

## Curriculum Vitae of Robert Åke Hellström

Geography Department  
Bridgewater State College  
Bridgewater, Massachusetts 02325

(508) 531-2842 (office)  
(508) 993-3802 (home)  
E-mail: rhellstrom@bridgew.edu

### **Education:**

- 2000 Ph.D. Atmospheric Sciences, Department of Geography, The Ohio State University, Columbus, OH. Dissertation title: *Modeling meteorological forcing of snowcover in forests.*
- 1995 M.S. Atmospheric Sciences, Department of Geography, Ohio State University. Thesis title: *The abrupt spring temperature increase and pressure rise over the Greenland ice sheet.*
- 1992 B.S. Aeronautical and Astronautical Engineering, Department of Aeronautical and Astronautical Engineering, The Ohio State University.

### **Teaching Experience:**

- 2007-present Associate Professor, Bridgewater State College: Courses: Meteorology, Meteorology II, Climatology, Online Weather Studies, Local Climate Change speaking intensive 2<sup>nd</sup> year seminar. Advisor > 10 undergraduate students and 1 graduate student (The Ohio State U.). 2 Independent studies
- 2000-2007 Assistant Professor, tenured 2005, Bridgewater State College: Courses: Meteorology, Meteorology II, Climatology, Online Weather Studies, Physical Geography, Computer Cartography, Geographic Information Systems, and Quantitative Geography, various courses in Earth Science, Special Topics for K-12. Advisor: >40 undergraduate students, 3 internships, and 6 independent studies.
- 2003-present Local Implementation Team Leader for Massachusetts: DataStreme Atmosphere K-12 teacher enhancement course.
- 2003-2005 Co-Instructor: Energy and the Environment Summer Content Institutes. DOE support.
- 2002 Instructor: Summer workshop for High School Students, Water at Your Doorstep.
- 2001-present Instructor, Graduate School at BSC: Special Topics in Earth Science for K-12 teachers: Meteorology for Middle and High School Teachers and Phase Change of Water in the Atmosphere.
- 1996-2000 Teacher's Assistant and Instructor, The Ohio State University: introductory courses in Geography and Atmospheric Science.

### **Research Work Experience:**

- 2000-present Atmospheric Scientist, BSC: meteorology and climatology. Design, construction and oversight of automatic weather station and wind tunnel lab at Bridgewater State College. Development of wireless sensor network for snow research. Evapotranspiration Network (ETNET) in Peruvian Andes and SE Mass (bscnet.googlepages.com). USA. Participant in the Snow Model Intercomparison Project for forest snow processes (SnowMIP2).
- 1997 - 2000 Graduate Research Associate, Department of Geography, The Ohio State University. Development of new forest cover parameterization and improved stability scheme for the Utah Energy Balance Snow Model. Design, fabrication, and application of micrometeorological instrumentation field measurements in northern Michigan for model calibration and verification of results.

1994 -1996 Graduate Research Associate, Byrd Polar Research Center, The Ohio State University.  
Development of interactive computer modules for Earth Science education.  
Measurement of snow density and accumulation trends at South Pole Station, Antarctica.  
Analysis of unique air temperature and pressure patterns over the Greenland ice sheet.

**Computer Skills:**

- Fortran and IDL programming for data synthesis and numerical microclimate modeling
- Integrated Data Viewer (IDV) and UNIDATA resources
- LabView 7.0 for data acquisition and control
- FastCAD for digitizing and cartographic design
- ArcGIS 9.x for Geographic Information Systems design
- ENVI analysis and processing of remote sensing images
- DOS, Windows, LINUX and TinyOS operating systems
- Authorware object oriented development software

**Refereed Published Papers:**

- Hellström, R. Å., and B. G. Mark, 2006: An Embedded Sensor Network for Measuring Hydrometeorological Variability Within a Tropical Alpine Valley. *Proceedings of the 63<sup>rd</sup> Eastern Snow Conferenc.* U. Delaware, Newark, DE, USA.
- Hellström, R. Å., 2001: Meteorological Forcing of the Abrupt Springtime Temperature Rise at the Greenland Crest. *Proceedings of the 58<sup>th</sup> Eastern Snow Conference.* Ottawa, CA..
- Hellström, R. Å., 2000: Forest cover algorithms for estimating meteorological forcing in a numerical snow model. *Hydrological Processes*, Special Issue: Eastern Snow Conference. **14** (18), 3239-3256.
- Hellström, R. Å., 2000: Representation of forest cover in a physically based snowmelt model, Phase II. *Proceedings of the 57<sup>th</sup> Eastern Snow Conference.* Syracuse, NY, USA.
- Hellström R. Å. 1999: Representation of forest cover in a physically based snowmelt model, Phase I. *Proceedings of the 56<sup>th</sup> Annual Eastern Snow Conference*, Fredericton, New Brunswick, CA: 215-231.
- Rogers, J.C., R. Hellström, E. Mosley-Thompson and C.-C. Wang. 1997: An abrupt Spring air temperature rise over the Greenland ice cap. *Journal of Geophysical Research (Atmospheres)*, **102** (D12), 13,793-13,800.
- Rogers, J. C., E. Mosley-Thompson, R. Å. Hellström, and C.-C. Wang, 1995: The abrupt Spring warming over Greenland. *Proceedings from the Principal Investigators Meeting - Atlantic Climate Change Program.* NOAA: Washington, D. C., 153-157.

