Curriculum Vitae
November 19, 2011

CECILIA M. BITZ
Department of Atmospheric Sciences
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EDUCATION

Aug. 1997: Ph.D., Department of Atmospheric Sciences, University of Washington, Seattle, WA.
Dissertation title: A Model Study of Natural Variability in the Arctic Climate.

June 1990: M.S., Department of Physics, University of Washington, Seattle, WA.

June 1988: B.S., Department of Physics, Oregon State University, Corvalis, OR.

APPOINTMENTS

Sep. 2009 - present: Associate Professor, Atmospheric Sciences, University of Washington, Seattle, WA.

Aug. 2005 - Sep. 2009: Assistant Professor, Atmospheric Sciences, University of Washington, Seattle, WA.

Jan. 2006 - present: Affiliate Physicist, Polar Science Center, University of Washington, Seattle, WA.

Jul. 2001 - Aug. 2005: Physicist, Polar Science Center, University of Washington, Seattle, WA.

Nov. 2002 - Jul. 2005: Affiliate Assistant Professor, Atmospheric Sciences, University of Washington, Seattle, WA.

Jan. 2000 - Jun. 2001: NOAA Climate and Global Change Visiting Scholar, Polar Science Center, University of Washington, Seattle, WA.

Apr. 1999 - Dec. 1999: Research Associate, Quaternary Research Center, University of Washington, Seattle, WA.

Sept. 1997 - Mar. 1999: Research Associate, School of Earth & Ocean Sciences, University of Victoria, Victoria, BC.

Apr. 1993 - Aug. 1997: Research Assistant, Department of Atmospheric Sciences, University of Washington, Seattle, WA.

Sept. 1988 - Mar. 1993: Research Assistant, Department of Physics, University of Washington, Seattle, WA.

REFEREED PUBLICATIONS

Notes: Many available from www.atmos.washington.edu/∼bitz

Student and postdoc authors are underlined in papers written since Bitz became faculty

Bitz, C.M., J.K. Ridley, M.M. Holland, and H. Cattle, 2012: 20th and 21st century Arctic climate in global climate models, in Arctic Climate Change - The ACSYS Decade and Beyond, edited by P. Lemke. in press.

Bitz, C.M., K.M. Shell, P.R. Gent, D. Bailey, G. Danabasoglu, K.C. Armour, M. M. Holland, and J.T. Kiehl, 2012: Climate Sensitivity in the Community Climate System Model Version 4 Compared to Version 3, J. Climate, in press.

McCusker, K.E., D.S. Battisti, and C.M. Bitz, 2012: The climate response to stratospheric sulfate injections and implications for addressing climate emergencies, J. Climate, in press.

Jahn, A., K. Sterling, M.M. Holland, J.E. Kay, J.A. Maslanik, C.M. Bitz, D. Bailey, J. Stroeve, E.C. Hunke, W.H. Lipscomb, and D. Pollak, 2012, Late 20th century simulation of Arctic sea-ice and ocean properties in the CCSM4, J. Climate, in press.

Hezel, P.J., B. Alexander, C.M. Bitz, and E.J. Steig, 2011: Modeled methanesulfonic acid (MSA) deposition in Antarctica, J. Geophys. Res., in press.

Bitz, C.M., and S.J. Marshall, 2011: Modeling of the Cryosphere, in the Encyclopedia of Sustainable Science and Technology.

Armour, K.C., I. Eisenman, E. Blanchard-Wrigglesworth, K.E., McCusker, and C.M. Bitz, 2011: The reversibility of sea ice loss in a state-of-the-art climate model, 38, L16705, doi:10.1029/2011GL048739.

Blanchard-Wrigglesworth, E., C.M. Bitz, and M.M. Holland, 2011: Influence of initial conditions and boundary forcing on predictability in the Arctic, 38, L18503, doi:10.1029/2011GL048807.

Eisenman, I., T. Schneider, D.S. Battisti, and C.M. Bitz, 2011: Consistent changes in the sea ice seasonal cycle in response to global warming, J. Climate, 24, 5325-5335 doi: 10.1175/2011JCLI4051.1

Kirkman, C. and C.M. Bitz, 2011: The Effect of the Sea Ice Freshwater Flux on Southern Ocean Temperatures in CCSM3: Deep Ocean Warming and Delayed Surface Warming J. Climate, 24, 2224-2237, 10.1175/2010JCLI3625.1

Armour, K.,, C. M. Bitz, L. Thompson and E. C. Hunke, 2011: Controls on Arctic sea ice from first-year and multiyear ice survivability, J. Climate, 24, 2378–2390, 10.1175/2010JCLI3823.1

Pausata, F.S.R., D.S. Battisti, K.H. Nisancioglu, and C.M. Bitz, 2011, Chinese stalagmite δ18O controlled by changes in the Indian monsoon during a simulated Heinrich event, Nature Geosciences, 19 June, doi:10.1038/ngeo116.

