

Certified Consulting Meteorologists Newsletter



Volume 6, Issue 1

Spring 2015

This newsletter is intended to enhance communications between CCMs, the BCCM, and the AMS. It is published quarterly to provide information about the on-going activities of the CCM program. Please remember to use the [CCM forum on the AMS website](#) for your communication and exchanges between CCMs.

*Ron Baskett and Jennifer Call,
CCM Newsletter Editors*

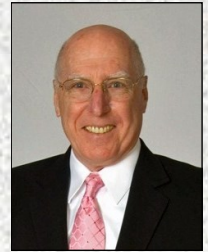
Highlights inside this Issue

New CCMs	2
Outgoing BCCM members	2
Incoming BCCM members	2
Creative Nonfiction Magazine is Seeking Essays on "The Weather"	3
New AMS Information Statement	3
AMS Online Award Nominations	4
CCM & Social Media	4
Upcoming AMS Meetings	4
Proposed Television Series to Feature Forensic Meteorologists	4
Use of Satellite Observations for Air Quality Problems with the Help of NASA	5
Lessons Learned from a Consultant's Role in the Space Program	5
Morning is the Time for Powerful Lightning!	6

The Chair's Column

Dear CCM Colleagues:

For 58 years, the Board of Certified Consulting Meteorologists has ensured that only those candidates who have sufficient knowledge and experience and exhibit superb character are designated a Certified Consulting Meteorologist. We are the current keepers of that tradition of service and excellence. The following goals for 2015 will ensure the Board meets its responsibility to the AMS, the CCM community, and most importantly, to our clients:



1. Conduct all Board activities efficiently and effectively
2. Reduce graders score differences
3. Actively interact with other AMS boards to increase the number of CCM applications
4. Characterize the CCM community based on the recent AMS survey, compare the results to the Society at large, and develop the appropriate plans to make the Board and CCM community more reflective of the Society

(Continued on page 2)



CCM Board members at the 2015 CCM breakfast (from left to right): Steve Hanna, Jay Rosenthal, Jason Shafer (outgoing), Ron Baskett, Gale Hoffnagle, Tim Hall, Jennifer Call, Richard Westergard (2014 Chair), Joe Chang, and Buddy Ritchie (2015 Chair)

The Chair's Column, continued from page 1

We also have a number of specific sub goals under the primary goals. I'll report our progress in the next quarterly newsletter. However, one significant change from previous years is the identification of the vice chairperson, who will become chairperson the following year. Jennifer M. Call, the new vice chairperson, has been involved in many of the chair activities. The intent is to ensure a degree of consistency from one year to the next and to ease the transition of the new chair.

We continue with our evaluations of candidates. We currently have 10 candidates in the certification process that starts with their application and finishes with the board's recommendation for certification after the candidate's oral exam. You can help this process in two ways:

1. **Encouraging colleagues who meet the criteria to apply to be CCMs.** [This link provides a description of the program and process.](#)
2. **Participating in a regional exam.** If a candidate's written exam score is sufficient, the candidate is eligible for a regional exam. These exams require grading by at least one CCM Board member and two other local CCMs. If you participate in a regional exam, you can earn 0.5 professional development points. And this experience is an excellent way to witness firsthand the integrity of the process.

One area stressed heavily in the written and oral exams is **ethics**. There have been five (5) articles published in BAMS discussing various aspects of ethics in our profession. The sixth and last article in the series, Ethic in Research, will be published in the March 2015 edition of BAMS. [This link provides a download of these articles from the CCM webpage.](#) I highly recommend that you read these articles about ethics, a foundational element of the CCM program.

Our fourth goal is to use the recent AMS survey data to **characterize our community**. Just over 41% of the 12,800 plus members of AMS answered some or all the survey questions. The company contracted to conduct the survey is in the final stages of quality controlling the data. I expect to begin the analyses of those members who identified themselves as CCMs within the next few months. As the goal states, the Board will use these data in planning future advertising campaigns to increase the number of CCMs.

[Buddy Ritchie](#), CCM #648
2015 Chair, Board of CCMs

New CCMs

Since the last newsletter was published, the following five individuals completed all requirements for certification and were added to the roll of active CCMs:

Frank Dempsey, Locust Hill, ONT Canada CCM #708

Julie Gaddy, Germantown, MD, CCM #709

John May, Williamson, NY CCM #710

Alicia Wasula, Troy, NY CCM #711

Morgan Yarker, Cedar Rapids, IA CCM #712

Be sure to make them feel welcome to the CCM ranks at your next opportunity!

