

CURRICULUM VITAE: JOHN J. CASSANO

Education

Ph.D., 1998: Atmospheric Science, University of Wyoming, Laramie, Wyoming
M.S., 1994: Atmospheric and Oceanic Science, University of Wisconsin, Madison, Wisconsin
B.S., 1992: Earth Science, Montana State University, Bozeman, Montana

Professional Positions

August 2010 – present: Associate Professor, Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, Colorado
January 2004 – present: Fellow of the Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado
January 2004 – August 2010: Assistant Professor, Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, Colorado
May 2002 – December 2003: Research Scientist II, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado
March 2001-May 2002: Research Scientist I, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado
January 1999- February 2001: Research Associate, Byrd Polar Research Center, Ohio State University, Columbus, Ohio
January 1999- June 2000: Byrd Post-doctoral Fellow, Byrd Polar Research Center, Ohio State University, Columbus, Ohio (supervisor: David H. Bromwich)
September 1995- December 1998: Graduate Research Assistant and Teaching Assistant, Department of Atmospheric Sciences, University of Wyoming, Laramie, Wyoming (advisor: Thomas R. Parish)
September 1992- August 1995: Graduate Research Assistant, Department of Atmospheric and Oceanic Sciences, University of Wisconsin, Madison, Wisconsin (advisor: Charles R. Stearns)

Professional Activities

2014: Discussion and writing lead, Scientific Committee on Antarctic Research (SCAR) Horizon Scan atmosphere theme
2013 – present: Member United States National Academies of Science Polar Research Board
2013 – present: Member, International Commission on Polar Meteorology, International Meteorology and Atmospheric Science Association
2013 – present: Member, science steering committee, International Society for Atmospheric Research using Remotely-piloted Aircraft
2013: Chair, National Science Foundation committee of visitors, Antarctic Sciences Section / Antarctic Infrastructure and Logistics Section
2011 – present: Section editor, *Polar Research*
2011 – present: Co-coordinator for polar Coordinated Regional Downscaling Experiment (CORDEX) activities
2011 – present: Member of Arctic Climate System Network steering committee, International Arctic Science Committee
2010 – present: Member of International Arctic Science Committee atmosphere working group
2012-2013: Member, American Meteorological Society's Committee on Polar Meteorology and Oceanography
2011 – 2012: Member of committee on the Legacies and Lessons of International Polar Year 2007-2008
2011 – lead convener, American Meteorological Society 11th Conference on Polar Meteorology and Oceanography
2010 – 2011: Chair, American Meteorological Society's Committee on Polar Meteorology and Oceanography
2009 – 2011: Advisory editor, *Antarctic Science*

2007 – 2009: Member, Arctic-CHAMP (Community-wide Hydrologic Analysis and Monitoring Program) science steering committee

2003 – 2009: Member American Meteorological Society's Committee on Polar Meteorology and Oceanography

May 2008: Member, Arctic System Model workshop organizing committee

Co-organizer / convener of multiple sessions at American Meteorological Society and International Union of Geophysics and Geodesy conferences

Reviewer for *Antarctic Science*, *Atmosphere-Ocean*, *Atmospheric Chemistry and Physics*, *Boundary Layer Meteorology*, *Climate Dynamics*, *Computing in Science and Engineering*, *Geophysical Research Letters*, *Global and Planetary Change*, *International Journal of Climatology*, *Journal of Applied Meteorology and Climatology*, *Journal of Atmospheric and Oceanic Technology*, *Journal of Climate*, *Journal of Geophysical Research*, *Journal of Glaciology*, *Journal of Hydrometeorology*, *Monthly Weather Review*, *Nature*, *Polar Geography*, *Polar Research*, *Quarterly Journal of the Royal Meteorological Society*, *Science*, *Tellus*, *Weather and Forecasting*

Reviewer Grant Proposals for National Science Foundation (USA), National Aeronautics and Space Administration (USA), Australian Antarctic Division, Canadian Foundation for Climate and Atmospheric Sciences, French National Agency of Research (ANR), National Environmental Research Council (United Kingdom), National Science and Engineering Research Council (Canada), Programma Nazionale di Ricerche in Antartide (Italy)

Current University Service Activities (2014-2015 academic year)

Department

Associate Chair, Department of Atmospheric and Oceanic Sciences

Member, ATOC executive committee

Chair, ATOC Curriculum Committee

Advisor, ATOC minor

Chair, Friedrich ATOC tenure and promotion committee (F14)

Chair, Lovenduski ATOC reappointment committee (F14)

Institute

Member, CIRES Council of Fellows

Chair, CIRES oceanography faculty search committee

Professional Societies

1993 – present: American Meteorological Society

2001 – present: American Geophysical Union

Scholarships and Awards

2012: Erskine Visiting Fellowship, Department of Physics and Astronomy, University of Canterbury, Christchurch, New Zealand

2008: NSF Travel Grant to attend the Scientific Committee on Antarctic Research (SCAR) Open Science Meeting, St. Petersburg, Russia

2006: NSF Travel Grant to attend the Scientific Committee on Antarctic Research (SCAR) Open Science Meeting, Hobart, Australia

2001: AGU Travel Grant to attend 8th Scientific Assembly of the International Association of Meteorology and Atmospheric Sciences, Innsbruck, Austria

2000: AMS Travel Grant to attend 6th International Conference on Southern Hemisphere Meteorology and Oceanography, Santiago, Chile

1999 – 2000: Byrd Fellowship, Byrd Polar Research Center, The Ohio State University

