YOUR AMS MEMBERSHIP HAS NEVER BEEN MORE VALUABLE

There are a variety of ways to think about the word “value” and to apply that term in the context of being an AMS member. Those who consider the value of membership in terms of financial benefit are likely to recognize that their subscriptions to BAMS and Physics Today, as well as any of several types of member discounts (such as that for meeting registration) can easily offset the cost of dues.

While fully appreciating the importance of member discounts on AMS journals, Weatherwise magazine, books, merchandise, meetings, and other services, I have always tended to think of the value of membership in terms of the less tangible aspects—and this has been true for me reaching back far before I was part of the AMS staff. My AMS membership makes me part of a vibrant community of scientists and professionals with common goals. I have always taken great pride in being associated with an organization that promotes the advancement of knowledge and understanding about our environment, that stands up for the integrity of science, and that helps ensure that the scientific understanding coming from the research community is translated into effective actions that protect lives and property.

In addition, my involvement with AMS—especially early in my career—opened up avenues for professional growth that helped shape my career in important ways. Volunteer service with AMS drew me deeper into the community and introduced me to colleagues who have become lifelong friends. AMS meetings further expanded opportunities for networking and collaboration, which allowed my work to be more productive and successful.

Many of the most important turning points in my career can be traced back to my membership with AMS.

I was talking with a longtime member a few months ago about why he enjoys his volunteer service with AMS so much. His words struck me as clear and on target. He said, “The Society is not here to give you things. The Society is here to help you get the most out of your professional career.” I think there are thousands of us in AMS who would agree with this, and who have experienced firsthand the value of being part of an organization that represents a truly incredible community of scientists and other professionals dedicated to serving society. The impact of the science and services provided by the AMS community has never been greater, and the continually expanding role of AMS in serving and representing this community means your AMS membership has never been more valuable.

With new services coming online, we think the tangible benefits of being an AMS member have never been more significant, while the intangible value—the many ways that AMS promotes community and collaboration—also continues to strengthen and grow. If you have colleagues who are not AMS members, but should be, I hope you will encourage them to join AMS and become part of this truly unique community.

Keith L. Seitter, CCM
Executive Director

AMS ANNUAL REPORT NOW ONLINE

The 2015 AMS Annual Report, which outlines the highlights of the Society’s various programs over the course of the prior calendar year, is now available on the AMS website at http://www2.ametsoc.org/ams/index.cfm/about-ams/ams-annual-reports/2015-ams-annual-report/.
Chris Shaffer
Chief Meteorologist, WCCO-TV
Minneapolis, Minnesota

What’s been your most difficult moment on-air? June 17, 2010 was a rough day for local meteorologists. Forty-eight tornadoes terrorized residents from northwestern Minnesota down to near the Iowa border. I was live on-air for hours straight, and every time we focused on one active tornado another one hit. The state would end up with 71 tornadoes that month and lead the nation with over 100 tornadoes that year.

Who has been your biggest role model? I did a career project in high school and had the chance to interview one of the best meteorologists in the business. Paul Douglas was gracious enough to take the time to talk to me. I knew when I left his station that this was what I was going to do for a living. Imagine how elated I was years later when he called me to ask if I would join his weather team at WCCO.

What do you think the next “big thing” is in weather reporting? Viewers “real timing” weather events by using their phones.

How would you define the value of the AMS Seal program? Having the AMS Seal gives you instant weather street cred. I love the brotherhood it provides and enjoy staying on top of all things weather through the various AMS publications.

How do you deal with criticism of forecasts that don’t pan out? You learn to move on quickly and not dwell on it. Think of a quarterback who throws an interception. Clearly that wasn’t the plan. You analyze what went wrong, learn from it, and get back on the field because another storm system will come along soon enough.

What types of weather or weather phenomena do you get most excited about? I love harmless weather events like rainbows and sun dogs. Viewers love to share photos, and it’s comforting to know that nobody got hurt or sustained property damage.

What’s one thing people would be surprised to learn about you? I was a radio DJ in college and for years after graduating. I’ve worked at pop, alternative, and even country stations. I always work song references into my forecasts.