Blanchard-Wrigglesworth, E., K. Armour, C. M. Bitz, and E. deWeaver, 2011, Persistence and inherent predictability of Arctic sea ice in a GCM ensemble and observations, J. Clim., 24, 231–250, doi: 10.1175/2010JCLI3775.1

Amstrup, S.C., E. DeWeaver, D.C. Douglas, B.G. Marcot, G.M. Durner, C.M. Bitz, D.A. Bailey, 2010: Greenhouse gas mitigation can reduce sea-ice loss and increase polar bear persistence. Nature, doi:10.1038/nature09654

Li, C., D. S. Battisti, and C.M. Bitz, 2010: Characteristics and climate impacts of sea ice in the glacial North Atlantic, J. Clim. doi: 10.1175/2010JCLI3409.1

Goosse, H. O. Arzel, C.M. Bitz, A. de Montety, and M. Vancoppenolle, 2009: Increased variability of the Arctic summer ice extent in a warmer climate, Geophys. Res. Lett. doi:10.1029/2009GL040546.

Rennert, K., G. Roe, J. Putkonen, and C.M. Bitz, 2009: Soil thermal and ecological impacts of rain on snow events in the circumpolar Arctic, J. Clim. doi:10.1175/2008JCLI2117.1.

J. Putkonen, T. C. Grenfell, K. Rennert, C.M. Bitz, P. Jacobson, and D. Russell, 2009: Rain on snow: Little understood killer in the North, EOS, vol 90, no 26, p 221-222.

Eisenman, I., C.M. Bitz, E. Tziperman, 2009: Rain driven by receding ice sheets as a cause for the Younger Dryas, Paleocean., 24, PA4209, doi:10.1029/2009PA001778.

Hunke, E.C. and Bitz, C.M., 2009: Age characteristics in a multidecadal Arctic sea ice simulation, J. Geophys. Res., 114, C08013, doi:10.1029/2008JC005186.

Bitz, C.M. and Q. Fu, 2008: Arctic Warming Aloft is Dataset Dependent, Nature, doi:10.1038/nature07258.

Stern, H., R. Lindsay, C.M. Bitz, and P. Hezel, 2008: What is the trajectory of Arctic sea ice? in Arctic Sea Ice Decline: Observations, projections, mechanisms, and implications, AGU Geophysical Monograph Series, edited by E. deWeaver, C.M. Bitz, and B. Tremblay, p. 175-185.

Holland, M.M., C.M. Bitz, B. Tremblay, D. Bailey, 2008: The role of natural versus forced change in future rapid summer Arctic ice loss, in Arctic Sea Ice Decline: Observations, projections, mechanisms, and implications, AGU Geophysical Monograph Series, edited by E. deWeaver, C.M. Bitz, and B. Tremblay, p 133-150.

Bitz, C.M., 2008: Some aspects of uncertainty in predicting sea ice thinning, in Arctic Sea Ice Decline: Observations, projections, mechanisms, and implications, AGU Geophysical Monograph Series, edited by E. deWeaver, C.M. Bitz, and B. Tremblay, p. 63-76.

Chiang, J.C.H., W. Cheng, and C.M. Bitz, 2008: Fast teleconnection mechanisms to the tropical Atlantic from an abrupt freshening of the North Atlantic ocean, Geophys. Res. Lett., 35, L07704, doi:10.1029/2008GL033292.

Cheng, W., C.M. Bitz, and J.C.H Chiang, 2007: Adjustment of the global climate system to abrupt changes in the Atlantic meridional overturning circulation, in Ocean Circulation: Mechanisms and Impacts, AGU Geophysical Monograph Series, vol. 173, edited by A. Schmittner, J. Chiang, and S. Hemming, pp. 295-314, American Geophysical Union.

Bitz, C.M., J.C.H Chiang, W. Cheng, and J.J. Barsugli 2007: Rates of thermohaline recovery from freshwater pulses in Modern, Last Glacial Maximum and Future Climates, Geophys. Res. Lett., 34, L07708, doi:10.1029/2006GL029237.

Schneider, D.P., E.J. Steig, T.D. vanOmmen, D. Dixon, P.A. Mayewski, J.M. Jones, and C.M. Bitz 2006: Antarctic temperatures of the past two centuries from ice cores, Geophys. Res. Lett., 33, L16707, doi:10.1029/2006GL027057.

Holland, M.M., C.M. Bitz, and B. Tremblay, 2006: Future abrupt transitions in the summer Arctic sea ice, Geophys. Res. Lett., 33, L23503, doi:10.1029/2006GL028024.

Hack, J.J., J.M. Caron, G. Danabasoglu, K.W. Oleson, C.M. Bitz, and J.E. Truesdale, 2006: CCSM CAM3 Climate Simulation Sensitivity to Changes in Horizontal Resolution, J J. Climate, Vol. 19, No. 11, pages 2267–2289

Bitz, C.M., P.R. Gent, R.A. Woodgate, M.M. Holland, and R. Lindsay, 2006: The influence of sea ice on ocean heat uptake in response to increasing CO2, J. Climate, Vol. 19, No. 11, pages 2437–2450.

Holland, M.M., C.M. Bitz, E.C. Hunke, W.H. Lipscomb, and J.L. Schramm, 2006: Influence of the Sea Ice Thickness Distribution on Polar Climate in CCSM3, J. Climate, 19, 2398–2414.