Outgoing Board of CCM (BCCM) Members



Jason Shafer (center) recognized for BCCM service by Buddy Ritche (left) and Jay Trobec, Commissioner on Professional Affairs (right)

Richard Westergard, Outgoing BCCM Chair (center) recognized for service by Buddy Ritche (left) and Jay Trobec (right)

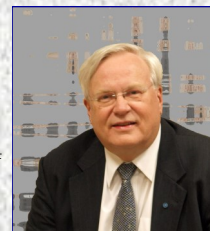


Incoming BCCM Members

The Chair is pleased to announce two new Board members who began their terms earlier this year.

Gale F. Hoffnagle, CCM #152 and QEP

Gale Hoffnagle, a senior vice president and a leader of TRC's Air Quality Consulting Practice has been an active member in the AMS since 1968 and a CCM since 1976. In 2104 he received the Henry T. Harrison Award for Consulting Meteorology. He has worked for TRC since 1982



(Continued on page 3)

Incoming BCCM Members, continued

in various consulting and managerial positions and currently leads 80 air quality scientists and engineers in performing permitting and consulting work for a wide range of industrial and governmental clients.

Mr. Hoffnagle has made substantial contributions to professional organizations including principal leadership roles. He is a Past President of the Air and Waste Management Association, the National Council of Industrial Meteorologists, and the Connecticut Academy of Science and Engineering. He has also held various Committee Chairman posts for organizations including the AMS and the American Petroleum Institute.

As a CCM and Qualified Environmental Professional Mr. Hoffnagle has provided clients with environmental consulting expertise for more than 45 years.

For additional information, download [Mr. Hoffnagle's Online CCM profile](#).

Steven R. Hanna, CCM #351

Dr. Hanna is a Fellow of the AMS, the 1994 recipient of the AMS Award for Outstanding Contribution to the Advance of Applied Meteorology, the 2010 AMS Helmut Landsberg Award for research on urban meteorology, and the 2015 Henry T. Harrison Award for Consulting Meteorology. He is an AMS CCM with over 47 years of experience with positions as a Research Meteorologist and Acting Director for NOAA/ERL/ARL Atmospheric Turbulence and Diffusion Lab, Principal Meteorologist with ERT, Inc., Vice President of Sigma Research Corp, and the Founder and President of Hanna Consultants in Kennebunkport, Maine. He has also been a Research Professor at George Mason University (GMU) and since 2002, an Adjunct Associate Professor, Exposure, Epidemiology, and Risk Program, Dept. of Environmental Health, Harvard School of Public Health. From 1988-1997, he was Chief Editor of the *Journal of Applied Meteorology*. During 2014, he was a Councilor of the AMS.



Dr. Hanna is a specialist in atmospheric turbulence and dispersion, in the analysis of meteorological and air quality data, and in the development, evaluation, and application of air quality models. As author or co-author of 6 books and 155 peer-reviewed journal articles, he has made substantial contributions to the science, policy, and the profession. He has been the scien-

tific leader of research programs and field studies for federal agencies including NOAA, DOE, EPA, DHS, and DOD DTRA, as well as for private power, chemical, and petroleum industry and their consortiums. Dr. Hanna has been a member of review panels for numerous private and government research groups in the U.S. and Europe. Steve has provided expert testimony for Congressional hearings, chaired or co-chaired numerous conferences and sessions, as well as been a sought-after invited speaker. He was the initial organizer of the GMU Annual Conference on Atmospheric Transport and Dispersion, which approaches its 20th year this June.

Current projects include development and evaluation of urban dispersion models, planning and analysis of field experiments (e.g., the DHS Jack Rabbit chlorine ten-ton release trials), development of improved dispersion models for large releases of chlorine, independent verification and validation of the DOD JEM 2 model, review of dispersion models for releases from pressurized CO₂ pipelines, analysis of the uncertainties of models applied to the radiological releases from the Fukushima-Daiichi nuclear power plant, and enhancement of links between transport and dispersion, exposure and dose, and health modeling systems.

For more information go to [Hanna Consultants web site](#).

