

Satellites & Education Conference XXVII

PROGRAM

WEDNESDAY, JULY 30, 2014

Atmospheric, Oceanic & Space Sciences (AOSS Building), 1225 West Dayton Street

9:00	M.Y. S.P.A.C.E. Team Activities	Room 1411
12:00	<i>Lunch and Registration</i>	Room 351/305
1:00	Tour of UW-Madison campus for M.Y. S.P.A.C.E. students	
3:00	Annual Meeting of the Satellite Educators Association (SEA)	Room 351

THURSDAY, JULY 31, 2014

The Pyle Center, 702 Langdon

8:00	<i>Continental Breakfast and Registration</i>	
	Room 235	
8:30	Satellite Educators Association (SEA) Welcome – Mark McKay, SEA President	

The President of the Satellite Educators Association first became involved with SEA through his students' research on the M.Y. S.P.A.C.E. team as they looked at the ocean salinity in the northern California area. He is currently studying for his doctorate at Texas A&M in Corpus Christi, Texas.



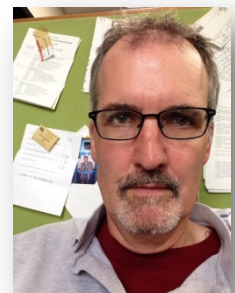
8:45	Satellite Imagery & Weather Phenomena on a 3D Globe – Rick Kohrs, SSEC	
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Rick Kohrs is a programmer and graphic artist at the University of Wisconsin–Madison Space Science and Engineering Center. Using a software package called McIDAS and other software, Rick creates real-time global graphics and data visualization products for 3D spherical display systems.



9:15	Satellite Meteorology 101 – Scott Lindstrom, SSEC	
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Scott Lindstrom is a native of central Pennsylvania and earned bachelor degrees in Meteorology and Computer Science from the Pennsylvania State University. He received Masters' and PhD degrees from the University of Wisconsin-Madison. Scott has worked as a Physical Oceanographer at the University of Rhode Island Graduate School of Oceanography and now works as a McIDAS programmer at SSEC and as a satellite data trainer in the VISIT Program through CIMSS. He blogs about weather at <http://fusedfog.ssec.wisc.edu> and at <http://cimss.ssec.wisc.edu/goes/blog>.



9:45 **CIMSS iPad Library & the GOES-R Education Proving Ground – Margaret Mooney, CIMSS**

Margaret Mooney is the Education and Public Outreach lead at CIMSS. As a former National Weather Service meteorologist, she leverages early career experience with a degree in public policy to promote weather and climate education as avenues towards stewardship and sustainability. Along with the Satellite Educators Association, Mooney is a member of NOAA Climate Stewards, NASA Initiatives in Climate Education, the GOES-R Education Proving Ground, the UW Science Alliance, and the Earth Science Information Partners (ESIP) where she co-chairs the climate education working group.



10:00 *Break*

10:20 **SatCam & WxSAT Apps – Dave Parker, SSEC**

Dave Parker actually started at UW-Madison Space Science and Engineering Center in 1998 as a student hourly working for the McIDAS Users Group (MUG) doing McIDAS support, then became more involved in the hard core programming system stuff for McIDAS. Now he's branched out and works on a lot of different projects, such as a programming projects like WMS (RealEarth), a flight simulator for the Department of Industrial Engineering which looks at real-time weather for EMS evacuation training as well as iOS programming in the development of the SatCam and WxSat Apps for SSEC.



10:40 **Weather & Climate Applets – Tom Whittaker, CIMSS**

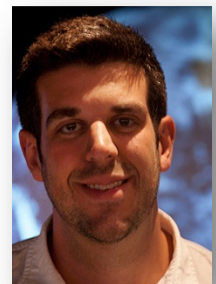
Tom Whittaker recently "retired" (for the 2nd time) after working at the University of Wisconsin in Madison for more than 45 years. He came to the UW for his undergraduate work in Meteorology and stayed on for graduate work and, more importantly, to develop software in support of research, operations and education.



For the past 15 years, he has been mainly involved in software development for training and education. Much of his work is being used globally in support of weather forecaster training and teaching students of all ages about the atmosphere. Although officially retired, he continues to be involved in these activities....