DeWeaver, E., and C.M. Bitz, 2006: Atmospheric circulation and Arctic sea ice in CCSM3 at medium and high resolution, J. Climate, Vol. 19, No. 11, pages 2415–2436

Collins, W. D., C.M. Bitz, M. Blackmon, G.B . Bonan, C.S. Bretherton, J.A. Carton, P. Chang, S. Doney, J.J. Hack, T. Henderson, J.T. Kiehl, W.G. Large, D. McKenna, B.D. Santer, and R. Smith, 2006: The Community Climate System Model, Version 3, J. Climate, Vol. 19, No. 11, pages 2122–2143

Collins, W.D., P.J. Rasch, B.A. Boville, J.J. Hack, J. R. McCaa, D.L. Williamson, B. Briegleb, C.M. Bitz, S.-J. Lin, M. Zhang, and Y. Dai, 2006: The Formulation and Atmospheric Simulation of the Community Atmosphere Model: CAM3, J. Climate, Vol. 19, No. 11, pages 2144–2161

Vancoppenolle, M., C.M. Bitz, and T. Fichefet, 2007: Summer landfast ice desalination at Point Barrow, Alaska: Modeling and observations, J. Geophys. Res., 112, C04022, doi:10.1029/2006JC003493.

Vancoppenolle, M, T. Fichefet, and C.M. Bitz, 2006: Modeling the salinity profile of undeformed Arctic sea ice, Geophys. Res. Lett., 33, doi:10.1029/2006GL028342.

Vancoppenolle, M, T. Fichefet, and C.M. Bitz, 2005: On the sensitivity of undeformed Arctic sea ice to vertical salinity profile, Geophys. Res. Lett., 32, doi:10.1029/2005GL023427.

Bitz, C.M., M.M. Holland, E.C. Hunke, and R.E. Moritz, 2005: Maintenance of the sea-ice edge, J. Climate, 18, 2903–2921.

Chiang, J.C.H, and C.M. Bitz, 2005: The influence of high latitude ice on the position of the marine Intertropical Convergence Zone, Climate Dynamics, doi:10.1007/s00382-005-0040-5.

Holland, M.M., C.M. Bitz, and E.C. Hunke, 2005: Mechanisms forcing an Antarctic dipole in simulated sea ice and surface ocean conditions, J. Climate, 18, pages 2052-2066.

Bitz, C.M., and G.H. Roe, 2004: A Mechanism for the High Rate of Sea-Ice Thinning in the Arctic Ocean. J. Climate, 17, 3622–31.

U.S. National Committee for the International Polar Year (Chaired by M. Albert), A vision for the International Polar Year 2007-2008, 2004, National Academies Press, Washington, D.C., 96 pp. C.M. Bitz is lead author of Chapter 3 on Understanding Change in the Polar Regions.

Schmidt, G.A., C.M. Bitz, U. Mikolajewicz and L. B. Tremblay, 2004: Ice-ocean boundary conditions for coupled models. Ocean Modelling, 7, 59–74.

Holland, M.M., and C.M. Bitz, 2003: Polar amplification of climate change in the Coupled Model Intercomparison Project, Climate Dynamics, 21, 221-232.

Moritz, R.E, C.M. Bitz, and E.J. Steig, 2002: Dynamics of Recent Climate Change in the Arctic, Science, 297, 1497-1502.

Bitz, C.M., J.C. Fyfe, and G.M. Flato, 2002: Sea ice response to wind forcing from AMIP models, J. Climate, 15, 522-536.

Gent, P.R., A.P. Craig, C.M. Bitz, and J.W. Weatherly, 2002: Parameterization improvements in an eddy-permitting ocean model for climate, J. Climate, 15, 1447-1459.

Bitz, C.M., M.M. Holland, M. Eby, and A.J. Weaver, 2001: Simulating the ice-thickness distribution in a coupled climate model, J. Geophys. Res., 106, 2441-2464.

Holland, M.M., C.M. Bitz, and A.J. Weaver, 2001: The influence of sea ice physics on simulations of climate change, J. Geophys. Res., 106, 19,639-19,655.

Holland, M.M., C.M. Bitz, M. Eby, and A.J. Weaver, 2001: The role of ice ocean interactions in the variability of the North Atlantic thermohaline circulation, J. Climate, 14, 656-675.

Weaver, A.J., M. Eby, C.M. Bitz, P. Duffy, T. Ewen, A. Fanning, M.M. Holland, A. MacFadyen, A. Schmittner, H. Wang, E. Wiebe, and M. Yoshimori, 2001: The UVic earth system climate model: Model description, climatology and applications to past, present and future climates. Atmos. Ocean, 39, 361-428.

Moritz, R.E., and C.M. Bitz, 2000: Northern Hemisphere sea ice extent, Science, 288, 927a.

Dettinger, M.D., D.S. Battisti, G.J. McCabe, C.M. Bitz, and R.D. Garreaud, 2000: Interhemispheric Effects of Interannual and Decadal Enso-Like Climate Variations on the Americas. In Present and Past Inter-hemispheric climate linkages in the Americas and their Societal Effects, 1-16.

Bitz, C.M., and W.H. Lipscomb, 1999: An Energy-Conserving Thermodynamic Model of Sea Ice, J. Geophys. Res., 104, 15,669-16,677.

Bitz, C.M., and D.S. Battisti, 1999: Interannual to decadal variability in climate and the glacier mass balance in Washington, Western Canada, and Alaska, J. Climate, 12, 3181-3196.

Weaver, A.J., C.M. Bitz, A.F. Fanning, and M.M. Holland, 1999: Thermohaline circulation: High latitude phenomena and the difference between the Pacific and Atlantic, Annual Review of Earth and Planetary Sciences, 27, 231-285.

