

## CURRICULUM VITAE

**MARK C. SERREZE**

**Updated January, 2018**

### CONTACT INFORMATION:

National Snow and Ice Data Center  
Cooperative Institute for Environmental Sciences  
Campus Box 449  
University of Colorado, Boulder CO 80309-0449

Telephone: 303-492-2963  
email: mark.serreze@colorado.edu

### RESEARCH INTERESTS

Arctic climate and climate change, synoptic and dynamic climatology, boundary-layer processes, atmosphere-sea ice interactions, hydro-climatology, permafrost, climate modeling, remote sensing of the cryosphere

### EDUCATION

Ph.D. (1989) Geography, University of Colorado Boulder  
M.S. (1985) Geography, University of Massachusetts Amherst  
B.A. (1982) Geography, University of Massachusetts Amherst

### CURRENT POSITIONS

Professor, Department of Geography, University of Colorado Boulder

Director, National Snow and Ice Data Center (NSIDC), Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado Boulder

Fellow of CIRES, University of Colorado Boulder

### PAST POSITIONS

2006-2009 Senior Research Scientist, CIRES, University of Colorado Boulder

1997-2005 Research Scientist III, CIRES, University of Colorado Boulder

6/90-6/97 Research Associate, CIRES, University of Colorado Boulder

5/95-12/05 Fellow, Program in Atmospheric and Oceanic Sciences (PAOS), University of Colorado Boulder

3/91-6/91 Consultant, National Oceanic and Atmospheric Administration, compilation of Arctic temperature inversion climatology for U.S. Navy operations manual

6/89-6/90 Postdoctoral Research Associate, CIRES, University of Colorado Boulder

9/86-6/89 Research Assistant, CIRES and Department of Geography, University of Colorado Boulder

9/85-8/86	Senior Research Assistant, Lamont-Doherty Geological Observatory, Columbia University
3/85-9/85	Research Technician, Lamont-Doherty Geological Observatory, Columbia University
1/84-7/84	Research Assistant, National Academy of Sciences Committee on Monitoring and Assessment of Trends in Acid Deposition, Department of Geology/Geography, University of Massachusetts Amherst
9/83-12/83	Teaching Assistant, Department of Geology/Geography, University of Massachusetts Amherst
9/82-9/83	Research Assistant, Department of Geology/Geography, University of Massachusetts Amherst
1/82-3/82	Research Assistant, Department of Geology/Geography, University of Massachusetts Amherst

### **FIELD EXPERIENCE**

Spring 2015	North Slope, Alaska, IPY Snownet Survey
Spring 2014	North Slope, Alaska, IPY Snownet Survey
Spring 2013	North Slope, Alaska, IPY Snownet survey
Spring 2012	North Slope, Alaska, IPY Snownet survey
Spring 2011	North Slope, Alaska: IPY Snownet survey
Spring 2010	North Slope, Alaska: IPY SnowNet survey
Spring 2009	North Slope, Alaska: IPY SnowNet survey
Spring 2008`	Barrow, Alaska: IPY SnowNet survey
Summer 2000	Seward Peninsula, Alaska: Vegetation/climate relationships, boundary layer variability
Summer 1999	Seward Peninsula, Alaska: Vegetation/climate relationships, boundary layer variability
Spring 1993	Resolute Passage, North West Territories Canada: Observations in support of modeling and remote sensing of Arctic sea ice and atmospheric conditions
Spring 1992	Resolute Passage, North West Territories Canada: Observations in support of modeling and remote sensing of Arctic sea ice and atmospheric conditions
Summer 1983	Northeast Ellesmere Island, North West Territories Canada: Topoclimatic and mass-balance studies of the St. Patrick Bay Ice Cap area
Spring 1983	Canadian High Arctic (Devon, Meighan and Ellesmere Islands): Annual mass-balance survey, conducted under the direction of R.M. Koerner, Polar Continental Shelf Project, Ottawa
Summer 1982	Northeast Ellesmere Island, Canada: Topoclimatic and mass-balance studies of the St. Patrick Bay Ice Cap area

**COURSES TAUGHT**

Climate and Vegetation (GEOG 1001, Spring 2018)

Introduction to Arctic Climate and Environment (GEOG 2271, Spring 2017)

Introduction of Physical Hydrology, Department of Geography, University of Colorado Boulder (GEOG 3511, Spring 2011, 2012, 2013, 2016)

The Arctic Climate System, Department of Geography, University of Colorado Boulder (GEOG 4271/5271, Autumn 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017)

Principles of Climate, Department of Geography, University of Colorado Boulder (ATOC-ENVS-GEOG: 3600-3601001, Spring 2015)

Readings in Climatology, Department of Geography, University of Colorado Boulder (GEOG 6211, Autumn 2014)

Topics in Physical Geography: The Arctic Climate System, Department of Geography, University of Colorado Boulder (GEOG 5421, Autumn 2009)

Mountain Weather and Climate; Department of Geography, University of Colorado Boulder (GEOG 4331, Spring 2001)

Topics in Climatology: Climates and Consequences of Snow and Ice; Department of Geography, University of Colorado Boulder (GEOG/APAS 3201, Spring, 1990)

**RESEARCH GRANTS**

Arctic Institute of North America (1983-1984)	\$600	Air temperature, albedo and glacier ablation - a micro-climatological study (PI)
The Explorers Club (1983-1984)	\$400	Air temperature, albedo and glacier ablation - micro-climatological study (PI)
NSF (1990-1991)	\$114,000	Summer climate interactions in the Arctic Basin (PI)
NOAA (1990-1991)	\$234,000	Analysis and assessment of sea ice fluctuations in relation to atmosphere-ocean processes (Co-PI)
Electric Power Research Institute (1990-1991)	\$91,000	Trend analyses of troposphere temperature and large-scale circulation in the Arctic (Co-PI)
NOAA (1991-1992)	\$91,000	Development and trend analyses of an Arctic TOVS temperature-sounding record (Co-PI)
NSF (1991-1992)	\$151,000	Modeled and observed sea ice variability in the Arctic: Sensitivity to atmospheric conditions and the surface energy budget (Co-PI)
NSF (1991-1992)	\$83,000	Observations in support of remote sensing and modeling of Arctic sea ice and atmospheric conditions (PI)
NSF (1992-1993)	\$162,000	Atmospheric water vapor over the Arctic and its relationships with synoptic variability and surface conditions (PI)

NASA (1995)	\$ 27,283	A summary database of Arctic water vapor characteristics (PI)
NSF (1995-1996)	\$ 89,934	Sea ice and atmospheric characteristics of the SHEBA field area (PI)
NSF (1994-1998)	\$137,000	Collaborative research: Atmospheric controls on Northern Hemisphere cryosphere variability (PI)
NSF (1994-1998)	\$394,520	The Arctic radiation balance (Co-PI)
NSF (1996-1998)	\$219,747	The utility of NCEP/NCAR "reanalysis" fields for Arctic climate studies (PI)
NSF (1995-1999)	\$ 20,630	Aerological estimates over the major Arctic watersheds (PI)
NSF (1996-1999)	\$389,721	Contemporary variability, future changes, and human dimensions of snowpack water resources over the western United States (PI)
NASA (1998-2000)	\$257,503	Arctic regional sea ice anomalies: A diagnosis of ice-atmosphere-ocean interactions and linkages to large-scale climate (Co-PI)
NSF-OPP-LAII (1998-2002)	\$900,000	Transitions: A study of the spatial and temporal transition of climate and ecosystems in the circumpolar Arctic (Co-PI)
NASA (1998-2001)	\$318,609	Investigating downscaling techniques and evaluating climate models for use in estimating regional water resources in mountainous regions under changing climate conditions (Co-PI)
NOAA (1998-2001)	\$150,400	Environmental Working Group Arctic Meteorology CD-ROM-NSIDC-Part 2 (Co-PI)
NSF (1999-2002)	\$361,791	Collaborative research: Hydro-climatology of the major Eurasian Arctic drainages (PI)
NSF (2000-2002)	\$165,413	Collaborative research: A hydrological observing system for the pan-Arctic land mass (PI)
NSF (1999-2002)	\$399,263	Local regional and remote effects of Northern Hemisphere snow cover on western US climate and water resources: A multi-scale investigation (Co-PI)
NASA (2000-2002)	\$354,371	Regional integrated monitoring system for the hydrology of the pan-Arctic Landmass (PI)
NSF (2002-2004)	\$170,000	Characterization of atmospheric moisture transport and the freshwater budget of the Arctic with an improved regional model (PI)
NSF (2003-2007)	\$583,763	Collaborative research: A land surface model hind-cast of the terrestrial Arctic drainage system (PI)
NSF (2003-2007)	\$365,464	Collaborative research: An integrated assessment of the Arctic freshwater system: Analysis of retrospective and contemporary conditions (PI)

