



August 2015

Commission on the Weather, Water, and Climate Enterprise **Mid-Year Report** **Mary M. Glackin, Commissioner**

The Commission continued its active pace in the first half of 2015. Following a jam-packed annual meeting in Phoenix, the Board on Enterprise Economic Development led by Shawn Miller hosted a successful AMS Washington Forum in April; check out the web site for [the AWF meeting report](#). The Board on Enterprise Communications led by co-chairs Doug Hilderbrand and Eileen Shea held a successful Summer Community Meeting in Raleigh in August; see the end of this report for some highlights. Virtually all boards and committees are working toward activities at the New Orleans Meeting. The following pages provide details on the work of the Boards and Committees. This supplements more detailed information on the [Commission web site](#). The Society and the Commission is fortunate to have the leadership and commitment of the chairs of its 16 committees and four boards supported by the approximately 300 members. Below are a few highlights of key Commission efforts. As stated in prior reports, the active leadership of Past Commission Parker and Future Commission Mahoney has been invaluable and I'm grateful for their talents and dedication.

Board on Global Strategies (BGS) – At the 2015 AMS annual meeting, the BGS under Melinda Marquis's leadership participated in the NOAA/WMO International Workshop. Following this event, they have been aggressively working towards the 2016 meeting with a goal to increase engagement with international attendees and raise awareness of international opportunities; among other things five co-sponsored sessions on international partnerships are planned. Additionally they will work with NOAA on next year's International Workshop.

International Committee on Weather and Climate Services (ICWCS) – Following the annual meeting, Renee Laduc Clark, chair of the ICWCS coordinated a series of discussions with AMS leadership on the goals of the AMS International Committee reporting to the EC, the BGS, and ICWCS. Based on these discussions it was determined it would be most effective if the ICWCS focused on developing countries vs. a broader mission.

Forecast Improvement Group – FIG has continued its efforts to engage the community with respect to needed steps to make significant improvements in model forecasting. Notably, at NCEP's request, the UCACN's sub group known as UMAC (UCACN Model Advisory Committee) was formed including four members of the FIG Executive Committee. While the final report is not yet prepared it is significant that preliminary findings

https://www.earthsystemcog.org/site_media/projects/umac_model_advisory/20150807_UCACN_preliminary_findings_recommendations.pdf) were strongly supported by the FIG Findings, including the focus on a single global model and more joint collaboration.

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Additionally FIG has held two webinars to improve understanding on key modeling and data assimilation issues and is contemplating several more.

Nationwide Network of Networks Committee – This committee formed after the 2008 NRC report *Observing Weather and Climate: From the Ground Up* has been working to identify its next steps. The NNoN and the NOAA/Office of the Federal Coordinator for Meteorology have agreed to host a NNoN Forum in March 2016. The forum will provide an opportunity for the public (multi-agency), private and academic sectors involved in mesoscale atmospheric and relevant terrestrial sensing to report on activities, challenges, recent achievements, data gaps, and plans.

NOAA Big Data Partnership – Secretary Pritzner announced NOAA had entered into five Cooperative Research and Development Agreements (CRADAs) at the AMS Washington Forum in April. The intent of these agreements is to move NOAA data to the cloud to make it more accessible. The Commission hosted a town hall on this effort at the AMS Summer Community Meeting in August that included NOAA officials as well as industry reps from the CRADA companies. It was well attended and generated a lively discussion. The Committee on the Open Environmental Information Services under Warren Qualley’s leadership is currently working with NOAA on useful next steps to engage and educate the enterprise on this initiative including possibly hosting a Hackathon in the future.

Weather Enterprise Economic Evaluation Team (WEEET) - Past Commissioner Parker has worked with Chair Rayder on this effort to provide substantive documentation on the value of the weather, water and climate enterprise. The current plans call for a contracted effort to produce this work. The potential funding of \$500K in support of the WEEET was announced at the AMS Commission on the Weather, Water and Climate Enterprise Steering Committee Meeting in conjunction with the Washington Forum in April 2015. However, it now appears this funding source is no longer viable. When resources are secured, gathering key stakeholder input is necessary. A draft overview of the effort is being developed and will be submitted for AMS Executive Council approval when completed. This document will be used to solicit input from various government agencies, Congress, OSTP and OMB. The feedback will be used to ascertain whether the WEEET’s efforts are focused properly.

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AMS Board on Enterprise Economic Development (BEED)

Shawn Miller, Chair

Primary Activities

Board Meetings: The BEED conducted meetings on the following dates:

- 5 January 2015 (AMS Annual Meeting in Phoenix)
- 12 May 2015 (telecon)
- 14 July 2015 (telecon)

The next BEED meeting will occur via telecon in September 2015.

Accomplishments: 2015 AMS Washington Forum (AWF)

The 2015 AWF was held April 21-23, at the AAAS Building where AMS has offices in Washington, D.C. The meeting theme was “Applied Decision Support: Meeting User Needs.” Feedback on the event was resoundingly positive. With heavy contributions from student rapporteurs and other members of the planning committee, the BEED Chair generated a Forum report that has been posted to AMS BEED website. Attendance including speakers and participants was down from 2014 but still well over 100. Drop in attendance was due in part to and overlapping NWS meeting the same week in DC; coordinating with NOAA to reduce the likelihood of this occurring again in 2016.

Plans: 2016 AMS Washington Forum (AWF)

The BEED Chair is leading the planning of the 2016 AMS Washington Forum, which will be conducted on April 12-14, 2016, in the AAAS Building. The kickoff planning meeting occurred on June 15, 2015. Subsequent planning meetings have occurred and will occur every month, to continue through March 2016. The 2016 theme is “Leveraging Environmental Intelligence to Enhance Risk Management.” This theme provides continuity with the risk management discussions conducted at the AMS Summer Community Meeting, and it also provides an environment in which we can further engage on practical uses of Earth Sciences with both policymakers and new areas of the private sector. Several session ideas have already been developed in support of this theme; the next steps are to refine these session topics and begin the search for key speakers at the event.

