Petra S. Dekens

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APPOINTMENTS

2017-present Department chair, Earth & Climate Sciences, SFSU
2018-present Professor, Earth & Climate Sciences, San Francisco State University
2012-2018 Associate Professor, Earth & Climate Sciences, San Francisco State University
2007-2012 Assistant Professor, Department of Geosciences, San Francisco State University

PROFESSIONAL PREPERATION

Aug 2007 Doctor of Philosophy Ocean Science – University of California Santa Cruz.
Aug 2001 Master of Science in Marine Science – University of California Santa Barbara
June 2000 Master of Environmental Science and Management UC Santa Barbara
June 1998 Bachelor of Art in Marine Biology – University of California Santa Cruz

RESEARCH EXPERIENCE

In the broadest sense, my research focuses on understanding the ocean's role during times of global warmth in Earth's climate history. I reconstruct past oceanographic conditions using the geochemistry of foraminifera found in marine sediments. Over the past 10 years my research has focused on two areas: *Climate feedbacks during times of global warmth* and *Reconstructing oceanographic conditions in the Bay of Bengal*.

Through work with masters and undergraduate students in my lab, along with collaborators, our work demonstrates that meridional and zonal sea surface temperature gradients were reduced during the early Pliocene (Federov et al., 2013). We also show that the thermocline in the tropical Pacific was warmer, deeper, and had less of a zonal tilt than it does today (Ford et al., 2015). These change in the thermocline tilt and temperature led to a reduced zonal SST gradient and the resulting ocean atmosphere dynamics likely played a role in contributing to Pliocene warmth.

The Bengal fan is a complex depositional environment consisting of terrestrial sediments from Himalayan erosion along with marine biogenic material. Although this is a challenging depositional environment for paleoceanographic reconstructions, my student's paper demonstrates that sediment from the region can be used to reconstruct past climate change if the lithology is carefully considered (Fritz-Endres et al., 2019). This has allowed us to reconstruct paleoclimate conditions in the Bay of Bengal during the last glacial cycle (Weber et al., 2018), and my lab is currently working on SST records that demonstrate that SST in the Bay of Bengal has remained relatively stable through the last 4 Ma and has been warm enough to support the atmospheric convection needed to fuel the Indian Monsoon system.

In addition to my paleocenaographic research I have also worked with collaborators to analyze the AGU fall meeting data and demonstrated that inequities exist in the assignment of talks (particularly invited talks) which leave women and people from underrepresented groups with relatively fewer speaking opportunities compared to white men (Ford et al., 2018; Ford et al., 2019).

SELECT PUBLICATIONS

Ford, H.L., Brick C., Azmitia, M., Blaufuss, K., Dekens, P.S., 2019. Women from some under-represented minorities are given too few talks at world's largest Earth-science conference, Nature, doi: 10.1038/d41586-019-03688-w

Fritz-Endres, T, Dekens, P.S. Fehrenbacher, J, Spero, H, Stine, A. 2019. Application of Individual Foraminifera Mg/Ca and δ18O Analyses for Paleoceanographic Reconstructions in Active Depositional Environments. DOI: 10.1029/2019PA003633

Ford, H.L., Brick C., Blaufuss, K., Dekens, P.S., 2018. Gender inequity in speaking opportunities at the American Geophysical Union Fall Meeting. Nature Communications DOI: 10.1038/s41467-018-03809-5.

Michael E. Weber, Hendrik Lantzsch, Petra Dekens, Supriyo K. Das, Brendan T. Reilly, Yasmina M. Martos, Carsten Meyer-Jacob, Sandip Agrahari, Alf Ekblad, Jürgen Titschack, Beth Holmes, Philipp Wolfgrammb, 2018. 200,000 Years of Monsoonal History Recorded on the Lower Bengal Fan - Strong Response to Insolation Forcing, Global and Planetary Change 166 (107-119).

Ford, H.L., Ravelo, A.C., Dekens, P. LaRiviere, J.P., Wara, M. 2015, The evolution of the equatorial thermocline and the early Pliocene El Padre mean state, Geophysical Research Letters, 42, (13)

Federov, A., C. Brierley, K.T. Lawrence, Z. Liu, P.S. Dekens, A.C. Ravelo, 2013, Patterns and mechanisms of early Pliocene warmth. Nature v496, doi:10.1038/nature12003.

Dekens, P.S., A. C. Ravelo, M. D. McCarthy, and C. A. Edwards, 2008, A 5 million year comparison of Mg/Ca and alkenone paleo-thermometers, *Geochem. Geophys. Geosyst.,* v9(10), 10.1029/2007GC001931.

Dekens, P.S., Ravelo, A.C., McCarthy, M.D., 2007, Warm Upwelling Regions in the Pliocene Warm Period, *Paleoceanography*, v22(3) PA3211, 10.1029/2006PA001394.

Fedorov, A.V., Dekens, P.S., McCarthy, M., Ravelo, A.C., deMenocal, P.B., Barreiro, M., Pacanowski, R.C., Philander, S.G., 2006, The Pliocene Paradox; Mechanisms for a permanent El Niño. *Science*, v. 312, p. 1485-1489.

Dekens, P. S., Lea, D. W., Spero, H. J., and Pak, D. K., 2002, Core Top Calibration of Mg/Ca in Tropical Planktonic Foraminifera: Refining Paleotemperature Estimation. *Geochemistry Geophysics Geosystems*, v. 3, p. 2001GC000200.

PROFESSIONAL SOCIETY MEMBERSHIP

- American Geophysical Union

SYNERGISTIC ACTIVITIES

- AGU Service: I have served AGU in a variety of roles since 2014
- Chair of the Department of Earth & Climate Sciences (August 2017 – present).
- SEA Change Departmental Awards: I am serving as an AGU representative in the Department Award Framework Drafting Group to develop criteria for SEA Change Departmental Awards.
- Chaired search committee for unique college wide search for a Discipline Based Education Research in Climate Change Science (2019/20)
- Co-Chaired committee to plan the Earth Covering AGU Centennial program at the Fall 2019 meeting. (2018/19)
- Moderated panel at Astronomical Society of the Pacific Earth To Space conference: Astronomers for Planet Earth: Action for a Habitable World (2019)
- Co-chaired search committee for the Dean of the College of Science and Engineering. (2018/19)
- Presentation for Women in Science and Engineering group at SFSU (2018) "The opportunity for professional societies to improve inclusion in STEM fields"