Creative Nonfiction Magazine is Seeking Essays on "The Weather"

[Creative Nonfiction Magazine](#) is seeking unpublished essays on the subject of "The Weather." They are looking for stories about anything from biometeorology to climate change to storm chasing. The winning essay will receive \$1,000. Click on the link above for complete information and guidelines.

The deadline for submissions is **11 May 2015**.

New AMS Information Statement

On 4 January 2015 the AMS Council adopted [One Health](#) as an Information Statement.

***One Health** recognizes that the health of humans, other animals, and ecosystems is interconnected.* This approach involves applying a coordinated, collaborative, multidisciplinary, and cross-sector approach to address potential or existing risks that originate at the interface of humans, other animals, and ecosystem. Recognizing that weather and climate affect the health and well-being of humans, other animals, and ecosystems, meteorologists and climate scientists bring fundamental knowledge, skills, and experiences that can improve health today and throughout the coming decades.

AMS Online Awards and Fellows Nominations

The Council of the American Meteorological Society invites members and friends of the AMS to submit nominations for consideration for the Society Awards, Lecturers, Named Symposia, Fellows, Honorary Members, and nominees for elective Officers and Councilors of the Society. Of particular interest to CCMs are the following awards:

- The Henry T. Harrison Award for Outstanding Contributions by a Consulting Meteorologist
- The Award for Outstanding Contribution to the Advance of Applied Meteorology

Online Site is Open

The [AMS Online Awards and Fellows Nominations web site](#) opened 1 November 2014 with descriptions of the awards and details on the nomination process.

Nomination Deadlines:

- Online Awards and Fellows: **1 May 2015**
- Honorary members: **1 July 2015**
- Lecturers: **1 October 2015**

CCM & Social Media

LinkedIn



The LinkedIn page is becoming more active. If you have not joined, please do! The LinkedIn page is accessible and open **only to CCM's**. You must join LinkedIn (it is free) first before requesting to join the CCM page. Once you join LinkedIn, (or if you are already a member) then just simply type "Certified Consulting Meteorologist" in the search box on the top right to search for our group. We anticipate the LinkedIn site to be an easy way for CCMs to communicate with each other and keep us all abreast of news, developments, and items of interest to CCMs.

Facebook



For all CCMs, colleagues, and the general public, we have a CCM Facebook page. It can be found by searching in Facebook for "**Certified Consulting Meteorologist (CCM)**." This page needs much more interest to be generated beginning with every CCM "liking" the page.

Twitter



For all CCMs, colleagues, and the general public, we have a new Twitter account. Leading up to the Annual Meeting, this year we intend to market the 2015 CCM Forum in earnest via Twitter. Also at the Annual Meeting we use this account to announce upcoming speakers to promote the CCM Forum during each talk. If you are on Twitter, please follow the handle **AMS_BCCM**!

Upcoming AMS Meetings

- [43rd Conference on Broadcast Meteorology, 10-12 June 2015, Raleigh, NC](#) Preregistration deadline: **24 April 2015**
- [13th AMS Conference on Polar Meteorology and Oceanography and the 49th Congress of the Canadian Meteorological and Oceanographic Society: Tropics to Poles—Advancing Science in High Latitudes, 31 May–4 June 2015, Whistler, BC, Canada](#)
- [11th Symposium on Fire and Forest Meteorology, 5–7 May 2015, Minneapolis, MN](#)
- [Third Conference on Weather Warnings and Communication, 10–12 June 2015, Raleigh, NC](#) Preregistration Deadline: **24 April 2015**
- [20th Conference on Atmospheric and Oceanic Fluid Dynamics, 15-19 June 2015, Minneapolis, MN](#) Preregistration deadline: **1 May 2015**
- [27th Conference on Weather Analysis and Forecasting, 29 June–3 July 2015, Chicago, IL](#) Preregistration deadline: **22 May 2015**
- [23rd Conference on Numerical Weather Prediction, 29 June–3 July 2015, Chicago, IL](#) Preregistration deadline: **22 May 2015**
- [12 Symposium on the Urban Environment / 9th International conference on Urban Climate, 20-24 July 2015, Toulouse, France](#)
- [The 9th Certified Consulting Meteorologist \(CCM\) Forum, 13 January 2016 in New Orleans, LA](#) Abstract deadline: **3 August 2015**

The AMS CCM Board and the AMS Committee on Meteorological Aspects of Air Pollution are planning this forum to be jointly held with the 19th Joint Conference on the Applications of Air Pollution Meteorology. The theme is "**Air Pollution Meteorology Studies with Emphasis on Examples Related to Litigation**."