11:00 **Climate Digest (And More) From EARTHNow – Patrick Rowley, CIMSS**

Patrick Rowley is the Technology Facilitator at James E. Richmond Science Center in the Maryland Charles County Public Schools district. He works remotely for CIMSS in a part-time capacity supporting the CIMSS EarthNow blog and docents at NOAA Science On a Sphere (SOS) institutions.



11:15 **NASA Earth Observing Missions** – Laura Tenenbaum, NASA/JPL

Laura Faye Tenenbaum is a science communication innovator and a member of the Earth Science Communications Team at NASA’s Jet Propulsion Laboratory (JPL), where she is responsible for creating interactive new media products including apps, interactive quizzes and image galleries for the climate website “Global Climate Change: Vital Signs of the Planet” <http://climate.nasa.gov/>, for which she won two Webby Awards for Best Science Website. She also writes the “Earth Right Now” blog <http://climate.nasa.gov/blog>.



Ms. Tenenbaum also holds a faculty position in the Physical Science Department at Glendale Community College for the last 13 years. She studied Marine Science at the University of California, Santa Cruz as both an undergraduate and graduate student. She lived in Southeast Asia during the 90’s and travelled extensively. She worked as an Underwater Researcher on the Kelp Forest Project at the Monterey Bay Aquarium, as a Senior Marine Consultant for Santa Monica Baykeepers, as an Underwater Scientist for the World Wildlife Fund in Thailand, and taught SCUBA in Thailand, Sri Lanka and Hong Kong.

12:00 *Buffet Lunch in the Pyle Dining Room*

1:00 **CIMSS Satellite Blog** – Scott Bachmeier & Scott Lindstrom, CIMSS/SSEC

Scott Bachmeier has worked as a research meteorologist at the Cooperative Institute for Meteorological Satellite Studies (University of Wisconsin–Madison) since 1996. Prior to that, while employed at the NASA Langley Research Center in Hampton, Virginia, he was involved with Global Tropospheric Experiment aircraft campaigns that took him to such exotic ports of call as Goose Bay, Labrador and North Bay, Ontario. Scott grew up in South Dakota, and has a strong preference for Winter Weather (feeling that high dew points and mosquitoes are significantly over-rated).



1:15 **SSEC WMS-RealEarth** – Russ Dengel & Dave Parker, SSEC

Russ Dengel graduated from the University of Wisconsin–Madison in 1979 with a B.S. in Meteorology and has 35 years of experience in Atmospheric visualization at the Space Science and Engineering Center (SSEC) University of Wisconsin–Madison. Primary responsibilities include integration of satellite imagery into the Man computer Interactive Data Access System (McIDAS). He created the Personal Advanced Weather (PAW) weather web site for mobile platforms and is currently involved in the development of the SSEC RealEarth Web Map Service.



1:30 **NOAA VIEW** – Dan Pisut, NOAA/EVL

Dan's will focus on the capabilities of a new NOAA website and web service, NOAA View which provides a seamless entry point into data from across the agency: satellite, climate models, in-situ analysis, etc. NOAA View is really a data exploration tool, with an archive of over 100 variables that visually describe processes on land and in the ocean, atmosphere, cryosphere, and climate system. The system allows the user to browse, animate, and download high resolution imagery, Google Earth, and eventually will allow dataset comparison, graphing and access to proxy data files.



2:00 **NASAWORLDVIEW** – Jeff Schmaltz, NASA/Goddard

Jeff doesn't have a PhD but he does have a modest collection of Master's, in Wildlife Management, Computer Science, and Remote Sensing. He has worked as a wildlife biologist for the states of Connecticut and New York and the US Forest Service, but spent most of his career before coming to Goddard at the Department of Energy's Pacific Northwest National Lab. There he worked on genetic engineering software, the Human Genome Project, fighter mission planning for the US Air Force, and the Data and Science Integration Team for the ARM climate change research program. Since arriving at Goddard, he has worked on the MODIS Rapid Response team providing global near real-time satellite imagery to a wide variety of application users. In recent years, this activity has become part of NASA's Global Imagery Browse Services (GIBS), a larger effort to supply easily accessible imagery from the entire spectrum of NASA earth science satellites and instruments – past, present, and future.

