

William L. Chapman

ADDRESS

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EDUCATION

1986 B.S., University of Illinois, Urbana, IL (Math and Computer Science)
1988 M.S., University of Illinois, Urbana, IL (Atmospheric Sciences)
Thesis: A multifield analog approach to sea ice forecasting

EMPLOYMENT

Jul. 2014 - present *Lecturer:* University of Illinois, Department of Computer Sciences
Instructor for CS 125: Introduction to Computer Science
Aug. 1988 - present *Senior Research Programmer:* University of Illinois,
Department of Atmospheric Sciences
Duties include analysis of observed and modeled data in support of
climate research; teaching undergraduate and graduate level courses;
mobile app development
June 1986 - Aug. 1988: *Graduate Research Assistant:* University of Illinois,
Department of Atmospheric Sciences
Duties included computer programming, graphical and
statistical analysis of high-latitude datasets
Summers 1983, 1984: *Programmer (summer intern):* Fermi National Accelerator Laboratory
Duties included computer applications programming for the
accelerator controls group

COMPUTER EXPERIENCE

Swift, Objective C/Cocoa, iOS, Java, FORTRAN
HTML, PHP, MySQL, MATLAB, C programming; SVN, GIT versioning, PERL
Blender 3D modeling/rendering; UNIX/Linux shell scripting and operating system
ARSC, NCAR, NCSA supercomputing resources, NCAR Graphics, GrADS, netCDF, HDF
Apps: AllMyRecipes: <http://youtu.be/Dg3MUerJ3pc>, <http://youtu.be/M0EFfrbDxHQ>
Baseball Memories: <http://youtu.be/6Euydn3SOZY>
ClimatePad: <http://youtu.be/93G-y8tdvuM>, <http://youtu.be/cn8yupaTjR8>,
<http://youtu.be/2ZVknxxjOiE>
Garden Master: <https://www.youtube.com/watch?v=0rna0yszHmQ>

TEACHING EXPERIENCE

CS 125 (Fall 2014, Spring 2015, Fall 2015, Spring 2016): Introduction to Computer Science
SRO: CocoaNuts iOS group (Fall 2013, Spring 2014): iPhone and iPad programming in iOS
ATMS 491 (Fall 2013): Advanced Topics - Computational Technology in Atmospheric Sciences
ATMS 305 (Spring 2013, Spring 2014): Computing and Data Analysis
ATMS 444 (Fall 2012): Arctic Meteorology and Climate

AWARDS/RECOGNITION

2005, University of Illinois: *College of Liberal Arts and Sciences Staff Award*
2006, University of Illinois: *Chancellor's Academic Professional Excellence Award*
2013 (Spring), University of Illinois: *Teacher Ranked as Outstanding by Their Students* for ATMS 305
2013 (Fall), University of Illinois: *Teacher Ranked as Outstanding by Their Students* for ATMS 491
2014 (Spring), University of Illinois: *Teacher Ranked as Outstanding by Their Students* for ATMS 305
2014 (Fall), 2015 (Spring), 2015 (Fall), University of Illinois:
Teacher Ranked as Outstanding by Their Students for CS 125