For further information, email Chairperson, [Steven Hanna](#).

Proposed Television Series to Feature Forensic Meteorologists

Maximum Sunshine Productions is trying to develop a television series featuring a side of meteorology that many people are unaware of—forensic meteorology. The proposed series would profile criminal cases in which weather was a factor, whether major or minor. What they are looking for at this point in the process is information about any criminal cases where a forensic meteorologist was called upon for help with the case. The production company is trying to determine if there are enough stories like that to pursue as a full series. Should the series go forward, they anticipate including interviews and perhaps other elements with the meteorologist involved in any case they profile, and there would most likely be a talent fee involved. If you are interested in sharing a case, or if you have more questions, please email [Steve Katz](#).

Use of Satellite Observations for Air Quality Problems with the Help of NASA

by Arastoo Biazar, Ph.D., University of Alabama in Huntsville and contributed by William W. Vaughan, Ph.D., CCM, NASA/MSFC Earth Science Office



For the past few decades, NASA has been investing in satellite missions and development of scientific tools to advance earth science. NASA has also been investing in applying these scientific data, findings, and tools to address societal needs and to help tackle environmental challenges. In doing so, in 2011 NASA Applied Sciences Program formed the Air Quality Applied Sciences Team (AQAST) to respond to the needs of environmental managers and consultants. The team consists of scientists with expertise in air pollution, meteorological and air quality modeling, remote sensing, aerosol, and satellite data assimilation. Within the past several years, the team has developed web-enabled tools for management decision support, has quantified emission source contributions to pollution episodes, has detected changes in air pollution resulting from emission controls, has detected the impact of new emissions from oil and gas exploration, and has demonstrated the ability of satellite data assimilation in improving air quality simulations.



As members of AQAST, scientists at the University of Alabama in Huntsville (UAH) have developed techniques to use geostationary satellite observation of clouds, surface radiative temperature, and surface incident radiation to recover surface moisture and heat capacity and to improve boundary layer development and cloud simulation. These improvements in the meteorological model are of utmost importance to regulatory air quality agencies and consultants. In order to meet national ambient air quality standards (NAAQS), states must devise a State Implementation Plan (SIP). As part of this process, different industry-specific emission reductions scenarios are tested within air quality models to decide on the reductions (and thus regulations) that can result in compliance with the NAAQS. Without these demonstrations a SIP will not be approved. Since the cumulative costs of implementing individual SIP control strategies amount to billions of dollars for states and industry, and since these decisions are based on model performance, confidence in model results play an important role in this process. UAH has been helping several consulting agencies and states, including Texas, California, Georgia, and Wisconsin, by transferring technique, data, and tools necessary for satellite data assimilation and thereby improving SIP modeling.

In short, AQAST has effectively responded to societal needs by using NASA earth science and data. Furthermore, the service AQAST provides is funded by NASA and does not deplete scarce resources of local agencies and consultants. For more information see the [AQAST Web site](#).



Lessons Learned from a Consultant's Role in the Space Program

by William W. Vaughan, PhD, CCM,
NASA/MSFC Earth Science Office

Consultants play important roles that impact a vast range of technical and non-technical areas. Recognizing how the details, insights, and process of our work can apply to other areas can bring "lessons learned" to other consulting projects. Early in my career with the National Aeronautics and Space Administration (NASA), I had the privilege of working at the NASA Marshall Space Flight Center during the 1960's when Dr. Werner von Braun served as director. We were engaged in the development of the Saturn launch vehicle used for the Apollo spacecraft to the Moon. The role that my group played involved the definition of the terrestrial environment requirements used in the development of the Saturn launch vehicle and subsequent Space Shuttle and International Space Station launches. Components of the earth's terrestrial environment that affect launch vehicles include the atmosphere (winds, thermodynamics, radiation, humidity, precipitation, lightning, chemistry, weather forecasting, dispersion of aerospace engine exhaust), the sea state, and seismic criteria.