1992 – 1993: Schwerdtfeger Award, Atmospheric and Oceanic Sciences Department, University of Wisconsin

1992 – 1993: WARF Fellowship, Graduate School, University of Wisconsin
1991 – 1992: Milton J. Edie Scholarship, Earth Science Department, Montana State University
1987: New York State Regents Scholarship

Publications

(refereed publications)

¹ graduate student in Cassano research group

² post-doctoral research scientist in Cassano research group

³ associate scientist in Cassano research group

- Fraser, A.D., M.A. Nigro², S.R.M. Ligtenberg, M. Inoue, J.J. Cassano, P. Kuipers Munneke, N.W. Young, A. Treverrow, B. Legresy, and H. Enomoto, 2014: Variability in the backscatter of dry Antarctic snow / firn using ASCAT reveals a changing ice sheet. In preparation.
- Cassano, J.J., M.W. Seefeldt², S. Palo, S.L. Knuth^{1,3}, P.D. Herrman, P.A. Kernebone, 2014: Observations of the atmospheric boundary layer over the Terra Nova Bay polynya during September 2012, *Earth System Science Data*, In preparation.
- Wegrzyn, K., J. Maslanik, J. Cassano, and C. Zappa, 2014: An intercomparison of areal coverage of the Terra Nova Bay polynya in July-September 2009 as determined using MODIS and AMSR-E satellite imagery. *Polar Research*, submitted.
- DuVivier^{1,3}, A.K. and J.J. Cassano, 2014: Analysis of wintertime mesoscale winds around southeastern Greenland. *Monthly Weather Review*, accepted pending revisions.
- Lazzara, M.A., L.J. Welhouse, D.E. Mikolajczyk, M. Tsukernik, J.E. Thom, L.M. Keller, G.A. Weidner, J. Snarski, J.J. Cassano, and L. Kalnajs, 2014: University of Wisconsin Antarctic automatic weather station program 2012-2013 field season report: Challenges and successes, *Antarctic Record*, accepted pending revisions.
- DuVivier^{1,3}, A.K. and J.J. Cassano, 2014: Exploration of turbulent heat fluxes and wind stress curl during wintertime mesoscale wind events around southeastern Greenland. *J. Geophys. Res.*, accepted pending revisions.
- Roberts, A., A. Craig, W. Maslowski, R. Osinski, A. DuVivier^{1,3}, M. Hughes², B. Nijssen, J. Cassano, and M. Brunke, 2014: Simulating transient ice-ocean Ekman transport in the Regional Arctic System Model and Community Earth System Model. *Annals of Glaciology*, in press.
- Cassano, E.N.³, J. Glisan, J.J. Cassano, W. Gutowski, and M. Seefeldt, 2014: Methodology of using the self-organizing map algorithm to characterize and analyze widespread temperature extremes in Alaska and Canada, *Climate Research*, accepted pending revisions.
- Nigro², M.A. and J.J. Cassano, 2014: Analysis of the Ross Ice Shelf airstream forcing mechanisms using self organizing maps. *Mon. Wea. Rev.*, in press.
- Knuth^{1,3}, S.L. and J.J. Cassano, 2014: Estimating sensible and latent heat fluxes using the integral method from in situ aircraft measurements. *J. Atmos. Ocean. Tech.*, in press.
- Kennicutt II, M.C., S.L. Chown, J.J. Cassano, D. Liggett, L.S. Peck, R. Massom, S.R. Rintoul, J. Storey, D.G. Vaughn, T.J. Wilson, I. Allison, J. Ayton, R. Badhe, J. Baeseman, P.J. Barrett, R.E. Bell, N. Bertler, S. Bo, A. Brandt, D. Bromwich, S.C. Cary, M.S. Clark, P. Convey, E.S. Costa, D. Cowan, R. DeConto, R. Dunbar, C. Elfring, C. Escutia, J. Francis, H.A. Fricker, M. Fukuchi, N. Gilbert, J. Gutt, C. Havermans, D. Hik, G. Hosie, C. Jones, Y.D. Kim, Y. Le Maho, S.H. Lee, M. Leppe, G. Leitchenkov, X. Li, V. Lipenkov, K. Lochte, J. López-Martínez, C. Lüdecke, W. Lyons, S. Marensi, H. Miller, P. Morozova, T. Naish, S. Nayak, R. Ravindra, J. Retmales, C.A. Ricci, M. Rogan-Finnemore, Y. Ropert-Coudert, A.A. Samah, L. Sanson, T. Scambos, I.R. Schloss, K. Shiraishi, M.J. Siegert, J.C. Simões, B. Storey, M.D. Sparrow, D.H. Wall, J.C. Walsh, G. Wilson, J.G. Winther, J.C. Xavier, H. Yang, and W.J. Sutherland, 2014: A roadmap for Antarctic and Southern Ocean science for the next two decades and beyond. *Antarctic Science*, doi:10.1017/S0954102014000674.

