

## Curriculum Vitae

*Daniel James Leathers*  
*Delaware State Climatologist*  
*Center for Climatic Research*  
*Department of Geography*  
*University of Delaware*

### PERSONAL

Born: November 24, 1960  
Citizenship: United States

### ACADEMIC CREDENTIALS

Ph.D., The Pennsylvania State University, August 1988, **Geography**. The Pacific/North American Teleconnection Pattern and United States Climate.

Supervisor: Brent M. Yarnal

M.Sc., The Pennsylvania State University, January 1987, **Meteorology**. Edge Wave Characteristics of East Asian Cold Surges.

Supervisor: Peter J. Webster

B.A., (Magna Cum Laude) Lycoming College, September 1982, **Physics, Astronomy**.

### UNIVERSITY EMPLOYMENT

2001 – Present University of Delaware, Center for Climatic Research, Department of Geography, Professor. **Appointed Department of Geography Chairperson, August 2000**

1995-2001 University of Delaware, Center for Climatic Research, Department of Geography, Associate Professor.

1991-1995 University of Delaware, Center for Climatic Research, Department of Geography, Assistant Professor. **Appointed Delaware State Climatologist, January 1993.**

1988-1991 The University of Nebraska-Lincoln, Meteorology/Climatology Program, Department of Geography, Assistant Professor.

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- 1987-1988 The Pennsylvania State University, Department of Geography, Teaching Assistant.
- 1984-1986 The Pennsylvania State University, Department of Meteorology, Research Assistant.
- 1980-1982 Lycoming College, Department of Astronomy and Physics, Teaching Assistant.

**HONORS**

Phi Kappa Phi, National Honor Society, Lycoming College, 1982.

Sigma Pi Sigma, Physics National Honor Society, Lycoming College, 1982.

Earth System Science Center Fellowship, The Pennsylvania State University 1987-1988:  
Atmospheric Teleconnections Research.

The University of Nebraska-Lincoln Parents Association Recognition Award for  
Contributions to Students, The University of Nebraska-Lincoln, 1990.

**PROFESSIONAL ORGANIZATIONS**

Association of American Geographers  
American Meteorological Society  
American Geophysical Union  
American Association of State Climatologists

**SERVICE TO PROFESSION**

Editorial Board:

Climate Research (**appointed Editor 2004**)  
The Pennsylvania Geographer  
Publications in Climatology

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Reviewer for the following journals:

Physical Geography  
The Professional Geographer  
Journal of Climate  
International Journal of Climatology  
Journal of Environmental Quality  
Climate Research  
GeoJournal  
Annals of the Association of the American Geographers  
Bulletin of the American Meteorological Society  
Geofiska Annular

Reviewer of proposals for the following agencies:

National Science Foundation (NSF)  
National Aeronautics and Space Administration (NASA)  
Department of Energy (DOE)

1990 Program organizer and co-chair: "Synoptic and Dynamic Controls on Northern Hemisphere Temperature Variability", Annual Meeting of the Association of American Geographers, Toronto, Ontario, Canada.

1990 Organizational committee for the University of Nebraska-Lincoln Center for Great Plains Studies Annual Symposium, "Climate Change on the Great Plains", April, 1990.

1991 Program organizer and co-chair: "Snow and Ice Climatologies", Annual Meeting of the Association of American Geographers, Miami, Florida.

1994 to 1996: Board of Directors, Climate Specialty Group, Association of American Geographers.

1997 to 1999: Secretary/Treasurer, Cryosphere Specialty Group, Association of American Geographers.

## **PROFESSIONAL CONSULTING**

Member of the Technical Assistance Center (TAC) of the Delaware Emergency Management Agency. Provide weather expertise during episodes of severe weather or during other disaster situations impacted by weather conditions.