What did you learn in school that is most helpful as a broadcast meteorologist? It wasn’t a topic or a subject matter but rather a trait. I learned to be thick-skinned. Any meteorologist reading this knows our door is always open to criticism. I learned early on to take it well. You’d be amazed how quickly you can turn a critic into a fan by responding in a pleasant way rather than firing back at them.

What does being a “station scientist” mean to you? It means being able to cover more than just atmospheric conditions. I love talking about all relatable subjects like earthquakes, tsunamis, and interesting occurrences in space.

What music should be the soundtrack to your job? I’ve always got music blaring in the weather center at WCCO. I’m big on everything 80s, and I love songs with weather titles like “Rock You Like A Hurricane,” “The Thunder Rolls,” and even “Blame It On The Rain.”

Chris Shaffer earned his CBM in 2009. For more information on AMS Certification Programs, go to www.ametsoc.org.
After graduating from Suffolk University in 2012 with a B.A. in English, Christopher Faucher didn’t imagine himself back on Beacon Hill within a couple of years. But his love for the city and interest in Boston’s academic publishing industry led him to apply to various publishers in the area. In 2014, he was hired as a production assistant for the AMS technical journals.

“I had seen the AMS broadcast seal, but was not familiar with their publications,” Chris comments. “After two years at AMS, I can say that not only am I familiar with the journals but now understand the impact they have in the weather, water, and climate community.”

Chris’s initial role of author submission support and enforcing peer-review formatting has expanded to securing copyrights, assisting with the postacceptance workflow, and interacting with AMS’s commercial press. He quickly learned that organizational skills and time management were of the utmost importance, as production team members work on high volumes of manuscripts at many different points from submission to publication.

Now a senior production assistant, his position allows him to interact with authors of many different backgrounds and experience levels.

“It is just as exciting to communicate with a ‘frequent flyer’ in the technical journals as to assist a first-time author who is submitting a paper based on their graduate thesis with questions about the submission process or what is required after a paper is accepted,” Chris says.

He has also been able to work on projects like the new AMS monographs submission site rollout, which will integrate all new AMS monographs, chapter by chapter, through the same peer review and production pipelines as BAMS and journal articles. He has also recently begun to work with authors on BAMS submissions and is excited to keep learning and expanding his responsibilities.

“My favorite part about working in production has been how varied in scope my tasks can be,” Chris explains. “It can be as focused as checking uploaded files for individual accepted articles, to improving author instructions and clarifying guidelines, up to the more big-picture topics like listening to discussions on the future of our Open Access and data availability policies.”

Chris is also preparing for AMS’s implementation of the Clearing House for the Open Research of the United States (CHORUS) requirements. As a CHORUS member, AMS will be making articles containing publicly funded research more freely available, which will require collecting and analyzing funding information from authors.

Chris was given the opportunity to attend the 2016 Council of Science Editors (CSE) annual meeting in May, which coincided with his two-year anniversary at AMS.

“I was able to interact with colleagues in the science publishing industry and to hear experts in the field discuss upcoming issues and solutions that relate specifically to AMS’s publishing niche,” Chris explains. “Because AMS has a history of being strongly involved with CSE, the conference was beneficial in conveying to me how AMS fits into the larger world of science publishing.”

Chris feels grateful to be working at a time when AMS is in “the golden age of pubs,” and is proud to be contributing to the ever-decreasing article production times.

“Not only are the journals publishing important research, but they are consistently rated at the top tier for their subject matter and discipline,” Chris notes. “I consider myself lucky to have the opportunity to work on such established and respected publications.”

—Rachel S. Thomas-Medwid

The following individuals were recently granted the Certified Broadcast Meteorologist (CBM) designation. For more information on the AMS CBM program, visit us online at www.ametsoc.org.

709 Lisa Stryjewski 2015
710 Robert Bradley Wuenker 2015
711 Marcus Walter 2015
**David H. Richter**, assistant professor of civil and environmental engineering and Earth sciences and concurrent assistant professor of aerospace and mechanical engineering at the University of Notre Dame, was among the 47 engineers and scientists awarded grants as part of the 2016 Young Investigator Program of the Office of Naval Research. This award supports junior faculty whose exceptionally creative research holds promise across a range of naval-relevant science and technology areas, from robotics to solar cells. Honorees, who represent 34 academic institutions, were selected from 280 applicants based on performance, technical merit, and potential scientific breakthrough in areas including active flow control, biofilms, combustion, corrosion, foodborne diseases, metamaterials, ocean–atmospheric interaction, and structural dynamics.

