

**GREATER ST. LOUIS CHAPTER  
AMERICAN METEOROLOGICAL SOCIETY  
MINUTES OF 20 JANUARY, 2003**

The second regular monthly meeting of the Greater St. Louis Chapter of the American Meteorological Society of the 2002-2003 season was held on 20 January at McDonnell Douglas Hall on the SLU campus. Over 30 members and guests were treated to delicious buffet and dessert. Jay Martinelli, as acting Chairperson, did a great job in hosting his first meeting. At 8:15 Jay commenced the meeting.

**Reports**

Lou read the minutes of the November meeting at Grappa Grill with Phil Schumacher. They were approved as read. The new Treasurer, Danielle Minard, reported a balance of \$737.59 after expenses and new memberships.

**Old Business**

Jay reminded the members that the SLU website now contains the Local AMS website.

**New Business**

David Wilson, one our AWS members, is moving to Denver in mid February. We are still looking into the Mid America Airport as the site of our April meeting. Joe Schaeffer and Bart Hagemeyer are set for our Feb 20 and March 20 meetings. Jay is negotiating with Rigazzi's for the next meeting. Pat Market from the University of Missouri in Columbia brought a half a dozen students with him.

He put a plug in for the annual Missouri Academy of Science meeting on April 19 in Warrensburg at Central Mo State college.

Ron briefly discussed the upcoming Bamex project and science fairs. The national AMS chapter finally published last winners in the December BAMS. Jay is hoping to get the SLU undergrads more involved in our local chapter. They helped subsidize the dinner price for the SLU students.

**Speaker**

Jay introduced Dr. James Moore, a long time faculty member at SLU, and a respected Meteorologist in the national community. He received his degrees at New York University and Cornell in the 70's and has been an institution at Saint Louis University ever since. In 1999 he presided as President of the National Weather Association. He is the consummate synoptician, and has worked jointly

with other Universities and the National Weather Service to publish dozens of papers.

Jim's topic was "**Creating the Perfect Snow Storm**".

Dr. Moore's research in this area is associated with CIPS (Cooperative Institute for Precipitation Systems).

In order to dial up the perfect storm, Jim names questions we need answers to. The how much?, how long?, when?, how intense?, locating the gradient?, determining the vertical temperature and moisture profile?, drifting?.

Snow to rain ratios can amplify or diminish the snow depth. Dr. Moore showed SLU research that climatized the ratios across the US. Ratios of 15:1 in the northern plains fell to 8:1 across the SE. Wes Junker's studies showed that Alberta Clippers are often 20:1, dry and fluffy, whereas Gulf lows can be as dense as 6:1.

The best flakes are dendrites, forming optimally at -15C or 5F. For the perfect storm, they should form around the 700 mb level (10,000') and fall through a saturated layer just below the freezing temperature for rapid aggregation. The vertical profile should be warm over cold but not exceeding 1C or snow grains, sleet, or freezing rain will result.

Jim expanded his talk to include the lifting mechanism, what it takes to maintain the flow of moisture while maintaining the focus of the heavy snow. Having a jet max with its upper air divergence and low level convergence pass over a strong thermal gradient creates isentropic lift.

He demonstrated these principles for the recent Christmas snow in southern and eastern Missouri.

Dr. Moore showed the focus of the first day was in southern Missouri only. Isentropic warming formed troughs of warm air aloft (Trowals), an indication of convergence and focusing of the dynamics.

The next day, Christmas, a second upper air vortex, enhanced the leftover midlevel moisture and dropped up to a half a foot of new snow. His radar, IR, and theta-e animations showed the passing of the first system and the reenergizing of the precip by the second. At the surface, only one low pressure system was evident.

The cross sections showed some interesting features. Significant instability raised the saturation levels to above 400 mb, providing substantial seeding into the 700 mb prime level.

Another feature showed folding of the theta-e layers in the vertical, providing equivalent potential vorticity (EPV). This provides uplift, especially when viewing the storm relative velocities.

At this point, Dr. Moore entertained questions and comments from the members. Many recalled the Jan 31 storm 20 years ago when St. Louis was hit with the Perfect Storm, 22 inches with lightening and thunder. The meeting was adjourned at 9:35 P.M.

Louis Hull, Secretary