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**GRANTS RECEIVED (amounts received to Delaware 1992 – 2000)**

Co-Primary Investigator, National Science Foundation Instrumentation and Laboratory Improvement, "Computer Education for Undergraduates in Meteorology /Climatology and Geographic Information Systems: An Integrated Approach", **\$50,000. Funded July 1991.**

Co-Primary Investigator, National Science Foundation Instructional Equipment, "Interactive Meteorological Computer Classroom Development Under UNIDATA", **\$45,963. Funded August 1991.**

Primary Investigator, University of Delaware Research Foundation, "Snow Cover/Atmosphere Interactions Across the Northeast United States". **\$17,500. Funded January 1992**

Co-Primary Investigator, Northeast Regional Climate Center, Cornell University, "A High Resolution Profile of Northeast United States Temperature". **\$12,420. Funded July 1992.**

Co-Primary Investigator, Northeast Regional Climate Center, Cornell University, "The Development of a Climate Related Water Resource Monitoring system for the Northeastern United States". **\$17,801. Funded June 1993.**

Co-Primary Investigator, National Institute for Global Environmental Change, University of Nebraska, "The Detection of Climate Change Using Long Term Daily Climate Records Over the Grassland Regions of the Northern Hemisphere". **\$90,850. Funded July 1993.**

Co-Primary Investigator, National Science Foundation Geography and Regional Science, "Snow Cover-Boundary Layer Climate Interactions". **\$45,000. Funded February 1994.**

Primary Investigator, Delaware Emergency Management Agency, An Assessment of Meteorological and Climatological Monitoring Capabilities Across the State of Delaware. **\$12,837. Funded June 1997.**

Co-Primary Investigator, National Aeronautics and Space Administration, "The Evaluation of Snow Water Equivalent Across Grassland Regions". **\$110,144. Funded June 1998.**

Co-Primary Investigator, National Science Foundation – NASA, "Climate and Sea-Ice Interactions". **\$218,973. Funded October 1998.**

Co-Primary Investigator, National Aeronautics and Space Administration Land Surface Processes, “A hybrid approach for evaluating the synergistic interactions between snow pack characteristics, the atmosphere and regional hydrology”. **\$540,000 (\$133,369 to University of Delaware). Funded January 2002.**

Co-Primary Investigator, Delaware Emergency Management Agency, “The Delaware Environmental Observing System – Year One Installation”. **\$165,000. Funded August 2003.**

Co-Primary Investigator, Delaware Emergency Management Agency, “The Delaware Environmental Observing System – Year Two”. **\$150,000. Funded August 2003.**

## REFEREED ARTICLES AND BOOK CHAPTERS

Yarnal, B.M., White, D.A. and Leathers, D.J., 1988: Subjectivity in a computer assisted synoptic climatology II: Relationships to surface climate. Journal of Climatology, 8, 227-239.

Yarnal, B.M. and Leathers, D.J., 1988: Relationships between interdecadal and interannual climatic variations and their effect on Pennsylvania climate. Annals of the Association of American Geographers, 78, 624-641.

Leathers, D.J., Yarnal, B.M. and Palecki, M.A., 1991: The Pacific/North American teleconnection pattern and United States climate. Part I: Regional temperature and precipitation associations. Journal of Climate, 4, 517-528.

Leathers, D.J., 1991: Relationships between 700 mb Circulation Variations and Great Plains Climate. Great Plains Research, 1, 58-76.

Leathers, D.J. and Palecki, M.A., 1992: The Pacific/North American teleconnection pattern and United States Climate. Part II: Temporal characteristics and index specification. Journal of Climate, 5, 707-716.

Leathers, D.J., Mote, T.L., Kluck, D.R., Kuivinen, K.C. and S. McFeeters, 1993: Temporal characteristics of USA Snowfall 1945-46 through to 1984-85. International Journal of Climatology, 13, 65-76.

Leathers, D.J. and D.A. Robinson, 1993: The association between extremes in North American snow cover extent and United States temperature. Journal of Climate, 6, 1345-1355.

