



# Cooperative Institute for Precipitation Systems

## **This Period in CIPS: October – December 2005**

### **Conferences and Presentations**

Several CIPS members presented various research topics at the 30th Annual NWA Meeting in St. Louis, MO. The following talks were presented:

Effective Partnerships to Infuse Research into Training for Operational Meteorologists: James T. Moore

Airstream Analysis Conducive to Production of Heavy Banded Snowfall: A Numerical Simulation of the 26-27 November 2001 Snowstorm: Sam Ng, James T. Moore, and Charles E. Graves

A Case Study of A Surprise Elevated Convection Event Over Eastern Missouri: 24-25 July 2004: Martin A. Baxter, Michelle L. Keast-Nachtrab, and James T. Moore

A Conceptual Model Depicting Processes Important for the Generation of Meso-Beta Scale Snow Bands: Michael J. Paddock, Charles E. Graves, and James T. Moore

Meteorological and Warning Issues Associated with the Kansas Turnpike Flash Flood of 30 August 2003: James T. Moore and Jeffrey D. Vitale

Dr. Moore, Marty Baxter, and Mike Paddock were invited to present their research at the National Weather Service Forecast Office (LSX) Winter Weather Workshop on 7 November 2005. The following talks were presented:

The Role of Conveyor Belts in Organizing Processes Associated with Heavy Banded Snowfall: James T. Moore, Sam Ng, and Charles E. Graves

A Conceptual Model Depicting Processes Important for the Generation of Meso-Beta Scale Snow Bands Associated with Weak Cyclogenesis: Michael J. Paddock, Charles E. Graves, and James T. Moore

Snow to Liquid Ratio: Climatology and Forecast Methodologies: Martin A. Baxter, Charles E. Graves, and James T. Moore

Martin Baxter was invited to present his research on snow to liquid ratios but also did an outstanding job filling in for Dr. Moore at the Meteorological Services of Canada/COMET Winter Weather Course 27 Nov. - 9 Dec. 2005. The following talks were presented:

Quasi-Geostrophic Theory: A Review of Basic Concepts: Martin A. Baxter and James T. Moore

Isentropic Thinking: Martin A. Baxter and James T. Moore

IPV and the Dynamic Tropopause: Martin A. Baxter and James T. Moore

Critical Processes Attending Heavy Banded Snowfall with Illustrations from Case Study Events: Martin A. Baxter and James T. Moore

Jet Streak Circulations: Martin A. Baxter and James T. Moore

Snow to Liquid Ratio: Martin A. Baxter

Cold Season Elevated Thunderstorms: Martin A. Baxter and James T. Moore

### **Submitted Articles**

The following article has been accepted to the National Weather Digest:

Baxter, M. A., C. E. Graves, and J. T. Moore, 2006: The Use of Climatology to Construct a Physically-Based Method for Diagnosing Snow to Liquid Ratio. *Natl. Wea. Dig.*, **30**, 29-44.

Using work performed under a COMET Partners grant, the following article is being revised for publication in the National Weather Digest:

Graves, C. E., R. A. Wolf, J. T. Moore, J. A. Zogg, and B. L. Mickelson, 2007: Analysis of the 3-4 June 2002 extreme rainfall event over Iowa and Illinois. *Natl. Wea. Dig.*, **31**, 83-102.

### **CIPS Team Notes**

The Department of Earth and Atmospheric Sciences would like to wish Dr. Moore a speedy recovery from his unexpected illness. We know he cannot wait to get back and torture everyone with his puns and we are sure he has been sitting in his hospital bed creating new puns just for next semester. Actually, we cannot wait to hear them. The puns are really missed throughout the department, whether they are good or bad. Come back soon Doc.

Dr. Moore and Dr. Graves did an outstanding job serving as co-convenors for the 30th Annual Meeting of the National Weather Association held at the Adam's Mark Hotel in Downtown St. Louis. Congratulations Jim and Chuck.

Dr. Moore, Dr. Graves, and Marty Baxter also served as Session Chairs at the National Weather Association Meeting in October for the following sessions : Professional Development, Remote Sensing Applications, and Cold Season Weather, respectively. They did a great job.