Battisti, D.S., C.M. Bitz and R.E. Moritz, 1997: Do general circulation models underestimate the natural variability in the Arctic climate? J. Climate, 10, 1909-1920.

Bitz, C.M., D.S. Battisti, R.E. Moritz and J.A. Beesley, 1996: Low-frequency variability in the Arctic atmosphere, sea ice, and upper-ocean climate system, J. Climate, 9, 394-408.

PAPERS IN PREPARATION OR SUBMITTED

Notes: Student and postdoc authors are underlined

Kirtman, B.P, C.M. Bitz, F. Bryan, W. Collins, J. Dennis, N. Hearns, J.L. Kinter, R. Loft, C. Rousset, L. Siqueira, C. Stan, R. Tomas, and M. Vertenstein, Impact of ocean model resolution on CCSM Climate Simulations, Clim. Dyn., submitted.

Kay, J.E, M.M. Holland, C.M. Bitz, A. Gettleman, E. Blanchard-Wrigglesworth, A. Conley, D. Bailey, The influence of local feedbacks and heat transport on the equilibrium Arctic climate response to increased greenhous gas forcings in coupled climate models, J. Climate, submitted.

Vancoppenolle, M., H. Goosse, C.M. Bitz, T. Fichefet, C. Lancelot, J.-L. Tison, Sensitivity of a one-dimensional, multi-layer sea ice micro-algae model, submitted.

Bitz, C.M., Numerical modeling of sea ice in the climate system, Lecture notes from IPY Sea Ice Summer School in 2007 submitted (May never be published because the editor has stopped production.)

NON-REFEREED PUBLICATIONS

Golden, K. M., E. Hunke, C. Bitz, and M. Holland, 2008: "Sea ice in the Global Climate System", Essay for Mathematics Awareness Month, http://www.mathaware.org/mam/09/essays.html, 8 pp.

Hutchings, J. and C. Bitz, 2005: "Sea ice mass budget of the Arctic (SIMBA) workshop: Bridging regional to global scales", report from NSF sponsored workshop held at Applied Physics Laboratory, Univ. of Washington, Seattle, WA, Feb 28-Mar 2, 2005.

Briegleb, B.P., E.C. Hunke, C.M. Bitz, W.H. Lipscomb, M.M. Holland, J.L. Schramm, R.E. Moritz 2004: The sea ice simulation of the Community Climate System Model, version 2. Nat. Center for Atm. Res. Tech Rep no. NCAR-TN-455, Boulder, CO, 34pp.

Collins, W.D., P.J. Rasch, B.A. Boville, J.J. Hack, J.R. McCaa, D.L. Williamson, J.T. Kiehl, B.P. Briegleb, C.M. Bitz, S.-J. Lin, M. Zhang, Y. Dai 2004, Description of the NCAR Community Atmosphere Model (CAM3). NCAR/TN-464+STR. pp. 226. http://www.ccsm.ucar.edu/models/atm-cam/docs/description/

Briegleb, B.P., C.M. Bitz, E.C. Hunke, W.H. Lipscomb, M.M. Holland J.L. Schramm, and R.E. Moritz 2004: Scientific Description of the Sea Ice Component in the Community Climate System Model Version Three. NCAR/TN-463+STR. pp. 70. http://www.ccsm.ucar.edu/models/ccsm2.0/csim/

Collins, W.D. J.J. Hack, B.A. Boville, P.J. Rasch, D.L. Williamson, J.T. Kiehl, B.P. Briegleb, J.R. McCaa, C.M. Bitz, S.-J. Lin, R.B. Rood, M. Zhang, Y. Dai 2003, Description of the NCAR Community Atmosphere Model (CAM2). pp. 189. http://www.ccsm.ucar.edu/models/atm-cam/docs/cam2.0/description/index.html

Briegleb, B.P., C.M. Bitz, E.C. Hunke, W.H. Lipscomb, and J.L. Schramm, 2002: Description of the Community Climate System Model Version 2 Sea Ice Model (CSIM4). pp. 60. http://www.ccsm.ucar.edu/models/ccsm2.0/csim/

Bitz, C.M. 2001: The relation among sea ice, surface temperature, and atmospheric circulation in simulations of future climate. Proc. International Symposium, Arctic Feedbacks to Global Change, 25–27 Oct, 2001, Rovaniemi, Finland, Arctic Centre, 20–24.

Bitz, C.M., J.C. Fyfe, G.M. Flato, and R.E. Moritz, 2001: Sea ice response to wind forcing from AMIP models. Proc. 6th Conference on Polar Meteorology and oceanography, 14-18 May, 2001, San Diego, CA, American Meteorological Society, J5-8.

Moritz, R.E., C.M. Bitz, and A. Rivers, 2001: Simulating Arctic ocean-atmosphere-ice interactions with a single column model version of the community climate system model. Proc. 6th Conference on Polar Meteorology and oceanography, 14-18 May, 2001, San Diego, CA, American Meteorological Society, J27-32.

Weatherly, J.W., C.M. Bitz, and E.C. Hunke, 2001: Parallel climate model simulations with a dynamic-thermodynamic ice thickness distribution model. Proc. 6th Conference on Polar Meteorology and oceanography, 14-18 May, 2001, San Diego, CA, American Meteorological Society, 215-218.