NSF (2003-2006)	\$252,919	Characteristics of cyclone development and decay in the Arctic (PI)
NOAA (2004)	\$46,500	NOAA Cooperative agreement: Initiation of Arctic reanalysis activity (PI)
NASA (2004-2007)	\$494,021	Assessment of recent hydrologic change over the Arctic terrestrial drainage system (PI)
NASA (2004-2007)	\$279,825	Integrated analysis of the freshwater cycle in the Arctic terrestrial, cryospheric and oceanic systems (PI)
NSF (2005-2008)	\$436,749	Collaborative Research: A heat budget analysis of the Arctic Climate System (PI)
NSF (2005-2008)	\$244,325	Collaborative Research: Synthesis of modes of Arctic climate, sea ice and land interactions from multivariate century-scale observations (PI)
NASA (2005-2008)	\$594,157	Diagnosing the declining Arctic sea ice cover (Co-PI)
NSF (2007-2012)	\$359,799	Collaborative Research: Arctic system reanalysis (PI)
NSF (2008-2013)	\$594,932	Hydrologic responses to a shrinking Arctic sea ice cover (PI)
NSF (2009-2013)	\$862,974	Seasons of change in the Arctic environment (PI)
Plymouth State University (subcontract on NSF award) (2010-2014)	\$28,445	Collaborative Research RUI: Decadal cycles in NAO proxies from Northwest Iceland lake and soil sediments (PI)
NSF (2010-2013)	\$525,000	Updating IT Infrastructure: Reducing energy consumption and enhancing data flow to researchers
NASA (2010-2013)	\$454,509	Near-real-time science analysis of Arctic sea ice and Northern Hemisphere snow cover (Co-PI)
NSF (2011-2016)	\$3,079,792 (yr. 1-4 funding)	Collaborative Research: Integrated Arctic data management services for support Arctic research (PI)
NASA (2012-2014)	\$308,407	Reducing uncertainty in 21 <sup>st</sup> century projections of Arctic sea ice loss and associated impacts (PI)
NSF (2014-2017)	\$475,771	Characteristics, variability and hydrologic impact of the summer Arctic Frontal Zone and projected changes through the 21 <sup>st</sup> century (PI)
NASA (2014-2017)	\$320,750	An integrated observational/modeling assessment of the effects of recent and future Arctic change on weather systems in the United States (Co-PI)
NASA (2016-2019)	\$721,484	Bridging the snow-sea ice gap: A snow on sea ice assimilation system for the Arctic (Co-PI)
NASA (2016-2019)	\$1,196,909	Near-real time science analysis of Arctic and Antarctic sea ice and Greenland melt (Co-PI)
NSF (2016-2019)	\$705,214	Predictability of open water in the Chukchi/Beaufort seas and other regions (PI)
NSF (2013-2017)	\$410,878	Collaborative Research: The climatic role of permafrost – As permafrost thaws, could a weakening terrestrial freezer and increasingly leaky bathplug amplify Arctic climate change? (PI)

## PROFESSIONAL ACTIVITIES

Member, American Geophysical Union (1988-present)  
Member, American Meteorological Society (1993-present)  
Member, American Association for the Advancement of Science (2010-present)

## SERVICE

Chair, Arctic Climate System Study (ACSYS) Working Group on Polar Products from Reanalysis (1995-2003)

Mentor, Colorado Commission on Higher Education (CCHE) Undergraduate Internship Program (1991-1995) (five students supervised)

Mentor, Kids as Global Scientists (KGS) K-12 Outreach Program (1996)

Associate Editor, International Glaciological Society, *Annals of Glaciology* (1996)

Site review, Meteorological Service of Canada, Ottawa (2000)

Science Steering Committee, Study of Environmental Arctic Change (SEARCH) (2001-2003)

Board of Directors, Arctic Research Consortium of the United States (2002-2003)

Press briefing on the Arctic's changing hydrologic cycle, American Geophysical Union, San Francisco, California (2004)

Contributor, Arctic Climate Impact Assessment (2004-2005)

Testimony to United States Senate Committee on Commerce, Science and Transportation (Senator John McCain, presiding) regarding changes in Arctic sea ice cover (2004)

Science Steering Committee, Arctic and Sub-Arctic Fluxes (ASOF) Program (2004-2007)

Science Steering Committee, National Science Foundation Arctic System Science (ARCSS) program (2004-2006)

Press briefing on Arctic climate change, American Geophysical Union, San Francisco, California (2006)

CIRES Hiring Committee for new oceanography position (2006)

CIRES Visiting Fellows Committee (2006, Chair in 2007)

National Centers for Environmental Prediction (NCEP) Science Steering Committee for Climate Forecast System Reanalysis and Reforecast (CFSRR) effort (2007)

Congressional staffer briefings on Arctic climate change (most recently in 2007)

Numerous public lectures on Arctic climate change, ongoing; most recently at the Parker Colorado Public Library and the Denver Museum of Nature and Science (2007)

Presentation to former Vice President Al Gore on rapid sea ice loss (2007)

Scientific manuscript review, ongoing; including *Journal of Climate*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Tellus*, *Journal of Applied Meteorology*, *Reviews of Geophysics*, *Arctic and Alpine Research*

University of Colorado, Department of Geography Executive Committee (2010-2011)

Science Advisory Board, Norwegian Centers of Excellence Program, Interactions between Climate Change and the Cryosphere (2011-2014)

Science Advisory Board, European Center for Medium Range Weather Forecasts ERA-Clim project (2011-2013)

Guest lecturer in various departments across the University of Colorado (ongoing)

Frequent media contact on issues relating to Arctic and global climate change, ongoing; includes but is not limited to interviews with *National Public Radio, KOA Radio, Lou Dobbs Live, British Broadcasting Company, Canadian Broadcasting Company, ABC News, Discovery Channel, Discovery Science Channel, National Geographic, Geotimes, Voices, New York Times, Los Angeles Times, Boston Globe, Denver Post, Al Jazeera, Boulder Daily Camera, Rolling Stone*

## HONORS

- 1982 Cum Laude graduation honors, University of Massachusetts Amherst
- 1989 University of Colorado Research and Creative Work Award for outstanding Ph.D. Dissertation
- 1996 Offered Assistant Professor position, Department of Geography, State University of New York Albany
- 1996 Nominated for Associate Research Professor position Geography/CIRES
- 1996 Invited speaker, The Role of Polar Regions on Global Climate Workshop, Cancun, Mexico
- 1997 Invited speaker, "Modern Views of the Arctic Climate System," Iowa State University
- 1997 Invited speaker, "The Arctic Hydrologic Budget," Columbia University
- 1997 Invited speaker, "Characteristics of the Western U.S. Snowpack from SNOTEL Data," University of Iowa
- 1998 University of Colorado Representative (proxy) for the Arctic Research Consortium of the United States (ARCUS) Annual Meeting, Washington, DC
- 1998 Invited Expert, ERA-40 Reanalysis Workshop on Boundary Conditions, Reading, UK
- 1999 Invited Expert, Sea Ice Modeling - A Mini-Workshop, Goddard Institute for Space Studies, New York
- 2000 Invited Speaker, The Warming World: Effects on the Alaska Infrastructure, University of Alaska Anchorage
- 2001 Invited Expert, ERA-40 Re-analysis Workshop, Reading, UK.
- 2002 Invited Speaker, "Recent Changes in Northern High Latitudes: Synthesis of Observations and Comparisons with Model Predictions," American Association for the Advancement of Science Annual Meeting, Boston, Massachusetts
- 2003 Invited Speaker, "Atmospheric Aspects of Recent Arctic Environmental Change," American Geophysical Union, San Francisco, California
- 2003 Invited Contributor, NASA Earth Science Update, NASA Headquarters, Washington, DC
- 2003 Invited Speaker, "Drivers and Causes in the SEARCH Context," SEARCH Open Science Meeting, Seattle, Washington
- 2004 Nominated to serve on the United States Arctic Research Commission