Our projects included not only creating the terrestrial environment requirements but also consulting on the engineering applications of the terrestrial environment. In particular, as we designed and developed the Saturn launch vehicle, a number of extremely useful strategies and insights became apparent. I thought some of our lessons learned might be of interest to share, since they may well apply to consulting issues that CCMs might encounter. They are expressed relative to the area of the terrestrial environment requirements; however, keep in mind that they may be useful in any project. Selected lessons learned involving multi-disciplinary interactions in the development of aerospace vehicles include:

- (1) Terrestrial environment elements that cannot be monitored prior to operational decisions must be for as minimum a risk level as possible consistent with mission capability requirements.
- (2) Terrestrial environment requirements for use in design should be maintained as a separate document integral to the overall mission requirements.
- (3) Use an atmospheric parameter analysis model for mission planning and feedback relative to operational support interactions.
- (4) Emphasize the importance of understanding and verification of Metric and English units usage and application.
- (5) Avoid the "1% risk with 100% confidence of not being exceeded" mentality for terrestrial environment design requirements.

(Continued on page 6)

Lessons Learned, continued from page 5

(6) Focus on a coordinated and consistent set of terrestrial environment design requirements, which is especially important when diverse groups are involved.

(7) Maintain a “central control point” for the definition and interpretation of terrestrial environment requirements and establishment of related operational constraints. A central control point is critical to success of the development process for a project.

Reference: [NASA, 2008, Terrestrial Environment \(Climatic\) Criteria Guidelines for Use in Aerospace Vehicle Development.](#)

Morning is the Time for Powerful Lightning!

Not the largest number of lightning flashes, just the most powerful...

by Themis Chronis, Ph.D. and Phillip Gentry, University of Alabama in Huntsville and contributed by William W. Vaughan, Ph.D., CCM, NASA/MSFC Earth Science Office

An international team of scientists led by Themis Chronis at The University of Alabama in Huntsville's Earth System Science Center used data from the U.S. National Lightning Detection Network (NLDN), as well as lightning networks in Greece and South Africa, to measure the daily power cycle — or peak current — for cloud-to-ground lightning.

They found a cycle that seems to apply everywhere, although the difference between relative strengths of the morning peak and the afternoon “lull” can vary significantly from one region to the next. The peak power spike, however, is constant despite regional daily variations in lightning frequency.

"We can't assume there is a direct inverse relationship in the mornings," said Chronis, "because there are regional variations in the local daily climatology of lightning frequency. In some regions, such as the Gulf of Mexico, lightning frequency starts to rise earlier in the day than over land regions. But the peak power spike is at the same local time as over other regions."



The best theory for why the cycle would be so universal ties the rising and setting sun to circulation in the atmosphere. In the afternoon, when the number of lightning flashes reaches its maximum, air warmed all day by the sun is rising. That rising air carries with it water vapor (which soon turns into ice) and other particles that can pick up an electric charge.

The abundance of these particles not only increases the electric charge in late afternoon clouds but also shortens the distance between the positive and negative charges, making it easier to make a connection and fire off a lightning stroke.

"The really cool part is that in the afternoon, when the flash count goes up the peak current goes down, which is what you would expect," Chronis said. "In the morning, we have a different story to tell."

At night the convective engine is relatively weaker, and atmospheric mixing is reduced. Particle charging continues, however, although there are fewer particles.

"We expect the respective positive and negative charges to be farther apart, so it takes a more powerful charge to overcome the extra distance," Chronis said. "You don't have the solar heating effect, so from a climatological point of view cloud charging is much slower. You have greater potentials being built up, so your breakdown to trigger lightning will be much more powerful."

Without frequent lightning flashes to discharge electric charge built up in the air, the potential current builds to levels not seen in a normal afternoon storm — until it builds enough charge to overcome the constraints and release a powerful bolt of cloud-to-ground lightning.

While typical afternoon lightning might vary from 6,000 to 20,000 amps per ground flash, powerful morning lightning ground strokes can average 30,000 amps, Chronis said.

Results of this research were published recently in the *Journal of Geophysical Research — Atmospheres*. The research team included Chronis and scientists at VAISALA, the University of Arizona, NASA's Marshall Space Flight Center, NASA's SPORT center, the University of Johannesburg and the University's Space Research Association.

Thanks to our CCMs at the University of Alabama and NASA Marshall Space Flight Center for contributing!

We encourage you to share your experiences, views, findings, or studies for the next newsletter.

E-mail your articles to: [Ron Baskett](#) and/or [Jennifer Call](#)

Summer 2015 Newsletter submission deadline is 12 June 2015.