Carol M. Ciliberti
Appendix to Resume

Cooperative Institute for Regional Prediction
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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)	Present
High resolution data assimilation over complex terrain	Present

Current Personal Research

The Utah Advanced Regional Prediction System Data Assimilation System (ADAS)

ADAS is the analysis component of ARPS, a numerical weather prediction modelling system designed for short term forecasting and nowcasting on the meso-scale. The analysis provides a blend of large scale model data as a background field, and both local and large-scale data. Local data sources include surface observations from the MesoWest, radar data in NIDS format, wind profiler data, upper air soundings, and aircraft observations. The analysis method is the Bratseth method of successive corrections, which converges toward the optimum interpolation solution due to the inclusion of error statistics.

The Utah ADAS is run on a near-real time basis over several domains, including a 3-dimensional version at 1 km horizontal resolution run over northwest Utah. A surface analysis is run at 10 km resolution over a large domain covering the Western United States, and a 1 km version is run over northwest Utah. Two additional surface analyses are run over 12 and 36 km domains configured to initialize MM5 simulations run at the University of Utah. In addition, ADAS has been used to initialize ARPS to provide high resolution forecasts of mesoscale events for research purposes.

A number of modifications have been made to the ADAS code to enhance performance over complex terrain. Most notably, the addition of an additional term in the spatial correlation function intended to reduce the inflluence of high elevation surface observations on the free-air portion of the analysis. This helps to compensate for strong terrain gradients found in the Western United States, and has resulted in an more realistic depiction of mesoscale weather features and terrain-flow interactions.

Current and future research projects include: validation of ADAS through comparison of analyses against withheld observations, the development of anisotropic correlation functions around elevated terrain, and the development of a 3-dimensional wind adjustment (currently 2-dimensional)

Special Skills and Experience

Extensive use of Fortran programming for numerical model development and associated research. Also extensive use of the Unix operating system on Sun workstations, c-shell scripting, and html programming for web page development and maintenance. Some experience in C programming and Java.

I have extensive experience in the use of graphical interfaces and workstations such as Gempak, GrADS, NCAR graphics, Garp, XMGR, and AWIPS. I have also used Microsoft Word and Adobe Framemaker to produce scientific papers and other documents, including a combination of text, graphics and equations.

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.

The Utah Avlanche 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.

Work on the Wasatch Regular Fire Crew during the summers of 1985-1988 has given me knowledge of wildland fire suppression procedures and a strong interest in fire behavior and 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. Clliberti, and S. M. Lazarus, 2001: Data assimilation over the Westen United States. Preprints, 5th Symposium on Integrated Observing Systems, Albuqurque, 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 cmplex 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	University of Utah	D. J. Onton	University of Utah
S. M. Lazarus	University of Utah	M. Splitt	University of Utah
W. J. Steenburgh	University of Utah	L. Holland	University of Utah
C. Clements	University of Utah		

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 Clty Utah	1984 - 1989
Trail Crew/ Fire Crew, U.S. Forest Service Wasatch-Cache National Foirest	1984 - 1988

Educational Background

In progress: Ph.D. in Meteorology, University of Utah Fall 1998 - Present
29 Credit hours completed
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. Meterology (Summa Cum Laude), University of Utah Spring 1992

Honorary Societies and Awards

Member of the Kenccott Society of Scholars
Recipient of the Kennecott Scholarship 1991, 1992
Member of Student Advisory Committee, University of Utah 1992
Recipient of Hazen H. Bedke Award, 1991, 1992
Professional member of the American Association of Avalanche Professionals (AAA)
Student member of the American Meteorological Society

Graduate Advisors

J. D. Horel, University of Utah
J. Paegle, University of Utah