Richter’s work focuses on developing computational techniques and simulations to better understand the turbulence in the marine atmospheric boundary layer (MABL)—where the sky meets the sea—as well as the complex ways in which the air and sea interact and feed off one another.

He was selected for his proposal titled “Fate, Transport, and Feedback of Spray and Aerosols in the Marine Atmospheric Boundary Layer.” As part of this research, Richter will use large-scale computer simulations to study the ways in which small droplets emitted from the ocean surface alter the structure and stability of the MABL, as well as their profound influence on generating accurate meteorological forecasts—particularly regarding tropical cyclone and hurricane tracking—or propagating electromagnetic signals for wireless communications. He and his team of graduate and postdoctoral researchers will be addressing questions that are of critical importance to advancing naval operations around the world, and working in collaboration with a team of scientists located at the Naval Research Laboratory.

Along with AMS, Richter is member of the American Geophysical Union and American Physical Society.

Prior to joining the university in 2013, he served as an advanced study program postdoctoral fellow at NCAR. He received his bachelor’s degree in mechanical engineering from the University of Massachusetts in 2006 and earned his master’s and doctorate, also in mechanical engineering, from Stanford University in 2007 and 2011, respectively.

**Jeremy Reiner** has been promoted to chief meteorologist at WHDH NBC 7 in New England.


Jeremy came to WHDH in from WSOC ABC 9 in Charlotte, North Carolina, where he was a meteorologist for almost seven years. While at WSOC, Jeremy received his CBM seal from AMS. He was the first TV meteorologist in the Charlotte television market to receive this seal.

He has also worked as a meteorologist at WGME-TV CBS 13 in Portland, Maine, and at KAAL-TV ABC 6 in Austin, Minnesota. A native of Dalton, Massachusetts, Jeremy is a 1993 graduate of Lyndon State College in Lyndonville, Vermont, where he received a bachelor’s degree in meteorology.
Robert Mayer White, the first administrator of NOAA, passed away on October 15, 2015. In his long and diverse career, he provided visionary leadership in the National Weather Service, the University Corporation for Atmospheric Research (UCAR), the National Academy of Engineering (NAE), the National Research Council (NRC), and the National Academy of Sciences (NAS), and profoundly shaped the institutional structure of today’s environmental sciences and services.

A Boston native, White and his brother Theodore, the noted historian of American politics, rose from poverty through that city’s fine public schools and distinguished universities, a characteristically American accomplishment in which he took justifiable pride. White received his bachelor’s degree from Harvard University and both his master’s and doctorate from the Massachusetts Institute of Technology (MIT). He served as a captain in the U.S. Air Force from 1942 to 1945. He is survived by his beloved wife, Mavis, and two children, Richard and Edwina.

After completing his doctorate at MIT in 1950, White became chief of the large-scale processes group at the Air Force Cambridge Research Laboratory. In 1959, he became president of the Travelers Weather Research Center in Hartford, Connecticut, eventually leading a staff of 150. With the late Thomas F. Malone, he pioneered private-sector weather services in the United States.

White came to Washington in 1963 as the director of the U.S. Weather Bureau, as one of the last appointments made by President John F. Kennedy. From the very beginning of his government service, he believed that all the federally funded meteorological services should present a united front. His efforts led to the establishment of the Office of the Federal Coordinator for Meteorology and Supporting Research and his appointment as the first federal coordinator.

Continuing his campaign for coordination and consolidation of environmental service organizations, White guided the establishment of the Environmental Science Services Administration (ESSA), which combined the U.S. Weather Bureau with the U.S. Coast and Geodetic Survey and the upper atmospheric research program of the National Bureau of Standards. Under White’s leadership, ESSA ushered in the expanded use of satellite and computer technology and modernized the nation’s weather warning and ocean-monitoring systems. ESSA was transformed into NOAA, again under White’s tutelage, and he served from 1970 to 1977 as its first administrator.

