

**COMMUNITY TOWN HALL**  
AMS 2016 Annual Conference  
Tuesday, January 12, 2016 | 600 – 730pm | Room 242

**“Communicating Uncertainty in Weather and Climate –  
From PoPs to Beyond CO2”**

*Hosted by:*

Committee on Effective Communication of Weather and Climate Information

**ABSTRACT:** More and more weather forecasts and warnings and headlines about climate and climate change are being communicated by categorical statements, simple graphic emojis and brief media stories and headlines. The public knows forecasting and statements about the future climate involve uncertainty but is increasingly left to evaluate uncertainty from personal experience before making a weather or climate related decision. Two panel sessions with questions and participation of town hall attendees will discuss topics of communication uncertainty and probability in weather and climate. The town hall might also consider if there should be a statement for the media and media messengers explaining the value of quantitative uncertainty information to aid in better public decision making in the use of weather forecasts and climate projections? What and how should this information be communicated so the public is left feeling confident in their understanding of probabilities and uncertainties.

**Two Main Topic Areas:**

- 1) **Probability of Precipitation Issue, moderated by Bob Ryan**
- 2) **Beyond CO2 Issue, moderated by Jenny Dissen**

**The PoP Issue**

**Moderator:** Bob Ryan CECWCI co-chair

**Panelists:** Bryan Norcross, Castle Williams and Steve Zubrick

**Bryan Norcross**

Bryan Norcross is Senior Hurricane Specialist at The Weather Channel, where he anchors The Weather Channel's national coverage of hurricanes and typhoons. Bryan became nationally known after he “talked South Florida through” Hurricane Andrew in 1992. Through 2008 he was the in-house hurricane analyst for CBS News in New York and anchored the coverage of numerous hurricanes for CBS and NBC in Miami. After Hurricane Andrew, Bryan was named an Expert Adviser to multiple committees tasked with improving the emergency-preparedness and insurance systems in Florida by the state's governor. Bryan has received multiple awards, including DuPont and Peabody awards, the highest awards given in broadcasting. He was also recognized with designations of Bryan Norcross Days in Miami, Miami Beach, and Ft. Lauderdale. St. Martins Press published Bryan's book, *The Hurricane Almanac*, in 2006 and 2007, a comprehensive guide to hurricane science, history, and preparedness.

### **Castle A. Williams**

Castle Williams is currently a second-year Master's Student in the Department of Geography at the University of Georgia. He holds both a Bachelor of Science degree in Geography (with an emphasis and certificate in the Atmospheric Sciences), as well as a Bachelor of Science degree in Psychology from the University of Georgia. His overall research interests include examining how we communicate weather terminology and hazards to the public, as well as increasing the amount of interdisciplinary projects within the atmospheric sciences. In the spring of 2015, it was announced that he was the sole recipient of a National Science Foundation Graduate Research Fellowship in the field of Communications. His most recent publication, *Through the Eyes of the Experts: Meteorologists' Perception of the Probability of Precipitation (PoP)*, explores the various definitions and perceptions of the PoP by meteorologists and experts in our field in an attempt to facilitate a discussion around the creation of a consistent definition of the PoP in our community.

**Steve Zubrick** – Steve Zubrick is the Science and Operations Officer (SOO) at the NWS Washington-Baltimore forecast office in Sterling, VA. Steve has been the SOO at the WBC office for more than 10 years in addition to appointments at NWS headquarters in Silver Spring. Before joining the NWS in 1986, he worked as an environmental scientist with Radian Corporation. He has served on a number of AMS national and conference committees and has served on the U.S. Weather Research Program (USWRP) science steering committee. In 2009 he was elected President of the National Weather Association and has served on a number of NWA committees and published numerous papers and articles in AMS and NWA publications. In 1995, he received a NOAA Administrator Award for his work as the Washington-Baltimore forecast office SOO. He earned his B.S. degree in physics (minor in geology) from the University of Dayton and a M.S. degree in atmospheric and earth sciences from Old Dominion University.

### **Suggested weather questions for panel and town hall -**

#### **Uncertainty Communication/PoP Issue**

1. Probability of precipitation: Agreement of definition or confusion? How do you think the public understands or receives information on probability or uncertainty? Are they left to interpret information on their own for decision-making?
2. Prior surveys of the public indicated that a variety of meanings and interpretations exist about the probability of precipitation (PoP). Does the same variety of meanings for the PoP exist among members of the professional atmospheric science community? What do members of the professional community think that the public should know to understand the PoP more fully?
3. Should there be an "enterprise" or community wide agreement on a new/revised definition of "PoP"? Is the NWS definition in use for 50+ years now obsolete with point/digital forecasts for very short time periods?

4. Does communication of probability of precipitation information also indicate confidence of the forecaster? Should some measure of overall confidence in the forecast be included with any forecast?
  
5. Related topic is role/importance of mobile communication/apps and social media in providing forecast information. How do we know what/who to trust? Future? Role of AMS and NWA in "certification"
  
6. Is there, or should there be, a role for organizations such as the AMS and NWA in communicating to media managers the importance of effectively communicating probability and uncertainty information in weather forecast and climate outlooks to lead to better decision making by the public and policy makers?

## **Climate and Climate Change - The Beyond CO2 Issue**

**Moderator** – Jenny Dissen CECWCI co-chair

**Panelists:** Bernadette Woods Placky, Ken Kunkel, and John Firth

### **Bernadette Woods Placky – Climate Central**

Bernadette Woods Placky is an Emmy Award winning meteorologist and director of Climate Central's Climate Matters program. In her role, Bernadette works with fellow meteorologists from across the country, providing resources and data on the connection between climate change and weather.