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Other 2015 BEED Notes and Plans for 2016

The respective committees have carried out the remainder of the BEED activities; detailed reports for these are given below.

Committee on Open Environmental Information Services (COEIS)

(Warren Qualley, Chair)

Accomplishments and Plans

Committee Meetings: The COEIS conducted meetings on the following dates:

- 5 January 2015 (Phoenix)
- 9 April 2015 (telecon)
- 4 June 2015 (telecon)
- August 2015 (proposed) (telecon)
- November 2015 (proposed) (telecon)
- January 2016 (proposed) (New Orleans)

2015 Activities Completed

Town Hall at 2015 AMS Annual Meeting: Open Environmental Information

Moderator: Matthew Parker – Senior Fellow Meteorologist, Savannah River National Laboratory

Panelists: Laura Furgione – Deputy Director, NWS; Barbara Ryan – Executive Director, Group on Earth Observations (GEO); Michael Seablom – Chief Technical Officer, Science Directorate, NASA HDQ; Ray Ban – Ban and Associates, LLC

Details about the Town Hall meeting can be found on the AMS CWWCE website:

<http://www2.ametsoc.org/cwwce/index.cfm/committees/committee-on-open-environmental-information-services/meeting-minutes/>

Sub-group on AMS statement on Full and Open Access to Data

Chris Sloop is chairing this sub-group that will examine this statement and possibly suggest revising portions of it.

2015-2016 Activities- In Process

Involvement in AMS Summer Community Meeting

The COEIS participated in a panel discussion on the Big Data CRADA at this meeting in August.

AMS Annual Meeting

The COEIS is considering the possibility of conducting a joint session with the Board on Data Stewardship (BDS).

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Intelligent Transportation Systems/Surface Transportation (ITS/ST) Committee (Brenda Boyce, Chair)

Accomplishments and Plans

Committee Meetings: The ITS/ST Committee conducted meetings on the following dates:

- January 6, 2015 (Phoenix)
- July 17, 2015 (telecon)

The next ITS/ST telecon meeting is scheduled to occur at the end of September.

AMS Annual Meeting

January 2015 AMS Annual Meeting Transportation Sessions and Presentations in Phoenix:

AMS Road Weather Applications Session with seven presented papers. The Co-chairs were Paul Pisano, Federal Highway Administration, Ralph Patterson, NarwhalMet and James P. Koermer, Plymouth State University (Note: Brenda Boyce substituted for Paul Pisano and Leigh Sturges substituted for Ralph Patterson)

For the upcoming 2016 AMS Annual Meeting Paul Pisano and Brenda Boyce served on the AMS Environmental Information Processing Technology (EIPT) Conference Planning Committee and with Ralph Patterson from the Narwhal Group, set up a “Weather and Roads” session for the Conference.

AMS Washington Forum

April 2015 AWF: There were two transportation sessions:

1. Marine
 - a. Moderator: Richard Spinrad, NOAA
 - b. Panelists: Neil Jacobs, Panasonic Avionics Corporation; Jennifer Sprague, NOAA/NWS; Peter McComb, MetOcean Solutions
2. Rail, Trucking, & Surface
 - a. Moderator: Brenda Boyce, Booz Allen Hamilton
 - b. Panelists: Rick Nelson, AASHTO; Michael Pack, CATT; Jeff Usher, Association of American Railroads; Rebecca Brewster, American Transportation Research

Presentations are currently posted at

<https://ams.confex.com/ams/AMSWF15/webprogram/meeting.html#Tuesday1>.

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April 2016 AWF: Brenda Boyce has been participating in the AWF Planning and sessions are still being decided.

AMS Summer Community Meeting

At the meeting, there was one transportation session. The details are as follows:

1. Pathfinder: Improving Collaboration between State Departments of Transportation and the Weather Enterprise
 - a. Moderator: Brenda Boyce, Booz Allen Hamilton
 - b. Panelists: Chad Hahn, NWS WFO Cheyenne; Julie Gondzar, DayWeather; Kevin Cox, Wyoming DOT (Kevin was unable to attend due to fighting a wild fire with the National Guard – Paul Pisano, FHWA Road Weather Management Program stood in for him).

BAMS Article

There is a draft proposal to submit an article to the Bulletin of the AMS (BAMS) covering the history, current state, and projected future of road weather support. Mike Chapman and Curtis Walker have led this project, with some progress being made. Progress has slowed due to Mike's departure from NCAR and Curtis trying to finish his thesis. This will be a continuing project for the upcoming year.

ITS America, May 31 – June 3, 2015

Gabe Guevara, FHWA RWMP, and Brenda Boyce, Booz Allen Hamilton provided a training session on road weather and demonstrated the Weather Data Environment to encourage use of weather and road weather during application development for surface transportation.

Mobile Observations Subcommittee (MOS):

The mobile observations subcommittee is in the process of reviewing their terms of reference to expand the role of the subcommittee. During our last meeting, the committee discussed adding reference to automated vehicles.

The subcommittee is also putting together dictionary terms that can be used with AMS.

Miscellaneous Items

Paul Pisano continued to provide updates from the U.S. Department of Transportation, which are of great interest to members of the Committee. Kathy Ahlenius, the new Chair of the Transportation Research Board (TRB) Weather Committee has also been active participant and has provided excellent information. Art Handman, another *ex officio* member of the committee has been keeping members of the Committee on ITS America's activities in the weather area. The Committee provides an excellent forum to

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cross-feed information between the various sectors and most *ex officio* members play an important role in that process.