PUBLICATIONS

- Walsh, J. E., W. L. Chapman, and F. Fetterer. 2015. A database for depicting Arctic sea ice variations back to 1850. *Geographical Review*, Special Issue: Arctic 2017, submitted.
- Walsh, J. E., W. L. Chapman, and F. Fetterer. 2015. Published dataset: Gridded Monthly Sea Ice Extent and Concentration, 1850 Onward, Version 1. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center. <http://dx.doi.org/10.7265/N5833PZ5>.
- Walsh, J.E., and W.L. Chapman, 2014: Variability of sea ice over decadal and longer timescales. *Climate Change: Multidecadal and Beyond* (M. Ghil, M. Latif, J.M. Wallace and C.P. Chang, eds.), Vol. 6 of the World Scientific Series of Asia-Pacific Weather and Climate.
- John E. Walsh, Hotaek Park, William L. Chapman, Tetsuo Ohata. (2013) Relationships between variations of the land–ocean–atmosphere system of northeastern Asia and northwestern North America. *Polar Science* **7**:2, 188-203.
- de Boer, G; Chapman, W; Kay, JE; Medeiros, B; Shupe, MD; Vavrus, S; Walsh, J, 2012: A Characterization of the Present-Day Arctic Atmosphere in CCSM4. *J. Climate*, **25**, 2676–2695. doi: <http://dx.doi.org/10.1175/JCLI-D-11-00228.1>.
- Gleicher, KJ; Walsh, JE; Chapman, WL, 2011: A vorticity-based analysis of the spatial and temporal characteristics of the Beaufort Anticyclone, *J. Geophys. Res. - Atmos.*, p. , **116**.
10.1029/2011JD01570
- Overland, J. E., M. Wang, V. M. Kattsov, J. H. Christensen, W. L. Chapman and J. E. Walsh, 2011: Climate model projections for the Arctic. Book, Accepted Bibliography: Scientific Report: Snow, Water, Ice and Permafrost in the Arctic
- Strey, S. T., W. L. Chapman, and J. E. Walsh, 2010: The 2007 sea ice minimum: Impacts on the Northern Hemisphere atmosphere in late autumn and early winter, *J. Geophys. Res.*, **115**, D23103, doi:[10.1029/2009JD013294](https://doi.org/10.1029/2009JD013294).
- Yu, G., Z. Schwartz, J. E. Walsh, and W. L. Chapman, 2009: A weather-resolving index for assessing the impact of climate change on tourism related climate resources. *Climatic Change*, **95**, 551-573, doi:[10.1007/s10584-009-9565-7](https://doi.org/10.1007/s10584-009-9565-7).
- Hu, F. S., P. E. Higuera, J. E. Walsh, W. L. Chapman, P. A. Duffy, L. B. Brubaker, and M. L. Chipman 2010, Tundra burning in Alaska: Linkages to climatic change and sea ice retreat, *J. Geophys. Res.*, **115**, G04002, doi:[10.1029/2009JG001270](https://doi.org/10.1029/2009JG001270).
- Walsh, John E., William L. Chapman, Diane H. Portis, 2009: Arctic Cloud Fraction and Radiative Fluxes in Atmospheric Reanalyses. *J. Climate*, **22**, 2316–2334. doi: <http://dx.doi.org/10.1175/2008JCLI2213.1>
- Walsh, John E., William L. Chapman, Vladimir Romanovsky, Jens H. Christensen, Martin Stendel, 2008: Global Climate Model Performance over Alaska and Greenland. *J. Climate*, **21**, 6156–6174. doi: <http://dx.doi.org/10.1175/2008JCLI2163.1>