Under his leadership, NOAA developed a strong scientific research agenda, enhanced its weather and climate services, and played an increasingly active role in conservation issues. White himself helped create and implement legislation supporting conservation and environmental quality, such as the 1972 Marine Mammal Protection Act, the 1973 Endangered Species Act, the Coastal Zone Management Act, and the 1976 Fisheries Conservation and Management Act (FCMA). NOAA and White as its first leader were charged with interpretation and management of the very broad congressional directives in these and other legislative directives. Within a couple of years, the FCMA had changed the way many fisheries were managed worldwide. The Marine Mammal Protection Act addressed the critical need to reduce the killing by domestic commercial fishermen of porpoises, seals, and sea lions—a highly sensitive and controversial issue that was eventually realistically resolved through White’s efforts. Similarly, White played a key role in the early implementation of the Endangered Species Act of 1973 that impacted many government agencies and a host of species, and aroused never-ending controversies among users, watchers, and protectors of wolves, polar bears, eagles, and countless other creatures.

In his capacity as NOAA leader, White served as U.S. permanent representative to the World Meteorological Organization from 1963 to 1978, beginning a vigorous leadership role in international environmental affairs. He played crucial roles in the development and implementation of the World Weather Watch, the backbone of global exchange of weather data; the Global Atmospheric Research Program (GARP), devised by WMO and the International Council of Scientific Unions in response to President Kennedy’s call for enhanced research in weather and climate; and the International Decade of Ocean Exploration.
that massively advanced understanding of the world ocean. GARP led to the 1979 Global Weather Experiment that greatly accelerated weather forecast model development and advanced forecasting capabilities, and with White’s steadfast support, GARP evolved into the ongoing World Climate Program.

In 1977, increasingly concerned about the accumulation of greenhouse gases, climate change, and their pervasive effects on society, White took a newly created position within the NRC as head of the Climate Research Board. There, he focused on climate programs in the federal agencies in an effort to develop an effective U.S. National Climate Program.

In 1979, he organized and chaired the first World Climate Conference in Geneva, which raised awareness of the potentially serious consequences of climate variability and change and prompted organization of focused climate research programs in the United States and many other nations. There he gave a far-sighted keynote speech projecting the possible consequences of human-induced warming of the Earth.

In 1977, White became the president of Joint Oceanographic Institutions, Inc., where he led the International Phase of the Ocean Drilling Program with the drill ship Glomar Challenger. Using his science and diplomacy skills, he successfully transitioned what had been a national program into an international five-partner activity. He held that position until 1980, when he became president of UCAR, becoming the first (and only) person to have led both of the leading atmospheric and oceanographic institutions. Among his achievements, he broadened UCAR’s funding base beyond the National Science Foundation (NSF). New trustees from industry and business were brought in, encouraging a wider range of the research on the atmosphere and climate and their impacts on society.

In 1983, White became the president of the NAE, and rapidly enhanced its status and stability. As vice-chair of the NRC, he energetically raised funds for institutional initiatives such as the Arnold and Mabel Beckman Center in California. At the NRC, he guided advisory studies on a broad range of environmental issues, including stratospheric ozone depletion, acid deposition, loss of biodiversity, nuclear energy, radioactive wastes, the potential for waste reduction, and capacity building in developing countries. White was instrumental in laying the foundation for the international Council of Academies of Engineering and Technological Societies. This independent nonpolitical, nongovernmental international organization would probably not have been successful without his involvement.

In 1996 White founded the Washington Advisory Group (WAG), recruiting a spectacular collection of founding members that included three former presidential science and technology advisors, a former director of the NSF, and a former director of the National Institutes of Health. Over the 14-year life of the company, it did diverse and important work for a broad range of public and private entities, both in the United States and overseas. His colleagues there maintained that WAG simply would not have existed without White’s tireless energy; the loyalty he showed to, and earned from, his colleagues; and his love of creating new enterprises.