McPhee, M.G., G.A. Makut, C.M. Bitz, and R.E. Moritz, 2001: Early summer heating of the upper ocean in the vicinity of SHEBA. Proc. 6th Conference on Polar Meteorology and oceanography, 14-18 May, San Diego, CA, American Meteorological Society, 260-262.

Weatherly, J.W. and C.M. Bitz, 2001: Natural and anthropogenic climate variations in the Arctic, Proc. 11th Symposium on Global Change Studies, 15-19 Jan 2001, Albuquerque NM, American Meteorological Society, 309-312.

INVITED PRESENTATIONS

Southern Ocean CLIVAR Committee Workshop "Southern Hemisphere Sea Ice and Climate Change", Nov. 2011.

Program on Climate Change Summer Institute, "Arctic Precipitation and Its Climatic and Ecological Impacts", Friday Harbor, WA, Sep 2011.

National Academy of Science Kavli Frontiers in Science Symposium, Apr, 2011. "Climate Repsonse to Ozone Trends in a an Eddy Resolving Ocean Climate Model" (poster presentation)

American Geophysical Union, "Can stratospheric sulfate aerosols prevent cryospheric change and sea level rise in the 21st?", Dec. 2010.

American Geophysical Union, "Sea ice-ocean interactions and their effect on mixing at very high resolution in a fully coupled climate model", Dec. 2010.

New York University Courant Institute Atmosphere Ocean Science Colloquium, "Seasonal to Interannual Predictability of Arctic Climate", Yew York, Nov, 2010.

WCRP Polar Predictability Worshop "How Early Can We Predict the Sea Ice Summer Minimum?", Bergen, Norway, Oct, 2010.

IARC-CLiC Sea Ice Workshop, "Arctic Sea Ice Projections in CCSM4", Fairbanks, Oct, 2010.

Program on Climate Change Summer Institute, "Sea Ice is Everything", Friday Harbor, WA, Sep 2010.

Institute for Pure and Applied Mathematics, "Age of Sea Ice as Tool to Understand Persistence and Sensitivity", UCLA campus, Los Angeles, Mar, 2010.

UW Civil and Environmental Engineering seminar "The Survival of Arctic Sea Ice", Mar. 2010.

AAAS Symposium on Sea Ice, "Bringing sea ice microphysics and biogeochemstistry into global climate models", Feb. 2010.

Presentation to the WCRP Climate and Cryospere Science Steering Committee "Sea Ice Modeling Present and Future", Valdivia, Chile, Feb 2010.

National Academy of Science Kavli Frontiers in Science Symposium, Speaker "Geoengineering: Saving the world, one entire planet at a time", Nov, 2009.

NRC Committee on National Security Implications of Climate Change on U.S. Naval Forces, "State-of-the-Science for Arctic Sea Ice Projections", Oct. 2009

University of Toronto "Is the Sea Ice Coming Back?", Oct. 2009.

Gordon Conference on Radiation and Climate, "The survival of Arctic summer sea ice in the 21st century", Jul. 2009.

Oak Ridge National Laboratory, National Center for Computational Sciences, "The survival of Arctic summer sea ice", Mar., 2009.

Los Alamos National Laboratory, Earth and Environmental Sciences, "The survival of Arctic summer sea ice", Feb., 2009.

National Science Foundation,"The survival of Arctic summer sea ice", Jan., 2009.

Massachusetts Institute of Technology, Department of Earth, Atmosphere, and Planetary Science, "The survival of Arctic summer sea ice: An investigation with simple and complex models", Dec., 2008.

American Geophysical Union, "Future projections of rapid arctic sea ice decline", Dec. 2008.

California Institute of Technology, Environmental Science and Engineering, "Predicting Arctic Ice-Climate Interactions", Oct. 2008.

University of California, Berkeley Atmospheric Sciences Center, "Predicting Arctic Ice-Climate Interactions", Oct. 2008.

Program on Climate Change Summer Institute, "The Coolest Part of the Ocean", Friday Harbor, WA, Sep 2008.

Pacific Marine Environmental Lab, Seattle, Feb. 2008, "Predicting Arctic Sea Ice Retreat".

University of Arizona, Tucson, Feb. 2008. "Predicting Arctic Sea Ice Retreat".

University of California, Los Angeles, Atmospheric and Oceanic Sciences Jan. 2008. "Predicting Arctic Sea Ice Retreat".

National Academy of Science Climate Research Committee Forum on Extreme Events in a Changing Climate, Nov. 2007.

University of Toronto, Physics Department Colloquium, Oct. 2007. "Predicting Arctic Sea Ice Retreat".

University of Washington, Program on Climate Change seminar, Nov. 2007, "Abrupt Climate Change: Basic State Dependence, Meridional Heat Transport, and Teleconnections".

University of Michigan, Department of Geological Science's colloquium (Smith Lecture), Nov. 2007. "Future themohaline collapse unlike the past".

American Meteorological Society and Canadian Meteorological and Oceanographic Society joint meeting, May 2007. "Sea Ice and the Present Polar Warming Asymmetry".

Mathematical Sciences Institute on Climate Change, Berkeley, Apr. 2007. "Sea ice cover in a changing climate".

Atlantic Science Week, hosted by the Norwegian Embassy and the Carnegie Institute, Washington, DC. Oct 2006. "Understanding sea ice change in nature and climate models".