- Chapman, William L., John E. Walsh, 2007: A Synthesis of Antarctic Temperatures. *J. Climate*, **20**, 4096–4117. doi: <http://dx.doi.org/10.1175/JCLI4236.1>
- Chapman, W. L., and J. E. Walsh, 2007: Simulations of Arctic temperature and pressure by Global Coupled Models, *J. Climate*, **20**, 609-632.
- Kattsov, Vladimir M., John E. Walsh, William L. Chapman, Veronika A. Govorkova, Tatyana V. Pavlova, Xiangdong Zhang, 2007: Simulation and Projection of Arctic Freshwater Budget Components by the IPCC AR4 Global Climate Models. *J. Hydrometeor*, **8**, 571–589. doi: <http://dx.doi.org/10.1175/JHM575.1>
- Vavrus, S., J. Walsh, W. Chapman, D. Portis, 2006: The behavior of extreme cold air outbreaks under greenhouse warming, *Intl. J. of Climatology*, **26**, 9, 1133-1147.
- Portis, D., M. Cellitti, W. L. Chapman and J. E. Walsh, 2005: Low-frequency variability and evolution of North American Cold Air Outbreaks. *Mon. Weather Rev.*, **134**, 579-597.
- J. Oerlemans, R. P. Bassford, W. L. Chapman, J. A. Dowdeswell, A. F. Glazovsky, J.-O. Hagen, K. Melvold, M. de Ruyter de Wildt and R. S. W. van de Wal, 2005: Estimating the contribution from Arctic glaciers to sea-level change in the next hundred years. *Annals of Glaciology*, **42**, 230-236(7).
- Chapin, F. S. III, M. Sturm, M. C. Serreze, J. P. McFadden, J. R. Key, A. H. Lloyd, A. D. McGuire, T. S. Rupp, A. H. Lynch, J. P. Schimel, J. Beringer, H. E. Epstein, L. D. Hinzman, G. Jia, C. -L. Ping, K. Tape, W. L. Chapman, E. Euskirchen, C. D. C. Thompson, J. M. Welker, and D. A. Walker, 2005: Amplification of Arctic Summer Warming by Terrestrial Ecosystem Changes, *Science*, [DOI: 10.1126/science.1117368].
- Walsh, J. E., S. J. Vavrus and W. L. Chapman, 2005: Workshop on Modeling of the Arctic Atmosphere. *Bull. Amer. Meteor. Soc.*, **86**, No. 6, 845–852.
- Pielke, R. A., G. E. Liston, W. L. Chapman and D. A. Robinson, 2004: Actual and insolation-weighted Northern Hemisphere snow cover and sea-ice between 1973–2002, *Climate Dynamics*, **22**, v. 6-7, 591-595.
- Walsh J. E., V. M. Kattsov, W. L. Chapman, V. Govorkova and T. Pavlova, 2002: Comparison of Arctic climate simulations in uncoupled and coupled global climate models. *J. Climate*, **15**, 1429-1146.
- Walsh J. E. and W. L. Chapman, 2001: Twentieth-century sea ice variations from observational data. *Ann. Glaciology*, **33**, 444-448.
- Walsh J. E., A. S. Phillips, D. H. Portis, W. L. Chapman, 2001: Extreme cold outbreaks in the United States and Europe, 1948-1999. *J. Climate*, **14**, 2642-2658.
- Shy T. L., J. E. Walsh, W. L. Chapman, A. H. Lynch, D. A. Bailey, 2000: Sea ice model validation using submarine measurements of ice draft. *Ann. Glaciology*, **31**, 307-312.
- Walsh J. E., K. Y. Vinnikov and W. L. Chapman, 1999: On the use of historical sea ice charts in assessments of century-scale climate variations. *Proceedings, Workshop on Operational Sea Ice Charts of the Arctic*, Arctic Climate System Study, World Climate Research Programme,

WCRP.