- 2004 Invited Speaker, Hot Topics – Changes in the Cryosphere, Geological Society of America, Denver, Colorado
- 2005 Invited Speaker, “The Arctic Amplification Debate,” American Geophysical Union, San Francisco, California
- 2005 Invited Speaker, “The Arctic on the Fast Track of Change,” University of California, Los Angeles, California
- 2005 Award from the Atmospheric Science Librarians International for the best textbook in atmospheric sciences in 2005 (*The Arctic Climate System*, with Roger Barry)
- 2006 Elected to CIRES Fellow
- 2006 Invited Speaker, "The Arctic on the Fast Track of Change", The Second Annual Rieveschl Geo Lecture, University of Cincinnati
- 2006 Invited Speaker, Stegner Center Eleventh Annual Symposium, Global Climate Change, The Arctic to the Rocky Mountain West, S.J. Quinney Law School, University of Utah Salt Lake City
- 2006 Invited Speaker, "A Large-Scale View of the Arctic Climate System," Jet Propulsion Laboratory, Pasadena, California
- 2006 Invited Speaker, "Large-Scale Heat and Freshwater Budgets of the Arctic," University of Alaska Fairbanks
- 2006 Invited Speaker, "Large-Scale Heat and Freshwater Budgets of the Arctic," Woods Hole Oceanographic Institute, Woods Hole, Massachusetts
- 2007 Invited Speaker, "Moving Toward a Seasonally Ice Free Arctic Ocean," University of Chicago
- 2007 Invited Speaker, "Moving Toward a Seasonally Ice Free Arctic Ocean," McGill University, Montreal
- 2007 Invited Speaker, "The Basis of Recent Climate Change," Annual Meeting of the Wildlife Society, Tucson, Arizona
- 2007 Nye Lecture, "Arctic Climate Change: Where Reality Exceeds Expectations," American Geophysical Union, San Francisco, California
- 2008 Keynote Speaker, "The Emergence of Surface-Based Arctic Amplification," First International Symposium on the Arctic Research (ISAR-1), Tokyo, Japan
- 2008 Keynote Speaker: "Arctic sea ice in 2008: Standing on the Threshold?," Oceans'08 Conference, Quebec City, Canada
- 2009 Invited Speaker: “Environmental Impacts of a Shrinking Arctic Sea Ice Cover”, Woods Hole Marine Biological Laboratory, Woods Hole Massachusetts
- 2010 Invited Speaker: “Understanding Recent Arctic Change”, Library, University of Colorado, Boulder, Colorado
- 2011 Invited Speaker: “Processes of Arctic amplification”, Department of Physics, University of Colorado, Boulder, Colorado
- 2011 Invited Speaker: “The Arctic’s Shrinking Sea Ice Cover: Why Should I Care?”, The Ohio State University, Columbus, Ohio



- 2011 Invited Speaker: "The Arctic's Shrinking Sea Ice Cover: Why Should I Care?", University of Wisconsin, Madison, Wisconsin
- 2011 Invited Speaker: "Processes of Arctic amplification", University of Wisconsin, Madison, Wisconsin
- 2011 CO-Labs Governor's High Impacts Award for the NSIDC "Green Data Center" project
- 2012 Invited Speaker, "Lessons Learned in Communicating the Science of Climate Change", INSTAAR Noon Seminar, University of Colorado, Boulder
- 2012 Invited Speaker, "The Arctic's Shrinking Sea Ice Cover, Why Should We Care?", American Meteorological Society 40<sup>th</sup> Broadcast Conference , Boston, Massachusetts
- 2014 Elected Fellow of the American Meteorological Society
- 2014 Invited Speaker, "A New Look at the Arctic Frontal Zone", NASA Goddard Space Flight Center, Greenbelt, Maryland
- 2014 "Global and Planetary Change" Most Cited Publication Award for "Processes and Impacts of Arctic amplification: A research synthesis" (one of the five most cited papers in "Global and Planetary Change" 2011-2012)
- 2014 Thompson Reuters Highly Cited Researcher Award, in recognition of ranking among the top 1% of researchers for most cited documents in their respective field
- 2015 American Meteorological Sigma-XI Distinguished Lecturer (invited lectures given at various universities across the United States)
- 2015 Thompson Reuters Highly Cited Researcher Award, in recognition of ranking among the top 1% of researchers for most cited documents in their respective field
- 2016 Thompson Reuters Highly Cited Researcher Award, in recognition of ranking among the top 1% of researchers for most cited documents in their respective field
- 2016 Invited Speaker "Variability, trends and predictability of seasonal sea ice retreat and advance in the Chukchi Sea", Texas A&M University, College Station, Texas
- 2017 Thompson Reuters Highly Cited Researcher Award, in recognition of ranking among the top 1% of researchers for most cited documents in their respective field
- 2017 Named Professor of Distinction, University of Colorado, Boulder, Colorado

## **PUBLICATIONS**

### Masters Thesis and Doctoral Dissertation

Serreze, M.C., 1985: "Topoclimatic investigations of a small sub-polar ice cap with implications for glacierization." Masters Thesis, Department of Geology and Geography, University of Massachusetts, Amherst, 201 pp.

Serreze, M.C., 1989: "Seasonal and interannual variations of sea ice motion in the Canada Basin and their relationships with the Arctic atmospheric circulation." Doctoral Dissertation, Department of Geography, University of Colorado, Boulder, 186 pp.

Papers in Refereed Journals:

- Robinson, D.A., Scharfen, G., Serreze, M.C. and Kukla, G.J. 1986. Snow melt and surface albedo in the Arctic Basin. *Geophysical Research Letters*, 13, 945-948.
- Bradley, R.S. and Serreze, M.C. 1987. Mass balance of two High Arctic plateau ice caps. *Journal of Glaciology*, 33, 123-128.
- Bradley, R.S. and Serreze, M.C. 1987. Topoclimatic studies of a High Arctic plateau ice cap. *Journal of Glaciology*, 33, 149-158.
- McLaren, A.S., Serreze, M.C. and Barry, R.G. 1987. Seasonal variations of sea ice motion in the Canada Basin and their implications. *Geophysical Research Letters*, 14, 1123-1126.
- Scharfen, G., Barry, R.G., Robinson, D.A., Kukla, G.J. and Serreze, M.C. 1987. Large-scale patterns of snow melt on Arctic sea ice from meteorological satellite imagery. *Annals of Glaciology*, 9, 1-6.
- Serreze, M.C. and Bradley, R.S. 1987. Radiation and cloud observations on a high Arctic plateau ice cap. *Journal of Glaciology*, 33, 162-168.
- Serreze, M.C. and Barry, R.G. 1988. Synoptic activity in the Arctic Basin, 1979-85. *Journal of Climate*, 1, 1276-1295.
- Serreze, M.C., Barry, R.G. and McLaren, A.S. 1989. Seasonal variations in sea ice motion and effects on sea ice concentration in the Canada Basin. *Journal of Geophysical Research*, 94(C8), 10955-10970.
- Serreze, M.C., McLaren, A.S. and Barry, R.G. 1989. Seasonal variations of sea ice motion in the Transpolar Drift Stream. *Geophysical Research Letters*, 16, 811-814.
- Serreze, M.C., Barry, R.G. and McLaren, A.S. 1990. Reply to comment on "Seasonal variations of sea ice motion and effects on sea ice concentration in the Canada Basin." *Journal of Geophysical Research*, 95(C4), 5407-5408.
- Serreze, M.C., Maslanik, J.A., Preller, R.H. and Barry, R.G. 1990. Sea ice concentrations in the Canada Basin during 1988: Comparisons with other years and evidence of multiple forcing mechanisms. *Journal of Geophysical Research*, 95(C12), 22,253-22,367.
- Serreze, M.C. and Rehder, M.C. 1990. June cloud cover over the Arctic Ocean. *Geophysical Research Letters*, 17, 2397-2400.
- Serreze, M.C., Kahl, J.D. and Schnell, R.C. 1991. Low-level temperature inversions of the Eurasian Arctic and comparisons with Soviet drifting station data. *Journal of Climate*, 5, 615-629.
- Kahl, J.D., Serreze, M.C., Shiotani, S., Skony, S.M. and Schnell, R.C. 1992. In-situ meteorological sounding archives for Arctic studies. *Bulletin of the American Meteorological Society*, 73, 1824-1830.
- Robinson, D.A., Serreze, M.C., Barry, R.G., Scharfen, G. and Kukla, G. 1992. Large-scale patterns and variability of snow melt and albedo in the Arctic Basin. *Journal of Climate*, 5, 1109-1119.
- Serreze, M.C., Kahl, J.D., Andreas, E.L., Maslanik, J.A., Rehder, M.C. and Schnell, R.C. 1992. Theoretical heights of buoyant convection above open leads in the winter pack ice cover. *Journal of Geophysical Research*, 97(C6), 8411-8422.
- Serreze, M.C., Maslanik, J.A., Barry, R.G. and Demaria, T.L. 1992. Winter atmospheric circulation in the Arctic Basin and possible relationships to the Great Salinity Anomaly in the northern North Atlantic. *Geophysical Research Letters*, 19, 293-296.