- Kennicutt II, M., S.L. Chown, J. Cassano, D. Liggett, R. Massom, L. Peck, S. Rintoul, J. Storey, D. Vaughn, T. Wilson, and W.J. Sutherland, 2014: Antarctic and Southern Ocean science in the 21st century. *Nature*, **512**, 23-25.
- Nigro², M.A. and J.J. Cassano, 2014: Identification of surface wind patterns over the Ross Ice Shelf, Antarctica using self organizing maps, *Mon. Wea. Rev.*, **142**, 2361-2378, DOI:10.1175/MWR-D-13-00382.1.
- Cassano, J.J., 2014: Weather bike: A bicycle based weather station for observing local temperature variations. *Bull. Amer. Meteor. Soc.*, **95**, 205-209, DOI:10.1175/BAMS-D-13-00044.1.
- Cassano, J.J., 2014: Observations of atmospheric boundary layer temperature profiles with a small unmanned aerial vehicle. *Antarctic Science*, **26**, 205-213, doi:10/1017/S0954102013000539.
- DuVivier¹, A.K. and J.J. Cassano, 2013: Evaluation of WRF model resolution on simulated mesoscale winds and surface fluxes near Greenland. *Mon. Wea. Rev.*, **141**, 941-963, DOI:10.1175/MWR-D-12-00091.1.
- Moore, G.W.K., I.A. Renfrew, and J.J. Cassano, 2013: Greenland plateau jets. *Tellus A*, **65**, 17468, doi:10.3402/tellusa.v65i0.17468.
- Nolan, M., E.N. Cassano³, and J.J. Cassano, 2013: Synoptic climatology and recent climate trends at Lake El'gygytgyn. *Climate of the Past*, **9**, 1271-1286. doi: 10.5194/cp-9-1271-2013.
- Cassano³, E.N., J.J. Cassano, M.E. Higgins², and M.C. Serreze, 2013: Atmospheric impacts of an Arctic sea ice minimum as seen in the Community Atmosphere Model. *Int. J. Clim.*, DOI: 10.1002/joc.3723.
- Lazzara, M.A., L.J. Welhouse, J.E. Thom, J.J. Cassano, A.K. DuVivier¹, G.A. Weidner, L.M. Keller, and L. Kalnajs, 2013: Automatic weather station (AWS) program operated by the University of Wisconsin-Madison during the 2011-2012 field season. *Antarctic Record*, **57**, 125-135.
- Glisan, J.M., W.J. Gutowski Jr., J.J. Cassano, and M.E. Higgins², 2013: Effects of spectral nudging in WRF on Arctic temperature and precipitation simulations. *J. Clim.*, **26**, 3985-3999. DOI: 10.1175/JCLI-D-12-00318.1.
- Knuth¹, S.L., J.J. Cassano, J.A. Maslanik, P.D. Herrmann, P.A. Kernebone, R.I. Crocker, and N.J Logan, 2013: Unmanned aircraft system measurements of the atmospheric boundary layer over Terra Nova Bay, Antarctica. *Earth Sys. Sci. Data*, **5**, 57-69, doi:10.5194/essd-5-57-2013.
- Powers, J.G., Manning, K.W., D.H Bromwich, J.J. Cassano, and A.M. Cayette, 2012: A decade of Antarctic science support through AMPS. *Bull. Amer. Meteor. Soc.*, **93**, 1699-1712, DOI:10.1175/BAMS-D-11-00186.1.
- Brigham-Grette, J., R.A. Bindschadler, M.R. Albert, J.J. Cassano, L.D. Hinzman, E.E. Hofmann, I.I. Krupnik, V. Kingeekuk Metcalf, S. Pfirman, C. Rapley, L. Speer, T.N. Taylor, W.F. Weeks, M. McConnell, E. Dunlea, L. Brown, and S. Freeland, 2012: *Lessons and Legacies of the International Polar Year 2007-2008*, The National Academies Press, 184pp.
- Lazzara, M.A., G.A. Weidner, L.M. Keller, J.E. Thom, and J.J. Cassano, 2012: Antarctic automatic weather station program: 30 years of polar observations. *Bull. Amer. Meteor. Soc.*, **93**, 1519-1537, DOI:10.1175/BAMS-D-11-00015.1.
- Seefeldt², M.W. and J.J. Cassano, 2012: A description of the Ross Ice Shelf air stream (RAS) through the use of self-organizing maps (SOMs). *J. Geophys. Res.*, **117**, D09112, doi:10.1029/2011JD016857.
- Nigro¹, M.A., J.J. Cassano, M.A. Lazzara, and L.M. Keller, 2012: Case study of a barrier wind corner jet off the coast of the Prince Olav Mountains, Antarctica. *Mon. Wea. Rev.*, **140**, 2044-2063, DOI:10.1175/MWR-D-11-00261.1.
- Nigro¹, M.A., J.J. Cassano, and S.L. Knuth¹, 2012: Evaluation of Antarctic Mesoscale Prediction System (AMPS) cyclone forecasts using infrared satellite imagery, **24**, 183-192, *Antarctic Science*, doi:10.1017/S0954102011000745.
- Higgins², M.E. and J.J. Cassano, 2012: Northern Alaskan land surface response to reduced Arctic sea ice extent. *Clim Dyn*, **38**, DOI 10.1007/s00382-011-1095-0.

