A. S.
2018
- **Widespread nitrogen fixation in sediments from diverse deep-sea sites of elevated carbon loading.** *Environmental microbiology*
Dekas, A. E., Fike, D. A., Chadwick, G. L., Green-Saxena, A., Fortney, J., Connon, S. A., Dawson, K., Orphan, V. J.
2018
- **Characterization of benthic biogeochemistry and ecology at three methane seep sites on the Northern U.S. Atlantic margin** *Deep Sea Research Part II: Topical Studies in Oceanography*
McVeigh, D., Skarke, A., Dekas, A., Borrelli, C., Hong, W., Marlow, J., Pasulka, A., Jungbluth, S., Barco, R., Djurhuus, A.
2018; 150: 41-56
- **Early-career scientists explore newly discovered methane seeps** *Eos*
Dekas, A. E., Skarke, A.
2017; 98
- **Activity and interactions of methane seep microorganisms assessed by parallel transcription and FISH-NanoSIMS analyses** *ISME JOURNAL*
Dekas, A. E., Connon, S. A., Chadwick, G. L., Trembath-Reichert, E., Orphan, V. J.
2016; 10 (3): 678-692
- **Global metagenomic survey reveals a new bacterial candidate phylum in geothermal springs** *NATURE COMMUNICATIONS*
Eloe-Fadrosh, E. A., Paez-Espino, D., Jarett, J., Dunfield, P. F., Hedlund, B. P., Dekas, A. E., Grasby, S. E., Brady, A. L., Dong, H., Briggs, B. R., Li, W., Goudeau, D., Malmstrom, et al
2016; 7
- **Spatial distribution of nitrogen fixation in methane seep sediment and the role of the ANME archaea** *ENVIRONMENTAL MICROBIOLOGY*
Dekas, A. E., Chadwick, G. L., Bowles, M. W., Joye, S. B., Orphan, V. J.
2014; 16 (10): 3012-3029
- **Nitrate-based niche differentiation by distinct sulfate-reducing bacteria involved in the anaerobic oxidation of methane** *ISME JOURNAL*
Green-Saxena, A., Dekas, A. E., Dalleska, N. F., Orphan, V. J.
2014; 8 (1): 150-163
- **Polyphosphate Storage during Sporulation in the Gram-Negative Bacterium *Acetonebacterium longum*** *JOURNAL OF BACTERIOLOGY*
Tocheva, E. I., Dekas, A. E., McGlynn, S. E., Morris, D., Orphan, V. J., Jensen, G. J.
2013; 195 (17): 3940-3946
- **IDENTIFICATION OF DIAZOTROPHIC MICROORGANISMS IN MARINE SEDIMENT VIA FLUORESCENCE IN SITU HYBRIDIZATION COUPLED TO NANOSCALE SECONDARY ION MASS SPECTROMETRY (FISH-NANOSIMS)** *METHODS IN ENZYMOLOGY: RESEARCH ON NITRIFICATION AND RELATED PROCESSES, VOL 486, PART A*
Dekas, A. E., Orphan, V. J.
2011; 486: 281-305
- **Deep-Sea Archaea Fix and Share Nitrogen in Methane-Consuming Microbial Consortia** *SCIENCE*
Dekas, A. E., Poretsky, R. S., Orphan, V. J.
2009; 326 (5951): 422-426
- ***Bacillus canaveralius* sp nov., an alkali-tolerant bacterium isolated from a spacecraft assembly facility** *INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY*
Newcombe, D., Dekas, A., Mayilraj, S., Venkateswaran, K.
2009; 59: 2015-2019

- **Diverse syntrophic partnerships from-deep-sea methane vents revealed by direct cell capture and metagenomics** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Pernthaler, A., Dekas, A. E., Brown, C. T., Goffredi, S. K., Embaye, T., Orphan, V. J.
2008; 105 (19): 7052-7057
- **Microbial burden and diversity of commercial airline cabin air during short and long durations of travel** *ISME JOURNAL*
Osman, S., La Duc, M. T., Dekas, A., Newcombe, D., Venkateswaran, K.
2008; 2 (5): 482-497
- **Molecular bacterial community analysis of clean rooms where spacecraft are assembled** *FEMS MICROBIOLOGY ECOLOGY*
Moissl, C., Osman, S., La Duc, M. T., Dekas, A., Brodie, E., DeSantis, T., Venkateswaran, K.
2007; 61 (3): 509-521
- **Isolation and characterization of bacteria capable of tolerating the extreme conditions of clean room environments** *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*
La Duc, M. T., Dekas, A., Osman, S., Moissl, C., Newcombe, D., Venkateswaran, K.
2007; 73 (8): 2600-2611
- **High-mass triple systems: The classical Cepheid Y Carinae** *ASTRONOMICAL JOURNAL*
Evans, N. R., Carpenter, K. G., Robinson, R., Kienzle, F., Dekas, A. E.
2005; 130 (2): 789-793