Palecki, M.A. and D.J. Leathers, 1993: Northern Hemisphere extratropical circulation anomalies and recent January land surface temperature trends. Geophysical Research Letters, 20, 819-822.

Leathers, D.J., 1993: A synoptic climatology of northeast United States tornadoes. Physical Geography, 14, 171-190.

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Ye, H., Leathers, D.J. and L.S. Kalkstein, 1994: Classification of upper level circulation patterns in the polar region and their relationship to surface air

temperature. Middle States Geographer, 26, 1-6.

Leathers, D.J., 1994: Global Meteorological Teleconnections Associated with El Nino/Southern Oscillation Events. In: The Oceans: Physical-chemical Dynamics and Human Impacts. The Pennsylvania Academy of Sciences, 498 pgs.

Ye, H. And D.J. Leathers, 1995: The association between the Pacific/North American teleconnection pattern and air masses in the southeastern United States. Middle States Geographer, 28, 18-24.

Leathers, D.J., Ellis, A. W. and D.A. Robinson, 1995: Characteristics of temperature depressions associated with snow cover across the northeast United States. Journal of Applied Meteorology, 34, 381-390.

Robinson, D.A., Leathers, D.J., Palecki, M.A. and K.F. Dewey, 1995: Some observations on climate variability as seen in daily temperature structure. Atmospheric Research, 37, 119-131.

Leathers, D.J., 1995: A Laboratory Manual for Climate and Life. Kendall/Hunt Publishing Company, Dubuque, IA, 47 pgs.

Leathers, D.J. and A.W. Ellis, 1996: Synoptic mechanisms associated with snowfall increases to the lee of Lakes Erie and Ontario. International Journal of Climatology, 16, 1117-1135.

Ellis, A.W. and D.J. Leathers, 1996: A synoptic climatological approach to the analysis of lake-effect snowfall: Potential forecasting applications. Weather and Forecasting, 11, 216-22.

Leathers, D.J., 1997: A Laboratory Manual for Climate and Life: Revised Printing. Kendall/Hunt Publishing Company, Dubuque, IA, 47 pgs.

Leathers, D.J. and D.A. Robinson, 1997: Abrupt changes in the seasonal cycle of North American snow cover. Journal of Climate, 10, 2569-2585.

Leathers, D.J. and B.L. Luff, 1997: Characteristics of snow cover duration across the northeast United States. International Journal of Climatology, 17, 1535-1547.

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Grundstein, A.J. and D.J. Leathers, 1997: Factors affecting midwinter snowmelt variability in the northern Great Plains of the United States. Physical Geography,

18, 408-423.

Leathers, D.J., Palecki, M.A., Robinson, D.A. and K.F. Dewey, 1998: Climatology of the daily temperature range annual cycle in the United States. Climate Research, 9, 197-211.

Leathers, D.J., Kluck, D.R. and S. Kroczyński, 1998: The severe flooding event of January 1996 across North-Central Pennsylvania. Bulletin of the American Meteorological Society, 79, 785-797.

Ellis, A.W. and D.J. Leathers, 1998: The effects of a discontinuous snow cover on lower atmospheric temperature and energy flux patterns. Geophysical Research Letters, 25, 2161-2164.

Ellis, A.W. and D.J. Leathers, 1998: A Quantitative approach to evaluating the effects of snow cover on cold air mass temperatures across the U.S. great Plains. Weather and Forecasting, 13, 688-701.

Grundstein, A.J. and D.J. Leathers, 1998: A case study of synoptic patterns associated With midwinter snowmelt across the northern Great Plains. Hydrologic Processes, 12, 2293-2305.

Grundstein, A.J. and D. J. Leathers, 1999: A spatial analysis of snow-surface energy exchanges over the northern Great Plains of the United States in relation to synoptic scale forcing mechanisms. International Journal of Climatology, 19, 489-511.

Ellis, A.W. and D.J. Leathers, 1999: Analysis of cold air mass temperature modification across the U.S. Great Plains as a consequence of snow depth and albedo. Journal of Applied Meteorology, 38, 696-711.