- Porter¹, D.F., J.J. Cassano, and M.C. Serreze, 2012: Local and large-scale atmospheric response to reduced Arctic sea ice and ocean warming in the WRF model. *J. Geophys. Res.*, **117**, D11115, doi:10.1029/2011JD016969.
- Walsh, J.J., D.A. Dieterle, F.R. Chen, J.M. Lenes, W. Maslowski, J.J. Cassano, T.E. Whitley, D. Stockwell, M. Flint, I.N. Sukhanova, and J. Christensen, 2011: Trophic cascades and future harmful algal blooms within ice-free Arctic seas north of Bering Strait: A simulation analysis. *Progress in Oceanography*, **91**, 313-343, doi: 10.1016/j.pocean.2011.02.001.
- Fisel, B.J., W.J. Gutowski Jr., J.M. Hobbs, and J.J. Cassano, 2011: Multi-regime states of the Arctic atmospheric circulation. *J. Geophys. Res.*, **116**, D20122, doi:10.1029/2011JD015790.
- Cassano, J.J., M.E. Higgins², and M.W. Seefeldt², 2011: Performance of the Weather Research and Forecasting (WRF) Model for Month-long pan-Arctic Simulations. *Mon. Wea. Rev.*, **139**, 3469-3488, doi:10.1175/MWR-D-10-05065.1.
- Cassano³, E.N., J.J. Cassano, M. Nolan, 2011: Synoptic weather pattern controls on temperature in Alaska. *J. Geophys. Res.*, **116**, D11108, doi:10.1029/2010JD015341.
- Porter¹, D.F., J.J. Cassano, and M.C. Serreze, 2011: Analysis of the Arctic atmospheric energy budget in WRF: A comparison with reanalyses and satellite observations. *J. Geophys. Res.*, **116**, D22108. Doi:10.1029/2011JD016622.
- Serreze, M.C., A.P. Barrett, and J.J. Cassano, 2011: Circulation and surface controls on the lower tropospheric air temperature field of the Arctic. *J. Geophys. Res.*, **116**, D07104, doi:10.1029/2010JD015127.
- Bailey, A., T.N. Chase, J.J. Cassano, and D. Noone, 2011: Changing temperature inversion characteristics in the U.S. Southwest and relationships to large-scale atmospheric circulation. *J. Appl. Met. and Clim.*, **50**, 1307-1323, DOI:10.1175/2011JAMC2584.1.
- Knuth^{1,3}, S.L. and J.J. Cassano, 2011: An analysis of near-surface winds, air temperature, and cyclone activity in Terra Nova Bay Antarctica from 1993-2009. *J. Appl. Meteor. and Clim.*, **50**, 662-680, DOI:10.1175/2010JAMC2507.1.
- Nigro¹, M.A., Cassano, J.J., and M.W. Seefeldt², 2011: A weather pattern-based approach to evaluate the Antarctic Mesoscale Prediction System (AMPS) forecasts: Comparison to automatic weather station observations. *Wea. Forecasting*, **26**, 184-198, DOI:10.1175/2010WAF2222444.1.
- Cassano, J.J., J.A. Maslanik, C.J. Zappa, A.L. Gordon, R.I. Cullather, and S.L. Knuth¹, 2010: Observations of an Antarctic polynya with unmanned aircraft systems, *Eos*, **91**, 245-246.
- Higgins, M.E.¹ and J.J. Cassano, 2010: Response of Arctic 1000 hPa circulation to changes in horizontal resolution and sea ice forcing in the Community Atmospheric Model. *J. Geophys. Res.*, **115**, D17114, doi:10.1029/2009JD013440.
- Porter¹, D.F., J.J. Cassano, M.C. Serreze, and D.N. Kindig, 2010: New estimates of the large-scale Arctic atmospheric energy budget. *J. Geophys. Res.*, **115**, D08108, doi:10.1029/2009JD012653.
- Schuenemann¹, K. and J.J. Cassano, 2010: Changes in synoptic weather patterns and Greenland precipitation in the 20th and 21st centuries. Part 2: Attribution of the predicted change in Greenland precipitation during the 21st century, *J. Geophys. Res.*, **115**, D05108, doi:10.1029/2009JD011706.
- Cassano³, E.N. and J.J. Cassano, 2010: Synoptic forcing of precipitation in the Mackenzie and Yukon river basins. *Int. J. Climatology*, **30**, 658-674. DOI: 10.1002/joc.1926.
- Higgins¹, M.E. and J.J. Cassano, 2009: Impacts of reduced sea ice on winter Arctic atmospheric circulation, precipitation, and temperature. *J. Geophys. Res.*, **114**, D16107, doi:10.1029/2009JD011884.
- Schuenemann¹, K., and J.J. Cassano, 2009: Changes in synoptic weather patterns and Greenland precipitation in the 20th and 21st centuries. Part 1: Evaluation of late 20th century simulations from IPCC models, *J. Geophys. Res.* **114**, D20113, doi:10.1029/2009JD011705.
- Francis, J., White, D.M., Cassano, J.J., Gutowski, W.J., Hinzman, L.D., Holland, M.M., Steele, M.A., and Vörösmarty, C.J., 2009: An Arctic hydrologic system in transition: Feedbacks and impacts on terrestrial, marine, and human life. *J. Geophys. Res.* **114**, G04019, doi:10.1029/2008JG000902.