- Barry, R.G., Serreze, M.C., Maslanik, J.A. and Preller, R.H. 1993. The Arctic Sea Ice Climate System: Observations and modeling. *Reviews of Geophysics*, 31, 397-422.
- Kahl, J.D., Serreze, M.C. and Schnell, R.C. 1993. Tropospheric low-level temperature inversions in the Canadian Arctic. *Atmosphere-Ocean*, 30, 511-529.
- Kahl, J.D., Serreze, M.C., Stone, R., Shiotani, S., Kisley, M. and Schnell, R.C. 1993. Tropospheric temperature trends in the Arctic, 1958-1986. *Journal of Geophysical Research*, 98(D7), 12825-12838.
- Kahl, J.D., Charlevoix, D.J., Zaitseva, N.A., Schnell, R.C. and Serreze, M.C. 1993. Absence of evidence for greenhouse warming over the Arctic Ocean in the past 40 years. *Nature*, 361, 335-337.
- Schweiger, A.J., Serreze, M.C. and Key, J.R. 1993. Arctic sea ice albedo: A comparison of two satellite-derived data sets. *Geophysical Research Letters*, 20, 41-44.
- Serreze, M.C., Maslanik, J.A., Scharfen, G. and Barry, R.G. 1993. Interannual variations in snow melt over Arctic sea ice and relationships to atmospheric forcings. *Annals of Glaciology*, 17, 327-331.
- Serreze, M.C., Box, J.E., Barry, R.G. and Walsh, J.E. 1993. Characteristics of Arctic synoptic activity, 1952-1989. *Meteorology and Atmospheric Physics*, 1, 147-164.
- Curry, J.A., Schramm, J.L., Serreze, M.C. and Ebert, E.E. 1994. Water vapor feedback over the Arctic Ocean. *Journal of Geophysical Research*, 100(D7), 14223-14229.
- DeAbreu, R.A., Key, J., Maslanik, J.A., Serreze, M.C. and LeDrew, E.F. 1994. Comparison of in situ and AVHRR-derived surface broadband albedo over Arctic sea ice. *Arctic*, 58, 288-297.
- Key, J., Maslanik, J.A., Papakyriakou, T., Serreze, M.C. and Schweiger, A.J. 1994. On the validation of satellite-derived sea ice surface temperature. *Arctic*, 58, 280-287.
- Serreze, M.C., Rehder, M.C., Barry, R.G. and Walsh, J.E. 1994. A climatological data base of Arctic water vapor characteristics. *Polar Geography and Geology*, 18, 63-75.
- Robinson, D.A., Frei, A. and Serreze, M.C. 1995. Recent variations and regional relationships in Northern Hemisphere snow cover. *Annals of Glaciology*, 21, 71-76.
- Serreze, M.C. 1995. Climatological aspects of cyclone development and decay in the Arctic. *Atmosphere-Ocean*, 33, 1-23.
- Serreze, M.C., Barry, R.G. and Walsh, J.E. 1995. Atmospheric water vapor characteristics at 70°N. *Journal of Climate*, 8, 719-731.
- Serreze, M.C., Maslanik, J.A., Key, J.R., Kokaly, R.F. and Robinson, D.A. 1995. Diagnosis of the record minimum in Arctic sea ice extent during 1990 and associated snow cover extremes. *Geophysical Research Letters*, 22, 2183-2186.
- Serreze, M.C., Rehder, M.C., Barry, R.G., Kahl, J.D. and Zaitseva, N. 1995. The distribution and transport of atmospheric water vapor over the Arctic Basin. *International Journal of Climatology*, 15, 709-727.
- Serreze, M.C., Rehder, M.C., Barry, R.G., Walsh, J.E. and Robinson, D.A. 1995. Variations in aerologically-derived Arctic precipitation and snowfall. *Annals of Glaciology*, 21, 77-82.
- Serreze, M.C., Barry, R.G., Rehder, M.C. and Walsh, J.E. 1995. Variability in atmospheric circulation and moisture flux over the Arctic. *Philosophical Transactions A of the Royal Society*, 352, 215-225.

- Walsh, J.E., Zhou, X., Portis, D. and Serreze, M.C. 1995. Atmospheric contribution to hydrologic variations in the Arctic. *Atmosphere-Ocean*, 34, 733-755.
- Clark, M.P., Serreze, M.C. and Barry, R.G. 1996. Characteristics of Arctic Ocean climate based on COADS data, 1980-1991. *Geophysical Research Letters*, 23, 1953-1956.
- Maslanik, J.A., Serreze, M.C. and Barry, R.G. 1996. Recent decreases in Arctic summer ice cover and linkages to atmospheric circulation anomalies. *Geophysical Research Letters*, 23, 1677-1680.
- Barlow, L.K., Rogers, J.C., Serreze, M.C. and Barry, R.G. 1997. Aspects of climatic variability in the North Atlantic sector: Discussion and relation to the Greenland Ice Sheet Project 2 high-resolution isotopic signal. *Journal of Geophysical Research*, 102(C12), 26,333-26,344.
- Serreze, M.C. and Maslanik, J.A. 1997. Arctic precipitation as represented in the NCEP/NCAR reanalysis. *Annals of Glaciology*, 25, 429-433.
- Serreze, M.C., Rogers, J.C., Carse, F. and Barry, R.G. 1997. Icelandic Low cyclone activity: Climatological features, linkages with NAO and relationships with recent changes elsewhere in the Northern Hemisphere circulation. *Journal of Climate*, 10, 453-464.
- Serreze, M.C., Clark, M.P., Robinson, D.A. and McGinnis, D.L. 1998. Characteristics of snowfall over the eastern half of the United States and relationships with principal modes of low-frequency atmosphere variability. *Journal of Climate*, 11, 234-250.
- Serreze, M.C., Key, J.R., Box, J.C. and Maslanik, J.A. 1998. A new monthly climatology of global radiation for the Arctic and comparisons with NCEP/NCAR Reanalysis and ISCCP-C2 Fields. *Journal of Climate*, 11, 121-136.
- Maslanik, J.A., Serreze, M.C. and Agnew, T. 1999. On the record reduction in 1998 western Arctic sea ice cover. *Geophysical Research Letters*, 26, 1905-1908.
- Serreze, M.C., Clark, M.P., Armstrong, R.L., McGinnis, D.A. and Pulwarty, R.S. 1999. Characteristics of the Western U.S. Snowpack from SNOTEL data. *Water Resources Research*, 35, 2145-2160.
- Clark, M.P., Serreze, M.C. and Robinson, D.A., 1999. Atmospheric controls on Eurasian snow extent. *International Journal of Climatology*, 19, 27-40.
- Clark, M.P. and Serreze, M.C. 2000. Snowfall responses over the U.S.A. to phase and amplitude variations in the tropospheric wave train. *Proceedings, IAHS at IUGG, Birmingham*, 45-54.
- Clark, M.P. and Serreze, M.C. 2000. Effects of variations in East Asian snow cover on modulating atmospheric circulation over the North Pacific Ocean. *Journal of Climate*, 13, 3700-3710.
- Cullather, R.I., Bromwich, D.H. and Serreze, M.C. 2000. The atmospheric hydrologic cycle over the Arctic basin from reanalyses, Part I. Comparison with observations and previous studies. *Journal of Climate*, 13, 923-937.
- Fleming, M.C., Chapin, F.S., III, Cramer, W., Hufford, G. and Serreze, M.C. 2000. Geographic patterns and dynamics of Alaskan climate interpolated from a sparse station record. *Global Change Biology*, 16.
- McGuire, A.D., Clein, J.S., Melillo, J.M., Kicklighter, D.W., Meier, R.A., Vorosmarty, C.J. and Serreze, M.C. 2000. Modeling carbon responses of tundra ecosystems to historical and projected climate: Sensitivity of pan-Arctic carbon storage to temporal and spatial variation in climate. *Global Change Biology*, 6, 1-19.
- Serreze, M.C. and Hurst, C.M. 2000. Representation of mean Arctic precipitation from NCEP/NCAR and ERA reanalyses. *Journal of Climate*, 13, 182-201.