The AMS Committee web site is now active and has the direct link:

<http://www2.ametsoc.org/cwce/index.cfm/committees/committee-on-intelligent-transportation-systemssurface-transportation/>

Financial Weather/Climate Risk Management Committee (Kevin Stenson, Chair)

Accomplishments and Plans

Committee Meetings: The FWCRM conducted meetings on the following dates:

- 6 January 2015 (Atlanta)
- Every 2nd Thursday of the calendar month (Feb – July) (TELCOM)
- Planned meeting every 2nd Thursday through the end of the year (TELCOM)

Accomplishments:

Book Deal:

It was decided by the committee that individuals from the group would independently approach the book deal rather than approach it as a committee. We were concerned that not everyone could commit such time to such a project. And, it would severely curtail any additional education or outreach.

AMS Annual Meeting 2015:

Town Hall Meeting: Weather Risk Management: What Does it Mean and Where is it Going?

One of the challenges we have found as committee is defining Weather Risk Management. As such we thought if *we* are challenged by any of the current definitions then those in the community are likely challenged to explain it as well.

The term “Weather Risk Management” means many different things across our professional community. Weather trading, commodity trading, insurance, reinsurance and hedging are all terms of art. But what does it all really mean?? Who protects their business from weather risk? What information do they need in order to ‘manage weather risk?’ What is weather risk?? What does Weather Risk Management mean for meteorologists? What opportunities does it present? How have those opportunities changed since the first financial products were introduced in the late 1990s? Where is the market headed and what does that mean for information providers, experts, and customers? Join our panel of experts as we discuss the future for Weather Risk Management.

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The event was well attended – even though it conflicted to the university night. It was especially well attended by students, perhaps indicating the awareness that upcoming generation of meteorologist’s interest in this subject matter as professional choice.

Education and Outreach:

Education and Outreach are two main goals of the committee. As such we felt that having a social media presence would be a first good step to act as a turntable for the American Meteorological Society as we look to leverage the committee’s practical experience and distribute pertinent information as necessary.

We now have a presence on Facebook **AMS Committee on Weather and Climate Financial Risk Management** and Twitter **@AMSWxClimoRisk**.

Enhanced website with updated committee membership, minutes, and education articles.

It is worth noting that committee debating quite extensively regarding the proper use of social media versus the website. We determined the website would act as a central hub for education material whereas social media would highlight and current topics and trends in the industry.

Plans:

2016 AMS Annual Meeting

After ramping up from an introductory short course at AMS Annual Meeting 2014 to a town hall meeting at AMS Annual Meeting 2015 we think a more enhanced offering was needed for AMS Annual Meeting 2016. The goal is interact with conference/symposium tracks with established committees/conferences

We will partner with:

Seventh Conference on Weather, Climate, and the New Energy Economy

- 1 slot
- Panel Format and/or case stud(ies)
- Topic: *Weather Risk Transfer (Derivatives, ILS, Cat Bonds, Insurance, Reinsurance....) as it relates to the energy industry*

Fourth Symposium on the Weather, Water, and Climate Enterprise

- 1 slot
- Panel Format and/or case stud(ies)
- Topic: *Weather Risk Transfer (Derivatives, ILS, Cat Bonds, Insurance, Reinsurance....) as it relates to the supply chain and/or capital markets*

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- Exact topic TBD however it will likely relate to the use of big data *analytics* used by insurance/reinsurance industry and will serve as a bridge from topics discussed at the 96th AMS Annual Meeting.

Weather Enterprise Economic Evaluation Team (WEEET) (Scott Rayder, Chair)

Potential funding of \$500K in support of the WEEET was announced at the AMS Commission on the Weather, Water and Climate Enterprise Steering Committee Meeting in conjunction with the Washington Forum in April 2015. However, it now appears this funding source is no longer viable. When resources are secured, gathering key stakeholder input is necessary. A draft overview of the effort is being developed and will be submitted for AMS Executive Council approval when completed. This document will be used to solicit input from various government agencies, Congress, OSTP and OMB. The feedback will be used to ascertain whether the WEEET's efforts are focused properly.

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**AMS Board on Global Strategies
Mid-Year Report August 2015
Submitted by Melinda Marquis, Chair**

Accomplishments

This year so far, the AMS BGS is working to increase the presence, visibility, and coordination of international topics and participants at the AMS Annual Meeting, beginning in 2016. To this end, the BGS is organizing two sessions in the Symposium of the Weather, Water, and Climate Enterprise, and jointly sponsored by the Conference on Hydrology. The sessions are titled “Challenges in Meeting Water Needs for Cities in the World’s Developing Nations,” and aim to address economic, engineering and institutional barriers impeding acquisition and conveyance of sufficient water supply, sanitation of water resources, and waste-water management in the context of rapid population growth. These issues are especially severe for residents of crowded urban slums who are often exposed to unsafe water supplies and other water-related hazards. Extremes and changes in weather and climate, as well as by international trans-boundary water resources management issues, are also in the call for papers.

To further advance our efforts to promote and enhance international topics at the AMS Annual Meeting (AAM), Angel McCoy is monitoring/facilitating additional presence and coordination at the 2016 AAM, e.g., with the Peter J. Lamb Symposium - Helping Africa to Help Itself and with the 19th Atmospheric Science Librarians International Conference.