**Unpublished Works:**

- Hellström, R. Å., 2001: *Authorware Developer's Guide.* Center for Advancement of Research and Teaching, Bridgewater State College. 100 pp.
- Hellström, R. Å., 2000: *Modeling meteorological forcing of snowcover in forests.* Atmospheric Sciences Program. Ph.D. Thesis. The Ohio State University, Columbus, Ohio.
- Hellström, R. Å., 1995: *The abrupt spring temperature rise and pressure increase over the Greenland ice sheet.* Masters Thesis, Department of Geography, The Ohio State University, 154 pp.

### **Presentations:**

- Hellström, R. Å, and B. G. Mark, 2007: *Annual Hydrometeorological Variability Within a Tropical Alpine Valley: Implications for Evapotranspiration*. San Francisco, CA. Association of American Geographers Annual Meeting Abstracts.
- Hellström, R. Å, and B. G. Mark, 2006: *An Embedded Sensor Network for Measuring Elevation Effects on Temperature, Humidity, and Evapotranspiration Within a Tropical Alpine Valley*. American Geophysical Union Fall Meeting Abstracts.
- Hellström, R. Å, 2006: *An Embedded Sensor Network for Measuring Hydrometeorological Variability Within an Alpine Valley*. 63<sup>rd</sup> Eastern Snow Conference (ESC). U. Delaware, Newark, DE, USA.
- Hellström, R. Å, 2006: *An embedded sensor network reveals unique meteorological forcing within a Tropical Alpine valley*. Chicago, IL. Association of American Geographers Annual Meeting Abstracts.
- Hellström, R. Å, 2005: *A Wireless Snow Process Monitoring Network*. Denver, CO. Association of American Geographers Annual Meeting Abstracts.
- Hellström, R. Å., 2001: *Meteorological forcing of the abrupt springtime temperature rise at the Greenland Crest*. Joint meeting of the Eastern Snow Conference and Canadian Geophysical Union. 58<sup>th</sup> ESC. Ottawa, Canada.
- Hellström, R. Å, 2001: *Forest cover algorithms for estimating meteorological forcing in a numerical snow model*. New York, NY. Association of American Geographers Annual Meeting Abstracts.
- Hellström, R. Å, 2000: *Representation of forest cover in a physically based snowmelt model*. National Water Research Institute. Saskatchewan, Canada (Invited talk).
- Hellström, R. Å, 2000: *Representation of forest cover in a physically based snowmelt model, Phase II*. Proceedings of the 57<sup>th</sup> ESC. Syracuse, NY.
- Hellström, R. Å, 1999: *Representation of forest cover in a physically based snowmelt model, Phase I*. Proceedings of the 56<sup>th</sup> ESC. Fredrickton, NB, Canada.
- Hellström, R. Å, 1998: *Representation of forest cover for snowmelt modeling*. Association of American Geographers Annual Meeting Abstracts.
- Hellström, R. Å, 1997: *Parameterization of forest cover for snowmelt modeling*. American Geophysical Union Fall Meeting Abstracts.

### **Local Presentations:**

- Hellström, R. Å, 2007: *Impacts of Landscape Development on Evapotranspiration in Southeastern Massachusetts*. (Poster) Center for Advancement of Research and Teaching (CART) Celebration XI, Bridgewater State College (BSC).
- Hellström, R. Å, 2007: *Climate and Land Use Change: Implications for Southeastern Massachusetts*. (Panel Discussion) CART Celebration XI, BSC.
- Hellström, R. Å, 2006: *An Embedded Sensor Network for Measuring Hydrometeorological Variability Within an Alpine Valley*. (Poster) CART Celebration X, BSC.
- Hellström, R. Å, 2005: *A wireless snow process monitoring network*. (Poster) CART Celebration IX, BSC.
- Hellström, R. Å, 2003: *A wind tunnel for BSC*. CART Celebration VII, BSC.

Hellström, R. Å, 2002: *Application of Digital Technology for Teaching*: panel chair and presentation, The BSC Weather Station. CART Celebration VI, BSC.

Hellström, R. Å, 2001: *South Pole, Antarctica: Extracting records of climate change*. Lecture Series: Earth Sciences and Geography Club, BSC.

Hellström, R. Å, 2001: *Applying automatic weather station data to teaching and research at BSC*. E-Teaching and E-Learning Conference, BSC.