- Serreze, M.C., Walsh, J.E., Chapin, F.S., III, Osterkamp, T., Dyurgerov, M., Romonovsky, V., Oechel, W.C., Morison, J., Zhang, T. and Barry, R.G. 2000. Observational evidence of recent change in the northern high latitude environment. *Climatic Change*, 46, 159-207.
- Beringer, J, Chapin, F.S. III, McHugh, I., Tapper, N.J., Lynch, A.H., Serreze, M.C. and Slater, A.G. 2001. Impact of Arctic treeline on synoptic climate. *Geophysical Research Letters*, 28, 4247-4250.
- Clark, M.P., Serreze, M.C. and McCabe, G.J. 2001. Historical effect of El Niño and La Niña events in the seasonal evolution of the montane snowpack in the Columbia and Colorado River basins. *Water Resources Research*, 37, 741-757.
- Lynch, A.H., Slater, A.G. and Serreze, M.C. 2001. The Alaskan Arctic frontal zone: forcing by orography, coastal contrast, and the boreal forest. *Journal of Climate*, 14, 4351-4362.
- McCabe, G.J., Clark, M.P. and Serreze, M.C. 2001. Trends in Northern Hemisphere surface cyclone frequency and intensity. *Journal of Climate*, 14, 4351-4362.
- Serreze, M.C., Clark, M.P. and Frei, A. 2001. Characteristics of large snowfall events in the montane western United States as examined using snowpack telemetry (SNOTEL) data. *Water Resources Research*, 37, 675-688.
- Serreze, M.C. Lynch, A.H. and Clark, M.P. 2001. The Arctic frontal zone as seen in the NCEP-NCAR Reanalysis. *Journal of Climate*, 14, 1550-1567.
- Oelke, C., Zhang, T., Serreze, M.C. and Armstrong, R.L. 2003. Regional-scale modeling of soil freeze/thaw over the Arctic drainage basin. *Journal of Geophysical Research*, 108(D10), doi:10.1029/2002JD002722.
- Serreze, M.C., Bromwich, D.H., Clark, M.P., Etringer, A.J., Zhang, T. and Lammers, R. 2003. The large-scale hydro-climatology of the terrestrial Arctic drainage system. *Journal of Geophysical Research*, 108(D2), 8160, doi:10.1029/2001JD000919.
- Serreze, M.C., Clark, M.P. and Bromwich, D.H. 2003. Monitoring precipitation over the terrestrial Arctic drainage: data requirements, shortcomings and applications of atmospheric reanalysis. *Journal of Hydrometeorology*, 4, 387-407.
- Serreze, M.C. and Etringer, A.J. 2003. Precipitation characteristics of the Eurasian Arctic drainage system. *International Journal of Climatology*, 23, 1267-1291.
- Serreze, M.C., Maslanik, J.A., Scambos, T.A., Fetterer, F., Stroeve, J., Knowles, K., Fowler, C., Drobot, S., Barry, R.G., and Haran, T.M. 2003. A new record minimum Arctic sea ice and extent in 2002. *Geophysical Research Letters*, 30, 1110, doi:10.1029/2002GL016406.
- Sturm, M., Perovich, D.K. and Serreze, M.C. 2003. Meltdown in the north. *Scientific American*, 289, 42-49.
- Oelke, C., Zhang, T. and Serreze, M.C. 2004. Modeling evidence for recent warming of the Arctic soil thermal regime. *Geophysical Research Letters*, 31, L07208, doi:10.1029/2003GL019300.
- Tsukernik, M., Chase, T.N., Serreze, M.C., Barry, R.G., Pielke, R. Sr., Herman, B. and Zeng, X. 2004. On the regulation of minimum mid-tropospheric temperatures in the Arctic. *Geophysical Research Letters*, 31, L06112, doi:10.1029/2003GL018831.
- Chapin, F.S. III, Sturm, M., Serreze, M.C., McFadden, J.P., Key, J.R., Lloyd, A.H., McGuire, A.D., Rupp, T.S., Lynch, A.H., Schimel, J.P., Beringer, J., Chapman, W.L., Epstein, H.E., Euskirchen, E.S., Hinzman, L.D., Jia, G., Ping, C.-L., Tape, K.D., Thompson, C.D.C., Walker, D.A. and Welker, J.M. 2005. Role of land-surface changes in Arctic summer warming. *Science*, 310, 657-660.

- Frauenfeld, O. W., Zhang, T. and Serreze, M.C. 2005. Climate change and variability using ERA-40 temperatures on the Tibetan Plateau. *Journal of Geophysical Research*, 110, D02101, doi: 10.1029/2004JD005230.
- Overpeck, J.T., Sturm, M., Francis, J.A., Perovich, D.K., Serreze, M.C. and others 2005. Arctic system on trajectory to new, seasonally ice-free state. *EOS, Transactions of the American Geophysical Union*, 86, 309, 312-313.
- Serreze, M.C., Barrett, A. and Lo, F. 2005. Northern high latitude precipitation as depicted by atmospheric reanalyses and satellite retrievals. *Monthly Weather Review*, 113, 3407-3430.
- Stroeve, J.C., Serreze, M.C., Fetterer, F., Arbetter, T., Meier, W., Maslanik, J. and Knowles, K. 2005. Tracking the Arctic's shrinking ice cover: Another extreme September minimum in 2004. *Geophysical Research Letters*, 32, L04501, doi:10.1029/2004GL021810.
- Zhang, T., Frauenfeld, O., Serreze, M.C., Etringer, A., Oelke, C., McCreight, J., Barry, R.G., Gilchinsky, D., Yang, D., Ye, H., Ling, F. and Chudinova, S. 2005. Spatial and temporal variability in active layer thickness over the Russian Arctic drainage basin. *Journal of Geophysical Research*, 110, D16101, doi:10.1029/2004JD005642.
- Holland, M.M., Finnis, J. and Serreze, M.C. 2006. Simulated Arctic Ocean freshwater budgets in the 20th and 21st centuries. *Journal of Climate*, 19, 6221-6242.
- Rinke, A., Dethloff, K., Cassano, J.J., Christensen, J.H., Curry, J.A., Du, P., Girard, E., Haugen, J.-E., Jacob, D., Jones, C.G., Kolzow, M., Laprise, R., Lynch, A.H., Pfeifer, S., Serreze, M.C., Shaw, M.J., Tjernstrom, M., Wyser, K. and Zagar, M. 2006. Evaluation of an ensemble of Arctic regional climate models: spatiotemporal fields during the SHEBA year. *Climate Dynamics*, doi:10.1007/s00382-005-0095-3.
- Serreze, M.C., Barrett, A.P., Slater, A.G., Woodgate, R.A., Aagaard, K., Lammers, R., Steele, M., Moritz, R., Meredith, M. and Lee, C.M. 2006. The large-scale freshwater cycle of the Arctic. *Journal of Geophysical Research*, 110, C11010, doi:10.1029/2005JC003424.
- Serreze, M.C. and Francis, J.A. 2006. The Arctic amplification debate. *Climatic Change*, doi:10.1007/s10584-005-9017.
- Serreze, M.C. and Francis, J.A. 2006. The Arctic on the fast track of change. *Weather*, 61, 65-69.
- Finnis, J., Holland, M.M., Serreze, M.C. and Cassano, J.J. 2007. Response of Northern Hemisphere extratropical cyclone activity and associated precipitation to climate change, as represented by CCSM3. *Journal of Geophysical Research*, 112, G04S42, doi: 10.1029/2006JG000286.
- Holland, M.M., Finnis, J., Barrett, A.P. and Serreze, M.C. 2007. Projected changes in Arctic Ocean freshwater budgets. *Journal of Geophysical Research*, 112, G04S55, doi:10.1029/2006JG000354..
- Serreze, M.C., Barrett, A.P., Slater, A.J., Steele, M., Zhang, J. and Trenberth, K.E. 2007. The large-scale energy budget of the Arctic. *Journal of Geophysical Research*, 112, D11122, doi:10.1029/2006JD008230.
- Serreze, M.C., Holland, M.M. and Stroeve, J. 2007. Perspectives on the Arctic's shrinking sea ice cover. *Science*, 315, 1533-1536.
- Slater, A.G., Bohn, T.J., McCreight, J.L., Serreze, M.C. and Lettenmaier, D.P. 2007. A multi-model simulation of pan-Arctic hydrology. *Journal of Geophysical Research*, 112, G04S45, doi:10.1029/2006JG000303.
- Stroeve, J., Holland, M.M., Meier, W., Scambos, T. and Serreze, M.C. 2007. Arctic sea ice decline: Faster than forecast. *Geophysical Research Letters*, 34, L09501, doi:10.1029/2007GL029703..