In his long and distinguished career, White received a multitude of awards and honors, including the Tyler Prize for Environmental Achievement from the University of California, the Charles Franklin Brooks Award from AMS, the Charles E. Lindbergh Award for technology and environment, the Rockefeller Public Service Award for Protection of Natural Resources, the Smithsonian Institution’s Matthew Fontaine Maury Award for Contributions to Undersea Exploration, the International Conservation Award of the National Wildlife Federation, and the International Meteorological Organization Prize. He was elected Fellow of five national and international scientific organizations and a member of the French Legion of Honor, and received eight honorary doctorates during his lifetime. White served a term as president of AMS in 1980 and was vice president of the Marine Technology Society.

The overarching theme of White’s long career in science and government was leadership. His deep understanding of science, his boundless energy, his organizational genius, his adamantine integrity, and his ceaseless industry inescapably marked him for leadership. But his achievements were based equally on his personal qualities that over the years created an ever-growing loyal and loving tribe of colleagues throughout the world. Anyone who ever worked for him forever after worked with him. Moreover—and unusually in today’s world—he seemed to have no enemies. Although meticulously scheduled and punctual, he always had time for lunches at favorite haunts, usually in company with a who’s who of luminaries in science, government, and international organizations. He was a virtuoso chairman, whose meetings started on time and ended early, leaving no agenda item unresolved and no participant unheard. As a manager, he invited and took in ideas and advice, welcomed dissent and informed criticism, and made unhesitating but never uninformed decisions. But
throughout his long and diverse career, he remained a proud weatherman at heart, always excited by new technology, new problems, and new achievements in our science and the services it provides.

Above all, Robert M. White was a visionary builder—not of edifices or dams or bridges, but of solid, substantial, and enduring organizations based on sound science and vital societal needs. Today’s national and international institutions that coordinate and focus science, provide atmospheric and oceanic data for research and operational support, link science and government, and provide vital environmental services were powerfully sculpted by this remarkably talented, remarkably dedicated, and remarkably fine man.


For more than 50 years, David Atlas was among the most influential people in the field of meteorology and a leading figure in the subdiscipline of radar meteorology. Researcher, inventor, laboratory leader, and educator, the contributions made by Atlas have been both broad and deep. Recognition from AMS includes the Meisinger Award and Rossby Medal for research, the Abbe Award for service, and achieving Honorary Membership for the totality of his contributions. He was elected to the AMS presidency in 1975, the National Academy of Engineering (NAE) in 1986, and received NAE’s prestigious Simon Ramo Founder’s Award in 2011.

A member of Tom Brokaw’s “Greatest Generation,” Dave was born on May 25, 1924, the third child of Rose Jaffee Atlas and Isadore Atlas, immigrants from Russia and Poland, respectively. His family was of less than modest means, though there was always food on the table. The extended family formed a close-knit clan centered mostly in the East New York section of Brooklyn. Dave did well in public school, revered his teachers, and was highly motivated by them. He finished public school early, graduating at age 16, while editing the Spanish magazine and presiding over the Pan American Club. Dave’s attempts to play the accordion led to the realization he had no natural talent for it. Later in life Dave would marry Lucille Rosen, and together they would raise a son, Robert, and a daughter, Joan.

Atlas planned to be an electrical engineer when he entered the City College of New York, where his special joy was freshman physics. As a student, Dave held a job at Western Electric, where he worked on a production line for the munificent salary of $35 per week, nearly as much as his father. The events of December 7, 1941, changed his plans, as well as those of millions of people around the world. Atlas accelerated his education with a heavy course load and summer school, expecting to join the military in some capacity. Soon thereafter, Dave applied to premeteorology training in the Army Air Corps, despite not knowing exactly what meteorology entailed. He was rejected, so he reapplied giving the same information and was accepted. Prior to this, he apparently had little if any interest in meteorology.

He reported for active duty at New York University, where Louis Battan became his roommate, best man, and lifetime friend and colleague. Dave finished first in his class and was commissioned second lieutenant in 1944. Thereafter, the Weather Instrument Training School introduced Dave to basic electronics as preparation for Harvard/MIT Radar School. An event, of which he had no knowledge, was the invention of radar in the mid-1930s. A major factor setting the stage for his career was the GI bill, which provided financial assistance that led to his earning the D.Sc. in 1955 from MIT while also working as chief of the Weather Radar Branch at the Air Force Cambridge Research Laboratory (AFCRL). A mere two years later he received the Meisinger Award, his reputation having grown by leaps and bounds in what was now broadly recognized as an exciting new branch of meteorology. A man who set out to become an electronics engineer was drawn into
meteorology by his assignment to service in war. As it turned out, the multidisciplinary education and training that he received had prepared him ideally for the emerging field of radar meteorology. Dave used his innate talents and a lot of hard work to accomplish the rest.

