AMS SUMMER COMMUNITY MEETING

Providing Critical Infrastructure for the Nation, the Economy, and jobs

August 13-15, 2013 Boulder, CO

Chaired by Betsy Weatherhead, U. Colorado at Boulder

Hosted by NCAR

160 people gathered at NCAR's Center Green as a part of the American Meteorological Society's Summer Community Meeting to discuss issues of critical importance to the nation, the economy and jobs. The community discussed emerging issues that are of critical interest to the public, private and academic sectors involved in weather, water and climate. Key issues discussed included the emerging areas of renewable energy, water resources, sea level rise and managing weather and climate information. New this year was an increased focus on policy issues and a continued interest in incorporating students into the meeting. Student involvement was supported by Joe Friday and UCAR. Also new was the daily summary which included leaders with a variety of perspectives offering their thoughts on the day's sessions; these daily summaries were webcast using NCAR's technical support. The Keynote addresses was given by Louis Uccellini and Robyn Heffernan offered an informative dinner talk on fire weather.

Did you know?

- For some areas, there has been a 37% improvement in wind forecasting for renewable energy in the last four years alone.
- The electricity that many of us use in our homes, requires as much water each day as we use for our home use for washing, watering lawns and bathing.
- There are 3.7 million people in the US within one meter of high tide; as sea levels change, people and infrastructure need to adapt.
- The cars of the future may be more autonomous, but they will also be sources of weather information as well as rapid consumers of weather information.
- 600,000 injuries on the road involve adverse weather conditions.
- A 100 year solar storm could cause more damage than ever before with impacts to energy, communication and transportation resulting in as many as 40 million deaths world-wide.
- As big data issues grow, the key question remains: how can we

support actionable weather, water and climate data to help people, the economy and jobs?

The discussions were engaging and forward thinking as the community worked on issues together. Some discussions focused on returning the US to a more prominent position for weather forecasting; while others discussed the evolving needs in emerging areas such as climate information and energy production and consumption. Ed Johnson noted that the Enterprise, as an organized effort by public, private and academic professionals, was roughly ten year old and was showing this maturity with new members, maturing topics and an open door policy that continues to attract new people.

Three primary messages came out of the meeting based on the three days of presentations and discussions:

- The economic value of the products from the weather, water and climate communities are large, and growing although the quantification of the value remains challenging.
- The interdependency of the enterprise is more clear and more complicated, requiring relationships and communication to stay strong and open to support the goals of improved infrastructure for the nation.
- User demands continue to outstrip our ability to provide valuable, actionable information on weather, water and climate issues.

With the demands on the enterprise growing, Bill Gail left us with the parting words that may offer some inspiration for looking beyond the irritations of the current problems: "The things that frustrate us most everyday about our jobs become our biggest achievements for future generations."

Organizing Committee:

Sharon Abbas, Drew Anderson, Randy Bass, Marty Bell, Don Berchoff, Brenda Boyce, Chris Clack, Andy Clifton, Geoff Crowley, Tom Fahy, George Frederick, Nancy Grady, David Green, Eric Grimit, Tom Hamill, Bryan Hannegan, Stephanie Herring, Bri Mathias Hodge, Eric Holthaus, Conrad Lautenbacher, Jeff Lazo, Sandy MacDonald, Scott Mackaro, Shawn Miller, Jim Williams, Debbi Griffin, Cathy Halvorson, Marge Huntington

Meeting Support Staff:

Debbi Griffin, Cathy Halvorson, Marge Huntington, Rhonda Lange, Gillian Peguero, Gary Rasmussen, Annie Reiser, Susie Siders, Jeff van Damme

TUESDAY August 13

Energy: Grid Integration

Lead: Chris Clack, CU

Moderator: Bryan Hannegan, NREL

Panelists: ***Bri Mathias Hodge, NREL; Drake Bartlett, Xcel Energy; Obadiah Bartholomy, SMUD; Clyde Loutan, CAISO***

This session focuses on the complexities involved with the integration of renewable generation sources onto the electrical grid and how decisions about that integration process will impact the economy and jobs.

