Demand on online weather and atmosphere courses offered by CSUN

Gong-Yuh Lin, California State Univ., Northridge, CA

At California State University, Northridge, the online teaching program began in fall 1999 with 8 GE courses offered. In order to encourage faculty members to be engaged in teaching GE online courses, the University’s Office of Online Instruction offered webct workshops every semester. An estimate of more than 700 faculty members have attended the workshops during the past eight years. The workshop covered the topics of creating Homepage, Image Database, Content Modules, Quiz, Bulletinboard, and Chatroom using WebCT software. The university provided an incentive program awarding faculty members who teach a GE online course the first time with a stipend of $2,000. The stipend had been reduced to $1,000 subsequently and phased out last year (2006) due to the increasing number of online courses offered. In Spring 2007, the Office of Online Instruction awarded more than 20 faculty members with a stipend of $500 each for their attendances at four series of workshops aiming at improving fully online teaching skills such as using Podcasting and Eluminate programs for more dynamic course presentation. The purpose of the university's online teaching policy is to accelerate the rate of graduation for undergraduate students. As a result, the university fully online courses have increased from 8 courses in 1999 to 116 courses in Fall 2007. A total of 7 fully online weather-related courses are listed in the University’s fully online schedule for fall 2007. More than 700 faculty members have their course WebPages and about 23,000 students have their online course accounts at the present time.

The author began to teach a fully online atmosphere course (Geography 311) in fall 2003. So far, the author has developed 4 completely online courses: Weather (Geography 103), Atmosphere, Air Pollution (Geography 415), and Boundary-layer Climatology (Geography 412). Weather course fulfills lower-division GE science requirement whereas Atmosphere course fulfills upper-division GE science requirement. Air Pollution and Boundary-layer Climatology meet the major's requirement. All GE classes that the author offered reached full enrollment within a few days of the opening of registration. In fall 2007, fully online Weather and Atmosphere Laboratory Courses (Geography 105OL and Geography 311LOL) are offered the first time to meet the new GE science laboratory requirements. Exercises in Weather Studies Investigation Manual published by AMS were uploaded to Weather Laboratory course (Geography 105OL) website using Respondus software. Fifteen exercises were placed in Quizzes (exercises) and Assignments tools. Students are expected to complete one exercise in Quizzes tool each week. For those exercises and questions that require drawings such as isobars, isotherms, and station plots are placed in the Assignments tool. The data
sheet obtained from the AMS Weather Studies website can be downloaded to a student's computer desktop. Mappings are achieved by using PC Paint program, photoshop, or other graphic software available to students. The completed maps are then uploaded to the Assignments tool for instructor's evaluation. The Assignments tool provides figures, tables, and exercise-related materials in addition to the instruction of completing questions in Quizzes tool. Course grades are determined by 3 examinations placed in the Quizzes tool. The similar method is used to create fully online atmosphere laboratory (Geography 311LOL) website with a different textbook and the accompanied laboratory manual.

The demand data for online and inclass courses for the period from spring semester 2004 through fall semester 2006 are available from the University's Institutional Research. Demand data (Dnmd) refer to the unduplicated count of regular qualified students that attempted to enroll in a course but were unable to. The Demand unmet (Unmet) data are defined as students in demand that are still unable to enroll in a course. Both Dnmd and Unmet data show consistently higher numbers semester after semester for online courses than their counterpart inclass courses. The strong demand for online courses may be attributable to two facts: (1) students are highly interested in taking online courses; and (2) fewer online sections are offered than inclass sections for the same course. It is foreseeable that offering more class sections should reduce the course demand. It was notable that in Fall Semesters of 2004 and 2005, two Atmosphere online sections (Geography 311OL) were offered whereas only one inclass section was offered. This is reflected by an almost double enrollment in online course than in inclass course. However, the demand and unmet data still show a much higher value for online course than for inclass course. Hence, it may be concluded that students are indeed highly interested in taking online courses.