Additionally, Ken Carey is organizing five co-sponsored special sessions on U.S. - International Partnerships:

- Innovative Academic/Public/Private Partnerships Within and Across Economic Sectors between US and Asia (e.g., financial, insurance, transportation, agricultural, health, energy, etc.)
- Activities and Enhancements Resulting from Joint Operational, Research and Prediction Activities involving Tropical Meteorology (e.g., hurricanes and typhoons), Severe Storms and Coastal/Marine Flooding and Inundation in the US and Asia
- Integration of In-situ and Satellite-derived Observations into Data Assimilation and Weather, Water and Climate Modeling Systems for the Improvement of Forecasts

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- Advancing and Leveraging Research into Operations, and Operations Feedback into Research Between and Among International Partners
- Working Toward a More Weather, Water and Climate-Ready World—Issues and Opportunities

Plans

The BGS will coordinate with NWS (Dan Beardsley and Caroline Covington) to contribute to the NWS-WMO International Workshop at the 2016 AMS Annual Meeting.

Energy Committee (Stephan Bennett, Chair)

Accomplishments

The Energy Committee (EC) and Renewable Energy Subcommittee (RES) organized and hosted the 6th Conference on Weather, Climate, and the New Energy Economy (6Energy), at the AMS Annual Meeting in January 2015, Phoenix. 6Energy was a successful event with attendance ranging from 60-150 people. We received very positive feedback from attendees and AMS staff regarding our conference. The MJO symposium was integrated into 6Energy this year and it went well. We also did a joint session with the Artificial Intelligence committee that covered very interesting joint topics.

The Energy Committee (EC) organized and hosted a town hall meeting (THM) called “Applying Big Weather Data to Address Today’s Energy Challenges” at the AMS Annual Meeting-Phoenix. The THM had good attendance with several members of the utility community. The EC hosted a Happy Hour reception immediately following the THM that had a great turnout! We were able to secure 10 sponsors for the Happy Hour event.

The Energy Committee participated in the Student Conference in which members of our team presented to the students on Sunday afternoon. The feedback from the Student committee was very positive and the students seem to enjoy the panel discussion and engagement.

The Energy Committee co-sponsored the third annual California Utility Forecasting Meeting at the California Independent System Operator (CAISO) in April of 2015. This event brought together the California Utilities to discuss operation utility challenges such as emergency operations and renewables integration.

The Energy Committee was a promoting sponsor of the International Conference Energy & Meteorology in June 2015. Several committee members were in attendance and we were proud to promote and attend the event.

The Energy Committee is currently sponsoring a forecasting challenge that is being run this summer by a group of students at PSU. The EC has assisted with data availability and prizes for the contest winners.

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Plans

The Energy committee (EC) and Renewable Energy committee (RES) are organizing and will host the Seventh Conference on Weather, Climate, and the New Energy Economy (7Energy), January 2016, New Orleans.. The conference will take place over a four-day period during the AMS Annual Meeting.

The EC has elected to have four subcommittees to focus on specific goals for the 6Energy.

- 1.) Outreach to the Utility Community – to encourage more presentations that engage the utilities. We modified the Call for Papers to encourage abstracts focused on utilities as we would like to have specific sessions focused in this area. We are also in the process of organizing ideas around a Town Hall Meeting.
- 2.) Promote AMS Annual Meeting to the Broader Energy Community – to promote Annual Meeting energy community (and to recruit new members to AMS). The committee is also planning a networking event. The networking event will be immediately following the THM (preference is Monday evening) similar to previous years.
- 3.) Education – to engage the student conference and hold a short-course at the 2016 meeting. In addition, we are looking to have another Weather Challenge in the summer of 2016 that we will promote throughout the AMS annual meeting, especially at the student conference.
- 4.) Social Media – We will be revamping all of our social media efforts as a tool to promote our committee and reach out to others in the field, especially students.

7Energy is planning to do multiple joint sessions during the annual meeting in New Orleans, specifically with MJO, AI, Applied Climatology, and Water Resources.

Renewable Energy Committee (Andrew Clinton and Jennifer Newman, Co- Chairs)

Achievements

As noted above, the Renewable Energy Committee (REC) and the Energy Committee (EC) organized and hosted the Sixth Conference on Weather, Climate, and the New Energy Economy (6Energy) in January 2015. A joint session with the Lidar conference was popular and well attended.

Members of the REC reconsidered the role of the REC in fostering communication between different sectors while making the best use of members' time. To this end, meetings in 2015 focused on setting out the “big picture” issues that face renewable energy in the USA. Notable discussions included issues facing solar energy resource assessment, ways to help integrate behind the meter solar energy, the use of remote sensing for wind energy applications, and the challenge of understanding the value of improved forecasting. A key conclusion has been that meteorologists struggle to demonstrate the value of the products that they could deliver, to potential clients.

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The REC holds monthly conference calls to facilitate dialog between industry, government and academia. Calls include time for a presentation from a member of the committee, and an in depth discussion of current topics of interest.

The AMS completely reworked the committee's web presence in January 2015. The REC web pages have moved to this new space and are being actively maintained by the committee, and are used to host minutes and presentations. The REC web pages can be found at <http://www2.ametsoc.org/cwwce/index.cfm/committees/renewable-energy-committee/>.

Plans

The year 2016 will see 11 members leaving the AMS REC, including the current chair and co chair. We intend to take this opportunity to refresh the membership by rotating in new members who have more experience in operating (or operational) renewable energy assets than currently.

As in previous years, the EC and REC are organizing and will host the Seventh Conference on Weather, Climate and the New Energy in January 2016. This will take place as part of the AMS Annual Meeting.

The REC will continue to work to connect industry, academia, and public agencies. This will be achieved via continued informal discussion within the REC, as well as strengthening our existing partnership with the Energy Committee. The REC will also examine other routes to enhance connections, such as engaging with UVIG. REC activities will require careful leverage of committee members' time and energy in what continues to be a challenging economic climate for many members.