2:30 *Break*

3:00 **GOES-R** – Tim Schmit, NOAA/NESDIS/STAR

Tim Schmit is at the Advanced Satellite Products Branch within NOAA's NESDIS Center for SaTellite Applications and Research (STAR) located in Madison, WI (the "birthplace of satellite meteorology").

Tim supports both the current GOES and the future GOES-R series. Tim had a lead role in the band selection for the next generation advanced imager on the GOES-R series. When Tim began working on the advanced imager in 1999, it only had 8 spectral bands, yet a long list of requirements. The instrument now has 16 spectral bands. To better prepare for the Advanced Baseline Imager (ABI), Tim was instrumental in the recent acquisition of special 'Super Rapid Scan' 1-min GOES-14 data from the imager. This includes having the idea to leverage GOES-14, working with satellite schedules and operators, deciding on daily center point, communication with NWS and other users, building animations, etc.

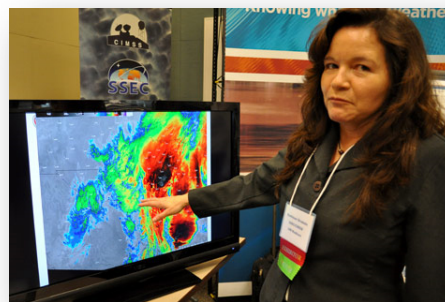


Tim's experience with satellite data and processing covers a number of areas, including calibration, visualization, simulations and algorithms for processing satellite data into meteorological/environmental information and user readiness/education. Tim has extensive

experience with data and deriving products from the current GOES imager and sounder data. He was involved in the post-launch check-out of GOES-8 through 12 and co-led the science check-outs of GOES-13/14/15 and was instrumental in supporting recent GOES anomalies.

3:30 **Suomi NPP & VIIRS Data** – Kathy Strabala, CIMSS

Ms. Kathleen Strabala has been a researcher and assistant scientist at the Cooperative Institute for Meteorological Satellite Studies for over 20 years. She received a Master’s degree in Meteorology from the University of Wisconsin-Madison, USA in 1991. She worked as a Senior Forecaster at Kavouras, Inc., in Minneapolis, Minnesota, USA for 3 years prior to receiving her degree. She has worked primarily on cloud detection and cloud composition as determined from MODIS, and has been an author or co-author on publications related to this work. Kathy is the project manager for the International MODIS/AIRS Processing Package (IMAPP) which provides software to create science data products from direct broadcast reception of Aqua and Terra data. The software is freely distributed and is used by direct reception sites around the world for operational applications. Kathy has a passion for making the high quality polar orbiter data useful to people.



4:00 **Keynote: Building A Weather-Ready Nation: Taking Forecasts And Satellite Data To The Next Level** – Dr. Louis Uccellini, NOAA/NWS Director (intro by Steve Ackerman, CIMSS Director)

Dr. Louis W. Uccellini is the National Oceanic and Atmospheric Administration’s Assistant Administrator for Weather Services, and Director of the National Weather Service. In this role, he is responsible for the day-to-day civilian weather operations for the United States, its territories, adjacent waters, and ocean areas.



Prior to this position, he served as the Director of the National Centers for Environmental Prediction (NCEP) for 14 years. He was responsible for directing and planning the science, technology, and operations related to NCEP’s nine centers: Central Operations, Environmental Modeling Center, Ocean Prediction Center, Hydrometeorological Prediction Center, Climate Prediction Center, all in Camp Springs, MD; the National Hurricane Center in Miami, FL; Storm Prediction Center in Norman, OK; Space Weather Prediction Center in Boulder, CO; and the Aviation Weather Center in Kansas City, MO.

Dr. Uccellini was the Director of the National Weather Service’s Office of Meteorology from 1994 to 1999, Chief of the National Weather Service’s Meteorological Operations Division from 1989 to 1994, and section head for the Mesoscale Analysis and Modeling Section at the Goddard Space Flight Center’s Laboratory for Atmospheres from 1978 to 1989.