### **Awards and Grants:**

- 2006-07 Presidential Fellows Award, Bridgewater State College: \$10,000, Impacts of Landscape Variability on Evapotranspiration and Climate Change. Emphasis on SE Mass.
- 2006 Presidential Faculty/Librarian Grant: \$3000, Graduate Course Development: Measuring Climate Change.
- 2006 Center for Advancement of Research and Teaching (CART) Travel Grant: Association of American Geographers (AAG) annual meeting.
- 2006 CART Faculty Librarian Research Grant: \$8000, Impacts of Landscape Development on Climate Variability in Southeastern Massachusetts. NOTE: award was declined by accepting the Presidential Fellowship.
- 2005 CART Travel Grant: AAG annual meeting.
- 2005 Massachusetts Department of Education Grant, 2005 Content Institute Program: \$33,230 to support summer content institute on renewable energy for grade 6-9 teachers. Co-written with Dr. Jeff Williams, Physics, BSC.
- 2005 Massachusetts Technology Collaborative, Renewable Energy Trust, Grant for teacher workshops: \$18,505 to support spring workshops on clean energy for a sustainable environment for grade 3-8 teachers. Co-written with Dr. Jeff Williams, Physics, BSC.
- 2004 CART Travel Grant: Eastern Snow Conference (ESC) annual meeting.
- 2004 CART Faculty Librarian Research Grant: \$8000 to support undergraduate research assistant and wireless sensor network.
- 2004 Massachusetts Department of Education Grant, 2004 Content Institute Program: \$39,700 to support summer content institute on Energy and the Environment for grades 6-9. Co-written with Dr. Jeff Williams, Physics, BSC.
- 2003 CART Travel Grant: ESC annual meeting.
- 2003 Massachusetts Technology Collaborative, Renewable Energy Trust, DOE Grant: \$30,300 to support summer content institute on renewable energy for grade 6-9 teachers. Co-written with Dr. Jeff Williams, Physics, BSC.
- 2003 Continuing Scholarship Funds: \$568 for purchase of pressure transducer and LabJack data acquisition unit for BSC Wind Tunnel.
- 2002 CART Travel Grant: ESC annual meeting.
- 2002 Continuing Education Scholarship: \$3300. Purchase of HOBO mini data loggers and materials to construct BSC Wind Tunnel.
- 2001 CART Summer Grant: \$3000 for developing a computer based teaching module and writing the Authorware Developer's Guide, BSC.
- 2001 CART Travel Grant: AAG annual meeting.

### **Committees:**

- Presidents Climate Commitment Task Force (2007-present)
- Eastern Snow Conference: Proceedings Editor (2003-present)
- Tenure Committee: evaluation of two candidates for tenure (2005-06)
- Peer Evaluation Committee: reappointment, promotion and tenure of BSC faculty (2005)
- Geography Program Review Committee, Bridgewater State College (BSC) (2004)
- Faculty hiring Search Committee Chair at BSC: Geography Asst. Prof. tenure track (2004)
- Center for Advancement of Research and Teaching, Chair Resources Committee, Summer Grants Committee, BSC (2001-2004)
- Education Technology Committee, BSC (2002-2003)
- Supervisor: Student Lab Tech. Committee, Geography, BSC (2000-present)

### **Professional Organizations:**

- Gamma Theta Upsilon, Eta Nu Chapter (2001-present)
- Canadian Geophysical Union, 2001-2004
- Eastern Snow Conference (1998-present)
- American Meteorology Society (1998-present)
- Association of American Geographers (1998-present)
- American Geophysical Union (1997-present)

### **References:**

Dr. Peter Saccocia  
(508) 531-2124  
E-mail: psaccocia@bridgew.edu  
Earth Sciences Department  
Bridgewater State College  
Bridgewater, MA 02325

Dr. Bryan G. Mark  
(614) 247-6180  
E-mail: mark.9@osu.edu  
Department of Geography  
The Ohio State University  
Columbus, OH 43210-1341 USA

Dr. Jeff Williams  
(508) 531-2081  
Email: j7Williams@bridgew.edu  
Physics Department  
Bridgewater State College  
Bridgewater, MA 02325

Dr. Sandra S. Clark  
(508) 531-2099  
E-mail: sclark@bridgew.edu  
Geography Department  
Bridgewater State College  
Bridgewater, MA 02325

Dr. Ellen Mosley-Thompson  
(614) 292-2580  
(614) 292-6662, Byrd Polar Research Center  
E-mail: thompson.4@osu.edu  
1140 Derby Hall  
Department of Geography  
The Ohio State University  
Columbus, Ohio 43210

Dr. James Hayes-Bohanan  
(508) 531-2118  
E-mail: jhayesboh@bridgew.edu  
Geography Department  
Bridgewater State College  
Bridgewater, MA 02325