Water Resources Committee (WRC) (Kathleen Miller, Chair)

Accomplishments

The AMS Water Resources Committee (WRC) was established in 2012, and we had our inaugural meeting on May 7, 2012. The leadership of the WRC changed at our third annual group meeting in January 2015. Kathleen Miller has assumed the role of Chair, while Dan Walker continues to serve as Vice Chair. Priorities for this committee continue to be: climate (climate change and adaptation); socio-economic impacts, risks, benefits and vulnerabilities; water resources planning and analysis; extreme events; meteorology and atmospheric (as relevant to hydrology); water quality; coastal issues; water resources management and uncertainty; how to better inform policy and politics.

The WRC attempts to meet on monthly basis, and following the in-person committee meeting at the 2015 AMS annual meeting, we have held monthly telecom meetings through mid-2015.

Activities pursued in 2015 include:

- *Committee renewal.* The merger of the Water Resources Committee (WRC) and the BEP-Annual Partnership Topic Committee on Integrated Water Resources (APT-IWR) was completed with the submission of a nomination package for the

- re-constituted Water Resources Committee in July of 2015. All members of both committees were polled to determine their interest in continued participation under the WRC. New members were recruited both during the 2015 AMS annual meeting, and through private communication. The nomination package is currently under review.
- *Development of proposal for redrafting of the AMS Policy Statement on Water Resources.* The members of the WRC have drafted a memo requesting appointment of a committee to redraft this out of date policy statement. We are nearly ready to move ahead to send the memo up the chain of command, although we are still hoping for input from the STAC Hydrology Committee in response to our multiple requests.
 - *Continuing engagement with ASCE-CACC.* A major activity in 2014 involved building a strong working relationship with the American Society of Civil Engineers' (ASCE) Committee on Adaptation to Climate Change (CACC). The WRC had coordinated an expert review of the CACC white paper "*Bridging the Gap between Climate Change Science and Civil Engineering Practice.*" That report has been published, and we are now entering a phase of continued engagement with the ASCE CACC, that will focus on broadening the consideration of climate change and water issues to extend beyond informing the development of engineering standards. Specifically, we aim to play a role in identifying how integration of physical and social science inputs can be implemented to promote better climate adaptation decision making in the context of existing uncertainties. We are developing plans to organize a webinar on that topic.
 - *Sponsorship of sessions at the AMS 2016 annual meeting.* The WRC is working with the BGS to organize a pair of sessions on: *Challenges in Meeting Water Needs for Cities in the World's Developing Nations* as part of the Fourth Symposium on the Weather, Water, and Climate Enterprise. The WRC also is co-sponsoring a session (joint with the BGS Energy Committee) on *Water Resource and Energy Sector Interactions* as part of the Seventh Conference on Weather, Climate, and the New Energy Economy.
 - *Proposal for a webinar on interpretation and implementation of the new federal flood risk mitigation standards.* On January 30, 2015, President Obama signed an Executive Order establishing a new flood standard to help reduce the risk and cost of future floods by requiring all Federal investments to meet higher flood-risk standards, specifically to account directly for the potential effects of climate change on future floods by adjusting current flood elevation (and hazard areas) by one of three methods:
 - Approaches employing "data and methods informed by the best available, actionable climate science"
 - Adding an additional two-foot freeboard above the 100-year flood elevations when constructing standard projects and three feet for critical facilities like hospitals, or
 - Designing instead for 500-yr flood elevations.

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Application of climate-change projections, paleohydrologic reconstructions, hydrologic and hydraulic models, and analysis of available meteorological and hydrological data have considerable potential to inform flood management and infrastructure investments in ways that may attract more projects and agencies to the climate-informed option for establishing flood-elevation and hazard-area estimates used in future siting, design, and construction of federal projects.

The AMS Water Resources Committee plans to organize a webinar to describe and discuss the scientific (climatological, meteorological, and hydrological) issues and opportunities raised by this new standard.

International Committee on Weather, Water, and Climate Strategies (Renee LeDuc Clark, Chair)

Accomplishments

2015 AMS Annual Meeting

On Wednesday, January 7, 2015 from 7:00 am – 8:15 am the ICWCS hosted a Town Hall during the 95th Annual American Meteorological Society Meeting. The theme was: Lessons learned about coping with high impact hydro-meteorological events in the US: “A stepping stone panel discussion for the 2015 DRR Summit on Lessons Learned about Lessons Learned”.

The ICWCS held its annual in person meeting on Sunday, January 4, 2016 from 2:00 pm – 4:00 pm.

2016 AMS Annual Meeting

The committee established a joint sub-committee with the Board on Global Strategies to coordinate planning of international related programming at the 2016 Annual Meeting. Chaired by Angel McCoy, the group has met twice and had discussions between meetings related to coordinating with the International Activities Office of the National Weather Service on their annual AMS International session associated with the Annual Meeting. There has been coordination with the chair of the Lamb Symposium on their planning as well since it will have a significant international component. There is discussion of planning an “icebreaker” session on the sidelines of the International session to bring together representatives of the Climate Weather and Water Enterprise with the international attendees.

Of particular relevance to the ICWCS, there is discussion of how the committee may help to facilitate the adoption of the Weather Ready Nation concept in select developing countries. This is a priority of USAID’s Office of Foreign Disaster Assistance (OFDA), though it may not be as high of a priority for the National Weather Service. The AMS Annual Meeting may be an opportunity to convene a Town Hall or other forum to discuss this concept further.

Coordination of AMS international entities

Beginning at the 2015 Annual Meeting, Chair Renee Leduc Clarke commenced discussions with John Jones, the Chair of the International Committee established by the AMS Council, Melinda Marquis, Chair of the Board on Global Strategies, and Mary Glackin, Commissioner of the Weather, Water and Climate Enterprise to clarify the roles of each of the international entities under AMS. Following the Annual Meeting, Renee reached out to the leaders of these groups and a few others to have a dialogue specifically related to identifying the profile for each entity to more easily determine what group should recruit what members, to avoid overlap. While initial discussions considered dissolving ICWCS, it was determined that there are plenty of efforts for the three entities to focus on independently.