Dr. Uccellini received his Ph.D. (1977), Master (1972) and Bachelor of Science (1971) degrees in meteorology from the University of Wisconsin-Madison. He has published more than 60 peer-reviewed articles and chapters in books on subjects including analysis of severe weather outbreaks, snowstorms, gravity waves, jet streaks, cyclones, and the use of satellite data in analysis and modeling applications. He is the co-author of a widely acclaimed two-volume American Meteorological Society (AMS) monograph Northeast Snowstorms, published in 2004, and authored chapters in the 1990 AMS publication Extratropical Cyclones, the 1999 AMS publication The Life Cycles of Extratropical Cyclones, and the 2008 AMS publication Synoptic Dynamic Meteorology and Weather Analysis and Forecasting.

Dr. Uccellini has served on many national and international research and field experiment programs. He has received many awards in recognition of his research and operational achievements including the Maryland Academy of Sciences Distinguished Young Scientist Award (1981), the NASA Medal for Exceptional Scientific Achievement (1985), the AMS's prestigious Clarence Leroy Meisinger Award (1985), and the National Weather Association's Research Achievement Awards for Significant Contributions to Operational Meteorology (1996). He was elected as a Fellow to the AMS in 1987 and served as Co-Chief Editor of Weather and Forecasting from 1988-1992. In 2001 he received the U.S. Presidential Meritorious Executive Rank Award and in 2006 he received the U.S. Presidential Distinguished Rank Award. In January 2012, Dr. Uccellini was elected the President of the AMS and served from 2012 to 2013.

EVENING – University Club, 803 State Street

5:15 **POSTER SESSION SOCIAL HOUR** (cash bar)

6:30 *Dinner*

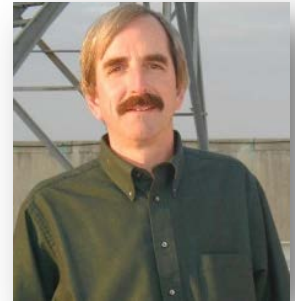
7:20 **CIMSS/SSEC Welcome** – Steve Ackerman, CIMSS Director

Steve Ackerman has extensive experience in research, education and climate change communications. Along with being the Director of CIMSS, Dr. Ackerman is a Professor of Atmospheric and Oceanic Sciences at the UW-Madison. He is a recipient of NASA's 2010 Exceptional Public Service Medal, the 2009 American Meteorological Society's Teaching Excellence Award, and, in 2007 was recognized for his contributions to the Intergovernmental Panel on Climate Change (IPCC), which was awarded the Nobel Prize that same year. Steve is one of the Weather Guys, a popular and lively program on Wisconsin Public Radio (and weekly column in the Wisconsin State Journal) where he and Professor Jon Martin answer caller's questions about weather and climate.



7:30 **Keynote: A Suomi Story: THE Gadget Guy** – Hank Revercomb, SSEC Director

Henry “Hank” Revercomb is the principal investigator for the NASA HS3 Mission’s Scanning High-Resolution Interferometer Sounder Instrument. In this role, he is responsible for the IR remote sensing of temperature, water vapor, and cloud fields from the Global Hawk aircraft monitoring the environment of hurricanes to help understand mechanisms for intensity changes. On October 25, 2004, Revercomb was named director of the Space Science and Engineering Center (SSEC), University of Wisconsin–Madison.



Revercomb has been an SSEC scientist since shortly after achieving a Ph.D. in 1972 from the University of Wisconsin–Madison. Trained as a physicist, he has specialized in the study of planetary atmospheres and in remote sensing using high-spectral resolution instruments. He has helped design several new spacecraft instruments and has led the design and fabrication of aircraft and ground-based instruments. He leads the center in developing products from the measurements taken by those instruments, such as the Atmospheric Emitted Radiance Interferometer and a Scanning-High-resolution Interferometer Sounder.

Revercomb has served on national and international science teams such as those devoted to Pioneer Venus and the Atmospheric InfraRed Sounder. He was also on a team to develop a Geosynchronous Imaging Fourier Transform Spectrometer, a multi-agency effort offering a revolutionary advance in the observing capabilities from geosynchronous orbit. Revercomb leads SSEC’s role to provide the onboard calibration references, perform test data analyses, and contribute to sensor development with NASA, NOAA, DOE, and others.