Atlas’s achievements are the consequence of his many qualities, which included his persistence, intellect, creativity, enthusiasm, and love for science. As a taskmaster, there is little doubt he elevated the accomplishments of others to levels they might not otherwise have achieved. Another factor shaping his career is perhaps best described as “serendipity,” a term often used by Dave. In his memoir, Dave commented, “I also began to realize that one had to be opportunistic and flexible to exploit events when they occurred.”

Among Atlas’s early and very significant accomplishments was his invention of the isoecho contour mapping concept. This occurred in 1947, while he was a member of the All Weather Flying Division at Clinton Air Force Base in Wilmington, Ohio. A patent was granted in 1953. The isoecho contour method was the first to quantize and therefore quantify weather radar reflectivity information on cathode ray tubes. This relatively simple concept received widespread use for decades on commercial aircraft and ground-based operational weather radars, and by the research community. It was not until the advent of color displays in the early 1970s that isoecho displays began to be replaced. Indeed, there were many airline pilots who objected strongly to the loss of the traditional CRT displays when color technology became available. By the age of 24, David Atlas was hooked on science and technology.

Dave recruited Roger Lhermitte from France to AFCRL. Their early collaborations with Doppler Radar led to outstanding discoveries. On the occasion of the first Doppler Velocity Azimuth Display measurements, Lhermitte attached an audio speaker to the Doppler output. Dave said, “To our astonishment and exquisite pleasure on 2 December 1957, we heard the Doppler output. Dave said, “To our astonishment and exquisite pleasure on 2 December 1957, we heard the Doppler output. Lhermitte attached an audio speaker to the Doppler output. Dave’s major contributions were to get the ball rolling by articulating his vision and hiring several key staff, including Robert Serafin, who in turn hired Richard Carbone and several others.

Within two years there were two transportable C-Band Doppler radars that became a mainstay of university research for about two decades. The Portable Automated Mesonet (PAM) was the first fully automated mesonet reporting its data via radio telemetry and later via satellite. The new radars and PAM helped to transform the way in which field experiments were conducted because the real-time data displays greatly facilitated knowledge of “present weather.” This led to improved understanding of the initiation, growth, and decay of convective storms, extratropical cyclones, tropical rainfall, and other phenomena. The detection of hazardous wind shear and microbursts using these radars led to agency deployment of Doppler radars for aviation safety in the United States and internationally, undoubtedly saving countless lives.

After two years at the helm of ATD, Dave was asked to assume leadership of the National Hail Research Experiment (NHRE). NHRE was a weather modification program aimed at demonstrating the effectiveness of hail suppression, initially motivated by claims of success in the Soviet Union. After several years of field experimentation, it appeared to Atlas that no positive effect on the suppression of hail would be detectable, if only because of the great natural variability of hailstorms. To the dissatisfaction of the weather modification community, Dave felt strongly that experimental evidence was sufficient to stand down from cloud seeding to analyze existing data and reexamine the basic hypotheses for hail
suppression. Faced with federal program manager resistance, Dave resigned from the NHRE directorship as a matter of principle—later to be vindicated by major NHRE successes, gained from new understanding of deep moist convection more generally, while statistically failing to suppress hail.

During his tenure at NCAR, Dave was elected as AMS president. His term was marked by a focus on atmospheric science and public policy. As president-elect in 1974, Dave and Lucille were included in the first postcultural revolution scientific delegation to the Peoples Republic of China. This historical visit was the forerunner of decades of scientific collaboration between the two countries.