University of Wisconsin, Atmospheric Sciences Colloquium, Apr. 2006. "Predicting Sea Ice-Climate Interactions"

University of Washington, Applied Math Colloquium, Jan 2006. "Sea Ice Cover in a Changing Climate"

Lamont Doherty Colloquium, Nov 2005. "The influence of sea ice on ocean heat uptake in response to increasing CO2"

National Academy of Science Frontiers in Science Symposium, Nov 2005. "Transient Polar Amplification in Climate Observations and Simulations" (poster presentation)

Institut d'Astronomie et de Géophysique G. Lemaître, Université Catholique de Louvain, Visiting Professor, Apr. 2005. "Sea ice and Climate" and "Increased Heat Transport into the Arctic Ocean in a Climate Model of the 21st Century"

American Geophysical Union, San Francisco, Dec. 2004 "Increased Heat Transport into the Arctic Ocean in a Climate Model of the 21st Century"

European Geophysical Union, Nice, Fr, Apr. 2004 "A Mechanism for the High Rate of Sea-Ice Thinning in the Arctic Ocean"

GFDL, Princeton, Jan., 2004. "A Mechanism for the High Rate of Sea-Ice Thinning in the Arctic Ocean"

Final ACSYS Conference, St Petersburg, Russia, Nov., 2003. "Modeling the Arctic climate with global coupled models"

Search Open Science Meeting, Seattle, Oct., 2003. "Atmospheric heat transport and surface feedbacks in the Arctic climate system"

Oregon State University, Physical Oceanography Seminar, Mar., 2003."The maintenance of sea ice extent in the climate system"

University of Alaska, Fairbanks, Chapman Lecturer, Feb., 2003. "Sea ice in climate models – Basic structure" and "Sea ice in climate models – Survey of different models in use"

Massachusetts Institute of Technology, Physical Oceanography Seminar, Feb., 2003. "The maintenance of sea ice extent in the climate system"

University of Washington, Department of Atmospheric Sciences Colloquium, Oct., 2002. "A Physical Explanation for the High Rate of Sea-Ice Thinning in the Arctic Ocean"

Community Climate System Model Annual Meeting, plenary session, Breckenridge, CO, Jun., 2002. "Sea Ice, Climate Sensitivity, and Polar Amplification"

University of Chicago, Department of the Geophysical Sciences Colloquium, May, 2002. "Do We Understand the Role of Sea Ice in Modern Climate?"

Modeling of the Arctic Atmosphere Workshop, Madison, WI, May 2002. "Towards Improving the Wintertime Arctic Atmospheric Circulation Simulated by GCMs with High Resolution"

European Geophysical Society, Nice, Fr, Apr. 2002. "A Physical Explanation for the High Rate of Sea-Ice Thinning in the Arctic Ocean"

Workshop on Sea- Ice Extent and the Global Climate System, Toulouse, Fr, Apr., 2002. "Are Modern Sea-Ice Models Adequate for Studying Climate?"

International Symposium, Arctic Feedbacks to Global Change, Rovaniemi, Finland, Oct. 2001. "The relation among sea ice, surface temperature, and atmospheric circulation in simulations of future climate"

Gordon Conference on Polar Marine Sciences, Mar. 2001. "Modeling Natural and Anthropogenic Arctic Climate Variations"

TEACHING

Courses taught at University of Washington

Fundamentals of Physics and Chemistry of the Atmosphere ATMS 501, Fall 2011
Ice and Climate ATMS 514/ESS 535, Spring 2009, 2011
Climate Modeling ATMS/ESS/OCEAN 559, Spring 2008, 2010
Climate Dynamics Seminar on Kuril Island Biocomplexity ATMS 524, Spring 2006
Ice and Climate Modeling ATMS 514, Winter 2001
Atmospheric Motions I ATMS 441/503, Fall 2005, 2006, 2007 and 2008, 2009, 2011
Climate and Climate Change ATMS 211, Fall 2004 and Winter 2006
Global Warming: Understanding the Science ATMS 111, Summer 2008, Winter 2010
Weather and Climate Prediction ATMS 380, Winter 2011

Summer School Lectures

Arctic-North Atlantic Interactions Bjerknes Center, Bergen, Norway. Jun 2009.
Arctic Climate Modeling University of Alaska, Fairbanks, AK. Jun 2008.
Sea Ice: The International Polar Year, University Centre, Svalbard, Norway, Jul 2007.
Climate Variability, Bjerknes Center, Bergen, Norway, Sep 2006.
The Art of Climate Modeling, NCAR Advanced Study Program. Boulder, CO, Jun 2006.
Arctic Climate Modeling University of Alaska, Fairbanks, AK. Jul 2003.

STUDENT SUPERVISORY

Camille Li (Ph.D. graduated 2007), Kevin Rennert (Ph.D. graduated 2007), Rebecca Zanzig (Masters, graduated 2007), Ryan Eastman (Masters graduated summer 2009), Clark Kirkman (PhD candidate since Winter 2009, committee chair), Paul Hezel (graduate student since Fall 2006, committee chair), Edward Blanchard-Wrigglesworth (graduate student since Fall 2007, committee chair), Kelly McCusker (graduate student since Fall 2007, committee co-chair), Yen-Ting Hwang (graduate students since Fall 2007), Kyle Armour (graduate student since Fall 2005), Naoimi Goldenson (graduate student since Summer 2009, committee chair), Hansi Singh (graduate student since summer 2009, committee co-chair), Megan Gambs (graduate student since Fall 2008)

Graduate School Representative on PhD committees: Shannon McDaniel (graduated 2005), Steve Price (graduated 2006), Mathieu Fegeau (graduated 2007), Lori Kroenig (graduated 2008), Amy Nicholson (since Nov 2008), Merriwether Wilson (since Mar 2006), Jessica Drees (since Sep 2007), Sarah Perkey (since Jun 2011), Katie Boldt (since Nov 2011)

Marta Krynytzky undergraduate student working on Arctic climate assessment for IPCC AR4 Fall 2004 – Summer 2005. Xiyuez Zhang undergraduate student working on Arctic climate assessment for IPCC AR5 Summer 2011 – Winter 2012.