The average demand enrollment is 77 students per semester for online Atmospheric course (Geography 311OL) and 6 students per semester for inclass course (Geography 311). For Weather course (Geography 103), the average demand enrollment is 85 students per semester for online course against 50 students per semester for inclass course. Unlike inclass Geography 311, inclass Geography 103 has a strong demand. It appears that 2 additional class sections can be opened for both online Atmospheric and Weather courses assuming the enrollments are 40 students per class. One additional inclass section is needed for Weather course (Geography 103). The demand data are useful for a chairperson to plan the number of classes to be offered for a given course.

The official class sizes vary from 40 students per class for Weather course to 30 students per class for Atmospheric course. The instructor increased each class size substantially to meet student demand. The average class student drop rate is about 15% for fall 2006. There is a large variation in the drop rate from class to class.

The online Ocean Studies course can be developed in the same manner as the online weather and atmosphere courses at CSUN. However, it is required the approval of Geology Department and the Education Policy Committee through the normal course development cycle. The oceanography course is offered by Geology Department
instead of Geography Department. The author is planning to contact the instructor who teaches oceanography for online course development and provides needed assistance.

Extended Abstract (228K)  Please click on me (PDF icon) to open it for figures.

Poster Session 1, Educational Initiatives Poster Session
Sunday, 20 January 2008, 5:30 PM-7:00 PM, Exhibit Hall B

Previous paper  Next paper

Browse or search entire meeting

AMS Home Page

17th Symposium on Education (Expanded View)

*  - Indicates paper has been withdrawn from meeting

Program Chairpersons:
David R. Smith, United States Naval Academy
Rajul E. Pandya, UCAR/DLESE

Compact View of Conference

Sunday, 20 January 2008

7:30 AM-9:30 AM, Sunday 2008
Short Course Registration

9:00 AM-6:00 PM, Sunday 2008
Conference Registration

12:00 PM-4:00 PM, Sunday 2008, Exhibit Hall B
7th Annual WeatherFest

5:30 PM-7:00 PM, Sunday 2008, Exhibit Hall B
Poster Session 1 Educational Initiatives Poster Session
Cochairs: Kathleen A. Murphy, AMS Education Resource Educator, St. Louis, MO; Marianne J. Hayes, AMS Education Resource Educator, Columbus, OH

P1.1  New NOAA-NWS Education Products
Ron Gird, NOAA/NWS, Silver Spring, MD

P1.2  Clustering key concepts when teaching Oceanography online
Horacio Ferriz, California State Univ., Turlock, CA

P1.3  Visualizing the environment: processing data and imagery to produce effective communication and education tools
Daniel P. Pisut, I.M. Systems Group, Silver Spring, MD; and A. Powell, T. Loomis, and M. Pulliam
P1.4 Weather Break: meteorological outreach, university recruiting, and improvement of student communication skills via a radio program
Jon M. Schrage, Creighton Univ., Omaha, NE

P1.5 An Online Oceanography Studies Experience in Conjunction with TESSE and GAMEP Programs at Dillard University During Spring 2008
Abdalla Darwish, Dillard Univ., New Orleans, LA

P1.6 Reworking an earth systems science course at Gallaudet University
Henry David Snyder, Gallaudet Univ., Washington, DC

P1.7 Fostering GK-12 International Activities between U.S. and Senegal Middle Schools
Tamara L. Battle, Howard Univ., Washington, DC; and J. Perrella, M. Alfred, and G. S. Jenkins

P1.8 Oceanography on the High Plains of Texas (Wayland Baptist University)
Tim R. Walsh, Wayland Baptist Univ., Plainview, TX; and M. Bryan

P1.9 Using Online Ocean Studies to Chart a New Course in Science Teacher Education
Julie Lambert, Florida Atlantic Univ., Key Biscayne, FL; and J. Hargis

P1.10 Online weather at Gavilan in 2007
Andrew H. Van Tuyl, Gavilan College, Gilroy, CA

P1.11 Online Ocean Studies brings the sea to the Mid-Continent USA
Virginia M. Ragan, Metropolitan Community College, Kansas City, MO

P1.12 Status of the Online Oceanography Course at California State University, Los Angeles
Pedro Ramirez, California State Univ., Los Angeles, CA; and S. LaDochy

