Carol M. Ciliberti

Appendix

Cooperative Institute for Regional Prediction
University of Utah, Department of Meteorology
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Work Telephone (801)585-1416

Research Activities and Collaboration

- Weather Forecaster for the Vertical Transport and Mixing Experiment (VTMX), Fall 2000
- Weather Forecaster for the Intermountain Precipitation Experiment (IPEX), Winter 2000
- Technical Support for the Peter Sinks Experiment (PSX), Fall 1999
- 2002 Winter Olympic Weather Support (near real-time data analysis), Work in Progress
- High resolution data assimilation over complex terrain, Work in Progress

Current Personal Research

- **The Utah Advanced Regional Prediction System (ARPS) Data Assimilation System (ADAS)**
  —ADAS is the objective analysis component of ARPS, a numerical weather prediction modelling system designed for short term forecasting and nowcasting on the meso-scale
  —analysis provides a blend of large scale model data as a background field with large-scale and local data
  —local data sources: surface observations, radar, satellite and wind profiler data, upper air soundings, and aircraft observations
  —utilizes the Bratseth method of successive corrections, converging toward the optimum interpolation solution
  —used to initialize ARPS, providing high resolution forecasts of mesoscale events for research purposes
  —five versions of the analysis are run operationally over domains of varying size
  —modifications have been implemented to enhance analysis performance in complex terrain
  —current research: validation of ADAS through comparison of analyses against withheld observations
  —future research: development of anisotropic correlation functions around elevated terrain

Skills and Experience

- **Computer skills**:
  —eleven years experience in Fortran programming
  —six years experience using the Unix operating system on Sun workstations, including c-shell scripting
  —html programming for web page development and maintenance
  —Some experience in C programming
  —familiarity with display of gridded data sets using graphical interfaces such as Gempak, GrADS, and NCAR graphics
  —used AWIPS workstations at National Weather Service (NWS) offices for research and weather forecasting
  —used Word Perfect, Microsoft Word and Adobe Framemaker to produce scientific papers and other documents that include a combination of text, graphics and equations
  —maintain a sizeable network of operationally-produced computer weather products at the University of Utah

- **Writing and Communication Experience**:
  —first author of two conference papers
  —co-author of two additional conference papers
  —co-author of a refereed journal paper currently in review
  —presented research results at conferences attended by peers, ranging from local to international attendance
  —prepared and presented a mountain weather forecasting lecture for the National Ski Patrol Level II Avalanche Class
  —prepared and presented lectures pertaining to snow stability evaluation and avalanche hazard assessment
  —directed field sessions teaching avalanche rescue and related mountain skills
  —interviewed frequently with local and national media as a Forest Service avalanche professional

— participated in a Learning Channel documentary detailing my role in leading the live rescue of an avalanche victim
—lead weather discussions to aid in planning field research experiment operations
— prepared and presented a tutorial on the use of the Gempak graphical display program to National Weather Service forecasters

- **Weather Forecasting Skills**:
  —provided weather forecasts for field research experiments
  —interpreted numerical weather prediction model forecasts and analyses
  —interpreted meteorological data: radar and satellite imagery, upper air soundings and surface station data sets
  —performed hand analysis of surface weather variables
  —performed mountain weather forecasting for the Utah Avalanche Center
  —coordinated with NWS Forecasters to produce forecasts of snowfall amount in mountain regions
  —learned forecasting methods and procedures through close contact with NWS forecasters

- **Additional Skills**
  —developed an enhanced ability to learn new methods and procedures
  —learned to apply rational methods of problem solving to new subjects
  —developed the skills and knowledge to conduct independent research
  —ability to work productively within a group
  —ability to effectively direct the work of others
  —facilitated group discussions and planning
  —developed skills to create forecast products under extreme time constraints
  —research experience developed a strong interest in locally forced terrain-flow interactions
  —fire fighting experience developed a strong interest in fire behavior and wild fire management

Publications in Review

- Lazarus, S. M., C. M. Ciliberti, and J. D. Horel: Near-real time applications of a mesoscale analysis system to complex terrain. Submitted to *Weather and Forecasting*.

Conference Papers:

- Horel, J. D., C. M. Ciliberti, and S. M. Lazarus, 2001: Data assimilation over the Western United States. Preprints, 5th Symposium on Integrated Observing Systems, Albuquerque, New Mexico, Amer. Met. Soc.,Jan 14-19.
- Ciliberti, C. M., J. D. Horel, and S. M. Lazarus, 2000: Sensitivity experiments with a high resolution data assimilation scheme. Preprints, 9th Conference on Mountain Meteorology, Aspen Colorado, Amer. Met. Soc., 413-416
- Lazarus, S. M., C. M. Ciliberti, and J. D. Horel, 2000: Wind analysis in complex terrain. Preprints, 9th Conference on Mountain Meteorology, Aspen Colorado, Amer. Met. Soc., 282-283.
- Ciliberti, C. M., J. D. Horel, and S. M. Lazarus, 1999: An analysis of a cold frontal passage over complex terrain in northwest Utah. Preprints, 8th Conference on Mesoscale Processes, Boulder Colorado, Amer. Met. Soc.,459-462.

General Research Collaborators

- J. D. Horel, S. M. Lazarus, and L. Holland, University of Utah, ADAS research group
- M. Splitt and J. B. Pechman, University of Utah, MesoWest research group
- W. J. Steenburgh and D. J. Onton, University of Utah, MM5 research group

Work History

- Research Associate, University of Utah Cooperative Institute for Regional Prediction,1996 - Present
- Avalanche Forecaster, Utah Avalanche Center, Salt Lake City, Utah, 1995 - Present
- Meteorological Technician, National Weather Service Western Region Headquarters, 2000
- Research Assistant (M. S.), University of Utah Department of Meteorology, 1992 - 1996
- Student Trainee, National Weather Service Western Region Headquarters, 1990 - 1991
- Undergraduate Research Assistant, University of Utah Department of Meteorology, 1989 - 1990
- Professional Ski Patrol/Avalanche Worker, Park West Ski Resort, Park City Utah, 1984 - 1989
- Trail Crew/ Fire Crew, U.S. Forest Service Wasatch-Cache National Forest, 1984 - 1988

Educational Background

- In progress: Ph.D. in Meteorology, University of Utah
  —Thesis research: Implementation and adaptation of a high resolution data assimilation scheme over regions of complex terrain.
- M.S. Meteorology, University of Utah, Spring, 1996
  —Thesis: *Sensitivity of the Utah Limited Area Model to Upper Boundary Conditions*
- B.S. Meteorology (Summa Cum Laude), University of Utah, Spring 1992
- Undergraduate class work, University of Montana, 1981-82

Honorary Societies and Awards

- Member of the Kennecott Society of Scholars
- Recipient of the Kennecott Scholarship 1990-91, 1991-92
- Member of Student Advisory Committee, University of Utah 1992
- Recipient of Hazen H. Bedke Award for Outstanding Graduating Senior in the Dept. of Meteorology, 1992
- Professional member of the American Association of Avalanche Professionals
- Student member of the American Meteorological Society

Graduate Advisors

- J. D. Horel, Professor of Meteorology
  University of Utah (801)581-7091
- J. Paegle, Professor of Meteorology
  University of Utah (801)581-7180

References

- W. James Steenburgh, Associate Professor of Meteorology
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- Albert J. Soucie, Natural Resource Recreation Manager
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