POSTDOC SUPERVISORY

Martin Vancoppenolle Oct 2009 to present, Wei Cheng, Sep 2005 to Jun 2006; Susan Bates, Jan 2007 to Apr 2009; Kevin Rennert, Jan-Dec 2008. Martin Vancoppenolle, Oct 2009 to present.

NATIONAL/INTERNATIONAL COMMITTEES

Partnership for Enhanced Engagements in Research, Oversight Committee, National Academy of Science, since Nov. 2011.

Advisory Committee for the National Science Foundation Office of Polar Programs, since Nov. 2010. Committee Chair since Aug 2011.

Community Climate System Model, Advisory Board, since Jan. 2007

National Academy of Sciences – Committee to plan U.S.-Indo Kavli Frontiers of Science April 2011.

CLIVAR Greenland Panel member, since Dec. 2010.

Senior Scientists Team for NSF Sea-Level Planning Worshop, Jul 2010.

Scientific Organizing Committee for the WCRP Polar Predictability Workshop, to be held in Bergen Oct 2010.

National Research Council – Committee on National Security Implications of Climate Change on U.S. Naval Forces, 2009-2011.

National Research Council – Climate Research Committee, 2007–2010.

UCAR Steering Committee for the NOAA Climate and Global Change Postdoctoral Fellowship Program, 2007–2010.

Planning Committee for WCRP "World Modelling Summit for Climate Prediction" 2007–2008.

DOE Committee on "Biological cycling of carbon in ocean environments", 2008.

CLIVAR Polar Fluxes Panel member, since Feb. 2008.

Sea Ice Outlook Core Integration Group, since May 2008.

Organizing Committee for NSF workshop on "Lessons from the 2007 Arctic sea-ice minimum", Mar. 2008.

World Climate Research Programme's project Climate and Cryosphere (CliC) Arctic Climate Panel since March 2006

National Research Council – U.S. Planning Committee for the International Polar Year, (2004-2005).

Community Climate System Model, Scientific Steering Committee (2002-2005) and member of Polar Climate Working Group since 1996.

CLIVAR Atlantic-Sector Implementation Panel member (2003-2005).

National Snow and Ice Data Center advisory group. (2001-2002).

American Meteorological Society, Polar Meteorology and Oceanography committee. (2001-2003)

Member of American Meteorological Association and Geophysical Union

PROFESSIONAL ACTIVITIES AND NATIONAL SERVICE

Organized session on Sea-Ice Modeling at the Ocean Climate Modeling Meeting at GFDL Oct 2009.

Contributing author to Intergovernmental Panel on Climate Change, AR4 and TAR.

Contributing author to SWIPA - Snow, Water, Ice and Permafrost in the Arctic 2011 report.

Book editor for AGU Monograph published in 2008 "Arctic Sea Ice Decline: observations, projections, mechanisms, and implications".

Session convener for Fall 2006 AGU session on "Rapid Transition From Perennial to Seasonal Arctic Sea Ice"

National Research Council planning meeting on "Changing ice conditions in the Arctic — Implications and opportunities", Nov. 2006.

Developed and distribute easy-to-use Matlab version of my energy-conserving sea ice model for research and teaching, since 2007.

Associate editor for Annals of Glaciology Volume 46, 2006.

Associate editor for Journal of Climate since December 2004.

Reviewed Climate Change Science Program reports on Abrupt Climate Change and Paleoclimate History of the Arctic, 2007 and 2008.

Reviewed Uncertainty in Climate Model Projections of Arctic Sea Ice Decline: An Evaluation Relevant to Polar Bears. A USGS report used in the endangered species decision for the polar bear, 2007.

Regular reviewer for NSF, Journal of Climate, Geophysical Research Letters, Nature, Journal of Geophysical Research, and Climate Dynamics.

UNIVERSITY SERVICE AND OUTREACH

Selection Committee for the Joint Institute for the Study of Atmosphere and Ocean (JISAO) Postdoctoral Fellowship Program, since 2011.

Committee on Graduate Studies, Atmospheric Sciences, UW, since 2011.

Edited placards for "Atmosphere ... Exploring Climate Science" exhibit at the Science Museum in London, Spring, 2011.

Contributed collaborative piece to "Forecast: Communicating Weather and Climate" art exhibit, Annual AMS Meeting, Seattle, Jan. 2011.

Lecture to Organization of University Women, "The Future of Arctic Sea Ice", Bellevue, Feb 2010.

Search committee for new faculty at UW Bothell, 2010.

Mentoring Lecture to Association for Polar Early Career Scientists "Getting Started: Work Hard, Aim High, Have Fun", Victoria, Nov. 2009.

Designed and constructed art exhibit on sea level rise at the Seattle Art Museum Olympic Sculpture Garden in Summer-Fall 2009.