Bernadette is often called upon to discuss and explain extreme weather events and has appeared on a number of national and local television broadcasts.

Before coming to Climate Central, Bernadette spent 10 years as a TV weather forecaster. Her most recent station was WJZ in Baltimore, where she earned an Emmy for Best Weathercaster. Prior to that, she worked at both WLEX in Lexington, Ky., and KNWA in Fayetteville, Ark. Bernadette began her career at AccuWeather, Inc.

Bernadette has a B.S. in Meteorology and a minor in French from Penn State University, where she is a steering committee member for MAPS (Meteorology Alumni of Penn State). She also carries both American Meteorological Society certifications — Television Seal of Approval and Certified Broadcast Meteorologist. She is currently a member of the AMS Committee on Applied Climatology and a board member of Penn State's GEMS (Graduates of Earth and Mineral Science).

**Ken Kunkel – Lead Scientist for the National Climate Assessment, CICS-NC/NCSU**

Dr. Ken Kunkel is also a Research Professor in the Department of Marine, Earth, and Atmospheric Sciences of North Carolina State University. He holds a B.S. degree in Physics from Southern Illinois University and M.S. and Ph.D. degrees in Meteorology from the University of Wisconsin-Madison. He was a lead author on several chapters of the 2014 released Third National Climate Assessment. He also served as Chief Scientist for development of much of the climate science technical support material for other authors of the report.

Ken's recent research has focused on climate variability and change, particularly related to extreme events such as heavy precipitation, heat waves, cold waves, and winter storms. His research examines historical variations in the frequency and intensity of such extreme events extending from the late 19th Century to the present, and possible changes in the future.

Prior to this role, he was Executive Director of the Atmospheric Sciences Division of the Desert Research Institute, Director of the Illinois State Water Survey, Director of the Midwest Regional Climate Center, and the State Climatologist for New Mexico..

### **John Firth, CEO and Co-Founder of Acclimatise**

John is CEO and Co-Founder of Acclimatise. He has over 20 years' experience in assessing the impacts of climate change. Prior to Acclimatise he worked in the UK water sector for Severn Trent Water, where he led their strategic business planning team, overseeing more than £4bn of asset investment, with responsibilities for water resource and waste water planning, and environmental consenting.

John co-founded Acclimatise with Dr Richenda Connell in 2004. He has extensive experience of integrating climate change into business decision-making and risk management processes. He has a particular expertise in the impacts of climate change on SMEs, multi-national corporates and their supply-chains, the financial services sectors and small island developing states (and in particular the Caribbean where he has a long association with many of the key stakeholders). He is also interested in the legal implications for business, disclosure of information to investors, the mobilization of private-sector finance and the provision of climate funding to developing countries.

John has worked on projects in Europe, Africa, North America, Latin America and the Caribbean, the Indian Ocean, the Middle East, Asia and Australia for banks, governments, institutional investors, development partners, and the private sector.

He has published numerous articles in professional journals and appeared as a speaker at conferences throughout the world on water, environmental issues and climate change. He holds a B.Sc. in Economics and a Postgraduate Diploma in Urban and Regional Planning. In 2013 John was named as one of the 100 most influential people in the world on environmental investing and policy making by the Journal of Environmental Investing.

### **Suggested climate questions for panel and town hall - Beyond CO2 Issue**

1. For Bernadette - What major climate/climate change issues were discussed at the recent Paris global climate summit beyond CO2 and "global warming"?
2. "Global Warming" is still a headline but critics have often (and at times purposely) confused the basic science behind the topics of global warming, climate change,

climate variability, and environment change. Some argue these topics and the relation to each other, have not been clearly communicated to the public and policymakers. How do increasing atmospheric concentrations of CO<sub>2</sub> rank relative to other human climate forcings such as aerosols, land use change, urbanization, and with respect to other anthropogenic risks/threats to human habitability? Major threats to local and regional sectors such as water, food, energy, health and ecosystem is affected by current extreme events and future potential changes. But the determination of major threats to these sectors is also from other social and environmental risks.

3. Does public just hear "CO<sub>2</sub>"? What % of anthropogenic climate/environment change factors are not just CO<sub>2</sub>?
4. What is the role of the media in discussing climate change drivers beyond CO<sub>2</sub>? Would using the more general term "environmental change" to consider a wide range of natural and anthropogenic factors affecting the climate help or hurt in public understanding and/or in scientific discussions?
5. Do we need to better communicate uncertainty and probability in climate projections? Especially regional and local impact projections. Decision-makers are making investments on billions of dollars. How can this information be better managed and communicated to engineers and investors?
6. What area of climate research will best reduce uncertainty of climate projections in future 10-20 years? Which will best help reduce uncertainty, disagreements and confusion-better models or more and better observations? Predict 1 climate "surprise" within the next 10 years- everyone attending gets to make 1 prediction.
7. The AMS, AGU, AAAS and many scientific and professional organizations have issued official statements on climate/climate change. The various "statements" have different wording and in parts may be read as having some conflict regarding AGW and other anthropogenic drivers beyond CO<sub>2</sub>. Would some unifying statement adopted by all scientific societies and organizations such as the National Academy of Science be more effective in having the public and decision makers better understand the climate/climate change issue of CO<sub>2</sub> and beyond?