P1.13 Teaching the course of Online Ocean Studies at Houston Community College System, Southeast College
Cheng Ting, Southeast College, Houston, TX

P1.14 Integrating OWS materials into an existing introductory meteorology class
Meredith L. Leonard, Los Angeles Valley College, Los Angeles, CA

P1.15 Initial progress in three-stage plan to implement On-line Ocean Studies at New Jersey City University
John M. O'Brien, New Jersey City Univ., Jersey City, NY

P1.16 Online Weather Studies for the Millennial Generation
Erik N. Christensen, South Florida Community College, Avon Park, FL

P1.17 An oceanography course to enhance earth sciences offerings at an HBCU
David Padgett, Tennessee State Univ., Nashville, TN

P1.18 The use of near real-time data for research and teaching at an HSI: leveling the playing field
LeeAnne Martínez, Colorado State Univ., Pueblo, CO

P1.19 Oceans affecting Environment at Rosebud Indian Reservation
Subodh Singh, Sinte Gleska Univ., Mission, SD; and N. Singh and V. K. Singh

P1.20 Implementing Online Weather into the quarter system using archive files
Gong-Yuh Lin, California State Univ., Northridge, CA

P1.21 Demand on online weather and atmosphere courses offered by CSUN
Steve LaDochy, California State Univ., Los Angeles, CA

P1.22 Incorporating the AMS Online Weather Studies resources in the design of a new meteorology course
Stephen L. Arnold, Allan Hancock College, Santa Maria, CA

P1.23 The sea and sky connection in a high school physical science class
Ann Kelly, AMS/AERA, St. Louis, MO
P1.25 Creating user-friendly tools for data analysis and visualization in K-12 classrooms: A Fortran dinosaur meets Generation Y

P1.26 NWS & AMS—Education Outreach at its Best
Robert P. Wanton, NOAA/NWS, Mt. Holly, NJ; and J. D. Moore and J. Poirier

P1.27 DLESE-Facilitating High Quality Earth Science Education
Steve Michael Carlson, AMS/NOAA Project Atmosphere AREA, White Salmon, WA

P1.28 Enhancing Elementary School Students’ Understanding of Hurricanes
William R. Huskin, Central Bucks School District, Doylestown, PA

P1.29 Kids’ Weather Hour at WFO Amarillo—using NOAA All-Hazards Weather Radio as an educational tool
Matthew R. Kramar, NOAA/NWSFO, Amarillo, TX; and J. J. Brost

P1.30 Meteorology in an integrated activity-based Summer Science Institute for middle school students
Richard Wagner, Metropolitan State College of Denver, Denver, CO; and L. S. Johnson

P1.31 Teaching an online oceanography laboratory course using the American Meteorological Society Online Ocean Studies Curriculum
Jacquelyn Hams, Los Angeles Valley College, Valley Glen, CA

P1.32 Discoveries and Breakthroughs Inside Science-STEM Education for the General Public
Emilie Lorditch, American Institute of Physics, College Park, MD

P1.33 Updated Tornado Safety Preparedness for Schools
Timothy W. Troutman, NOAA/NWS, Huntsville, AL; and H. M. Allen, J. M. Coyne, and D. Nadler

P1.34 Science on a Sphere - educational applications at the Nautical museum
John Anderson, Hampton Univ., Hampton, VA; and W. L. Smith, R. L. Beale, B. H. Maggi, S. Ackerman, and M. Fisher

P1.35 Two courses missing from US university meteorology programs
Michael W. Douglas, NOAA/NSSL, Norman, OK; and J. Murillo and J. F. Mejia

P1.36 International Summer Experiences for Students in Senegal – Year 2
Gregory Jenkins, Howard Univ., Washington, DC

P1.37 European Meteorological Society and education in atmospheric sciences
Tomas Halenka, Charles Univ., Prague, Czech Republic; and M. Belda

P1.38 Radar-Based Laboratory Exercises Taught at Lyndon State College
Nolan T. Atkins, Lyndon State College, Lyndonville, VT

P1.39 Constant Proportions in the Ocean: A Constructivist approach to teaching seawater composition
Andrew C. Muller, United States Naval Academy, Annapolis, MD