- Tsukernik, M., Kindig, D.N. and Serreze, M.C. 2007. Characteristics of winter cyclone activity in the northern North Atlantic: Insights from observations and regional climate modeling. *Journal of Geophysical Research*, 112, D03101, doi:10.1029/2006JD007184.
- Holland, M.M., Serreze, M.C. and Stroeve, J. 2008. The sea ice mass budget of the Arctic and its future change and simulated by coupled climate models. *Climate Dynamics*, doi:10.1007/s00382-008-0493-4.
- Serreze, M.C. and Barrett, A.P. 2008. The summer cyclone maximum over the central Arctic Ocean. *Journal of Climate*, 21, 1048-1065.
- Stroeve, J., Serreze, M., Drobot, S., Gearheard, S., Holland, M., Maslanik, J., Meier, W. and Scambos, T. 2008. Arctic sea ice extent plummets in 2007. *EOS, Transactions of the American Geophysical Union*, 89, 13, 20.
- Tedesco, M., Serreze, M. and Fettweis, X. 2008. Identifying the causes of Greenland's record surface melt in 2007. *The Cryosphere*, 2, 159-166.
- Durner, G.M., Douglas, D.C., Nielson, R.M., Amstrup, S.C., McDonald, T.L., Stirling, I., Mauritzen, M., Born, E.W., Wiig, O., DeWeaver, E., Serreze, M.C., Belikov, T.E., Holland, M.M., Maslanik, J., Aars, J., Baily, D.A. and Derocher, A.E. 2009 Predicting 21<sup>st</sup>-century polar bear habitat distribution from global climate models. *Ecological Monographs*, 79, 25-58.
- Rawlins, M.A., Serreze, M.C., Schroedfer, R., Zhang, X. and McDonald, K. 2009. Diagnosis of the record discharge of Arctic-draining Eurasian rivers in 2007. *Environmental Research Letters*, stacks.iop.org/ERL/4/045011.
- Rawlins, M.A., Steele, M.C., Serreze, M.C., Vorosmarty, C.J., Ermold, W., Lammers, R.B., McDonald, K.C., Pavelsky, T.M., Shiklomanov, A. and Zhang, J. 2009. Tracing freshwater anomalies through the air-land-ocean system: A case study from the Mackenzie River basin and the Beaufort Gyre. *Atmosphere-Ocean*, 47, 79-97, doi:10.3137/OC301.2009.
- Serreze, M.C., Barrett, A.P., Stroeve, J.C., Kindig, D.M. and Holland, M. 2009. Emerging Arctic amplification as seen in the NCEP/NCAR reanalysis. *The Cryosphere*, 3, 9-11.
- Kattsov, V., Ryabinin, V., Ovefrland, J., Serreze, M., Visbeck, M., Walsh, J., Meier, W. and Zhang, X. 2010. Arctic sea ice change: A grand challenge of climate science. *Journal of Glaciology*, 56, 1115-1121, doi:10.3189/002214311796406176
- Miller, G.H., Alley, R.B., Brigham-Grette, J., Fitzpatrick, J.J., Polyak, L., Serreze, M.C. and White, J.W.C. 2010. Arctic amplification; can the past constrain the future? *Quaternary Science Reviews*, 29, 1779-1790.
- Polyak, L., Alley, R.B., Andrews, J.T., Brigham-Grette, J., Cronin, T.M., Darby, D.A., Dyke, A.S., Fitzpatrick, J.J., Funder, S., Holland, M., Jennings, A.E., Miller, G.H., O'Regan, M., Savelle, J., Serreze, M., St. John, K., White, J.W.C., Wolff, E. 2010. History of sea ice in the Arctic. *Quaternary Science Reviews*, 29, 1757-1778.
- Rawlins, M.A., Steele, M., Holland, M.M., Adam, J.C., Cherry J.E., Francis, J.A., Groisman, P. Ya, Hinzman, L.D., Huntington, T.L., Kane, D.L., Kimball, J.S., Kwok, R., Lammers, R.B., Lee, G.M., Lettenmaier, D.P., McDonald, K., Podest, E., Pundsack, J.W., Rudels, B., Serreze, M.C., Shiklomanov, A., Skaggeth, O., Trow, T.J., Vorosmarty, C.J., Wenshanan, M., Wood, E., Woodgate, R., Yang, D. Zhang, K. and Zhang, T. 2010. Analysis of the Arctic system for freshwater cycle intensification: Observations and expectations. *Journal of Climate*, 23, 5715-5737.
- Serreze, M.C. 2010. Understanding recent climate change. *Conservation Biology*, 24, 10-17.
- Porter, D.F., Cassano, J.J. and Serreze, M.C. 2011. Analysis of the Arctic atmospheric energy budget in WRF: A comparison with reanalyses and satellite observations. *Journal of Geophysical Research*, 116, D22108, doi: 10.1029/2011JD016622.
- Serreze, M.C. 2011. Rethinking the sea-ice tipping point. *Nature*, 471, 47-48.