FRIDAY, AUGUST 1, 2014

Atmospheric, Oceanic & Space Sciences (AOSS Building), 1225 West Dayton Street

8:00 *Continental Breakfast* in Room 853 AOSS

CONCURRENT SESSIONS

In 823 AOSS:

- 8:30 **GOES-R ABI Lesson Plans** – Brian Witthun & Craig Phillips (Wisconsin GOES-R Educators)

- 9:00 **GOES-R STEM Connections** – Peter Dorofy & Vicky Gorman (New Jersey GOES-R Educators)

- 9:30 **GOES-R GLM Lesson Plans** – Charlotte Besse & Amy Monahan (Florida GOES-R Educators)

In 811 AOSS:

8:30 **More Lessons from the Sky Lesson Plan Archive** – Pete Arvedson, SEA Author

Pete Arvedson is the author of monthly *More Lessons from the Sky* lesson plans in the SEA Newsletter. He is also a retired Chemistry Teacher and founding member of Satellite Educators Association. How big does an antenna have to be to receive weather satellite signals? This session demonstrates a student-centered, hands-on activity that applies the study of wave properties and the electromagnetic radiation to the design of a radio antenna for receiving a specific radio frequency signal directly from polar-orbiting weather satellites. After an overview relating wavelength, frequency, and the speed of light, participants will learn to calculate the actual lengths of various antenna components specific to a selected frequency. Then apply those calculations to the construction of a 1:10 scale model a Yagi antenna. Discussion of how to implement suggested follow up activities will highlight closure and assessment opportunities. Participants will work individually and in small groups and receive resource information.

9:00 **The Young Meteorologist Program (YMP)** – Ron Gird, NOAA/NWS

As Outreach Program Manager for NOAA's National Weather Service, Ron promotes the Young Meteorologist Program (YMP) and more. YMP is a free, interactive online game asking students to follow the 21st-century National Weather Service Owl, OwlIESkywarn, on an adventure where they encounter hurricanes, tornadoes, lightning, floods, winter storms, and hurricanes.



9:30 **Earth System: Developing a Geoscience & Remote Sensing Lab** – John Moore, Institute for Earth Observations Director

John D. Moore, PCNP's Director for Geoscience/STEM Education since 2011, is an Albert Einstein Distinguished Educator Fellow Emeritus, having served his fellowship year at the National Science Foundation in Washington, DC.



He was faculty member at the Burlington County Institute of Technology in Medford, NJ for over 28 years where he developed the Geospatial Technologies Program, a Career Major, workforce development program, for students grades 9-12 pursuing careers in STEM related fields. Mr. Moore began his career at BCIT designing and teaching the Environmental Studies Program with a particular focus on the use of real time data, satellite imagery, computer visualizations and other remote sensing data sets.

The State of New Jersey named Moore the NJ Conservation Teacher of the Year for four separate years. He is a recipient of the NJ Environmental Educator of the Year Award by the NJ Audubon Society, NJ AgriScience Teacher of the Year Award by the NJ Future Farmers of America, and NJ Wal-Mart/Phi Delta Kappa Teacher of the Year Award. Moore was also recognized by the National Association of Geoscience Teachers as the "Outstanding Earth Science Teacher of the Year" in NJ and was named the Eastern Section OEST, spanning seven states.

In 1411 AOSS: M.Y. S.P.A.C.E.

10:00 *Break*

10:20 **Share-A-Thon and Discussion**

11:20 **M.Y. S.P.A.C.E. Student Research Report 1411 AOSS**

12:00 *Lunch on the roof!*

1:00 **Science On A Sphere (SOS)** at the Aldo Leopold Nature Center (transportation provided)

The Aldo Leopold Nature Center offers many opportunities to connect with nature both indoors and out. In addition to special events and education programs, the new indoor children's exhibits provide a special place to learn about Monarch Butterflies and Prairies, Native Fish and Wetlands and Woodlands. At the Climate Science Education Center, learn about climate, weather and earth science using high-tech, interactive features found nowhere else in the region.



The Aldo Leopold Nature Center (ALNC) was established in 1994 as an independent, non-profit organization with the mission to provide hands-on programs which "...teach the student to see the land, to understand what he sees, and enjoy what he understands" in the spirit of Aldo Leopold. Through hands-on interactive programs and special exhibits at campuses in Monona and Black Earth, ALNC is leading the way to engage, educate and empower the next generation of stewards of the land for a healthy, happy and sustainable future.

4:00 **Optional Educators Debrief** at Great Dane (or similar downtown venue tbd)