CIPS would like to congratulate Mike Paddock for winning the Best Graduate Oral Presentation at the 30th Annual National Weather Association Meeting. Great Work!!

Marty Baxter presented seven (7) talks at the Meteorological Services of Canada/COMET Winter Weather Course in Boulder, CO. The majority of those talks were originally to be given by Dr. Moore, but due to his illness Marty stepped up and presented all of Dr. Moore's talks as well as the talk he was originally slated to give about snow to liquid ratios.

The meteorology department greatly appreciates everything Marty has done to make this department, either locally, regionally, or nationally, run smoothly day in and day out. Thank you Marty! CIPS is in the initial stages of purchasing more memory for the Weather Event Simulation system. This will allow for numerous cases to be added seeing as our system is currently running at full capacity.

The CIPS team is also in the initial stages of developing guided case studies for the WES system to be used by forecasters and students.

The department is currently hiring for one position: department chair. This position will likely be filled before summer.

The CIPS team is pleased to hear that the National Weather Association was extremely grateful for the work CIPS members did at the 30th Annual Meeting of the National Weather Association as the meeting went off with very few technical difficulties.

Don't forget that the Presentations and Recent Events pages are updated frequently. Check back from time to time and see what the CIPS members are up to.

The collaboration between CIPS team members with Wes Junker, an HPC contractor, and Matt Kelsch of UCAR/COMET is continuing with the investigation of the Kansas turnpike flash flood case of August 30-31 2004. CIPS Research Assistant Jeff Vitale is assisting with this project.

Mike Paddock is writing for publication to be submitted to the National Weather Digest. Two publications will be submitted. The first is a meso-beta scale snow band case study and the second will revolve around his Master's thesis.

## **CIPS Team News**

Marty Baxter is busy teaching introductory courses as a full-time instructor in the meteorology department. He also continues work on his Ph.D. Marty's work involves the role of convection in winter storms and the predictability of such systems.

Jaime Poole has completed the written exam in October and is now preparing for her oral exam. Congratulations and Good Luck! She is continuing work on modeling elevated thunderstorms to identify factors that determine how far north of the boundary storms will initiate, as well as their subsequent propagation.

Mike Paddock continues to work with Ron Przybylinski (SOO, St. Louis NWS) on cases involving very narrow snow bands. He is beginning his Ph.D. studies with emphasis on heavy rainfall proximity soundings with preliminary results expected in middle to late spring. Mike is also in contact with Wes Junker (HPC contractor) and Jeffrey Craven (SOO, Jackson, MS NWS) to utilize a heavy rainfall dataset compiled by Wes and obtain initial ideas for the compilation of heavy rainfall proximity soundings.

Adam Pasch continues to work on model simulations of mini-snowbands. He is also beginning his Ph.D. studies with emphasis on precipitation verification. Adam is in contact with Beth Ebert (Bureau of Met. Research Centre, Melbourne Australia), Barbara Brown (NCAR), Steve Weiss (SPC/NSSL), and Mike Baldwin (NSSL) to obtain various data sets and code for his precipitation verification studies.

Jeff Vitale is continuing work on the August 30-31, 2004 Kansas turnpike flash flood case. He is also investigating other low-echo centroid storms to better understand their mesoscale environment, one of which is a WES case. Jeff is currently busy writing his thesis and is anticipating graduating in May 2006.

Chad Gravelle has learned the ropes of the CIPS operation very quickly and is investigating snow null events. Chad will begin preparing for his Master's qualifying exam in the spring. Good Luck!

Emily Eisenacher continues investigating radar characteristics and the environment in which snow bands grow and propagate. She is exploring one snow band case using the WES system. Emily has begun writing her thesis and also anticipates graduating in May 2006.

Kelly Kubinski continues to investigate applications of Corfidi vectors under a spectrum of Mesoscale Convective System types. Kelly anticipates graduating in May 2006.

Doug Tilly continues using the MM5 to determine how convection in the warm sector disrupts or enhances precipitation downstream. He is also busy working at the NWS as a SCEP intern. Doug is expecting a May 2006 graduation.