Curriculum Vitae

OREGON STATE UNIVERSITY
College of Earth, Ocean, and Atmospheric Sciences

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ANDREAS SCHMITTNER
Professor

EDUCATION

Ph.D., Physics, University Bern, Switzerland, 1999
Department of Climate and Environmental Physics, Institute of Physics
Dissertation Title: On the Large-Scale Atmospheric Hydrological Cycle and its Influence on the Global Ocean Circulation.
Diploma, Physics, University Bremen, Germany, 1996

ACADEMIC POSITIONS

Professor, College of Earth, Ocean, and Atmospheric Sciences, OSU, 2017-present
Associate Professor, College of Earth, Ocean, and Atm. Sciences, OSU, 2011-2017
Affiliated Faculty, Environmental Arts and Humanities, OSU, 2013-present
Assistant Professor, College of Oceanic and Atmospheric Sciences, OSU, 2005-2011
Postdoctoral Scholar, Institute of Geosciences, University Kiel, Germany, 2003-2005
Postdoctoral Scholar, Max-Planck-Institute for Biogeochemistry, Jena, Germany, 2002-2003
Lecturer, Department of Physics and Astronomy, University of Victoria, Canada, 2001-2002
Postdoctoral Scholar, School of Earth and Ocean Sciences, U. of Victoria, Canada, 1999-2002

HONORS AND AWARDS

2006 Early Career Award, Ocean Sciences Section of the American Geophysical Union

FIELDS OF SPECIALIZATION

Earth System Modeling, Climate Dynamics, Climate Change, Paleoclimate, Paleoceanography, Ocean Circulation, Marine Ecosystem and Biogeochemical Cycles, Ocean Acidification

PROFESSIONAL ACTIVITIES

Professional Organizations

American Geophysical Union (AGU), American Meteorological Society (AMS)
European Geosciences Union (EGU)

Conference Session Chair, Workshop Convener, etc.

Workshop Convenor "Ocean Circulation and Carbon Cycling During the Last Deglaciation: Regional Syntheses of Carbon Isotope Data", Corvallis, Oregon, June 27-29, 2017.
Organizing Committee Member "Connecting Paleo and Modern Oceanographic Data to Understand AMOC over Decades to Centuries", Boulder, Colorado, May 23-25, 2016.
Workshop Convenor "Deglacial Deep Ocean Circulation and Biogeochemical Cycling", Bern, Switzerland, Sep. 30 - Oct. 3, 2014.
Workshop Convenor "PMIP Ocean Workshop 2013", Corvallis, Dec. 4-6, 2013.

Committees, Commissions and Boards

Chair of the Scientific Advisory Board for the German Climate Modeling Initiative PALMOD, https://www.palmod.de/, 2016-present

Ocean Circulation and Carbon Cycling (OC3) Chair, OC3 is a Past Global Changes Working Group, http://www.pastglobalchanges.org/ini/wg/oc3/intro, 2014-present

Investigating Past Ocean Dynamics (IPODS) Co-chair, IPODS is an INQUA (International Quaternary Association) International Focus Group, 2014-present

Chair and vice-chair of Task Team 4 of the US AMOC Program, which is part of the US Climate Variability and Predictability Program, 2014-2016

Selected Refereed Papers (number of citations in parenthesis according to Web of Science)