- Skific, N., J.A. Francis, and J.J. Cassano, 2009: Attribution of seasonal and regional changes in Arctic moisture convergence. *J. Clim.*, **22**, 5115-5134, doi:10.1175/2009JCLI2829.1.
- Uotila, P., A.B. Pezza, J.J. Cassano, K. Keay, and A.H. Lynch, 2009: A comparison of low pressure system statistics derived from a high-resolution NWP output and three reanalysis products over the Southern Ocean. *J. Geophys. Res.*, **114**, D17105, doi:10.1029/2008JD011583.
- Skific, N., J.A. Francis, and J.J. Cassano, 2009: Attribution of projected changes in atmospheric moisture transport in the Arctic: A self-organizing map perspective. *J. Clim.*, **22**, 4135-4153, DOI:10.1175/2009JCLI2645.1.
- Finnis¹, J., J.J. Cassano, M.M. Holland, M.C. Serreze, and P. Uotila 2009: Synoptically forced hydroclimatology of major Arctic watersheds in general circulation models, Part 2: Eurasian watersheds. *Int. J. Climatology*, **29**, 1244-1261, DOI: 10.1002/joc.1769.
- Finnis¹, J., J.J. Cassano, M.M. Holland, M.C. Serreze, and P. Uotila, 2009: Synoptically forced hydroclimatology of major Arctic watersheds in general circulation models, Part 1: the Mackenzie River basin. *Int. J. Climatology*, **29**, 1226-1243, DOI: 10.1002/joc.1753
- Schuenemann¹, K., J.J. Cassano, and J. Finnis, 2009: Synoptic forcing of precipitation over Greenland: Climatology for 1961 to 1999. *J. Hydrometeorology*, **10**, 60-78, DOI: 10.1175/2008JHM1014.1.
- Seefeldt¹, M.W. and J.J. Cassano, 2008: An analysis of low-level jets in the greater Ross Ice Shelf region based on numerical simulations. *Mon. Wea. Rev.*, **136**, 4188-4205, DOI:10.1175/2008MWR2455.1.
- Zhang, K., J.S. Kimball, E.H. Hogg, M. Zhao, W.C. Oechel, J.J. Cassano, and S.W. Running, 2008: Satellite-based model detection of recent climate driven changes in northern high latitude vegetation productivity. *J. Geophys. Res.*, **113**, G03033, DOI 10.1029/2007JG000621.
- Wyser, K., C.G. Jones, P. Du., E. Girard, U. Willén, J. Cassano, J.H. Christensen, J.A. Curry, K. Dethloff, J.-E. Haugen, D. Jacob, M. Koltzow, R. Laprise, A. Lynch, S. Pfeifer, A. Rinke, M. Serreze, M.J. Shaw¹, M. Tjernström, and M. Zagar, 2008: An evaluation of Arctic cloud and radiation processes during the SHEBA year: Simulation results from eight Arctic regional climate models. *Climate Dynamics*. **30**, 203-223, DOI 10.1007/s00382-007-0286-1.
- Zhang, K. J.S. Kimball, K.C. McDonald, J.J. Cassano, and S.W. Running, 2007: Impacts of large-scale oscillations on pan-Arctic terrestrial net primary production. *Geophys. Res. Letters*, L21403, doi10.1029/2007GL031605.
- White, D., L. Hinzman, L. Alessa, J. Cassano, M. Chambers, K. Falkner, J. Francis, W.J. Gutowski, M. Holland, R.M. Holmes, H. Huntington, D. Kane, A. Kliskey, C. Lee, J. McClelland, B. Peterson, T.S. Rupp, F. Straneo, M. Steele, R. Woodgate, D. Yang, K. Yoshikawa, and T. Zhang, 2007: The Arctic freshwater system: Changes and impacts. *J. Geophys. Res.*, **112**, G04S54, doi:10.1029/2006JG000353.
- Cassano, J.J., P. Uotila, A.H. Lynch, and E.N. Cassano³, 2007: Predicted changes in synoptic forcing of net precipitation in large Arctic river basins during the 21st century, *J. Geophys. Res.*, **112**, G04S49, doi:10.1029/2006JG000332.
- Finnis¹, J., M.M. Holland, M.C. Serreze, and J.J. Cassano, 2007: Response of Northern hemisphere extratropical cyclone activity and associated precipitation to climate change, as represented by CCSM3, *J. Geophys. Res.*, **112**, G04S42, doi:10.1029/2006JG000286.
- Uotila, P, A.H. Lynch, J.J. Cassano, and R.I. Cullather, 2007: Changes in Antarctic net precipitation in the 21st century based on Intergovernmental Panel on Climate Change (IPCC) model scenarios. *J. Geophys. Res.*, **112**, D10107, doi:10.1029/2006JD007482.
- Zhang, K., J.S. Kimball, M. Zhao, W.C. Oechel, J. Cassano, and S.W. Running, 2007: Sensitivity of pan-Arctic terrestrial net primary productivity simulations to daily surface meteorology from NCEP/NCAR and ERA-40 reanalyses. *J. Geophys. Res.*, **112**, G01001, doi:10.1029/2006JG000249.
- Seefeldt¹, M.W., J.J. Cassano, and T.R. Parish, 2007: Dominant regimes of the Ross Ice Shelf surface wind field during austral autumn 2005. *J. Appl. Meteor. and Clim.*, **11**, 1933-1955, doi:10.1175/2007JAMC1442.1.

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- Cassano, J.J., P. Uotila, A.H. Lynch, 2006: Changes in synoptic weather patterns in the polar regions in the 20th and 21st centuries, Part 1: Arctic. *Int. J. Climatology*, DOI:10.1002/joc.1306.
- Lynch, A.H., P. Uotila, and J.J. Cassano, 2006: Changes in synoptic weather patterns in the polar regions in the 20th and 21st centuries, Part 2: Antarctic. *Int. J. Climatology*, DOI:10.1002/joc.1305.
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- Parish, T.R., and J.J. Cassano, 2003: Diagnosis of the katabatic wind influence on the wintertime Antarctic surface wind field from numerical simulations. *Mon. Wea. Rev.*, **131**, 1128-1139.
- Lynch, A.H., E.N. Cassano, J.J. Cassano, and L. Lestak, 2003: Cases studies of high wind events in Barrow, Alaska: Climatological context and development processes. *Mon. Wea. Rev.*, **131**, 719-732.
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- Cassano, J.J., and T.R. Parish, 2000: An analysis of the nonhydrostatic dynamics in numerically simulated Antarctic katabatic flows. *J. Atmos. Sci.*, **57**, 891-898.

