

# KRISTEN KRUMHARDT

---

ENVIRONMENTAL STUDIES PROGRAM

INSTITUTE OF ARCTIC AND ALPINE RESEARCH, UNIVERSITY OF COLORADO AT BOULDER

EMAIL: [kristen.krumhardt@colorado.edu](mailto:kristen.krumhardt@colorado.edu)

WEBSITE: <http://instaar.colorado.edu/people/kristen-krumhardt/>

## EDUCATION

---

- **Ph.D. in Environmental Studies**, University of Colorado at Boulder, *expected 2018*.
- **Master of Science** in Biology, University of Southern Maine, Portland, Maine, U.S.A., **2007**.
- **Bachelors of Art** in Biological/Pre-medical Illustration, with distinction, Iowa State University, **2003**.

## PROFESSIONAL EXPERIENCES

---

- **Doctoral candidate/researcher at University of Colorado Boulder, 2014-present.**
  - Studying marine phytoplankton dynamics.
  - Representation of phytoplankton in Earth System Models.
- **Research Assistant at École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland and University of Geneva, Geneva, Switzerland, 2008-2014.**
  - Researched deforestation effects on the global carbon cycle.
  - Developed a computer model to simulate human-induced land cover change.
  - Performed simulations with a dynamic global vegetation model.
- **Graduate Student Researcher, Portland, Maine, U.S.A., 2005-2007.**
  - Designed and implemented a continuous culturing system (chemostat) for the prevalent marine phytoplankton, *Prochlorococcus*.
  - Performed experiments to study nutrient limitation of *Prochlorococcus*.
- **Free-lance illustrator, 2002-2004.**
  - Created illustrations for an environmental science laboratory manual and other books.
- **Teaching Assistant, Iowa State University, Ames, Iowa, U.S.A., 2000-2002.**
  - Developed quizzes for first-year biology students; graded student papers.
- **Tutor, Iowa State University, Ames, Iowa, U.S.A., 2000-2003.**
  - Tutored students from Biology I, Biology II, Human anatomy and physiology courses.

## PEER-REVIEWED PUBLICATIONS

---

- Freeman, N. M., N. S. Lovenduski, D. R. Munro, **K. M. Krumhardt**, K. Lindsay, M. C. Long, M. Maclennan. *In review*. The variable and changing Southern Ocean Silicate Front: Insights from the CESM Large Ensemble. *Global Biogeochemical Cycles*.
- **Krumhardt, K. M.**, N. S. Lovenduski, M. D. Iglesias-Rodriguez, J. A. Kleypas. **2017**. Coccolithophore growth and calcification in a changing ocean. *Progress in Oceanography*. doi:10.1016/j.pocean.2017.10.007
- **Krumhardt, K. M.**, N. S. Lovenduski, M. C. Long, and K. Lindsay. **2017**. Avoidable impacts of ocean warming on marine primary production: Insights from the CESM ensembles. *Global Biogeochemical Cycles*, 31(1), pp.114-133. doi:10.1002/2016GB005528.
- **Krumhardt, K. M.**, N. S. Lovenduski, N. M. Freeman, & N. R. Bates. **2016**. Apparent increase in coccolithophore abundance in the subtropical North Atlantic from 1990 to 2014. *Biogeosciences*, 13(4), 1163-1177. doi:10.5194/bg-13-1163-2016

- He, F., S. J. Vavrus, J. E. Kutzbach, W. F. Ruddiman, J. O. Kaplan, and **K. M. Krumhardt**. 2014. Simulating global and local surface temperature changes due to Holocene anthropogenic land cover change. *Geophysical Research Letters*. doi: 10.1002/2013GL058085.
- **Krumhardt, K. M.**, K. Callnan, K. Roache-Johnson, T. Sweet, D. Robinson, E. Nahas Reistetter, J. K. Saunders, G. Rocap, and L. R. Moore. 2013. Effects of phosphorus starvation versus limitation on the marine cyanobacterium *Prochlorococcus* MED4 I: uptake physiology. *Environmental Microbiology* **15**: 2114-2128. doi:10.1111/1462-2920.12079
- Nahas Reistetter, E., **K. M. Krumhardt**, K. Callnan, K. Roache-Johnson, J. K. Saunders, L. R. Moore, and G. Rocap. 2013. Effects of phosphorus starvation vs. limitation on the marine cyanobacterium *Prochlorococcus* MED4 II: gene expression. *Environmental Microbiology* **15**: 2129-2143. doi:10.1111/1462-2920.12129
- Kaplan, J. O., **K. M. Krumhardt**, and N. E. Zimmermann. 2012. The effects of land use and climate change on the carbon cycle of Europe over the past 500 years. *Global Change Biology* **18**:902-914. doi:10.1111/j.1365-2486.2011.02580.x
- Sapart, C. J., G. Monteil, M. Prokopiou, R. S. W. van de Wal, J. O. Kaplan, P. Sperlich, **K. M. Krumhardt**, C. van der Veen, S. Houweling, M. C. Krol, T. Blunier, T. Sowers, P. Martinerie, E. Witrant, D. Dahl-Jensen, and T. Röckmann. 2012. Natural and anthropogenic variations in methane sources during the past two millennia. *Nature* **490**:85-88. doi:10.1038/nature11461
- Kaplan, J. O., **K. M. Krumhardt**, E. C. Ellis, W. F. Ruddiman, C. Lemmen, and K. K. Goldewijk. 2011. Holocene carbon emissions as a result of anthropogenic land cover change. *The Holocene* **21**:775-791. doi:10.1177/0959683610386983
- Kaplan, J. O., **K. M. Krumhardt**, and N. Zimmerman. 2009. The prehistoric and preindustrial deforestation of Europe. *Quaternary Science Reviews* **28**:3016-3034. doi:10.1016/j.quascirev.2009.09.028

## **NON-REFEREED PUBLICATIONS**

---

- **Krumhardt, K. M.** [Review of the book: Perlmutter, David, and Robert Rothstein. *The Challenge of Climate Change: Which Way Now?* 2011 Oxford: Wiley-Blackwell] *Environment and Society: Advances in Research*, 2015.
- **Krumhardt, K. M.** and S. Rivero-Calle. 2016. A chalkier ocean? Multi-decadal increases in North Atlantic coccolithophore populations. *Ocean Carbon and Biogeochemistry News* **9**(3): 1-5.

## **MEMBERSHIPS**

---

- American Geophysical Union, since 2014.
- Phi Beta Kappa Honor Society, Iowa State University, 2003.

## **ADDITIONAL EXPERIENCES / OUTREACH**

---

- School science fair judge, Burlington Elementary (Longmont, Colorado) & Summit Middle School (Boulder, Colorado), 2015-2016.
- Participation in *Community Earth System Model (CESM) Tutorial*, National Center for Atmospheric Research (NCAR) Boulder, Colorado, 2015.
- Participation in *AGU Sharing Science in your Community* Workshop, 2015.
- Invited guest lecturer, École Polytechnique Fédérale de Lausanne, Switzerland, 2009-2012.