- Serreze, M.C. and Barrett, A.P. 2011. Characteristics of the Beaufort Sea high. *Journal of Climate*, 26, 159-182, doi:10.1175/2010JCL3636.1.
- Serreze, M.C., Barrett, A.P. and Cassano, J.J. 2011. Circulation and surface controls on the lower tropospheric air temperature field of the Arctic. *Journal of Geophysical Research*, 116, D07104, doi:10.1029/2010JD015127.
- Serreze, M.C. and Barry, R.G. 2011. Processes and impacts of Arctic amplification: A research synthesis. *Global and Planetary Change*, 77, 85-96.
- Stroeve, J.C., Maslanik, J., Serreze, M.C., Rigor, I., Meier, W. and Fowler, C. 2011. Sea ice response to an extreme negative phase of the Arctic Oscillation during winter 2009/2010. *Geophysical Research Letters*, 38, L02502, doi:10.1029/2010GL045662.
- Stroeve, J.C., Serreze, M.C., Barrett, A. and Kindig, D.A. 2011. Attribution of recent changes in autumn cyclone associated precipitation in the Arctic. *Tellus A.*, 63, 1-11, doi:10.1111/j.1600-0870.2011.00515.x.
- Stroeve, J.C., Serreze, M.C., Holland, M.M., Kay, J.E., Maslanik, J. and Barrett, A.P. 2011. The Arctic's rapidly shrinking sea ice cover: a research synthesis. *Climatic Change*, doi: 10.1007/s10584-011-0101-1.
- Tedesco, M., Fettweis, X., van den Broeke, M.R., van de Wal, R.S.W., Smeets, C.J.P.P. van de Berg, W.J., Serreze, M.C. and Box J.E. 2011 The role of albedo and accumulation in the 2010 melting record in Greenland. *Environmental Research Letters*. 6, 014005, doi: 10.1088/1748-9326/6/1/014005.
- Jenouvrier, S., Holland, M., Stroeve, J., Barbraud, C., Weimerskirch, H., Serreze, M. and Caswell, H. 2012. Effects of climate change on an emperor penguin population: analysis of coupled demographic and climate models. *Global Change Biology*, 18, 2756-2770, doi:10.1111/j.1365-2486.2012.02744.
- Porter, D.F., Cassano, J.J. and Serreze, M.C. 2012. Local and large-scale atmospheric responses to reduced Arctic sea ice and ocean warming in the WRF model. *Journal of Geophysical Research*, 117, D11115, doi:10.1029/2011JD016969.
- Serreze, M.C., Barrett, A.P. and Stroeve, J. 2012. Recent changes in tropospheric water vapor over the Arctic as assessed from radiosondes and atmospheric reanalyses. *Journal of Geophysical Research*, 117, D10104, doi: 10.1029/2011JD017421.
- Stroeve, J.C., Kattsov, V., Barrett, A., Serreze, M., Pavlova, T., Holland, M. and Meier, W.N. 2012. Trends in Arctic sea ice extent from CMIP5, CMIP3 and observations. *Geophysical Research Letters*, 39, L19502, doi:10.1029/2012GL052676.
- Bourassa, M.A., Gille, S.T., Bitz, C., Carlson, D., Cerovecki, I., Clayson, C.A. and 11 others, including Serreze, M.C. 2013: High-latitude ocean and sea ice surface fluxes: Challenges for climate research. *Bulletin of the American Meteorological Society*, doi: 10.1175/BAMS-D-11-00244.1, 403-423.
- Cassano, E.N., Cassano, J.J., Higgins M.E. and Serreze, M.C. 2013. Atmospheric impacts of an Arctic sea ice minimum as seen in the Community Atmospheric Model. *Int. J. Climatology*, doi:10.1002/joc.3723.
- Javarov, E.E., Nicolsky, D.J., Romanovsky, V.E., Walsh, J.E., Panda, S.K. and Serreze M.C. 2014. The effect of snow: How to better model ground surface temperatures. *Cold Regions Science and Technology*, 102, 63-77.
- Stroeve, J., Barrett, A., Serreze, M. and Schweiger, A. 2014. Using records from submarine, aircraft and satellites to evaluate climate model simulations of Arctic sea ice thickness. *The Cryosphere*, 8, 1839-1854, doi: 10.5194/tc-8-1839-2014.



Jenouvrier, S., Holland, M., Stroeve, J., Serreze, M., Barbraud, C., Weimerskirch, H. and Caswell, H. 2014. Projected continent-wide declines of the emperor penguin in climate change. *Nature Climate Change*, doi:10.1038/NCLIMATE2280.

Crawford, A. and M.C. Serreze 2015. A new look at the Arctic frontal zone. *Journal of Climate*, 737-754, doi:10.1175/JCLI-D-14-00447.1

Serreze, M.C., Crawford, A. and Barrett, A.P. 2015. Extreme daily precipitation events at Spitsbergen, an Arctic Island. *International Journal of Climatology*. doi:10.1002/joc.4308.

Serreze, M.C. and Stroeve, J. 2015. Arctic sea ice trends, variability and implications for seasonal ice forecasting. *Philosophical Transactions of the Royal Society*, A373:20140159, <http://dxdoi.org/10.1098/rsta.2014.0159>.

Crawford, A. and Serreze, M.C. 2016. Does the summer Arctic frontal zone influence Arctic cyclone activity? *Journal of Climate*, 29, 4977-4973, doi: 10.1175/JCLI-D-15-0755.1.

Lynch, A.H., Serreze, M.C., Cassano, E.N., Crawford, A.D. and Stroeve, J. 2016. Linkages between Arctic summer circulation regimes and regional sea ice anomalies. *Journal of Geophysical Research*, 121, 7868-7880, doi: 10.1002/2016JD025164.

Serreze, M.C., Crawford, A., Stroeve, J. C., Barrett, A.P. and Woodgate, R.A. 2016. Variability, trends and predictability of seasonal sea ice retreat and advance in the Chukchi Sea. *Journal of Geophysical Research*, 121, doi:10.1002/2016JC011977.

Serreze, M.C., Stroeve, J., Barrett, A.P. and Boisvert, L.N. 2016. Summer atmospheric circulation anomalies over the Arctic Ocean and their influences on September sea ice extent: A cautionary tale. *Journal of Geophysical Research*, 121, doi: 10.1002/2016JD025161.

Serreze, M.C., Raup, B., Hardy, D.R. and Bradley, R.S. 2017. Rapid wastage of the Hazen Plateau ice caps, northeastern Ellesmere Island, Nunavut, Canada. *The Cryosphere*, 11, 169-177, doi: 10.5194/tc-11-169-2017.

Crawford, A. and Serreze, M.C. 2017: Projected changes in the Arctic frontal zone and summer Arctic cyclone activity in the CESM Large Ensemble. *Journal of Climate*, 30, 9847-9869, doi: 10.1175/JCLI-D-17-0296.1.

#### Book Chapters

Serreze, M.C., Barry, R.G., Rehder, M.C. and Walsh, J.E. 1996. Variability in atmospheric circulation and moisture flux over the Arctic. In: *The Arctic and Environmental Change* (P. Wadhams, J.A. Dowdeswell and A.N. Schofield, eds.), Gordon and Breach Publishers, United Kingdom.

Barry, R.G. and Serreze, M.C. 2000. Atmospheric components of the Arctic Ocean fresh water balance and their interannual variability. In: *NATO-ARW-The Arctic Ocean Fresh Water Budget*, Kluwer Academic Press.

Bromwich, D.H., Cullather, R.I. and Serreze, M.C. 2000. Reanalysis depictions of the Arctic atmospheric moisture budget. In: *NATO ARW-The Arctic Ocean Fresh Water Budget*, Kluwer Academic Press.

Serreze, M.C. and Barry, R.G. 2000. Atmospheric components of the Arctic Ocean hydrologic budget. In: *NATO-ARW-The Arctic Ocean Fresh Water Budget*, Kluwer Academic Press.

Serreze, M.C. 2003: Arctic Climate. In: *Encyclopedia of Atmospheric Sciences* (J.R. Holton, J.A. Curry and J.A. Pyle, eds.), Academic Press.

Serreze, M.C. 2005. Arctic Climates. In: *Encyclopedia of World Climatology* (J. Oliver, ed.), Lancaster Publishing Services Ltd.

Serreze, M.C. and Rigor, I. 2006. Understanding recent changes in the Arctic sea ice cover. In: *Glaciers and the Earth's Changing Environment* (P. Knight, ed.), Blackwell Publishing.

Serreze, M.C. and Barrett, A.P. and Slater, A.G. 2008: Variability and change in the atmospheric branch of the Arctic hydrologic cycle. In: *Arctic-Subarctic Ocean Fluxes: Defining the Role of the Northern Seas in Climate* (R.R. Dickson, J. Meincke and P. Rhines, eds), Springer.

Serreze, M.C. Stroeve, J. 2009. Atmospheric circulation feedbacks. In: *Arctic Climate Feedbacks: Global Implications* (M. Sommerkorn and S.J. Hassol, eds.), World Wildlife Fund.

Barry, R.G. and Serreze, M.C. 2012. The changing climate, In: *Canada's Changing Cold Environments* (H. French and O. Slaymaker, eds.), Wiley-Blackwell.

Overland, J.A. and Serreze, M.C. 2012. Advances in Arctic atmospheric research. Chapter 2 In: *Arctic Climate Change – The ACSYS Decade and Beyond*, Atmospheric and Oceanic Sciences Library 43, doi:10.1007/978-94-007-2027-5\_2

Serreze, M.C. 2015: Arctic climate. In: *Encyclopedia of Atmospheric Sciences, 2<sup>nd</sup> edition* (J North, ed.), Academic Press, 107-115, <http://dx.doi.org/http://dx.doi.org/10.1016/B978-0-12-382225-3.00072-4>.