Program on Climate Change, Executive Board since Oct 2009.

Developed new course on Weather and Climate Prediction for undergraduate students. Prepared the application and it passed the UW curriculum review in 2010. Taught the course in winter 2011.

Developed new course on Climate Modeling for graduate students in atmospheric sciences, earth and space sciences and oceanography. Prepared the application and it passed the UW curriculum review in 2007. Co-taught the course for 12 students in Spring 2008 and 2010 using a large computing allocation on the TeraGrid.

Redesigned course formally called Ice and Climate Modeling and changed the name to Ice and Climate in atmospheric sciences and earth and space sciences. Prepared the application and it passed the UW curriculum review in 2007. Taught the course in Spring 2009 and 2011.

Lecture to UW House Wallingford "The Future of Arctic Sea Ice", Seattle, Mar 2009.

Committee to develop new atmospheric sciences course on Global Warming, 2007.

Search committee for new faculty in atmospheric sciences, 2005-2006.

Demonstrated climate modeling in a booth about climate and climate change at the Pacific Science Center Polar Science Weekend in 2006, 2007 and 2008. Volunteered in booths on ocean mooring and sea ice albedo in 2009.

Organized and operated atmospheric sciences department booth at UW for Focus the Nation, 2008.

Lecture at Burke Museum, Seattle, Aug. 2008, "Warming Up: The Future of Arctic Climate".

Panel member discussing Global Temperature Change before the world premier of David Rambo's *The Ice-Breaker* (play) at the Magic Theatre in San Francisco, Apr 2006.

Participant in atmospheric sciences and program on climate change outreach programs with occasional lectures, since 2006.

Science advisory board to Cool Moms www.coolmom.org

Faculty advisor to student organized women's group in Atmospheric Sciences since 2006.

Designed and maintain internet climate model for education since 2006 at http://www.atmos.washington.edu/∼bitz/PSC/

Employed and mentored high math school teacher Adam Kruger who worked on modeling sea ice during the Summers 2006 and 2007.

HONORS

Community Climate System Model 2002 Distinguished Achievement Award.

NOAA Climate and Global Change Fellowship (1999-2001).

Kerrer Award, 1989, Department of Physics, University of Washington, Seattle, WA.

Shell Award, 1990, Department of Physics, University of Washington, Seattle, WA.

Tau Beta Pi (Engineering) and Sigma Pi Sigma (Physics) Honor Societies, 1986.

GRANTS

2000-2003 Collaborative Research: Studies of Arctic Climate Feedbacks Using SHEBA Data and the NCAR Climate System Model. NSF. (co-PI with Richard Moritz $526,213)

2001-2002 Coupling of a State of the Art Sea Ice model to an Ocean Circulation Model: Application the Okhotsk Sea. University of Washington, Program on Climate Change Seed Grant (co-PI with LuAnne Thompson $15,000)

2001-2003 SGER: Modeling the Atmospheric Circulation Over the Arctic. NSF. (co-PI with Richard Moritz $116,089)

2002-2003 Modeling the Floe-Size Distribution to Improve the Prediction of Sea Ice in the Marginal Sea. ONR. (PI $85,496)

2002-2003 SGER: Coupling a Slab Ocean and Sea Ice Model to the Community Atmosphere Model. NSF (PI $44,235)

2003 - 2006 Understanding the Role of Rain-on-Snow events in High Latitude Climates: Soil Temperature and Ecosystem Impacts. NSF. (co-PI with Jaakko Putkonen $242,521)

2003 - 2007 Collaborative Research: An Investigation of Polar Amplification and High-Latitude Climate Sensitivity in Global Climate Models. NSF. (PI $285,640)

2005 - 2009 The Mutual Interaction Between Ice Production and Ocean Heat Transport in a Greenhouse Warming Scenario NSF (PI $324,406)

2005 - 2009: Rapid Climate Change due to Sea Ice Dynamics in the North Atlantic and Arctic Oceans NSF (PI $354,343)

2005 - present The Kuril Biocomplexity Project: Human Vulnerability and Resilience to Subarctic Change NSF (co-PI with Benjamin Fitzhugh $1,650,000)

2005 - present Ice-Ocean Interactions on the Okhotsk Sea Shelf. NSF (co-PI with LuAnne Thompson $442,188).

2006 - 2008 Arctic Ice Thickness Response to Global Warming, Murdock Foundation, (PI $14,000)

2007 - present Deep Ocean Heat Uptake and the Influence of Sea Ice in the Southern Ocean DOE (PI $287,410)

2008 - present Deciphering the Antarctic MSA-sea ice link with a combined regional forecast and atmospheric chemistry model NSF (PI $375,442)

2009 - present How will sea ice and the Greenland ice sheet recover in a geoengineered world? sub-contract from University of Calgary (PI $209,624)

2009 - present Short term predictability of Arctic climate NSF (PI $308,016)

2009 - present High-resolution climate modeling: The influence of weather and sea ice noise on polar climates NSF (PI $129,213)

2011 - present Collaborative Research: Type 1: LOI: L02170303: Arctic Climate Response to Decadal Changes in Radiative Forcing from Aerosols and Ozone NSF (PI $418,519)

2011 - present Intercomparison of simulated Arctic snow on sea ice and estimation of snow-related feedbacks on sea ice ONR (PI $44,950)