P1.40 Kean University's Weather Hazard Education & Research for Ecosystems of Urban Relevance in NJ (Kean University's WHERE – UR – in New Jersey!)
Paul J. Croft, Kean Univ., Union, NJ

P1.41 Integrating Weather in a tank: From non-major freshmen to junior meteorology majors and graduate dynamicists
Amit Tandon, Univ. of Massachusetts, North Dartmouth, MA; and L. Illari, J. Marshall, S. Lee, G. McKinley, M. C. Morgan, R. D. Clark, T. W. N. Haine, and K. Mackin

P1.42 Teaching with tanks: geophysical fluid experiments in undergraduate education

P1.43 Summer Season Convective Initiation – Students as Independent Researchers
Implementing Weather Studies in Multiple Formats for Non-Science and Science Majors
Paul J. Croft, Kean Univ., Union, NJ
P1.44

Ocean studies: from the virtual world to the real
Barbara Hillery, SUNY, Old Westbury, NY
P1.46

Online Lab Science Course: Meeting the needs of a non-traditional student
James E. Edson Jr., Univ. of Arkansas, Monticello, AR
P1.47

Developing online teaching tools using Python, Zope, and Plone
Jeffrey G. Pittman, Lamar Univ., Beaumont, TX
P1.48

An assessment of a weather forecasting contest in multi-leveled meteorology classes
Joby Hilliker, West Chester Univ., West Chester, PA
P1.49

YouTube as a tool for meteorological education
Timothy J. Wagner, CIMSS/Univ. of Wisconsin, Madison, WI; and S. Ackerman
P1.50

Lessons learned from Katrina - diabetes preparations before the next storm
Peggy B. Bourgeois, Southeast Association of Diabetes Educators (S’eLADE), Baton Rouge, LA
P1.51

A new operational forecasting webpage at the University of Oklahoma
Kevin H. Goebbert, Univ. of Oklahoma, Norman, OK; and C. M. Shafer, P. T. Marsh, and M. J. Laufersweiler
P1.52

Hurricane Weather Support and Education at Embry-Riddle Aeronautical University
Randell J. Barry, Embry-Riddle Aeronautical Univ., Daytona Beach, FL
P1.53

International focus group – virtually there with VISItview
P1.54

An Online Textbook: A Rich Resource for Tropical Meteorology Education
Arlene Laing, UCAR/COMET, Boulder, CO; and J. L. Evans and W. Abshire
P1.55

Cyclones, cones, and confusion: Perspectives from forecasters
Gina M. Eosco, Cornell Univ., Ithaca, NY
P1.57

The IODP “School of Rock: Exploring Ocean Cores at the Gulf Coast Repository”
Michael J. Passow, Columbia Univ., Palisades, NY; and L. Peart, M. Leckie, D. Thomas, and S. Katz Cooper
P1.58

The NCAR Climate Discovery Online Course Sequence for Middle and High School Educators
Roberta M. Johnson, UCAR, Boulder, CO; and S. Henderson, L. Gardiner, B. Hathaway, K. Meymaris, R. Russell, D. Ward, and S. Foster
P1.59

Online Ocean Studies
Carlos J. Ayarza Real, Univ. of Puerto Rico, San Juan, PR
P1.60

Monday, 21 January 2008
7:30 AM-5:30 PM, Monday 2008
Registration continues through Thursday, 24 January

8:30 AM-10:45 AM, Monday 2008, 209
Joint Session 1 Increasing public awareness on tropical cyclone forecasting (Part 1) (Joint between the 17th Symposium on Education and the Tropical Meteorology Special Symposium)
Cochairs: David R. Smith, United States Naval Academy, Annapolis, MD; Robert Hart, Florida State University, Tallahassee, FL

8:30 AM  Welcoming Remarks
David R. Smith, United States Naval Academy, Annapolis, MD; and R. Hart

8:45 AM  J1.2 Preparing the public for the onset of the next hurricane
Ahsha Tribble, NOAA/NWS/NCEP/TPC, Miami, FL

9:15 AM  J1.3 Introducing America’s Emergency Network
Bryan Norcross, WFOR/CBS-TV, Miami, FL

9:30 AM  J1.4 Building hurricane awareness in Florida
Paul Ruscher, Florida State Univ., Tallahassee, FL; and B. Nelson

9:45 AM  J1.5 Hurricane research to operations: Bridging the “valley of death”
Christopher Landsea, NOAA/NWS/NCEP/TPC, Miami, FL

10:15 AM-10:45 AM, Monday 2008
Coffee Break (Mon a.m.)