(technical reports)

- Cassano, J.J., K. Brunt, N. Dunbar, R. Hale, R. McPherron, M. Nettles, S. Severmann, J. and Powers, 2013: *Antarctic Sciences Section / Antarctic Infrastructure and Logistics Section National Science Foundation Committee of Visitors report.*
- Bromwich, D.H., and J.J. Cassano, Eds., 2000: Recommendations to the National Science Foundation from the Antarctic Weather Forecasting Workshop. BPRC Miscellaneous Series Report M-420, 48pp.
- Cassano, J.J., J. Wegiel, D. Bacon, B. Kuo, B. Muller, A. Cayette, S. Pendlebury, and P.F. Coppola, 2000: Numerical forecast models. *Recommendations to the National Science Foundation from the Antarctic Weather Forecasting Workshop*, D.H. Bromwich and J.J. Cassano, Eds., Byrd Polar Research Center, 25-32.
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- Bromwich, D.H., and J.J. Cassano, 2001: Antarctic weather forecasting workshop. *Bull. Amer. Meteor. Soc.*, **82**, 1409-1413.

(books)

- Cassano, J.J., 2013: Climate of Extremes, in *Antarctica: Global Science from a Frozen Continent* (ed. D.W.H. Walton), Cambridge University Press, Cambridge, 102-136.
- Lynch, A.H, and J.J. Cassano, 2006: *Applied Atmospheric Dynamics*. J. Wiley and Sons, West Sussex, 280pp.
- M. Shaw and J.J. Cassano, 2006: *Applied Atmospheric Dynamics: Review Question Solutions*. J. Wiley and Sons, West Sussex, available as electronic document from publisher.
- Cassano, J.J., and R.B. Stull, 1995: *An Instructors Supplement to Meteorology Today for Scientists and Engineers*. West Publishing Co., 139pp.

(lab manuals)

- Cassano, J.J. (ed); 1998: *ATSC 2000 Introduction to Meteorology Lab Manual*, University of Wyoming

Current Research Grants

Collaborative Research: Understanding Arctic Marine Biogeochemical Response to Climate Change for Seasonal to Decadal Prediction Using Regional and Global Climate System Models. Source of support: NSF; Total award amount: \$154,186 (University of Colorado); Total award period covered: October 2014 – September 2017; Principal Investigator: John J. Cassano

Characteristics, Variability and Hydrologic Impacts of the Summer Arctic Frontal Zone and Projected Changes Through the 21st Century. Source of support: NSF; Total award amount: \$475,771 (University of Colorado); Total award period covered: April 2014 – March 2017; Principal Investigator: Mark C. Serreze; Co-Principal Investigator: Elizabeth N. Cassano, John J. Cassano

An Integrated Observational / Modeling Assessment of the Effects of Recent and Future Arctic Change on Weather Systems in the United States. Source of support: NASA; Total award amount: \$988,466 (University of Colorado); Total award period covered: December 2013 – November 2016; Principal Investigator: John J. Cassano; Co-Principal Investigators: M. Serreze, J. Stroeve, E. Cassano, J.A. Francis, and D.W.J. Thompson

Observations of wind turbine wakes using unmanned aircraft systems. Source of support: CIRES; Total award amount: \$24,768; Total award period covered: June 2013 – June 2014; Principal investigator: John J. Cassano; Co-Principal Investigators: J. Lundquist, B. Argrow, E. Frew, and K. Friedrich

Polar Winds: Airborne Doppler Wind Lidar Investigations. Source of support: Simpson Weather Associates, Inc.; Total award amount: \$22,062 (University of Colorado); Total award period covered: November 2013 – October 2014; Principal Investigator: John J. Cassano

Collaborative Research: Antarctic Automatic Weather Station Program 2013-2017. Source of support: NSF; Total award amount: \$349,598 (University of Colorado); Total award period covered: April 2013 – March 2016; Principal Investigator: John J. Cassano

Collaborative Research: Improving Decadal Prediction of Arctic Climate Variability and Change Using a Regional Arctic System Model (RASM). Source of support: DOE; Total award amount: \$657,746 (University of Colorado); Total award period covered: May 2011 – May 2015; Principal Investigator: Wieslaw Maslowski; Co-Principal Investigators: John J. Cassano, Matthew Higgins, Andrew Roberts, William Gutowski, Dennis Lettenmaier, Xubin Zeng, Slawek Tulaczyk, William H. Robertson, William Lipscomb.

Collaborative Research: Towards Advanced Understanding and Improved Decadal/Centennial Prediction of Arctic Sea Ice State and Climate. Source of support: NSF; Total award amount: \$182,192; Total award period covered: Oct 2011 – Sept 2014; Principal Investigator: John J. Cassano; Co-Principal Investigator: Matthew Higgins.