Leathers, D.J., Grundstein, A.J. and A. W. Ellis, 2000: Growing season moisture deficits across the northeastern United States. Climate Research, 14, 43-55.

Leathers et al. 2002: Associations between continental-scale snow cover anomalies and air mass frequencies across eastern North America. International Journal of Climatology. 22, 1473-1494.

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Grundstein, A.J., Mote, T.L. and D.J. Leathers, 2002: A hybrid climatology of snow water equivalent over the northern Great Plains of the United States. Polar Geography, 26, 187-209.

Mote, T.L., Grundstein, A.J., Leathers, D.J. and D.A. Robinson, 2003: A comparison of

modeled, remotely sensed and measured snow water equivalent in the northern Great Plains. Water Resources Research, *39*, 8, doi:10.1029/2002WR001782.

of Leathers, D.J., Graybeal, D., Mote, T., Grundstein, A. and D. Robinson, 2004: The role of airmass types and surface energy fluxes in snow cover ablation in the central Appalachians. Journal of Applied Meteorology, *43*, 1887-1898.

Elgundi, N., Hanson, B. and D.J. Leathers, Submitted: The effects of snow cover on mid latitude cyclones in the Great Plains. Journal of Hydrometeorology.

Graybeal, D.Y. and D.J. Leathers, Submitted: Snowmelt-related flood risk in Appalachia: First estimates from a historical snow climatology. Journal of Applied Meteorology.

## **PROCEEDINGS, GOVERNMENT REPORTS, OTHER PUBLICATIONS**

Heim, R., Dewey, K.F., Anderson, M. A. and Leathers, D.J., 1990: A December to remember: The cold outbreaks of December 1989. Weatherwise, *43*, 329-332.

Leathers, D.J. and A.W. Ellis, 1993: Relationships between synoptic weather type frequencies and snowfall trends in the lee of Lakes Erie and Ontario. Proceedings of the 50th Annual Eastern Snow Conference, Quebec City, Quebec, Canada, June 1993, pgs. 325-330.

Robinson, D.A. and D.J. Leathers, 1993: Associations between snow cover extent and surface air temperature over North America. Proceedings of the 50th Annual Eastern Snow Conference, Quebec City, Quebec, Canada, June 1993, pgs. 189-196.

Leathers, D.J., 1993: A Review of: The Heated Debate: Greenhouse Prediction Versus Climate Reality by Robert C. Balling Jr. The Professional Geographer, *45*, pg. 223.

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Robinson, D.A., D.J. Leathers, M.A. Palecki and K.F. Dewey, 1994: Climate Variability as seen in daily temperature structure. In: Asymmetric Change of Daily Temperature Range, Proceedings of the International MINIMAX WORKSHOP, College Park, Maryland, September 27 - 30, 1993.

- Leathers, D.J., 1994: A Tornado Climatology for the Northeastern United States. Northeast Regional Climate Center Research Report: RR 94-2, Cornell University, Ithaca, NY, 15 pgs.
- Leathers, D.J., 1995: A water resource monitoring system for the northeast United States: An historical overview 1895-1994. Preprints Ninth Conference on Applied Climatology, 15-20 January 1995, Dallas, TX, American Meteorological Society, Boston, MA.
- Leathers, D.J., 1995: Abrupt changes in the seasonal cycle of North American snow cover. Preprints Fourth Conference on Polar Meteorology and Oceanography, 15-20 January 1995, Dallas, TX, American Meteorological Society, Boston, MA.
- Leathers, D.J., 1995: A high resolution profile of northeastern United States temperature. Preprints Ninth Conference on Applied Climatology, 15-20 January 1995, Dallas, TX, American Meteorological Society, Boston, MA.
- Robinson, D.A., Frei, A., Leathers, D.J., and M.C. Serreze, 1995: Northern Hemisphere snow cover during the transition seasons. Proceedings of the 19th Climate Diagnostics Workshop, NOAA, College Park, MD, 377-380.
- Leathers, D.J., 1997: A Review of: Historical Essays on Meteorology 1919 - 1995. Edited by J.R. Fleming. Annals of the Association of American Geographers, 87, 540-541.
- Leathers, D.J. , 1997: An evaluation of severe soil moisture droughts across the northeast United States. Preprints Tenth Conference on Applied Climatology, 18-22 October, 1997, Reno, NV, American Meteorological Society, Boston, MA., 326-328.
- Ramsey, K.W., Leathers, D.J., Wells, D.V. and J.H. Talley, 1998: Summary Report: The Coastal Storms of January 27-29 and February 4-6, 1998, Delaware and Maryland. Open File Report No. 40, State of Delaware, Delaware Geologic Survey, 43 pgs.

