AMANDA R. FAY

Senior Staff Associate, Lamont-Doherty Earth Observatory
Columbia University
Phone: (808) 220-9917 Email: afay@ldeo.columbia.edu

EDUCATION

M.S. University of Wisconsin, Atmospheric and Oceanic Sciences, 2010
B.S. University of Oregon, Environmental Sciences; Geography, 2007

RESEARCH and PROFESSIONAL EXPERIENCE

Aug 2017- present	Senior Staff Associate, Officer of Research, Lamont-Doherty Earth Observatory, Columbia University, working remotely
2016- 2017	Associate Researcher, Space Science and Engineering Center, University of Wisconsin – Madison, working remotely
2012- 2016	Assistant Researcher, Space Science and Engineering Center, University of Wisconsin – Madison, working remotely from Seattle, WA
2010- 2012	Research Assistant, Atmospheric and Oceanic Sciences, University of Wisconsin – Madison, working remotely from Seattle, WA
2008-2010	Research Assistant, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison
2007-2008	Contracted Environmental Compliance Intern, Federal Aviation Administration/Lockheed Martin, Eugene, OR

PUBLICATIONS

Fay, A.R., Lovenduski, N.S., McKinley, G.A., Munro, D.R., Sweeney, C. et al., (2018) Utilizing the Drake Passage Time-series to understand variability and change in subpolar Southern Ocean pCO_2, *in review at Biogeosciences*

Ritter, R., Landschützer, P., Gruber, N., Fay, A. R., Iida, Y., Jones, S., et al. (2017). Observation-based trends of the Southern Ocean carbon sink. *Geophysical Research Letters*, 44, 12,339–12,348. https://doi.org/10.1002/2017GL074837

Fay, A. R., and G. A. McKinley (2017), Correlations of surface ocean pCO_2 to satellite chlorophyll on monthly to interannual timescales, *Global Biogeochem. Cycles,* 31, doi:10.1002/2016GB005563.

McKinley, G. A., Fay, A. R., Lovenduski, N. S., & Pilcher, D. J. (2017). Natural variability and anthropogenic trends in the ocean carbon sink. *Annual Review of Marine Science*, *9*, 125-150.

Lovenduski, N. S., McKinley, G. A., Fay, A. R., Lindsay, K., & Long, M. C. (2016). Partitioning uncertainty in ocean carbon uptake projections: Internal variability, emission scenario, and model structure. *Global Biogeochemical Cycles*, *30*(9), 1276-1287

McKinley, G.A., D.J. Pilcher, A.R. Fay, K. Lindsay, M.C. Long, and N. Lovenduski (2016) Timescales for detection of trends in the ocean carbon sink, *Nature*, *530*(7591), 469-472.

Lovenduski, N.S., A.R. Fay, G.A. McKinley (2015) Observing multidecadal trends in Southern Ocean CO_2 uptake: What can we learn from an ocean model?. *Global Biogeochemical Cycles*, *29*(4), 416-426.

Murray, J.W., E. Roberts, E. Howard, M. O'Donnell, C. Bantam, E. Carrington, M. Foy, B. Paul, A. Fay (2015) An inland sea high nitrate-low chlorophyll (HNLC) region with naturally high pCO_2, Limnology and Oceanography, 00-00, doi: 10.1002/lno.10062.

Fay, A. R., G. A. McKinley, and N. S. Lovenduski (2014), Southern Ocean carbon trends: Sensitivity to methods, Geophys. Research Letters, 41, 6833–6840, doi:10.1002/ 2014GL061324.

Fay, A.R. and G.A. McKinley (2014) "Global open-ocean biomes: mean and temporal variability. Earth System Science Data, 6, 273-284, 2014, doi:10.5194/essd-6-273-2014.

Fay, A. R., & G.A. McKinley (2013). Global trends in surface ocean pCO_2 from in situ data. Global Biogeochemical Cycles, 27(2), 541–557. doi:10.1002/gbc.20051

Schuster, U., G.A. McKinley, N. Bates, F. Chevallier, S.C. Doney, A.R. Fay, et al. (2013). An assessment of the Atlantic and Arctic sea–air CO_2 fluxes, 1990–2009. Biogeosciences, 10(1), 607–627. doi:10.5194/bg-10-607-2013

McKinley, G.A, A.R. Fay, T. Takahashi, N. Metzl, (2011) "Convergence of atmospheric and North Atlantic carbon dioxide trends on multidecadal timescales". *Nature Geo* Vol 4, Num 9, 606-610.

Fay, A.R. Estimating global ocean carbon trends using in situ pCO_2 observations. MS Thesis, University of Wisconsin - Madison, 2010.

PRESENTATIONS

ICDC10*,* Interlaken, Switzerland. August 2017
Poster, "Variability and change in Southern Ocean carbon: the Drake Passage bellwether"

The Southern Ocean, its dynamics & biogeochemistry*,* Boulder, CO. April 2017
Poster, "Variability and change in Southern Ocean carbon: the Drake Passage bellwether"

CLIVAR Open Science Conference*,* Qingdao, China. September 2016
Oral, "Updated global trends in surface ocean pCO2: decadal to multidecadal timescales"

CESM workshop, Breckenridge, CO. June 2016
Oral, "Natural variability vs. anthropogenic trends: detecting change in the ocean carbon sink"

AGU, Ocean Sciences, New Orleans, February 2016
Oral, "Updated Southern Ocean Carbon Trends and Their Sensitivity to Methods"