Collaborative Research: Ocean-Ice-Atmosphere Interactions in the Terra Nova Bay Polynya, Antarctica. Source of support: NSF; Total award amount: \$1,053,986; Total award period covered: Aug 2011 – July 2015; Principal investigator: John J. Cassano, Co-investigators: Shelley L. Knuth and Scott Palo

Collaborative Research: Antarctic Automatic Weather Station Program. Source of support: NSF; Total award amount: \$255,609; Total award period covered: Jan 2010 – Aug 2014; Principal investigator: John J. Cassano

Collaborative Research: Antarctic Automatic Weather Station Program (supplemental funding). Source of support: NSF; Total award amount: \$29,979; Total award period covered: Jan 2010 – August 2014; Principal investigator: John J. Cassano

Collaborative Research: Arctic Extreme Temperature and Precipitation – Detection and Projection of Their Climatic Change and Physical Causes. Source of support: NSF; Total award amount: \$372,996; Total award period covered: Sept 2010 – Sept 2015; Principal investigator: John J. Cassano; Co-investigator: Elizabeth N. Cassano

Collaborative Research: Analysis of McCall Glacier Ice Core and Related Modern Process Studies. Source of support: NSF; Total award amount: \$284,878; Total award period covered: Sept 2010 – August 2015; Principal investigator: John J. Cassano; Co-Investigator: Elizabeth N. Cassano

Previous Research Grants

Collaborative Research: Towards Advanced Understanding and Predictive Capability of Climate Change in the Arctic Using a High-Resolution Regional Arctic Climate System Model. Source of support: Department of Energy; Total award amount: \$690,996 (Univ. of Colorado); Total award period covered: September 2007 – August 2012; Principal investigator: Wieslaw Maslowski; Co-Principal Investigators: John J. Cassano, William J. Gutowski, and Dennis P. Lettenmaier

Hydrologic Response to a Shrinking Arctic Sea Ice Cover. Source of support: National Science Foundation; Total award amount: \$594,934; Total award period covered: Sept 2008 – August 2012; Principal investigator: Mark C. Serreze; Co-Principal Investigators: Elizabeth N. Cassano, John J. Cassano, and Julienne Stroeve

Collaborative Research: Oceanic Response to Mesoscale Atmospheric Circulations in Terra Nova Bay. Source of support: National Science Foundation; Total award amount: \$1,092,667; Total award period covered: August 2008 – July 2012; Principal Investigator: John J. Cassano; Co-Principal Investigator: James A. Maslanik

Synoptic Climatology of Lake El'gygytgyn. Source of support: University of Alaska – Fairbanks; Total award amount: \$30,008; Total award period covered: Dec 2009 – May 2011; Principal investigator: Elizabeth Cassano; Co-investigator: John J. Cassano

A Comprehensive Modeling Approach Towards Understanding and Prediction of the Alaskan Coastal System Response to Changes in an Ice-diminished Arctic. Source of support: Naval Postgraduate School (National Oceanographic Partnership Program); Total award amount: \$378,538; Total award period covered: September 2007 – August 2011; Principal Investigator: John J. Cassano

Collaborative Research: Antarctic Automatic Weather Station Program. Source of support: NSF; Total award amount: \$194,892; Total award period covered: August 2007 – July 2011; Principal investigator: John J. Cassano

Support and Enhancement of the Antarctic Mesoscale Prediction System (AMPS) 2008-2010. Source of support: NSF; Total award amount: \$834,434 (University of Colorado portion of proposal budget:

\$57,097); Total award period covered: October 2008 – September 2010; Principal investigator: Jordan G. Powers, Co-investigators: David H. Bromwich and John J. Cassano

Collaborative Research: Understanding Change in the Climate and Hydrology of the Arctic Land Region: Synthesizing the Results of the ARCSS Fresh Water Initiative Projects. Source of support: NSF; Total award amount: \$300,241; Total award period covered: September 2006 – August 2009; Principal investigator: John J. Cassano

Meteorological Training – Physical and Dynamic Meteorology. Source of support: Vaisala; Total award amount: \$30,218; Total award period covered: January 2009 – April 2009; Principal investigator: John J. Cassano

Synoptic Climatology of the Arctic National Park Network. Source of support: University of Alaska – Fairbanks; Total award amount: \$26,676; Total award period covered: June 2007 – October 2008; Principal investigator: John J. Cassano

Collaborative Research: Detection and Attribution of Changes in the Hydrologic Regimes of the Mackenzie, the Kuparuk and the Lena River Basins: Source of support: NSF; Total award amount: \$394,347; Total award period covered: January 2003 – December 2008; Principal investigator: John J. Cassano, Co-investigator: Amanda H. Lynch

Support and Enhancements of the Antarctic Mesoscale Prediction System (AMPS), Source of support: NSF; Total award amount: \$816,428 (University of Colorado portion of budget: \$43,330); Total award period covered: October 2006 – September 2008; Principal investigator: Jordan G. Powers, Co-investigators: David H. Bromwich and John J. Cassano

Developing an Understanding and Predictive Capability of the Interconnections Among Arctic Terrestrial, Atmospheric, and Marine Systems. Source of support: NSF; Total award amount: \$299,990 (University of Colorado portion of proposal budget); Total award period covered: January 2005 - September 2008; Principal investigator: Walter C. Oechel, Co-investigators: John J. Cassano, Larry D. Hinzman, John S. Kimball, and Wieslaw Maslowski

Arctic Regional Climate Model Intercomparison Project: Evaluation and Interpretation of Cloud and Radiation Fields using Data Project from FIRE ACE: Source of support: Georgia Institute of Technology; Total award amount: \$88,737; Total award period covered: December 2003 – November 2006; Principal investigator: Amanda H. Lynch, Co-investigator: John J. Cassano