- Walsh J. E., D. H. Portis, W. L. Chapman, 1998: An Assessment of Reanalysis-Derived Surface Fluxes in the Arctic. *Proc. Of the First International Conference on Reanalyses*, Silver Spring, MD, 27-31 October 1997, WCRP-104, WMO/TD-NO. **876**, 363-366.
- Walsh J. E., and W. L. Chapman, 1998: Arctic cloud-radiation-temperature associations in observational data and atmospheric reanalyses. *Journal of Climate.*, **11**, 3030-3045.
- Lynch, A. H., D. McGinnis, W. L. Chapman, J. S. Tilley, 1997: A multivariate comparison of two land-surface models integrated into an Arctic Regional Climate System model. *Ann. of Glaciol.*, Vol. **25**, 127-131.
- Tilley J. S., W. L. Chapman, W. Wu, 1997: Sensitivity tests of the Canadian Land Surface Scheme (CLASS) for Arctic Tundra. *Ann. of Glaciol.*, Vol. **25**, 46-50.
- Walsh J. E., W. L. Chapman, 1997: Observationally- and Reanalysis-Derived Associations between Arctic Clouds, Surface Radiative Fluxes and Air Temperature. *Proceedings, WMO/ICSU/IOC World Climate Research Programme(WCRP)*, Conference on Polar Processes and Global Climate.
- Lynch, A. H., M. F. Glueck, W. L. Chapman, D. A. Bailey, J. E. Walsh, 1997: Satellite observations and climate system model simulation of the St. Lawrence Island polynya. *Tellus*, Vol. **49A**, 277-297.
- Walsh, J. E., W. L. Chapman, T. L. Shy, 1996: Recent Decrease of Sea Level Pressure in the Central Arctic. *Journal of Climate*, Vol. **9**, 2, 480-486.
- Chapman, W.L., and J.E. Walsh, 1991, updated 1996. Published dataset: Arctic and Southern Ocean sea ice concentrations. Boulder, CO: National Snow and Ice Data Center. <http://dx.doi.org/10.7265/N5057CVT>
- Tao, X., J. E. Walsh, W. L. Chapman, 1996: An Assessment of Global Climate Model Simulations of Arctic Air Temperatures. *Journal of Climate*, **9**, 1060-1076.
- Chapman, D. A., D. E. Novak, W. L. Chapman, 1995: A Collaborative Interdisciplinary Unit on Weather for Elementary Educators on the Internet. *Preprints, Joint Conference on Education and Interactive Information Processing*, *Am. Meteor. Soc.*, Dallas, TX, 79-82.
- Tao, X., W. L. Chapman, J. E. Walsh, 1995: Intercomparison of Global Climate Model Simulations of Arctic Temperature. *Preprints, Fourth Conference on Polar Meteorology and Oceanography*, *Am. Meteor. Soc.*, Dallas, TX, 138-143.
- Lynch, A. H., W. L. Chapman, J. E. Walsh, G. Weller, 1995: Development of a Regional Climate Model of the Western Arctic. *Preprints, Fourth Conference on Polar Meteorology and Oceanography*, *Am. Meteor. Soc.*, Dallas, TX, 144-149.
- Lynch, A. H., M. F. Glueck, W. L. Chapman, D. A. Bailey, J. E. Walsh, 1995: The Use of Synthetic Aperture Radar Data for Verification of a Coupled Atmosphere-Sea Ice Regional Climate Model. *Preprints, Fourth Conference on Polar Meteorology and Oceanography*, *Am. Meteor. Soc.*, Dallas, TX, 180-185.