10:45 AM-11:45 AM, Monday 2008, 209
Joint Session 2 Increasing public awareness on tropical cyclone forecasting (Part 2) (Joint between the 17th Symposium on Education and the Tropical Meteorology Special Symposium)
Cochairs: Robert Hart, Florida State University, Tallahassee, FL; David R. Smith, United States Naval Academy, Annapolis, MD

10:45 AM  J2.1 Improving Public Awareness to Enhance National Preparedness
John P. Philbin, FEMA, Washington, DC

11:15 AM  J2.2 Communicating hurricane awareness through distance learning
Timothy Spangler, UCAR/COMET, Boulder, CO

11:45 AM-1:30 PM, Monday 2008
Opening Plenary Session Featuring Mayor Nagin of New Orleans (Cash & Carry Lunch)

1:30 PM-2:30 PM, Monday 2008, 209
Session 1 Informal Educational Outreach
Cochairs: Susan Q. Foster, UCAR, Boulder, CO; Shirley T. Murillo, NOAA/AOML/HRD, Miami, FL

1:30 PM  1.1 Why does NOAA Invest in Education? PDF
Louisa Koch, NOAA, Washington, DC

2:00 PM  1.2 Solar max and the radio wave: MIT Haystack Observatory's multifaceted approach to Space Weather outreach PDF
Madeleine Needles, MIT Haystack Observatory, Westford, MA; and P. J. Erickson and P. Pratap

2:15 PM  1.3 CoCoRaHS (The Community Collaborative Rain, Hail and Snow Network) the Accidental Network: Evolving Collaborations PDF
Henry Reges, CoCoRaHS/Colorado State Univ., Fort Collins, CO; and N. J. Doesken, R. C. Cifelli, and J. Turner

2:30 PM-4:00 PM, Monday 2008, Exhibit Hall B
Formal Poster Viewing with Coffee Break (mon p.m.)
4:00 PM-5:30 PM, Monday 2008

Session 2 K-12 EDUCATIONAL OUTREACH

Cochairs: Shirley T. Murillo, NOAA/AOML/HRD, Miami, FL; Susan Q. Foster, UCAR, Boulder, CO

4:00 PM

2.1 NSTA National Meetings: Wild About Weather Short Courses
Kathleen A. Murphy, AMS Education Resource Educator, St. Louis, MO; and J. Kramper and K. Ehrhardt

4:15 PM

2.2 Discovery of coastal environments
Barbara K. Walton-Faria, Thompson Middle School, Newport, RI

4:30 PM

2.3 Understanding clouds, weather, climate, and modeling: education and outreach from the Center for Multi-scale Modeling of Atmospheric Processes

4:45 PM

2.4 Atmospheric Science and Climate Literacy Workshop Progress Report
Roberta M. Johnson, UCAR, Boulder, CO; and J. T. Snow, S. Q. Foster, S. M. Buhr, M. McCaffery, F. Niepold, P. Pennington, and C. Manduca

5:00 PM

2.5 EarthWatch Institute’s Climate Change at Arctic’s Edge: Live from the Field
John D. Moore, Burlington County Institute of Technology, Medford, NJ

5:15 PM

2.6 Earth system science education for teachers in western Washington
Michael R. Witiw, Seattle Pacific Univ., Seattle, WA; and E. Close

5:30 PM-7:30 PM, Monday 2008, Exhibit Hall A

Formal Opening of Exhibits with Reception (Cash Bar)