The way forward was that the ICWCS would focus exclusively on issues related to developing countries, while the BGS would focus more broadly on international and multilateral issues, including the WMO. The International Committee established by the AMS Council would take guidance from the Council and the current AMS President for its activities.

Renee has been in discussions with the ICWCS on making adjustments to the TOR of the committee to reflect these changes and has developed a draft profile for members of the committee that is currently being reviewed and will be shared with the leadership of the BGS and CWWCE shortly.

Action Steps for the rest of 2015:

- Finalize and get approval for edits to the TOR of ICWCS.
- Finalize the profile for members of ICWCS and share with leadership of other international committees. Actively coordinate with the other two entities about all of our recruitment efforts.
- Continue to actively coordinate and liaise about events and fora in the Joint Committee on international activities at the AMS Annual Meeting in 2016.
- Explore the feasibility of convening dialogues or other activities to support the development of weather ready nation initiatives in one or more developing countries.
- Explore the future of the International Advisory Committee – whether to dissolve it or shift it to the BGS.
- Finish review of profile for ICWCS members and share it with BGS and the EC International Committee to coordinate the efficient recruitment of new membership.

Committee on Environmental Security (CES) (John Lanicci, Chair)

Accomplishments

Focus 360 Panel on Climate Change and National Security at the American Institute of Aeronautics and Astronautics (AIAA) Science and Technology Forum and Exposition (SciTech 2015), 5 January 2015, Kissimmee, FL: Lanicci organized and moderated a panel discussion that covered the reasons why policymakers in Washington are paying attention to the far-reaching impacts of global climate change, and how this attention has led to a renewed interest in environmental security. The session panelists included Lanicci, Dr. Chad Briggs, Strategy Director, Global Interconnections, LLC; Dr. Roger Handberg, Professor, Political Science, University of Central Florida; Dr. Peter Jacques, Associate Professor, Department of Political Science, University of Central Florida; Ms. Cathy Snyder, Vice President, Energy & Environment, Lockheed Martin Washington Operations; and RADM(Ret) Dave Titley, Director, Center for Solutions to Weather and Climate Risk, Penn State University.

CES Face-to-Face Meeting at AMS. The CES held its fifth annual face-to-face meeting on January 6th in Phoenix, AZ. The attendees were John Lanicci (CES Chair); Shawn Miller (CES Member); Rachael Ispording (new CES Student Member); Gary Rasmussen (AMS HQ); Matt Parker (Past Commissioner, CWCE Executive Committee); Bill Mahoney (Future Commissioner, CWWCE); Mary Glackin (Commissioner, CWWCE); and Angel McCoy (Ex Officio Past Chair, International Committee on Weather and Climate Strategies). The first order of business was to introduce Rachael Ispording to the committee. Rachel is a December 2014 graduate of Embry-Riddle Aeronautical University in Applied Meteorology, and was enroute to a post-bachelor research assistant position at the Climate Change Science Institute at Oak Ridge National Laboratory. Following the introduction, there were lengthy discussions both on recommendations for CES activities in 2015 as well as ideas for new committee members to replace Ken Carey and Genevieve Maricle, who rotated off this year. Among the ideas for CES activities were a BAMS Inbox article on ES that would serve as a “queue up” for an eventual ES short course to be held at a future AMS Annual Meeting. A second idea was an ES literature review to gather relevant publications in order to build a repository for use by the community. Although unable to attend due to funding issues, Jada Garofalo (CES member) suggested narrowing the scope to those papers focusing on climate change and conflict, since there is not a community consensus on this issue, and a collection of work done on this topic would be valuable. A third suggestion was ES as a possible topic in the upcoming (2016) AMS Student Conference. Among the ideas for membership recruiting were Dave Titley (PSU); Jamie Hawkins (Lockheed Martin); Members of the Board on Societal Impacts; ESRI; and team members involved in the various ES-themed concept papers coming out of the US policy community in the last 12-18 months. There is a need to increase the private sector representation on the CES.

Plans

The CES is involved in the planning for the 2016 AMS Washington Forum. Lanicci and Miller participated in the first planning call, and ES will once again be a featured topic on the AWF agenda.

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BOARD ON ENTERPRISE STRATEGIC TOPICS (BEST)
Co-Chairs: Christopher Strager and Andrea Bleistein
NOAA's National Weather Service

The BEST manages four committees. They are:

- Committee on Ecological Forecasting
- Climate Services Committee
- Nationwide Network of Networks
- Emergency Management Committee

In January 2015, Andrea Bleistein and Chris Strager organized the Third Symposium on the Weather and Climate Enterprise held in Phoenix, AZ. Panel discussions included the following topics:

- Welcome Session with Keynote Speaker, Joel Myers, AccuWeather Inc
- Communicating the State of Understanding of Climate and Climate Change
- Mind the Gap – Building Bridges Between the Public and Private Sectors to Advance Climate Services
- Emerging Services Within Enterprise
- Making Climate Information Available to Decision Makers: Challenges, Risks, and Uncertainty
- Strengthening the Space Weather Enterprise
- Improving the Communication of Space Weather Information through the Media
- Streaming Media: The Choice Between "Movies" or Weather Products
- Presentation Session: [Emerging Services within the Weather and Climate Enterprise](#)
- Joint Panel Discussion: [Strengthening the U.S. Space Weather Enterprise](#) (Joint with 11th Conference on Space Weather)

The Board on Enterprise Strategic Topics is working closely with CWCCE to define sessions for the Fourth Symposium on the Weather and Climate Enterprise to be held in New Orleans, LA in 2016. In addition, the BEST is identifying candidates to take over as chair when Chris and Andrea rotate off in January 2016.