1. Lacerra, M., D. C. Lund, J. Yu, and A. Schmittner (2017) Carbon storage in the mid-depth Atlantic during millennial-scale climate events, Paleoceanography, 32, 780-795, doi:10.1002/2016PA003081.
2. Schmittner, A., H. C. Bostock, O. Cartapanis, W. B. Curry, H. L. Filipsson, E. D. Galbraith, J. Gottschalk, J. C. Herguera, S. Jaccard, L. E. Lisiecki, D. C. Lund, G. Martínez-Méndez, J. Lynch-Stieglitz, A. Mackensen, E. Michel, A. C. Mix, D. W. Oppo, C. D. Peterson, E. L. Sikes, H. J. Spero, and C. Waelbroeck (2017) Calibration of the Carbon Isotope Composition ($\delta^{13}C$) of Epibenthic Foraminifera, Paleoceanography, 32(6), 512-530, doi:10.1002/2016PA003072.
3. Somes, C. J., Schmittner, A., Muglia, J. and A. Oschlies (2017) A three-dimensional model of the marine nitrogen cycle during the Last Glacial Maximum constrained by sedimentary isotopes, Frontiers in Marine Science, 4, 108, doi:10.3389/fmars.2017.00108.
4. Ullman, D. J. and A. Schmittner (2017) A cloud feedback emulator (CFE, version 1.0) for an intermediate complexity model, Geoscientific Model Development, 10, 945-958, doi:10.5194/gmd-10-945-2017.
5. Bakker, P., Schmittner, A., Lenaerts, J. T. M., Abe-Ouchi, A., Bi, D., van den Broeke, M. R., Chan, W.-L., Beadling, R. L., Marsland, S. J., Mernild, S. H., Saenko, O. A., Swingedouw, D., Sullivan, A. and J. Jin (2016) Fate of the Atlantic Meridional Overturning Circulation - Strong decline under continued warming and Greenland melting, Geophysical Research Letters, 43(23), 12,252-12,260, doi:10.1002/2016GL070457. Selected EOS Research Spotlight and US CLIVAR Research Highlight. (1)
6. Bakker, P., Clark, P. U., Golledge, N. R., Schmittner, A., and M. E. Weber (2016) Centennial-scale Holocene climate variations amplified by Antarctic Ice Sheet discharge, Nature, 541, 72–76, doi:10.1038/nature20582. (2)
7. Hertzberg, J. E., Lund, D. C., Schmittner, A. and A. L. Skrivanek (2016) Evidence for a Biological Pump Driver of Atmospheric CO2 Rise during Heinrich Stadial 1, Geophysical Research Letters, 43(23), 12,242-12,251, doi:10.1002/2016GL070723. (3)
8. Schmittner, A., and C. J. Somes, 2016, Complementary Constraints from Carbon (^{13}C) and Nitrogen (^{15}N) Isotopes on the Efficiency of the Glacial Ocean's Soft-Tissue Biological Pump, Paleoceanography, 31, doi:10.1002/2015PA002905. (5)
9. Muglia, J., and Schmittner, A., 2015, Glacial Atlantic overturning increased by wind stress in climate models, Geophysical Research Letters, 42, doi:10.1002/2015GL064583. (7)
10. Buizert, C., and Schmittner, A., 2015, Southern Ocean Control of Glacial AMOC Stability and Dansgaard-Oeschger Interstadial Duration, Paleoceanography, 30, doi:10.1002/2015PA002795. (3)

11. Green, J. A. M., and Schmittner, A., 2015, Climatic Consequences of a Pine Island Glacier Collapse, Journal of Climate, 28, 9221-9234, doi:10.1175/JCLI-D-15-0110.1. (2)
12. Kvale, K. F., Meissner, K. J., Keller, D. P., Eby, M., and Schmittner, A., 2015, Explicit planktic calcifiers in the University of Victoria Earth System Climate Model, Version 2.9, Atm.-Ocean, 53:3, 332-350, doi:10.1080/07055900.2015.1049112. (0)
13. Lund, D., Tessin, A., Hoffman, J., Schmittner, A., 2015, Southwest Atlantic water mass evolution during the last deglaciation, Paleoceanogr., 30, doi:10.1002/2014PA002657. (17)
14. Schmittner, A., Green, J. A. M., and Wilmes, S.-B. (2015) Glacial Ocean Overturning Intensified by Tidal Mixing in a Global Circulation Model, Geophysical Research Letters. doi:10.1002/2015GL063561. (9)
15. Schmittner, A., and Lund, D. C., 2015, Early deglacial Atlantic overturning decline and its role in atmospheric CO_2 rise inferred from carbon isotopes ($\delta^{13}C$), Climate of the Past, 11, 135-152. (17)
16. Schmittner, A., and Egbert, G. D., 2014, An improved parameterization of tidal mixing for ocean models, Geoscientific Model Development, 7, 211-224, doi:10.5194/gmd-7-211-2014. (3)
17. Schmittner, A., Gruber, N., Mix, A. C., Key, R. M., Tagliabue, A., and Westberry, T. K., 2013, Biology and air-sea gas exchange controls on the distribution of carbon isotope ratios ($\delta^{13}C$) in the ocean, Biogeosciences, 10, 5793-5816, doi:10.5194/bgd-10-5793-2013. (40)
18. Somes, C. J., Oschlies, A., and Schmittner, A., 2013, Isotopic constraints on the pre-industrial oceanic nitrogen budget, Biogeosciences, 10, 5889-5910, doi:10.5194/bgd-10-5889-2013. (20)
19. Galbraith, E. D., Kienast, M., Albuquerque, A. L., Altabet, M., Batista, F., Bianchi, D., Calvert, S. E., Contreras Quintana, S., Crosta, X., De Pol Holz, R., Dubois, N., Etourneau, J., Francois, R., Hsu, T.-C., Ivanochko, T., Jaccard, S. L., Kao, S.-J., Kiefer, T., Kienast, S., Lehmann, M. F., Martinez, P., McCarthy, M., Meckler, A. N., Mix, A. C., Mobius, J., Pedersen, T. F., Quan, T. M., Robinson, R. S., Ryabenko, E., Schmittner, A., Schneider, R., Schneider-Mor, A., Shigemitsu, M., Sinclair, D., Somes, C., Studer, A. S., Tesdal, J.-E., Thunell, R., and Yang, J.-Y. T., 2013, The acceleration of oceanic denitrification during deglacial warming, Nature Geosc., 6, 579–584, doi:10.1038/ngeo1832. (29)
20. Robinson, R. S., Kienast, M., Luiza Albuquerque, A., Altabet, M., Contreras, S., De Pol Holz, R., Dubois, N., Francois, R., Galbraith, E., Hsu, T.-C., Ivanochko, T., Jaccard, S., Kao, S.-J., Kiefer, T., Kienast, S., Lehmann, M., Martinez, P., McCarthy, M., Möbius, J., Pedersen, T., Quan, T. M., Ryabenko, E., Schmittner, A., Schneider, R., Schneider-Mor, A., Shigemitsu, M., Sinclair, D., Somes, C., Studer, A., Thunell, R., and Yang, J.-Y., 2012, A review of nitrogen isotopic alteration in marine sediments, Paleoceanography, 27, PA4203, 10.1029/2012PA002321. (59)
21. Ahn, J., Brook, E. J., Schmittner, A., and Kreutz, K., 2012, Abrupt change in atmospheric CO2 during the last ice age, Geophys. Res. Lett. 39, L18711, doi:10.1029/2012GL53018. (12)
22. Schmittner, A., Urban N. M., Shakun, J. D., Mahowald, N. M., Clark, P. U., Bartlein, P. J., Mix, A. C., and Rosell-Melé, A., 2012, Response to Comment on "Climate Sensitivity