In 1977, Dave left NCAR for the Goddard Space Flight Center (GSFC), where he was given carte blanche to build a new laboratory, the Goddard Laboratory for Atmospheric Sciences (GLAS). He established a new vision for atmospheric research programs there. Dave placed scientific excellence at the top of his priorities, attracting 35 new scientists to GLAS, including Michael King, Joanne Simpson, Louis Uccellini, Antonio Busalacchi, and many others who became prominent in their respective fields. Dave’s interests quickly broadened to encompass the full spectrum of active and passive remote sensing of the atmosphere, oceans, and Earth’s surface. Dave played a prominent role in defining the Tropical Rainfall Measuring Mission (TRMM), working closely with Joanne Simpson and colleagues from Japan to implement the first meteorological radar in space. TRMM has provided unprecedented detail on the structure and distribution of rainfall and improved estimation of cumulative rainfall over tropical oceans—information essential for understanding Earth’s energy budget and water cycle.

Among Dave’s principal written legacies is Radar in Meteorology (published by AMS in 1990), produced and edited from proceedings at the Louis Battan Memorial and 40th Anniversary Radar Meteorology Conference. Battan died in 1986, having been an outstanding educator, researcher, and leader in the field. The conference format was designed by Dave, working closely with the AMS Committee on Radar Meteorology, chaired by Richard Carbone. Tutorial papers were written and delivered by the foremost experts in the field. Owing to Dave’s dogged determination and prodding of authors, Radar in Meteorology contains the most comprehensive collection of contributions that has ever been produced under one cover in radar meteorology.

It is informative to examine Atlas’s extensive publication record from the viewpoint of peer interest in his work. Among more than 230 papers, the most highly cited works span a period of 40 years, from 1953 to 1993. These papers originated in similar proportion at each of Atlas’s principal “venues”—AFCRL, the University of Chicago, NCAR, and GSFC. The most frequently cited publication overall is Advances in Radar Meteorology (1964), the first textbook-type of publication that reviewed Doppler signal theory in depth. Advances served as a treasure chest of empirical relationships among reflectivity factor, attenuation, water content, and rainfall rate, and presented some novel interpretations of the radar equation, complications of Mie scattering, and multiple wavelength responses to hydrometeors.

Four broad categories of papers are prevalent in the Atlas contributions:

- Microwave scattering and attenuation properties of hydrometeors
- Techniques for reduction of bias and uncertainty in radar rainfall estimation
- Studies related to atmospheric turbulence and mesoscale air flow
- Studies related to radar echoes in optically clear air

Atlas retired from NASA in 1984. Although formally retired from government service, his enthusiasm for science and discovery never waned, remaining strong for his entire life. After retirement, Dave contributed substantially to the understanding of tropical rainfall processes through his many collaborative papers on TRMM-related topics. He became interested in microburst and wind shear detection for aviation safety and invented and patented a technique through which low-level wind shear could be detected with fan-beam air traffic control radars at airports.

A man who set very high professional standards was also a man with great compassion for the lives of others, a man who would do almost anything to help a friend. He touched the lives of hundreds—perhaps thousands—of people worldwide. He loved his wife, children, and grandchildren. He skied (water and snow) and played tennis. His curiosity extended to spirituality and religion. There are many of us who can make the claim to have been a friend and colleague of Dave Atlas, a privilege and honor that we cherish greatly.

—Robert J. Serafin and Richard E. Carbone
Eugene A. Mueller, one of the original architects and chief engineer of the CHILL research weather radar system, passed away on February 15, 2016. He made significant contributions to the field of radar meteorology over a span of four decades. Gene’s technical education began in the U.S. Navy during the final stages of World War II. A quick learner, he was promptly designated an instructor by the navy in their radar school. One of the radars that he taught about was the 3-cm wavelength APS-15A airborne search system. After discharge from the navy, he completed both his B.S. and M.S. degrees in electrical engineering at the University of Illinois. While at the university, he came across a job announcement from the Illinois State Water Survey (ISWS) regarding a project to map rainfall using a surplus APS-15A radar. Gene was hired based on his navy experience with this radar. At that time, radar data was displayed on an analog cathode ray tube (CRT), with stronger echoes producing brighter areas on the phosphorescent screen. The data were archived by photographing the CRT. To better resolve the recorded signal intensity levels, Gene refined hardware that made a preprogrammed step change to the receiver sensitivity at the end of each antenna revolution. The ISWS APS-15A operating in this stepped attenuator mode captured the first observations of a tornadic hook echo on April 9, 1953.