Tuesday, 22 January 2008

8:30 AM-9:45 AM, Tuesday 2008

Session 3 Technology and Teaching Tools in the University Classroom

Cochairs: Donna J. Charlevoix, Univ. of Illinois, Urbana, IL; Diane M. Stanitski, Geocation, LLC, Boulder, CO

8:30 AM

3.1 Integrating LEAD Research in Education
Sepideh Yalda, Millersville Univ., Millersville, PA; and E. N. Wiziecki, R. D. Clark, E. C. Meyers, H. Gadde, T. Daley, R. Junod, S. States, S. Cecelski, and J. Kurdzo

8:45 AM

3.2 Reflections on a large-lecture, introductory meteorology course: Goals, assessment and opportunities for improvement
Jonathan D. W. Kahl, Univ. of Wisconsin, Milwaukee, WI

9:00 AM

3.3 Technology & Research Integration – An Atmosphere of Learning for Students (TRIALS)
PDF
Paul J. Croft, Kean Univ., Union, NJ

9:15 AM

3.4 Experiences in undergraduate teaching with ‘Weather in a tank’
PDF

9:30 AM

3.5 Use of a business process model as a teaching tool in an undergraduate weather forecasting course
PDF
John M. Lanicci, Embry-Riddle Aeronautical Univ., Daytona Beach, FL

9:45 AM-11:00 AM, Tuesday 2008, Exhibit Hall B
Formal Poster Viewing with Coffee Break (Tue a.m.)

11:00 AM-6:00 PM, Tuesday 2008, Exhibit Hall A
Exhibits Open (Tuesday)

11:00 AM-12:00 PM, Tuesday 2008, 209

**Session 4 Extending our Reach in Atmospheric Science**
Cochairs: Diane M. Stanitski, NOAA, Silver Spring, MD; Donna J. Charlevoix, Univ. of Illinois, Urbana, IL

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<th>Time</th>
<th>Presentation</th>
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<tr>
<td>11:00 AM</td>
<td><a href="#">The National Weather Service Tallahassee Student Mentorship Program</a></td>
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<tr>
<td></td>
<td>Kelly G. Godsey, NOAA/NWS, Tallahassee, FL; and J. S. Rubio and A. I. Watson</td>
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<tr>
<td>11:15 AM</td>
<td><a href="#">A long-term plan for eliminating the lack of diversity in the atmospheric sciences</a></td>
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<td>Quinton L. Williams, Jackson State Univ., Jackson, MS</td>
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<td>11:30 AM</td>
<td><a href="#">5. A multidisciplinary research course on hurricane Katrina for Freshman students at Howard University</a></td>
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<td>Gregory Jenkins, Howard Univ., Washington, DC; and G. Middendorf and J. Reidy</td>
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<tr>
<td>11:45 AM</td>
<td><a href="#">NC-FIRST: weather information and training for North Carolina emergency managers</a></td>
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<td>Jessica L. Proud, Renaissance Computing Institute, Chapel Hill, NC</td>
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12:00 PM-1:30 PM, Tuesday 2008, La Louisiane
Presidental Forum: Hurricane Katrina: Looking Back to Look Ahead (Cash & Carry) (Presidental Forum will run parallel to the other sessions throughout the afternoon)

1:30 PM-3:00 PM, Tuesday 2008, 209

**Joint Session 3 Using technology to enhance learning: innovations and evidence (Part 1)** *(Joint between the 17th Symposium on Education and the 24th Conference on IIPS)*
Cochairs: Rajul Pandya, UCAR, Boulder, CO; Tom Whittaker, CIMSS/Univ. of Wisconsin, Madison, WI; Marjorie McGuirk, NOAA/NESDIS/NCDC, Asheville, NC