AMANDA R. FAY

SOLAS Open Science Conference, Kiel, Germany, September 2015
Poster, "Southern Ocean Carbon Trends and Their Sensitivity to Methods"

USCLIVAR, Ocean's Carbon and Heat Uptake Workshop, San Francisco, CA, Dec 2014
Poster, "Southern Ocean carbon trends: sensitivity to methods"

NASA, Ocean Color Research Team Meeting, Washington, DC, May 2014
Poster, "Variability and trends in global ocean carbon uptake from in-situ pCO_2 observations"

AGU, Ocean Sciences, Honolulu, HI, February 2014
Oral, "Estimating Global Ocean Carbon Trends Using In-situ pCO_2 Observations"

ICDC9, Beijing, China, June 2013
Oral, "Estimating Global Ocean Carbon Trends Using In-situ pCO_2 Observations"

SOLAS Open Science Conference, Cle Elum, Washington, May 2012
Poster, "Variability, Trends in Global Ocean Carbon Uptake from pCO_2 Observations"

NASA Ocean Color Research Team Meeting, Seattle, WA, April 2012
Poster, "Estimating Global Ocean Carbon Trends Using In-situ pCO_2 Observations"

AGU, Ocean Sciences, Salt Lake City, Utah, February 2012
Oral, "Estimating Global Ocean Carbon Trends Using In-situ pCO_2 Observations"

WCRP, Open Science Conference, Denver, CO, October 2011
Poster, "Estimating Global Ocean Carbon Trends Using In-situ pCO_2 Observations"

SOLAS/IMBER/IOCCP Carbon Synthesis Meeting Paris, France, September 2011
Oral, "Ocean Carbon Overview: Drivers"

ASLO, Ocean Sciences, San Juan, Puerto Rico, February 2011
Oral, "Using pCO_2 Observations to Estimate Decadal and Multi-decadal Trends in the Carbon Sink"

Graduate Climate Conference, Seattle, WA, October 2010
Oral, "Using pCO_2 Observations to Identify Carbon Uptake Trends: A North Atlantic Case Study"

American Geophysical Union Ocean Sciences Meeting, Portland, OR**,** February 2010
Poster, "Using In-situ pCO_2 Observations to Evaluate Ocean Carbon Trends in the North Atlantic"

AGU Chapman Conference: Biological Carbon Pump, Brockenhurst, England, Sept 2009
Poster, "Using In-situ pCO_2 Observations to Evaluate and Improve Ocean Carbon Models"

AMANDA R. FAY

PROFESSIONAL ACTIVITIES AND OUTREACH

Spring 2018 **I07N Cruise** Indian Ocean
LADCP
Participating in the reoccupation of WOCE line I07N. Served as a LADCP operator and assisted other groups as needed.

Spring 2016 **I09N Cruise** Indian Ocean
CTD-watch
Participating in the reoccupation of WOCE line I09N. Served as a CTD-watchstander

Spring 2015 **P16N Cruise** North Pacific Ocean
CTD-watch
Participated in Leg 2 of the reoccupation of WOCE line P16N. Served as a CTD-watchstander

June 2013 – present **SOCOM**
Surface Ocean pCO2 Mapping intercomparison: Trend group member
This project aims to exploit the complementarity of various pCO_2 climatology approaches to learn more about the ocean biogeochemical signals, and ultimately to provide to the community a "best guess" CO_2 flux estimate from pCO_2 (DIC) data, including an assessment of its robustness/limits.

Spring 2012 & 2013 **University of Washington** Friday Harbor, WA
Assistant for Student Apprenticeship: Ocean Acidification
Assist with experiment design and development. Lead daily sampling for a 21-day acidification mesocosm experiment. Conduct oxygen analyses. Conduct DIC, alkalinity, oxygen, and pH analyses. Train an undergraduate student to do oxygen analyses.

Summer 2010 **University of Wisconsin** Madison, WI
Assistant for educator's class on Global and Regional Climate Change
Coordinated a group of high school teachers during a full-day workshop and 8-week web-based course. Co-developed online learning module for teachers based on the Climate Literacy Framework.

August 2009 to December 2010 **Outreach Committee Coordinator** Madison, WI
Coordinate presentations of climate experiments and demonstrations by the graduate student association including trips to community events and visits to schools around the state.

August 2009 **SOLAS Summer School** Corsica, France
Participated in a two-week workshop on ocean-atmosphere interactions. Presented both a poster and a presentation.

AMANDA R. FAY

TEACHING EXPERIENCE

November 2013	**Lewis and Clark University** *Invited guest lecturer for Introduction to Climate class*	Portland, OR
Fall 2009	**University of Wisconsin** *Teaching Assistant for AOS 101: Weather and Climate* Taught a weekly lab section on various atmosphere and ocean topics related to climate, including weather map analyses and quantitative lab exercises.	Madison, WI
Winter and Spring 2007	**University of Oregon** *Environmental Leadership Program: Environmental Education* Worked in collaboration with the US Forest Service to create and implement curriculum to teach youth about environmental stewardship while developing basic math, science, and creative thinking skills.	Eugene, OR

REFERENCES

Dr. Galen McKinley
Professor
Department of Earth and Environmental Sciences
Columbia University
Lamont-Doherty Earth Observatory
Email: mckinley(at)ldeo.columbia.edu

Alison Macdonald
Research Specialist
Woods Hole Oceanographic Institute
Phone: 508-289-3507
Email: amacdonald(at)whoi.edu