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## **PRESENTATIONS AT CONFERENCES, INVITED LECTURES AND WORKSHOPS**

- Leathers, D.J., 1988: Periodic variations of a North American circulation index. AAG Annual Meeting, Phoenix, Arizona, April 6-10, 1988.

- Leathers, D.J., 1988: The PNA teleconnection index and the climate of North America. University of Delaware Weekly Seminar Series, April 22, 1988.
- Yarnal, B.M. and Leathers, D.J., 1988: Atmospheric teleconnections and regional precipitation variations over North America. The Pennsylvania State University Earth System Science Center Workshop "The Global Hydrologic Cycle", July 1988.
- Leathers, D.J., 1989: A Reconstruction of the atmospheric circulation over North America, 1895-1947. AAG Annual Meeting, Baltimore, Maryland, March 19-22, 1989.
- Leathers, D.J., 1989: Low-Frequency Atmospheric variations and their affect on United States temperature and precipitation. University of Nebraska-Lincoln, Department of Agricultural Meteorology Seminar Series. Lincoln, Nebraska, November, 1989.
- Leathers, D.J., 1990: Low-Frequency atmospheric variations and Great Plains Climate: Interannual to interdecadal associations. University of Nebraska-Lincoln Center for Great Plains Studies Annual Symposium "Climate Change on the Great Plains". Lincoln, Nebraska, April, 1990.
- Leathers, D.J., 1990: Low-Frequency mid-tropospheric variations and North American temperature variability. AAG Annual Meeting, Toronto, Ontario, Canada, April 1990.
- Leathers, D.J., 1991: Spatial and temporal characteristics of Northeast United States snowfall and associations with 700 mb flow. AAG Annual Meeting, Miami, Florida, April 1991.
- Leathers, D.J., 1992: "Snow Watch 92" Workshop. Niagara on the Lake, Ontario, Canada, April 1992.
- Leathers, D.J., 1992: Temporal variation of United States snowfall 1945-46 through 1984-85. New Jersey American Meteorological Society Monthly Seminar, Rutgers University, New Brunswick, New Jersey, April 1992.

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- Leathers, D.J., 1992: Temporal variation of United States snowfall 1945-46 through 1984-85. AAG Annual Meeting, San Diego, California, April 1992.
- Leathers, D.J., 1993: The association between extremes in North American snow cover extent and United States temperatures. AAG Annual Meeting, Atlanta, Georgia, April 1993.

Leathers, D.J. and A.W. Ellis, 1993: Relationships between synoptic weather type frequencies and snowfall trends in the lee of Lakes Erie and Ontario. Proceedings of the 50th Annual Eastern Snow Conference, Quebec City, Quebec, Canada, June 1993.

Leathers, D.J., 1993: Satellite derived Northern Hemisphere snow cover extent and climate variability. Marine Studies Lecture Series, University of Delaware, October, 1993.

Leathers, D.J., Robinson, D.A., Palecki, M.A. and K.F. Dewey, 1993: Climate variability as seen in daily temperature structure. Minimax Workshop, College Park, Maryland, September 1993.