Climate Services Committee (Chair, Stephanie Herring)

The CCS organized two sessions at 2015 Annual AMS meeting in Phoenix, AZ within the CWCE 3rd Symposium. The AMS sessions focused on the intersection of public and

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private sector entities to support the development and delivery of climate services. Since then, the committee has been coordinating with AMS HQ and has requested that the Council to renew the AMS Climate Services Policy statement for another 5 years. In addition, the committee is discussing a proposed web presence to highlight private sector climate service providers on AMS site.

Nationwide Network of Networks Committee (Chair, James Stalker)

The Nationwide Network of Networks (NNoN) Committee chair has been focused on developing a workshop in coordination with the Office of the Federal Coordinator for Meteorology (OFCM). This workshop is being planned for March 8th and 9th 2016 at the AAAS building in Washington, DC. In addition, a new chair has been named to start in January 2016 as James Stalker rotates off. The new chair will be John Horel from University of Utah. The committee is also reviewing the current list of committee members for recommendations on replacing those who will rotate off in January 2016.

Committee on Ecological Forecasting (Chair, Juli Trtanj)

A new co-chair to replace Paul Sandifer in 2015 was still not determined as of the June BEST telecon. The committee has not met fully since January 2015 to discuss a selection yet – looking for a private or academic candidate. The committee is partnering with Board on Environment and Health for the 2016 annual AMS meeting. Committee is exploring recruiting student members who are interested in this committee. A new chair will also need to be identified to take over in 2016.

Committee on Emergency Management (Co-chairs: Tanja Fransen and Bob Goldhammer)

Tanja Fransen took over as a new co-chair to replace Mike Hudson who needed to step down earlier this year. The EM Committee has established monthly meetings on the first Monday of each month and has created a Dropbox folder that they are using as a committee to share documents and notes. They have been working on potential collaborations between AMS and IAEM chapters. They are also discussing and working on a draft Warning Siren Policy in coordination with AMS HQ. The committee is continuing to look for integration with the annual AMS meeting to include the EM community as a nontraditional participant. One of those areas of integration is with the Student Conference in creating an event/workshop introducing the EM and weather with student attendees.

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Board on Enterprise Communications Douglas Hildebrand and Eileen Shea, Co-Chairs

This document provides a short summary of the activities of the Board on Enterprise Communications as of August 14, 2015. The preceding half-year has been a very active and productive time for the Board and its committees. We believe that the various activities under the Board's purview have helped advance AMS both as a Society and a forum for discussions of innovative science and applications in our various disciplines, fields and professional communities. We hope that the Commission on the Weather, Water and Climate Enterprise and the AMS Council will find this report both informative and encouraging.

This report begins with summaries from each of the standing and ad hoc committees:

- Committee for Effective Communication of Weather and Climate Information;
- Press Events Team and
- Forecast Improvement Group.

We then conclude with a brief report on this year's AMS Summer Community Meeting that continues to be a primary focus for full-Board planning and implementation each year.

AMS Committee for Effective Communication of Weather and Climate Information (Bob Ryan, Jenny Dissen, Co-Chairs)

The CECWCI has facilitated several panels at AMS meetings this past year and maintained vigorous and open e-mail discussion of a number of important topics of effective communication of weather and climate information. This open forum may lead to an important article in BAMS and a record and history of respectful discussion of one of the important topics/issues - anthropogenic climate change and regional/local impacts.

Some of the CECWCI activities in 2015:

Co-Chair Ryan originated and chaired a panel at the 2015 AMS Annual Meeting titled: "[Communicating the State of Understanding of Climate and Climate Change](#)"

Committee Members Dr. Donald Wuebbles (University of Illinois) and Dr. Susan Joslyn, (University of Washington), along with invited speakers Andrea Thompson (Climate

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Central) , James Gandy (WLXT-TX) and Dr. Xubin Zeng (University of Arizona) were on the panel. Link to the entire discussion is above.

The committee held a committee conference call in the winter to review the committee's activity for the previous 12 months, update planned activities and solicit ideas for committee expanded involvement in relevant areas in coming year.

A number of committee members have been directly or indirectly (advisory/comment level) involved in the continuing NOAA/NWS review and possible restructuring of the basic watch/warning/advisory (WWA) core mission of public communication, preparation, action and recovery element at the heart of the NOAA/NWS and the "service" element of AMS. A number of e-mails topics/exchanges within the committee have been helpful and productive to advancing our science's common goal, which does touch all sectors, the public, the economy, the country and other countries.

A number of excellent presentations (committee members either leads or on panels) on the WWA/preparation/response/action themes were headlined at the recent AMS [June Conference on Broadcast Meteorology](#) and [Weather Warnings and Communications](#) in Raleigh, NC.

The involvement/integration of outside expertise, especially social sciences evident in more and more AMS meetings will continue to improve and expand the "service" element of the goals of the Society. Recent NAS "scoping" meeting on possible study of integrating social sciences within meteorological/ocean sciences were attended by a number of CECWCI members.

At the Raleigh, NC conference co-chair Ryan chaired a panel [on "The Psychology of Meteorology"](#) including lead panelist and first time attendee Dr. Stephen Broomell the Department of Social and Decision Sciences at Carnegie Mellon University.

A spirited, but respectful ongoing e-mail discussion has continued between committee members Dr. Roger Pielke Sr. and Dr. Michael MacCracken. The discussion has centered on the topic of scaled, hindcasts of global climate models to regional and local weather/climate/statistics and the application of such "models" to future decision-making. The discussion has now reached some respectful, scientific convergence that should result in an upcoming article in BAMS.