As the ISWS continued to experiment with radar-based rainfall mapping, it became apparent that lack of knowledge of the distribution of raindrop diameters introduced major uncertainty into the interpretation of the radar data. To address this problem, Gene designed and built a camera system that could automatically collect images of raindrops with diameters between 0.5 and 5 mm within a 1-cubic meter sample volume. His camera system design was sufficiently robust to support the collection of drop size distribution data in contrasting climatic regions such as Alaska and Indonesia. Gene’s development of the drop camera equipment, along with the microwave backscattering and absorption calculations from the photographic drop measurements, became the basis of his 1966 University of Illinois Ph.D. thesis.

In the mid-1960s, the National Science Foundation (NSF) announced a program to fund the development of a 10-cm wavelength research weather radar for use in the National Hail Research Experiment (NHRE). Two proposals to develop such a radar were independently submitted by both the ISWS and the University of Chicago. NSF was willing to provide funding for a single radar jointly developed by the two institutions. The resultant radar was named CHILL to recognize its foundations from both the University of Chicago and the University of Illinois/ISWS.

Much of the theoretical support for the radar’s required performance was provided by University of Chicago professor David Atlas while Gene led the engineering effort to construct the radar at the University of Illinois Willard Airport in Champaign. After the NHRE program ended in the early 1970s, Gene took the CHILL radar on a series of more than 10 remote deployments to support atmospheric science field projects at sites ranging from Oklahoma to Montana. Beyond the technical supervision of radar operations during these projects, Gene maintained a keen interest in the physical interpretations of the data presentations. He found the organized echo patterns presented by groups of flying insects and birds to be particularly intriguing.

In the late 1970s, Gene adapted the CHILL to make exploratory dual polarization radar measurements. Tom Seliga of Ohio State University had proposed that the preferential oblate shape assumed by larger-diameter raindrops should provide a small but measurable increase in the received echo strength when a radar was operating at horizontal versus vertical polarization. To test this theory, Gene adapted a motorized switch to the CHILL waveguide system. This arrangement allowed the transmitter power to be selectively routed to either the horizontal or vertical...
polarization ports on the antenna. Seliga's student, V. N. Bringi, processed the CHILL data received in the alternating horizontal and vertical polarization blocks. His results confirmed the existence of the expected enhancement to the horizontally polarized signal level when oblate raindrops were present. The subsequent installation of a magnetic ferrite-based waveguide switch allowed the CHILL's polarization state to be alternated on a pulse to pulse basis. In 1984, Gene applied this switching flexibility to the development of a transmitted pulse sequence and associated signal processing technique to extract the phase difference between the horizontally and vertically polarized received signals. The utility of dual polarization weather radar measurements has become well established since Gene's pioneering efforts; this technology has now been adopted for operational use in the NWS radar network.

In 1990, NSF transferred the CHILL radar from the University of Illinois to Colorado State University (CSU). Gene accompanied the radar during its relocation to an operating site next to the Greeley Weld County Airport. At CSU, Gene oversaw the continuing technical advancement of the radar (now known as CSU-CHILL). Notable radar improvements made at CSU included the adaptation of a dual transmitter configuration in which separate, identical transmitters were used to generate the horizontally and vertically polarized signals. Gene also developed the specifications for the custom-built dual polarization antenna that was acquired in 1994. He retired from his position as CSU-CHILL radar senior engineer in July 1995 and continued to live at his home in Loveland, Colorado.

Bernice, Gene's wife of 63 years, passed away in 2013. He is survived by their daughter, Cindy Mueller; son, Joseph Mueller; five grandchildren; and five great-grandchildren. He was also grandpa to an extended Vietnamese family. They expect to retrace Gene's steps for a fishing trip to White Iron Lake in Ely, Minnesota, next fall.

Gene will be missed as both a mentor as well as a friend.

—Patrick Kennedy, Steven Rutledge, V. Chandrasekar, V. N. Bringi, David Brunkow, and Cindy Mueller