Serreze, M.C., Fetterer, F. and Weeks, W. 2015: Sea ice. In: *Encyclopedia of Atmospheric Sciences, 2<sup>nd</sup> edition* (J North, ed.), Academic Press, 217-226, <http://dx.doi.org/10.1016/B978-0-12-382225-3.00365-0>.

Serreze, M.C. 2017: Climate and the changing arctic. In: *Narwhal. Revealing an Arctic legend* (W.W. Fitzhugh and M.T. Nweeia, eds.), National Museum of Natural History, Smithsonian Institution.

### Books

Serreze, M.C. and Barry, R.G. 2005. *The Arctic Climate System*. Cambridge University Press, 385 pp.

Serreze, M.C. and Barry, R.G. 2014. *The Arctic Climate System*. Second Edition, Cambridge University Press, 404 pp.

Serreze, M.C. 2018. *Brave New Arctic: The Untold Story of the Melting North*, Princeton University Press (in press).

### Conference Proceedings and Other

Bradley, R.S. and Serreze, M.C. 1985. Glacio-climatic studies of a High Arctic plateau ice cap. Part I: Mass balance. In: *Glacial Geologic and Glacio-Climatic Studies in the Canadian High Arctic. Contribution #49*. Department of Geology and Geography, University of Massachusetts, Amherst.

Palecki, M.A., Serreze, M.C. and Bradley, R.S. 1985. Glacio-climatic studies of a High Arctic plateau ice cap. Part V.: Boundary layer conditions. In: *Glacial Geologic and Glacio-Climatic Studies in the Canadian High Arctic. Contribution #49*. Department of Geology and Geography, University of Massachusetts, Amherst.

Robinson, D.A., Kukla, G.J. and Serreze, M.C. 1985. Arctic cloud over during the summers of 1977-1979. *Columbia University. Lamont-Doherty Geological Observatory, Technical Report*, LDGO-85-5.

Serreze, M.S. and Bradley, R.S. 1985. Glacio-climatic studies of a High Arctic plateau ice cap. Part III: Radiation climatology. In: *Glacial Geological and Glacio-Climatic Studies in the Canadian High Arctic. Contribution #49*. Department of Geology and Geography, University of Massachusetts, Amherst.

Serreze, M.C. and Bradley, R.S. 1985. Glacio-climate studies of a High Arctic plateau ice cap. Part IV: Energy budget. In: *Glacial Geologic and Glacio-Climatic Studies in the Canadian High Arctic. Contribution #49*. Department of Geology and Geography, University of Massachusetts, Amherst.

- Robinson, D.A., Kukla, G.J. and Serreze, M.C. 1986. Arctic summer cloudiness. In: *Proceedings Sixth Conference on Atmospheric Radiation, Williamsburg, Virginia*. American Meteorological Society, Boston, MA.
- McLaren, A.S., Serreze, M.C. and Barry, R.G. 1988. Seasonal variations of atmospheric circulation and sea ice motion in the Arctic. *American Meteorological Society Second Conference on Polar Meteorology and Oceanography, Madison, WI*.
- Serreze, M.C. and Barry, R.G. 1988. Synoptic activity in the Arctic Basin in summer, 1979-1985. *American Meteorological Society, Second Conference on Polar Meteorology and Oceanography, Madison, WI*.
- Khalsa, S.J.S., Key, J.R., Serreze, M.C. and Schnell, R.C. 1991. A TOVS temperature sounding record for the Arctic. *American Meteorological Society, Fifth Conference on Climate Variations, Denver, CO*.
- Serreze, M.C., DeMaria, T.L. and Barry, R.G. 1991. Atmospheric forcings on large-scale patterns of parameterized albedo over Arctic sea ice: Case studies for June 1975 and 1988. *American Meteorological Society, Fifth Conference on Climate Variations, Denver, CO*.
- Serreze, M.C., Maslanik, J.A., Barry, R.G. and DeMaria, T.L. 1991. Atmospheric circulation anomalies in the Arctic Basin and their relationships to the Great Salinity Anomaly in the Northern North Atlantic. *American Meteorological Society, Fifth Conference on Climate Variations, Denver, CO*.
- Serreze, M.C., Kahl, J.D. and Shiotani, S. 1992. The Historical Arctic Rawsonde Archive Documentation Manual. *Special Report No. 2*, National Snow and Ice Data Center, University of Colorado, Boulder, CO.
- Serreze, M.C., Maslanik, J.A., Stone, R.S., Schnell, R.C., Kahl, J.D. and Andreas, E.L. 1992. Predicted heights of buoyant convection above open leads in the winter Arctic pack ice cover. In: *Proceedings, Third Conference on Polar Methodology and Oceanography, Portland, Oregon, American Meteorological Society*.
- Stone, R.S., Serreze, M.C., Kahl, J.D. and Schnell, R.C. 1992. Trend analysis of tropospheric temperatures in the Arctic - is there evidence of greenhouse warming? In: *Proceedings, Third Conference on Polar Methodology and Oceanography, Portland, Oregon, American Meteorological Society*.
- Barry, R.G., Serreze, M.C. and Walsh, J.E. 1995. Atmospheric components of the hydrological cycle in the Arctic. In: *WCRP Conference on Dynamics of the Arctic Climate System, Goteburg, November 1994*.
- Key, J.R. and Serreze, M.C. 1995. Relationships between the Arctic surface radiation budget and atmospheric circulation. In: *Proceedings, Fourth Conference on Polar Meteorology and Oceanography, January 15-20, 1995, Dallas, Texas*.
- Serreze, M.C., Barry, R.G., Rehder, M.C. and Walsh, J.E. 1995. The seasonal transport and flux convergence of atmospheric water vapor over the Arctic and its variability, 1974-1991. In: *WCRP Conference on Dynamics of the Arctic Climate System, Goteberg, November 1994*.
- Hurst, C.M. and Serreze, M.C. 1997. The Utility of NCEP/NCAR Reanalysis for Arctic Precipitation Studies. In: *Proceedings; Conference on Polar Processes and Global Climate; 3-6 November 1997; Rosario, Orcas Island, Washington*.
- Serreze, M.C. and Hurst, C.M. 1999. Arctic precipitation in the NCEP/NCAR and ERA reanalyses. In: *Abstract Volume, Second International Conference on Reanalyses, 23-27 August 1999, Wokefield Park, Reading, UK*.
- Serreze, M.C., Clark, M.P. and Etringer A.J. 2001. Variability and trends in the hydro-climatology of the major Eurasian Arctic drainages. In: *Proceedings, Second Wadati Conference on Global Change and the Polar Climate; 7-9 March 2001, Tsukuba Science city, Japan*.

## **GRADUATE STUDENT SUPERVISION/FINANCIAL SUPPORT**

**(all at University of Colorado Boulder)**

Martyn Clarke, PhD, Geog. (Graduated 1998)  
Ciaran Hurst, M.S., Geog. (Graduated 1998)  
Andrew Etringer, M.S, PAOS (Graduated 2001)  
Maria Tsukernik, PhD, Geog. (Graduated 2007)  
David Kindig, M.S., Geog. (Graduated 2007)  
Joel Finnis, PhD, ATOC (Graduated 2008)  
David Porter, PdD, ATOC (Graduated 2012)  
Glenn Grant, M.A. Geog. (Graduated 2012)  
Allison Hurley, M.A., Geog. (Graduated 2014)  
Alexander Crawford, M.A. Geog. (Graduated 2014)  
Alexander Crawford, PhD, Geog. (Graduated 2017)  
Glenn Grant, PhD, Geog. (2017)  
Alexander Crawford, PhD Geog. (Graduated 2017)  
Erika Schreiber, PhD Geog. (ongoing)  
Sara Crepensik, M.A. Geog. (ongoing)  
Nick Lewis, M.A. Geog. (ongoing)  
Jonathan Cavitt, M.A. Geography (ongoing)  
Meghan Helmberger, PhD Geog. (ongoing)