Carol M. Ciliberti
Appendix to Resume

Cooperative Institute for Regional Prediction
University of Utah Department of Meteorology
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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 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.
  —provides a blend of large scale model data as a background field with large-scale and local data, including 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
  —ADAS has been used to initialize ARPS to provide high resolution forecasts of mesoscale events for research purposes.
  —The Utah ADAS is run on a near-real time basis over several domains
  —modifications have been made to enhance analysis performance in complex terrain, especially in regions of strong terrain gradients.
  —current research involves validation of ADAS through comparison of analyses against withheld observations,
  —future research will involve development of anisotropic correlation functions around elevated terrain

Computer Skills

- **Computer skills**:
  —I have extensive experience in the use of Fortran programming for numerical model development and associated research. I also have year of experience using the Unix operating system on Sun workstations, c-shell scripting, and html programming for web page development and maintenance. Some experience in C programming.
  —I have experience in the use of graphical interfaces such as Gempak, GrADS, and NCAR graphics. I have used AWIPS workstations at National Weather Service offices for research and weather forecasting.
  —I have used Word Perfect, Microsoft Word and Adobe Framemaker to produce scientific papers and other documents that include a combination of text, graphics and equations.
  —I maintain a sizeable network of operationally-produced computer weather products at the University of Utah

- **Writing and Communication Experience**:
  —I am first author of two conference papers and have co-authored two others. I am co-author of a refereed journal paper currently in review. I have presented research results at a number of conferences, ranging from local to international audiences.
  —I prepared and presented a mountain weather forecasting lecture for the National Ski Patrol Level II Avalanche Class. I prepared and presented lectures pertaining to safe travel, snow stability evaluation and hazard assessment in avalanche terrain. I directed field sessions teaching avalanche rescue and related mountain skills.
  —I have frequent contact with the media as a Forest Service avalanche professional, including daily live radio broadcasts and special interviews with local and national television reporters. I participated in a Learning Channel documentary detailing my role in leading the live rescue of an avalanche victim. This experience has helped me develop the skills to concisely list avalanche hazard issues, and respond diplomatically to questions concerning public involvement in avalanche activity.
  —Presenting weather briefings to attendant scientists for field research experiments has provided experience in transferring weather forecast information to a specific user group, and in leading weather discussions to aid operational planning.

—I prepared a tutorial on the use of the Gempak graphical display program and presented the information to National Weather Service personnel.

- **Weather Forecasting Skills**:
  —Weather forecasting for field experiments has given me skills in the evaluation and interpretation of numerical weather prediction model forecasts and analyses, radar and satellite imagery, and profiler and surface station data sets.
  —I have done mountain weather forecasting for the Utah Avalanche Center, creating text products for web-based display. These forecasts focussed on freezing level, mountain crest wind speed and directions, precipitation (snowfall) amounts, and the chance of convective storm activity.
  —The Utah Avalanche Center is co-located with the National Weather Service Forecast Office in Salt Lake City. Close work with the NWS forecasters in preparation of mountain weather forecasts has provided knowledge of NWS forecasting methods and procedures.

- **Learning Ability and Interests**
  —My career as a student in a science field, and work in research and forecasting, has given me the ability to learn quickly. I developed an aptitude for applying methods of problem solving to new subjects.
  —My career as an avalanche professional has enabled me to develop the skills to rapidly scan diverse data sets, mentally process the information, and produce concise, informative public products under extreme time constraints.
  —mesoscale modelling and local scale data assimilation research has increased my knowledge of locally forced terrain flow interactions, such as mountain valley circulations, lake-land breezes and gap flows.
  —Work on the Wasatch Regular Fire Crew during the summers of 1985-1988 provided me with knowledge of wildland fire suppression procedures and a strong interest in fire behavior and wild fire management.

Publications in Review

- Lazarus, S. M., C. 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
- S. M. Lazarus, 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 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 Professional, Utah Avalanche Center, Salt Lake City, Utah, 1995 - Present
- Research Assistant (M.S.), University of Utah Department of Meteorology, 1992 - 1996
- Meteorological Technician, 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, 29 credit hours completed
  —Thesis research: Implementation and adaptation of a high resolution data assimilation scheme over regions of complex terrain.
- M.S. Meteorology, University of Utah, Spring, 1995
  —Thesis: *Sensitivity of the Utah Limited Area Model to Upper Boundary Conditions*
- B.S. Meteorology (Summa Cum Laud), 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, University of Utah, 801-581-7091
- J. Paegle, University of Utah, (801) 581-7180

References

- W. James Steenburgh, Associate Professor of Meteorology
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