Estimated from Temperature Reconstructions of the Last Glacial Maximum", *Science,* 337, 1294, doi: 10.1126/science.1221634. (1)

23. Pinsonneault, A. J., Matthews, H. D., Galbraith, E. D., and A. Schmittner, 2012, Calcium carbonate production response to future ocean warming and acidification, Biogeosciences, 9, 2351-2364, doi:10.5194/bg-9-2351-2012. (6)
24. Ross, A., Matthews, H. D., Schmittner, A., and Kothavala, Z., 2012, Assessing the Effects of Ocean Diffusivity and Climate Sensitivity on the Rate of Global Climate Change, Tellus B, 64, 17733, doi:10.3402/tellusb.v64i0.17733. (1)
25. Shakun, J. D., Clark, P. U., He, F., Marcott, S. A., Mix, A. C., Liu, Z., Otto-Bliesner, B., Schmittner, A., and Bard, E., 2011, Global warming preceded by increasing carbon dioxide concentrations during the last deglaciation, *Nature,* 484, 49-54, doi:10.1038/nature10915. (312)
26. Schmittner, A., A. Oschlies, H. D. Matthews, and E. D. Galbraith, 2008, Future changes in climate, ocean circulation, ecosystems and biogeochemical cycling simulated for a business-as-usual CO_2 emission scenario until year 4000 AD, *Glob. Biogeochem. Cycles,* 22, GB1013, doi:10.1029/2007GB002953. (202)

Other

I have written an open textbook on climate science for undergraduates: Schmittner, A. (2017) Introduction to Climate Science, Open Oregon State, http://library.open.oregonstate.edu/climatechange/.

I have been contributing author to two IPCC Assessment Reports: AR4 and AR5. Chapter 6 (Ciais et al. 2013: Carbon and Other Biogeochemical Cycles) of Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Chapters 8 (Randall et al. 2007: Climate Models and Their Evaluation) and 10 (Meehl et al. 2007: Global Climate Projections) of Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. The IPCC was awarded the Nobel Peace Prize in 2007.

TEACHING AND ADVISING

I have been teaching 13 courses at OSU since 2007 on topics such as climate change and climate modeling. I have advised four post-doctoral researchers and two graduate students.

RESEARCH

I have been awarded 12 major research grants from the National Science Foundation and the National Oceanic and Atmospheric Administration for a total of $4.4 M.

SERVICE

I have served on 20 College and University committees, 2 NSF panels, and 1 NOAA Advisory Panel. I have reviewed more than 100 manuscripts for scientific journals and more than 60 grant proposals. I have given numerous lectures on climate science for the general public. I engage in outreach activities to improve climate literacy such as organization of teacher workshops and participation in climatefeedback.org, which is a fact checking network of climate scientists.