- Lynch, A. L., M. F. Glueck, W. L. Chapman, D. Bailey, and J. E. Walsh, 1995: The Use of Remote Sensing Data (SAR, AVHRR, SSM/I) for Verification of a Coupled Atmosphere-Sea Ice Regional Model. *Mon. Wea. Rev.*, Vol. **16**, 2, 456-469.
- Lynch, A. L., W. L. Chapman, J. E. Walsh, 1995: Development of a Regional Climate Model of the Western Arctic. *Journal of Climate*, **8**, 1555-1570.
- Searight, K.R., X. Tao, W.L. Chapman, J.E. Walsh, K.P. Bowman, and R.B. Wilhelmson, 1994, A GCM Comparison Study Using Envison. *Preprints, Tenth International Conference on Interactive Information and Processing Systems for Meteorology, Oceanography, and Hydrology*, Am. Meteor. Soc., Nashville, TN, 372-377. --> hypermedia presentation given at the 1994 IIPS meeting.
- Chapman, W. L., W. Welch, K. P. Bowman, J. Sacks, and J. E. Walsh, 1994: Arctic Sea Ice Variability: Model Sensitivities and a Multidecadal Simulation. *Jour. of Geophys. Res.*, **99**, 919-935.
- Walsh, J. E., A. Lynch, W. L. Chapman and D. Musgrave, 1993: A regional model for studies of atmosphere-ice-ocean interaction in the western Arctic. *Meteorology and Atmospheric Physics*, **51**, 1ñ16.
- Chapman, W. L., and J. E. Walsh, 1993: Recent variations of sea ice and air temperatures in high latitudes. *Bull. Amer. Meteor. Soc.*, **74**, 33-47.
- Walsh, J. E., and W. L. Chapman, 1992: Variability of Sea Ice in the Subpolar North Atlantic. *The Atlantic Climate Change Program: Proceedings from the Principal Investigators' Meeting* (Miami, FL), NOAA Climate and Global Change Program, Special Report No. 7, 23-26.
- Walsh, J. E., and W. L. Chapman, 1992: Variability of Sea Ice in the Subpolar North Atlantic. *Preprints: Third Conference on Polar Meteorology and Oceanography*, Am. Meteor. Soc., Portland, OR, 87-90.
- Chapman, W. L., and J. E. Walsh, 1991: Long-range prediction of regional sea ice anomalies in the Arctic. *Wea. Forecasting*, **6**, 271-288.
- Walsh, J. E., W. L. Chapman and H. J. Zwally, 1991: Arctic sea ice variability derived from satellite passive microwave data. *Oceans from Space: Venice 1990*, IAPSO Proceedings Volume.
- Walsh, J. E., and W. L. Chapman, 1991: Model simulation of changes in arctic sea ice thickness. *Proceedings, Fifth Conference on Climate Variations*, Denver, CO, American Meteorological Society, 346-349.
- Walsh, J. E., and W. L. Chapman, 1990: Short-term climatic variability of the Arctic. *J. Climate*, **3**, 237-250.
- Walsh, J. E., and W. L. Chapman, 1990: Arctic contribution to upper-ocean variability in the North Atlantic. *J. Climate*, **3**, 1462-1473.
- Chapman, W. L., and J. E. Walsh, 1989: A multifield analog approach to sea ice forecasting. *Preprints, 11th Conference on Probability and Statistics in Atmospheric Sciences*, Monterey, CA, American Meteorological Society, 297-300.

Chapman, W. L., 1989: Empirical diagnosis of interannual sea ice variations. *Proceedings of the Sixteenth Stanstead Seminar*, Bishop's University, Lennoxville, Quebec, 46-50.

Other publications

Vavrus, S., J. E. Walsh, W. L. Chapman and D. Portis, 2005: Simulations of wintertime arctic air surges into middle latitudes, *Extended abstracts from the 8th Conference on Polar Meteorology and Oceanography*, San Diego, Ca. from January 9-14, 2005. Available at ams.confex.com/ams/Annual2005/techprogram/paper_84945.htm

Portis, D. H., M. Cellitti and W. L. Chapman, 2003: Diagnostic Study of the Evolution of Extreme Cold Air Outbreaks over the Midwest, *Extended abstracts from the Midwest Extreme and Hazardous Weather Regional AMS Conference*, Champaign, Illinois, 17-18 October, 2003, Central Illinois Chapter of the American Meteorological Society, Champaign, Il.

Vavrus, S., J. E. Walsh, W. L. Chapman, and D. H. Portis, 2003: Climate Model Simulations of Extreme Cold Air Outbreaks, *Extended abstracts from the Midwest Extreme and Hazardous Weather Regional AMS Conference*, Champaign, Illinois, 17-18 October, 2003, Central Illinois Chapter of the American Meteorological Society, Champaign, Il.

Conferences:

3rd WGNE Workshop on Systematic Errors in Climate and NWP Models. Feb. 2007. Poster: Climate Model Performance in the Arctic, Chapman W. L., J. E. Walsh, and D. H. Portis

ARM Workshop, 2007. Poster: ARM/NSA validation of Arctic clouds and radiative impacts in reanalyses. Walsh J. E., and W. L. Chapman.

Workshop on the Analysis of Climate Model Simulations for the IPCC AR4, Honolulu, Hawaii from 1-4 March 2005. Poster: *Climate Model Simulations of Extreme Cold Air Outbreaks*, by S. Vavrus, J. Walsh, W. Chapman and D. Portis.