Energy: Predictive Capabilities

Leads: Melinda Marquis, NOAA

Moderator: Melinda Marquis, NOAA

Panelists: ***Hendrik Hamann, IBM; Michael Sale, BCS Inc.; Debra Lew, NREL; John Zack, MESO***

This panel will explore current demands for improved predictability from the weather and climate enterprise, and how improvedpredictability can help grow the private sector and improve services for the end users.

Energy-Water Nexus

Lead: Stephanie Herring, NOAA/OAR

Panelists: ***Kristen Averyt, U. Colorado ; Ken Knox, Noble Energy***

This panel will explore the weather and climate community's ability to provide information about future water resources to inform decision-makers responsible for the country's sustainable supply of both energy and water.

Sea Level Rise

Lead: Shawn Miller, Raytheon; Moderator, John Lanicci, Embry-Riddle

Panelists: ***Larry Atkinson, Old Dominion University ; Mark Serreze, National Snow and Ice Data Center; David Titley,Penn State***

This panel will explore the impacts of sea level rise, with a focus on how the weather, water, and climate enterprise can best continue to support the associated prediction, preparation, and mitigation activities.

Keynote address: Dr. Uccellini

WEDNESDAY, August 14

Short Talks – grad students

Intermodal Surface Transportation

Lead: Brenda Boyce, BAH and Stephanie Herring, NOAA/NESDIS

Panelists: Dan Krechmer, Cambridge Systematics; Steve Shladover, Berkeley; Darren Wright, NOAA/NOS

This session will focus on how weather and uncertainties in forecasting impact intermodal surface transportation.

Impacts of Extreme Weather on the Road

Lead: Brenda Boyce, BAH and Paul Pisano, DOT

Panelists: Ken Leonard, USDOT; Steve Cook, Michigan DoT; Larry Dunn, NOAA/NWS

This panel will focus on the new approaches being developed to minimize the impacts of severe weather on road traffic.

Aviation Weather

Lead: Tom Fahy, Capitol Meteorologics ; Consultant, Randy Bass, FAA; Moderator: Bruce Carmichael, NCAR

Panelists: Joe Burns, United Airlines; Geoff Crowley, ASTRA; Haig Iskenderian, MIT Lincoln Labs; Todd Jacobson, Denver FAA; Sadegh Kavoussi, AvMET;

This session will focus on the needs for weather support to the aviation community and the research efforts to fill these needs.

Sandy Supplemental Funding

Lead:Tom Fahy, Capitol Meteorologics

Panelists: Daren sitting in for Russ, NOAA/NOS John Murphy, Vanessa Griffin; NOAA/NWS; Sandy MacDonald, NOAA/OAR

Sandy Supplemental funding is offering new opportunities for a jumpstart in improving weather research and services; discussions will focus on plans and impacts of this funding.

THURSDAY, August 15

Paul Higgins: Policy Program –

End User

Lead: Scott Mackaro, Vaisala; Consultant Barry Myers, Accuweather

Panelists: Valerie Ritterbusch, WeatherCall Services; Neil Jacobs, Panasonic Avionics; Bill Gail, Global Weather Corp.

This session aimed to foster discussions that will bring to light the full spectrum of the end user to enable better decision-making in the design of next generation weather prediction models.

Weather and Climate Forecast Modeling

Leads: Tom Hamill, NOAA/OAR and Dave DeWitt, NOAA/NWS

Panelists: Tony Eckel, Microsoft; Bill Skamarock, NCAR; Stan Benjamin, NOAA/OAR; Peter Lauritzen, NCAR

This panel addressed the frontiers of new technologies in weather and climate prediction and discussed the intersection with the energy and transportation concerns that are the focus of much of the rest of the community meeting.

Big Data

Leads: Nancy Grady, SAIC and David Green, NOAA/NWS

Panelists: Mike Galvert, The Climate Corporation; Bryan Hannegan, NREL; Scott Rayder, UCAR; Kate Lawson, U. Albany, Don Berchoff, Unisys

This panel focused on how we as a community are leveraging, or can leverage revolutionary new capabilities in the collection, processing, management, and distribution of large datasets to better enable community collaboration and the mission of the different community members.