Leathers, D.J., 1994: Characteristics of temperature depressions associated with snow cover across the northeast United States. AAG Annual Meeting, San Francisco, California, April 1994.

Leathers, D.J., 1994: **Participant:** Mesoscale Meteorology Course for Faculty. National Weather Service COMET Program, National Center for Atmospheric Research, Boulder, CO, June 1994.

Leathers, D.J., 1995: Abrupt changes in the seasonal cycle of North American snow cover. AMS Annual Meeting, Dallas, Texas, January 1995.

Leathers, D.J., 1995: A Water Resource Monitoring System for the Northeast United States: An Historical Overview 1895-1994. AMS Annual Meeting, Dallas, Texas, January 1995.

Leathers, D.J., 1995: Mechanisms determining the spatial distribution of tornadoes across the Northeast United States. AAG Annual Meeting, Chicago, IL, March 1995.

Leathers, D.J., 1996: Characteristics of Autumn tornadoes across the northeast United States. AAG Annual Meeting, Charlotte, NC, April 1996.

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Leathers, D.J., 1997: Tornadoes in the northeast United States: Where, When and Why. Rutgers University Department of Geography Seminar Series, January 1997.

Leathers, D.J., 1997: Characteristics of the annual cycle of the daily temperature range across the United States. AAG Annual Meeting, Fort Worth, Texas, April 1997.

Leathers, D.J., 1997: Characteristics of severe soil moisture droughts across the northeast United States. AMS Applied Climate Meeting, Reno, Nevada, October 1997.

Leathers, D.J., 1997: A climatology of severe weather across the northeastern United States. Pennsylvania Geographical Society Annual Meeting. York, Pennsylvania, October 1997.

Leathers, D.J., 1998: Dew point temperature variability across the eastern United States: Associations with circulation and soil moisture drought. AAG Annual Meeting, Boston, MA, March 1998.

Leathers, D. J., 1998: The severe snowmelt flooding event of January 1996 across North Central Pennsylvania. 55<sup>th</sup> Eastern Snow Conference, Mt. Washington, New Hampshire, June 1998.

Leathers, D. J., 1999: The Office of the Delaware State Climatologist: Service and Research. Invited Lecture, National Climatic Data Center, Asheville, NC, September 1999.

Leathers, D.J., 2000: Relationships between snow cover anomalies and air mass Frequencies across eastern North America. AAG Annual Meeting, Pittsburgh, PA, April 2000.

Leathers, D.J., 2001: Hydroclimatology of the northern Great Plains: The influence of snow cover. AAG Annual Meeting, March 2001.

Leathers, D.J., 2002: Snow cover and the hydrology of the central Appalachians. Snow Watch 2002, Washington, D.C., October 2003.

Leathers, D.J. and D.Y. Graybeal, 2003: Energy fluxes and ablating snow packs in the central Appalachians. AAG Annual Meeting, New Orleans, LA, March 2003.

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Leathers, D.J., 2004: Snow cover ablation in the Appalachian Mountains: A microclimatic study. AAG Annual Meeting, Philadelphia, PA, 2004.

Leathers, D.J., 2004: Impacts of lumbering on the climate and hydrology of North-Central Pennsylvania. Pennsylvania Geographical Society Annual Meeting, Harrisburg, PA, November 2004.

Leathers, D.J., 2004: Snow cover, energy fluxes and the hydrology of the central

Appalachians. Rutgers University Department of Geography Seminar Series,  
November 2004.

## **STUDENTS ADVISED**

### **Director of Dissertation or Thesis Committee**

Andrew Ellis, Ph.D. 1997  
Andrew Grundstein, Ph.D. 1999  
Daniel Graybeal, Ph.D. 2001  
Nellie Elguindi, Ph.D. 2003

Andrew Ellis, MS 1994  
Andrew Grundstein, MS 1997  
Cheryl Duffy, MS 2001  
Ross Sippel, MS 2001  
Jennifer Glover, MS 2003