8th Conference on Polar Meteorology and Oceanography, San Diego, Ca. from January 9-14, 2005. Oral presentation by Steve Vavrus entitled, *Simulation of Wintertime Arctic Air Surges into Middle Latitudes* by S. Vavrus, J. Walsh, D. Portis and W. Chapman.

29th Annual Climate Diagnostics and Prediction Workshop, Madison, Wisconsin from 18-21 October, 2004. Oral presentation by Steve Vavrus entitled, *Climate Model Simulations of Extreme Cold Air Outbreaks* by S. Vavrus, J. Walsh, W. Chapman and D. Portis.

Midwest Extreme and Hazardous Weather Regional AMS Conference in Champaign, Illinois from 17-18 October, 2003. Oral presentation, given by Diane Portis entitled, *Diagnostic Study of the Evolution of Extreme Cold Air Outbreaks over the Midwest* by D. H. Portis, M. Cellitti and W. L. Chapman.

Midwest Extreme and Hazardous Weather Regional AMS Conference in Champaign, Illinois from 17-18 October, 2003. Oral presentation, given by Steve Vavrus entitled, *Climate Model Simulations of Extreme Cold-Air Outbreaks* by S. Vavrus, J. E. Walsh, W. L. Chapman and D. H. Portis.

Wilson, M. J., G. Y. Zhou, W. L. Chapman, L DiGiralamo, 2004: Current status of cloud mask

products from the Multi-angle Imaging SpectroRadiometer. *EOS Trans. AGU*, 85(17), Joint Assembly Suppl., Abstract.

Timlin, M. S., and W. L. Chapman, 2002: Simulation of sea ice and snow cover in coupled global models. *Simulating the Arctic in Large-Scale Climate Models*, Community Arctic Modeling Project Workshop, Madison, Wisconsin, May 2002.

RECENT GRANTS

USGS: Analysis of Winds and Circulation Patterns in Bird Migration Corridors; \$50,000; 9/01/2012 - 1/31/2014; Principal Investigator

Univ. of Alaska (VCSI subcontract): Datasets for the Arctic Coastal Environment; \$25,000; 21/13/2011 - 12/01/2012; Principal Investigator

NSF: Collaborative Research: Arctic Predictability; \$231,485; 9/15/2010 - 8/31/2013; Principal Investigator

Sandia National Laboratories Subcontract; Experimental high-resolution simulations of Alaska climate; \$70,000; 11/25/2009-12/31/2010; Principal Investigator

NOAA subcontract via Univ. Alaska; A Long-term gridded sea ice product for use in reanalysis and diagnostic studies; \$36,933; 9/01/2011 - 8/31/2012 (continuing another year); Principal Investigator

NSF: Collaborative Research: IPY: Arctic System Reanalysis; \$328,260; 9/15/2007 - 8/31/2011; Principal Investigator

Other grants:

Title: A climate model archive for Arctic research and outreach

Sponsor: NSF – Office of Polar Programs

Period: October 2005 – September, 2008

Amount: \$283,410

Capacity: Principal Investigator

Title: The use of ARM data in reanalysis applications

Sponsor: U.S. DOE

Period: November 2006 – October, 2009

Amount: \$290,608

Capacity: Co-Principal Investigator

Title: Collaborative Research: Global Climate Model Simulations of Extreme Cold-Air Outbreaks

Sponsor: NSF – Climate Dynamics Division

Period: October 2003 – September, 2005

Amount: \$190,498

Capacity: Co-Principal Investigator

Title: Synthesis of Antarctic Temperature Observations and Model Output

Sponser: NSF – Office of Polar Programs

Period: January 2003 - December, 2004

Amount: \$188,041

Capacity: Co-Principal Investigator

Title: A collaborative curriculum builder

Sponser: University of Illinois Online

Period: September 2000 - August, 2001

Amount: \$12,800

Capacity: Principal Investigator