Enhancement and Operation of the Antarctic Mesoscale Prediction System (AMPS), Source of support: NSF; Total award amount: \$18,762 (University of Colorado portion of proposal budget); Total award period covered: October 2004 - September 2006; Principal investigator: Jordan G. Powers, Co-investigators: David H. Bromwich, John J. Cassano, and Y.-H. Kuo

Collaborative Research: pre-RIME Studies of Transport Processes in the Ross Sea Sector: Source of support: NSF; Total award amount: \$65,188; Total award period covered: August 2003 – July 2005; Principal investigator: John J. Cassano

Extension of the Antarctic Mesoscale Prediction System (AMPS): Source of support: NCAR; Total award amount: \$39,802; Total award period covered: October 2002 – September 2004; Principal investigator: John J. Cassano

Greenland: Reanalysis of the Energy Budget of the Ice Sheet (GREBIS): Source of support: NASA; Total award amount: \$276,243; Total award period covered: September 2002 – August 2005; Principal investigator: John J. Cassano, Co-investigators: Amanda H. Lynch and Konrad Steffen

Teaching

ATOC 1050 - Weather and the Atmosphere, Department of Atmospheric and Oceanic Sciences, University of Colorado (Spring 2010, Fall 2005, Spring 2005, Fall 2004, Spring 2002)

ATOC 4720 – Introduction to Atmospheric Physics and Dynamics, Department of Atmospheric and Oceanic Sciences, University of Colorado (Fall 2013, Spring 2007, Spring 2006)

ATOC 4750/5750 – Desert Meteorology, Department of Atmospheric and Oceanic Sciences, University of Colorado (Fall 2011, Spring 2008)

ATOC 5050 – Introduction to Atmospheric Physics and Dynamics, Department of Atmospheric and Oceanic Sciences, University of Colorado (Fall 2013, Fall 2010, Fall 2008, Fall 2007, Fall 2006)
ATOC 5060 – Atmospheric Dynamics, Department of Atmospheric and Oceanic Sciences, University of Colorado (Spring 2011)
ATOC 6020 - Seminar: Weather Forecasting, Department of Atmospheric and Oceanic Sciences, University of Colorado (Fall 2010, Spring 2010, Fall 2008, Fall 2007, Spring 2007, Fall 2006, Spring 2006, Fall 2005, Spring 2005, Fall 2004)
ATOC 6700 – Weather Forecasting and Discussion, Department of Atmospheric and Oceanic Sciences, University of Colorado (Fall 2013)
ATOC 7500 – Introduction to Atmospheric Physics and Dynamics, Department of Atmospheric and Oceanic Sciences, Continuing Education, University of Colorado (Spring 2009)
Atmospheric Science 820 – Mesoscale Atmospheric Modeling, (Co-lecturer), Atmospheric Sciences Program, Ohio State University (Spring 2000)
Geography 820 – Climate System Modeling, (Co-lecture) Atmospheric Sciences Program, Ohio State University (Spring 1999)
ATSC 2000 lab – Introduction to Meteorology, (Teaching Assistant), Department of Atmospheric Science, University of Wyoming (Fall 1998, Spring 1998, Fall 1997, Spring 1997, Fall 1996)

Field Work

January 2014: Lead unmanned aerial vehicle field campaign to study the atmospheric boundary layer over the Ross Ice Shelf, Antarctica
August – September 2012, August – September 2009: Lead unmanned aerial vehicle field campaign to study Terra Nova Bay polynya, Antarctica
January-February 2012, January 2009, January-February 2004, January 2000, January 1998, December 1994 - January 1995, January 1994: Install and repair automatic weather stations in Antarctica
December 2007 – January 2008, January 2001: Work with U.S. Antarctic Program weather forecasters at McMurdo Station, Antarctica

Recent Collaborators

D.H. Bromwich, E.N. Cassano, R.I. Cullather, G. Emmitt, J. Francis, A.L. Gordon, W. Gutowski, M. Hughes, M.A. Lazzara, D. Lettenmaier, W. Lipscomb, J.A. Maslanik, W. Maslowski, J. McConnell, B. Nijssen, M. Nolan, S. Palo, C. Reese, A. Roberts, W. Robertson, M.C. Serreze, J. Stroeve, D. Thompson, S. Tulaczyk, C. Zappa, X. Zeng

Thesis Advisors

Thomas R. Parish and Charles R. Stearns

Postdoc Advisors

David H. Bromwich and Amanda H. Lynch

Graduate Advisees

Alice DuVivier (Ph.D. Student)
Joel Finnis (Ph.D. – Spring 2008)
Matthew Higgins (Ph.D. – Summer 2010)
Shelley Knuth (Ph.D. Student)
Scott Landoldt (Ph.D. Student)
Melissa Nigro (Ph.D. Student – Fall 2012)
Cody Phillips (Ph.D. Student)
David Porter (Ph.D. – Fall 2011)
Keah Schuenemann (Ph.D. – Fall 2008)
Mark Seefeldt (Ph.D. – Fall 2007)

Michael Shaw (M.S. Fall 2005)
Michael Stone (Ph.D. Student)

Postdoc Advisees

Joel Finnis
Matthew Higgins
Mimi Hughes
Melissa Nigro
David Porter
Mark Seefeldt

Other Advisees

Luna M. Rodriguez-Manzanet (University of Colorado Summer Multicultural Access to Research Training (SMART) and UCAR Significant Opportunities in Atmospheric Research (SOARS))
Christopher Takeuchi (Professional Research Assistant)
Michael Shaw (Professional Research Assistant)