Press Events Team (Jacob Wycoff and Jason Samenow, Co-Chairs)

The Press Event Team became established this January and has met intermittently to develop strategy for promoting key news and developments of the weather enterprise.

It developed a press release for the 2015 AMS Washington Forum and several news organizations covered aspects of the event, including The Hill and The Federal Times.

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The team co-chairs are currently working to develop a plan to grow its membership and the scope of its activities, including publicizing future AMS meetings.

Forecast Improvement Group (Elizabeth Weatherhead, Chair)

Consistent with its Terms of reference, the FIG continues to focus on key issues that are fundamental to making significant and sustainable improvements in weather forecasts to end users. The FIG met at the AMS Annual Meeting in January (meeting notes are attached). The FIG Executive Committee has had five telecons to discuss activities since the Annual Meeting: at the end of January and in February as well as May, June and July (notes from all are attached).

With the addition of new resources for operational computing (FIG Recommendation #1), UCACN has developed an advisory group to address the operational modeling suite. At NCEP's request, UCACN's advisory committee includes four FIG EC members. They held a significant meeting in the first week of August under the leadership of Fred Carr. Many of the results of that meeting were strongly supported by the FIG Findings, including the focus on a single global model and more joint collaboration.

The FIG Executive Committee has held two webinars:

- Steve Greybush led a webinar on Timescales of predictability on July 15
- David Helms and Aaron Pratt led a webinar on NOSIA-II (NOAA's effort to document the value of specific observations) on July 31

The FIG Executive Committee is considering offers to address three more issues via webinar:

- Offer from Steve Koch on Research to Applications
- Offer from Tom Hamill and Hendrik Tolman on Reanalysis and Reforecasting
- Offer from Bob Atlas and Mike Hardesty on Winds from Space

Betsy briefed David McCarren, the acting director of the Office of the Federal Coordinator for Meteorology in early June.

Recent FIG discussions have been focusing increasingly on the observational component of improved forecasting. There is a strong push within the FIG leadership to continue to work in this direction, although many members are not directly interested in the specifics of the discussions.

The FIG is organized into an Advisory Committee; Executive Committee and full FIG committee. The FIG Advisory Committee has had the substitution of Dave McCarren for Sam Williamson in the OFCM position.

The FIG Executive Committee is looking as a few substitutions as some members have retired; Eugenia Kalnay (UMD) has agreed enthusiastically to join the Executive Committee, which helps boost the academic representation. The full FIG is open to everyone.

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The FIG recommendations (document available upon request) remain the same as they have been for two years. However, with the transition as the chair position shifts from Betsy Weatherhead to Neil Jacobs, per the TOR, new recommendations may be considered in the first year of Neil's leadership.

AMS Summer Community Meeting, NC State University in Raleigh North Carolina, August 3-6, 2015

The 2015 AMS Summer Community Meeting (SCM) began on the evening of Monday, August 3 with a Sponsor Recognition and Student Networking event made possible by Panasonic, the SCM's Premier Sponsor. Principal Sponsors of the 2015 SCM, included: AccuWeather and The Weather Company; CLS America, Earth Networks and Vaisala served as General Sponsors. We thank them for making the SCM possible.

Formal sessions began on the morning of Tuesday, August 4 as 125 participants convened at the Hunt Library on the Centennial Campus of North Carolina State University to explore the 2015 SCM Theme: **For the Greater Good: Strengthening Collaboration, Consistency & Trust To Support Informed Decision-Making.**

In this context, the Meeting was designed to focus on three inter-related aspects of Enterprise activities:

- Improving how weather, water and climate threats are predicted and communicated;
- Enhancing information for risk management decisions through better expression of urgency, confidence and variability; and
- Supporting appropriate actions by the public.

Through presentations by several notable keynote speakers, panel discussions and wide-ranging dialogue among Meeting participants, the 2015 SCM provided an opportunity to explore the inter-dependent and interactive elements of successfully moving from forecasts to risk management including:

- Observations and modeling to support the development of skilled and effective forecasts;
- the successful communication of those forecasts;
- the associated development and dissemination of risk assessments and decision support information; and
- supporting the public and decision-making communities as they take actions to appropriately manage those risks.

The 2015 SCM Agenda, presentations and closing summary highlights are being posted on the AMS BEC/SCM website so that participants and the broader community can share, use and build on the Meeting's discussions in their own work and to advance the

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work of the Enterprise as a whole. Within a few weeks, presentations, notes and discussion summaries will be available on the AMS/BEC website.

Two additional activities followed the formal closing of the 2015 Summer Community Meeting on August 6. That afternoon, interested participants were invited to learn more about the NOAA Big Data CRADA announced earlier this year by Secretary of Commerce Penny Pritzker. Information was shared by a panel moderated by Matt Parker that included: Mr. Brian Eiler (NOAA), Dr. Sandy MacDonald (current AMS President and NOAA scientist), Ms Ariel Gold (Amazon Web Services), Dr. Mohan Ramamurthy (Open Cloud Consortium), Dr. Leanne Haselden (Global Business Services, IBM) and Mr. Paul Pisano (AMS Committee on Open Environmental Information Services).

Thursday evening, the North Carolina Museum of Natural Sciences hosted a public event entitled: “It’s Tough to Make Predictions...Especially about the Future.” Moderated by Nate Johnson (WRAL TV), this event provided a public outreach forum in which five of the SCM participants were able to share their own experience and many of the insights developed during the Summer Community Meeting. Additional information about this exciting outreach event can be found at the Museum’s URL: <http://www.naturalsciences.org/>

A video recording of the event can be viewed at: <https://youtu.be/DN1Xc2zz-YA>