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<tr>
<td>1:30 PM</td>
<td><a href="#">Connecting students to science through the interactive use of NASA Earth science climate data</a></td>
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<td>Erica J. Alston, NASA/LaRC, Hampton, VA; and L. H. Chambers, P. C. Oots, S. W. Moore, C. S. Phelps, and D. Diones</td>
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<td>1:45 PM</td>
<td><a href="#">The sky's the limit – developing and implementing a technology-based, interdisciplinary course in atmospheric science for high school students</a></td>
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<td>Eric A. Walters, Marymount School of New York, New York, NY</td>
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<tr>
<td>2:00 PM</td>
<td><a href="#">On-line education activities and opportunities</a></td>
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<tr>
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<td>Margaret Mooney, CIMSS/Univ. of Wisconsin, Madison, WI; and S. Ackerman, T. Whittaker, and L. Avila</td>
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<tr>
<td>2:15 PM</td>
<td><a href="#">Applications of automated weather stations in an extension service setting</a></td>
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<td>Paul Ruscher, Florida State Univ., Tallahassee, FL</td>
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<tr>
<td>2:30 PM</td>
<td><a href="#">Educational mismatches between traditional dynamic meteorology lessons and applied forecaster training with high-resolution gridded diagnostics</a></td>
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<td>Paul Nutter, Univ. of Northern Colorado, Greeley, CO</td>
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<tr>
<td>2:45 PM</td>
<td><a href="#">The National Severe Weather Workshop Scenario: Interactive adult learning for integrated warning team members</a></td>
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<td></td>
<td>Dale A. Morris, CIMMS/Univ. of Oklahoma, Norman, OK; and D. Arndt, J. Burchett, S. J. Corfidi, J. T. Ferree, D. Freeman, G. Kitch, D. S. LaDue, D. McCarthy, J. McLaughlin, E. M.</td>
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Quotetone, P. T. Schlatter, R. Smith, and J. L. Winslow

2:45 PM  J3.7A  **New Tools, Old Dogs**  
**Steven A. Ackerman**, CIMSS/Univ. of Wisconsin, Madison, WI

3:00 PM-3:30 PM, Tuesday 2008, Exhibit Hall A
Coffee Break in Exhibit Hall (tues p.m.)

**3:30 PM-5:30 PM, Tuesday 2008, 209**
**Joint Session 4 Using technology to enhance learning: innovations and evidence (Part 2)** (Joint between the 17th Symposium on Education and the 24th Conference on IIPS)

Cochairs: Tom Whittaker, CIMSS/Univ. of Wisconsin, Madison, WI; Marjorie McGuirk, NOAA/NESDIS/NCDC, Asheville, NC; Rajul Pandya, UCAR, Boulder, CO

3:30 PM  J4.1  **Are we graduating too many atmospheric scientists? An update**  
**John A. Knox**, Univ. of Georgia, Athens, GA

3:45 PM  J4.2  **Undergraduate experience with technology in an education and research program to measure and understand the climatology of storms in Southeast Texas**  
**Larry J. Hopper Jr.**, Texas A&M Univ., College Station, TX; and C. Schumacher, K. Brugman, C. Hernandez, U. Karadkar, M. Nordt, and R. Furuta

4:00 PM  J4.3  **Preparing a blended learning course in atmospheric sciences: curriculum, assessment and the online experience**  
**Eric R. Snodgrass**, Univ. of Illinois, Urbana, IL; and D. J. Charlevoix and J. V. Clark

4:15 PM  J4.4  **Classroom Response Systems in Statistics Courses**  
**Michael B. Richman**, Univ. of Oklahoma, Norman, OK; and T. J. Murphy, C. C. McKnight, and J. Terry

4:30 PM  J4.5  **Satellite observations in science education**  
**Tommy Jasmin**, CIMSS/Univ. of Wisconsin, Madison, WI; and T. Whittaker and S. Ackerman

4:45 PM  J4.6  **Building a framework to facilitate interactive and dynamic educational case study modules**  
**Jeff Weber**, UCAR/Unidata, Boulder, CO; and B. Etherton and S. O. Holmberg

5:00 PM  J4.7  **Utilizing UNIDATA's Integrated Data Viewer as an undergraduate meteorology classroom tool**  
**Mark S. Kulie**, Univ. of Wisconsin, Madison, WI; and S. A. Ackerman and R. Bennartz

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**Wednesday, 23 January 2008**

5:15 PM, Wednesday 2008  
17th Symposium on Education Adjourns

7:00 PM-9:00 PM, Wednesday 2008  
AMS Annual Awards Banquet at the Hilton Riverside Hotel