Participating Organizations:

3TIER
AccuWeather Inc
Atmospheric and Space Technology Research
Associates Atmospherics Inc
AvMET Applications Inc
BCS
Booz Allen Hamilton
Boulder County Emergency Management
California ISO Cambridge Systematics
Capitol Meteorologics
Center For Environmental Technology
Climate Corporation
CSSI Inc
Dave Renné Renewables
Embry-Riddle Aeronautical University
Falcon Consultants LLC
GeoOptics
Global Science and Technology
Global Weather Corporation
Harris Corporation
International Business Machines Corporation
Lincoln Laboratory
Meso Inc
Michigan Department of Transportation
Microsoft Corporation
Narwhal Met
National Center for Atmospheric Research
National Oceanic and Atmospheric Administration
National Renewable Energy Laboratory
National Snow and Ice Data Center
Noble Energy
Northrop Grumman Corporation

Office of the Federal Coordinator for Meteorology
Old Dominion University
Panasonic Avionics Corporation
Pennsylvania State University
Raytheon Company
RESPR Inc
Sacramento Municipal Utility District
Savannah River Nuclear Solutions LLC
Science Applications International Corporation
Shade Tree Meteorology LLC
State University of New York at Albany
The Weather Company
Unisys
United Airlines
United States Department of the Interior
United States Department of Transportation
University Corporation for Atmospheric Research
University of California at Berkeley
University of Colorado
University of Oklahoma
Vaisala
Walgreens
Weather Decision Technologies
WeatherCall Services LLC
WeatherFiow
WGAL TVS
Xcel Energy

Participants:

Sharon Abbas, Drew Anderson, Larry Atkinson, Bob Atlas, Kristen Averyt, Jim Bailey, Ray Ban, Bob Banta, Obadiah Bartholomy, Drake Bartlett, Randy Bass, Brian Bell, Marty Bell, Don Berchoff, Nick Bitzer, Jim Blatchford, Tom Bogdan, Brenda Boyce, Levi Brekke, Jim Brey, Crystal Burghardt, Joe Burns, Greg Byrd, Russell Callender, Rit Carbone, Bruce Carmichael, Mike Chard, Chieh-San Cheng, Chris Clack, Andy Clifton, Lauren Conti, Steve Cook, Geoff Crowley, Walt Dabberdt, Dave DeWitt, Dona Dickinson, Chris Dickman, Sheldon Drobot, Tony Eckel, Brian Etherton, Joe Facundo, Tom Fahy, Joe Friday, Bryce Ford, Mike Fowler, George Frederick, Bill Gail, Matt Galvert, Mary Glackin, Nancy Grady, David Green, Debbi Griffin, Vanessa Griffin, Eric Grimit, Cathy Halvorson, Hendrik Hamann, Tom Hamill, Bryan Hannegan, Mike Henry, Tim Herrick, Stephanie Herring, Paul Higgins, Bri Mathias Hodge, Eric Holthaus, Marge Huntington, Haig Iskenderian, Neil Jacobs, Todd Jacobson, Richard Jeffries, Ed Johnson, Veronica Johnson, Sadegh Kavoussi, Kevin Kelleher, Ken Knox, Dan Krechmer, Ying-Hwa Kuo, Rhonda Lange, John Lanicci, Kristin Larson, Peter Lauritzen, Conrad Lautenbacher, Cathy Lawson, Kate Lawson, Jeff Lazo, Renee Leduc Clarke, Ken Leonard, Mark Leonard, Debbie Lew, Rui Li, Sandy MacDonald, Scott Mackaro, Jennifer Mahoney, Bill Mahoney, Melinda Marquis, Marjorie McGuirk, Shawn Miller, Tony Mostek, John Murphy, Barry Myers, Louisa Nance, Matt Parker, Ralph Patterson, Ethan Peck, Gillian Peguero, Kevin Petty, Maria Pirone, Paul Pisano, Moha Ramamurthy, Gary Rasmussen, Scott Rayder, Annie Reiser, Dave Renne, Valerie Ritterbusch, Rick Rosen, Mike Sale, Keith Seitter, Mark Serreze, Brent Shaw, Steve Shladover, Susie Siders, Bill Skamarock, Dean Smith, John Snow, James Stalker, David Titley, Alex Trellinger, Louis Uccellini, Jeff van Damme, Betsy Weatherhead, Richard Westergard, Jim Wilczak, Jim Williams, Sam Williamson, Charles Woodrum, Mike Wooster, Darren Wright, John Zack

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