Stanford

Colette Kelly

Ph.D. Student in Earth System Science, admitted Summer 2017

Curriculum Vitae available Online

Bio

HONORS AND AWARDS

- Certificate of Achievement in Mentoring, Stanford School of Earth, Energy, and Environmental Sciences (2021)
- Special Service Award for Diversity, Equity, and Inclusion, Stanford School of Earth, Energy, and Environmental Sciences (2021)
- Centennial TA Award, Stanford School of Earth, Energy, and Environmental Sciences (2020)
- Community Impact Award, Stanford Alumni Association (2020)
- NSF Graduate Research Fellowship, National Science Foundation (2018)
- Enhancing Diversity in Graduate Education (EDGE) fellow, Stanford University (2017-present)
- Henry Sharp Prize for Outstanding Senior in Environmental Science, Barnard College of Columbia University (2017)
- Phi Beta Kappa, Barnard College of Columbia University (2016)

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Member, American Chemical Society (2022 - present)
- Member, Out in Science, Technology, Engineering, and Mathematics (2021 - present)
- Member, American Geophysical Union (2016 - present)

EDUCATION AND CERTIFICATIONS

- AB, Barnard College of Columbia University , Environmental Science (2017)
- AB, Barnard College of Columbia University , Dance (2017)

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Chair, 2023 Gordon Research Seminar in Chemical Oceanography
- Co-founder, The Art in Science Communication Initiative (10/1/2017)
- Co-Chair, Stanford Earth Graduate Student Advisory Council (7/1/2019 - 7/1/2020)
- Teacher, Stanford Splash
- Volunteer, Sea Lion Bowl
- Teacher, Stanford GeoKids (2017 - 2019)

LINKS

- Github: https://github.com/ckelly314
- Art As Science Communication website: https://art-sci.weebly.com/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Humanity is performing a vast, global-scale experiment with the earth, with significant effects on the oceans. Biogeochemistry is a multifaceted tool kit to provide useful contributions to the collective understanding of these changes. As a PhD student in the Stanford Department of Earth System Science, I study biogeochemical nitrogen cycling, with a focus on nitrous oxide cycling in oxygen minimum zones. My research uses a combination of fieldwork, analytical techniques, and computational methods such as vertical modeling to delve into nitrous oxide cycling in places of disproportionally high production — notably, the oxygen minimum zone in the eastern tropical North Pacific Ocean (ETNP). As oxygen minimum zones expand, I will explore how these changes affect nitrogen cycling, and the production and fluxes of nitrous oxide.

Teaching

COURSES

2019-20

- Marine Chemistry: EARTHSYS 152, EARTHSYS 252, ESS 152, ESS 252 (Spr)

Professional

WORK EXPERIENCE

- Graduate Research Assistant - Stanford University (June 2017 - present)
- Summer Student Fellow - Woods Hole Oceanographic Institution (June 2016 - August 2016)
- Undergraduate Researcher - Lamont-Doherty Earth Observatory (9/2014 - 5/2015)
- Teaching Assistant - Barnard College (1/2014 - 5/2017)

Publications

PUBLICATIONS

- **Nitrite cycling in the primary nitrite maxima of the eastern tropical NorthPacific** *BIOGEOSCIENCES*
  Travis, N. M., Kelly, C. L., Mulholland, M. R., Casciotti, K. L.
  2023; 20 (2): 325-347

- **Kinetics of nitrous oxide production from ammonia oxidation in the Eastern Tropical North Pacific** *LIMNOLOGY AND OCEANOGRAPHY*
  Frey, C., Sun, X., Szemberski, L., Casciotti, K. L., Garcia-Robledo, E., Jayakumar, A., Kelly, C. L., Lehmann, M. F., Ward, B. B.
  2022

- **Coincident Biogenic Nitrite and pH Maxima Arise in the Upper Anoxic Layer in the Eastern Tropical North Pacific** *GLOBAL BIOGEOCHEMICAL CYCLES*
  Cinay, T., Dumit, D., Woosley, R. J., Boles, E. L., Kwiecinski, J., Mullen, S., Tamasi, T. J., Wolf, M. J., Kelly, C. L., Travis, N. M., Casciotti, K. L., Babbin, A. R.
  2022; 36 (12)

- **Identifying the Sources and Drivers of Nitrous Oxide Accumulation in the Eddy-Influenced Eastern Tropical North Pacific Oxygen-Deficient Zone** *GLOBAL BIOGEOCHEMICAL CYCLES*
  Monreal, P. J., Kelly, C. L., Travis, N. M., Casciotti, K. L.
  2022; 36 (6)

- **Quantifying Nitrous Oxide Cycling Regimes in the Eastern Tropical North Pacific Ocean With Isotopomer Analysis** *Global Biogeochemical Cycles*
  Kelly, C. L., Travis, N. M., Baya, P. A., Casciotti, K. L.
  2021; 35 (2): e2020GB006637

- **Microbial N2O consumption in and above marine N2O production hotspots.** *The ISME journal*
  Sun, X., Jayakumar, A., Tracey, J. C., Wallace, E., Kelly, C. L., Casciotti, K. L., Ward, B. B.

2020

- **Amperometric sensor for nanomolar nitrous oxide analysis.** *Analytica chimica acta*
  Damgaard, L. R., Kelly, C. n., Casciotti, K. n., Ward, B. B., Revsbech, N. P.
  2020; 1101: 135–40

- **Quantitative drinking water arsenic concentrations in field environments using mobile phone photometry of field kits** *SCIENCE OF THE TOTAL ENVIRONMENT*
  Haque, E., Mailloux, B. J., de Wolff, D., Gilioli, S., Kelly, C., Ahmed, E., Small, C., Ahmed, K., van Geen, A., Bostick, B. C.
  2018; 618: 579–85

- **Dancing up the glass escalator: Institutional advantages for men in ballet choreography** *Columbia Undergraduate Research Journal*
  Kelly, C. L.
  2017; 1 (2)

PRESENTATIONS

- Determining rates of hybrid archaeal N2O production in the eastern tropical North Pacific Ocean with intramolecular isotope measurements - 2020 Ocean Sciences Meeting (February 2020)
- Quantifying nitrous oxide cycling regimes in the eastern tropical North Pacific Ocean with isotopomer analysis - EMPA (October 2019)
- Quantifying Nitrous Oxide Cycling Regimes in the Eastern Tropical North Pacific Ocean with Isotopomer Analysis - Gordon Research Conference on Chemical Oceanography (7/14/2019 - 7/19/2019)
- Using Isotopomer Analysis to Determine Drivers of Nitrous Oxide Cycling in the Eastern Tropical North Pacific Ocean - Ocean Sciences Meeting, 2018 (February 14, 2018)
- Drivers of Seasonal and Interannual Variability in Waquoit Bay Carbonate Chemistry - ASLO Aquatic Sciences Meeting (2/1/2017)