Reflections from our community

Happy 50th anniversary! UCAR and NCAR have grown and matured in so many ways, keeping pace as the world around them has also changed. Over the last half century, we’ve watched environmental issues evolve from local foci to regional and global expanses. What once seemed inconceivable—that humans could impact the global cycles of water, nitrogen, carbon, and sulfur—has now become well-established. The issues identified as most worrisome on the first Earth Day in 1970 did not yet include acid rain, ozone depletion, and climate change.

In 1985, when UCAR turned 25, it stepped up and embraced global change as a major challenge—an early adopter! The Office of Interdisciplinary Earth Studies was created, headed by Jack Eddy, “to bring the atmospheric sciences and other relevant disciplines together to study Earth’s living and inanimate elements as a single system.”

In stride with need, models were transformed from incorporating just the atmosphere to atmosphere-plus-ocean to atmosphere-plus-ocean-plus-land-plus-plants. Very robust work on geochemistry has enabled the inclusion of the carbon cycle into the Community Climate System Model. As well, NCAR has been able to use the growing base of observations to diagnose and evaluate the performance of models on an ongoing basis. Advancement of science, iterative review, development of new tools, and partnerships have been key to achieving UCAR’s mission—to “foster the transfer of knowledge and technology for the betterment of life on Earth.”

Crucially, there was early recognition of the importance of evaluating the “so what?” question: what does climate change mean for people and ecosystems in their place? The work on ecological and socioeconomic impacts pioneered from the 1970s onward by Michael Glantz through NCAR’s Environmental and Societal Impacts Group, and now being carried on through the Integrated Science Program, is more important than ever. Evaluating vulnerability, adaptive capacity, and developing integrated assessment models at appropriate spatial and temporal scales in order to protect people and communities is vital. It was no accident that John Holdren, assistant to the U.S. president for science and technology, asked UCAR and NCAR to sponsor and co-chair the National Summit on Climate Change Adaptation in May 2010. UCAR has the partners and the experience to lead the nation and the world in coping with climate change.

At the summit, we heard that cities, states, planners, and managers need several things, including reliable and frequently updated information from regional climate models, iterative assessments to inform their adaptation strategies, a clearing house for best practices so communities can learn from each other, and advice on what outcomes and impacts should be measured. UCAR, as part of our national science enterprise and accountable to the public, must play a lead role in answering these needs. We must also conduct research to identify the best way to communicate environmental information to different kinds of audiences and to facilitate the engagement of an environmentally literate populace in evaluating responses to a myriad of environmental indignities in concert with climate change. We need to enable the next generation of interdisciplinary environmental leaders to tackle increasingly complex and interrelated environmental problems, and to “foresee and forestall,” as Einstein warned, those problems that are yet unrecognized.

UCAR’s role in global change is multifaceted, but the mission for the next 50 years is clear. Going forward, UCAR must be a leader in helping society learn how to avoid the unmanageable and to manage the unavoidable—before we reach UCAR’s centennial!

For more on NCAR and UCAR’s 50th anniversary, please see UCAR@50 online:

www.ucar.edu/ucarat50

Rosina Bierbaum is dean of the School of Natural Resources and Environment at the University of Michigan.
It was 1989 when Russ De-Souza of Millersville University approached Rick Anthes with the idea of creating a means by which non–PhD-granting colleges and universities could have greater interaction with UCAR. Anthes and many of the member institutions promoted the concept, and in 1991 the UCAR Academic Affiliates Program was founded with the election of the first five institutions. Today the AAP comprises 24 institutions, each contributing to UCAR’s vibrancy, diversity, strength, and inclusiveness and broadening its representativeness across the weather and climate enterprise.

The relationship between AAP members and regular member institutions is assuredly a two-way street. While AAP members benefit as stakeholders in a larger community and are better able to keep their fingers on the pulse of strategic directions in the discipline, UCAR gains a broader perspective; input into strategies that affect the whole community; outspoken advocacy on the part of faculty, students, and administrators heretofore underrepresented in the community dialogue; and colleagues in the research and education arenas. AAP members serve UCAR as equals on key governance committees, play pivotal roles in UCAR Community Programs, and participate in strategic planning.

This 50th anniversary celebrates not only the illustrious history, visionary prescience, and world-class achievements of UCAR/NCAR/UCP, but their ability to embrace new ideas, transdisciplinary challenges, and an expanding institutional culture. As the AAP approaches its second decade as an integral part of this culture, we are grateful for the opportunity to participate in this unique experiment and proud to have contributed to it. As we peer into the haze of the next 50 years, we find ourselves facing complex problems on a global scale, many that cross boundaries of every sort and even threaten our planet’s health. UCAR is uniquely poised to address these challenges and to offer holistic solutions that encompass the gamut from science to socioeconomic impacts.

We are stronger because we press forward together as a community and an enterprise with a cogent strategy drawn from many voices. Happy 50th Anniversary to all.

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After finding out in a summer internship that I wasn’t cut out to be a lawyer, in my sophomore year at Penn State I made the decision to change my major from pre-law to meteorology. I had been fascinated by everything weather since I was a child growing up in Oklahoma, but I was totally clueless about what a career in atmospheric science was about.

The guidance counselor advised me to look into SOARS, a new summer internship program offered through UCAR (see page 50). It was probably some of the best advice I ever received—and it changed my life!

Within the scope of a summer internship, SOARS protégés participate in cutting-edge research facilitated by a team mentoring approach. They also participate in community and career-building activities. Since its inception in 1996, when I was one of the first protégés, over 100 have participated. Much credit is owed to visionary program leaders in those first years, in particular Thomas Windham.

Beyond the many formal awards the program has received and its role as inspiration for programs at other institutions, I think the success of SOARS is best judged by the career trajectories of its alumni. Many are now budding young scientists in their own right at research institutions and universities. I am honored to be the one of the first SOARS protégés to achieve an academic faculty position. I not only hope that my research to improve seasonal forecasts and climate change projections may serve society, but also that I may have the opportunity to broaden participation in atmospheric science, particularly among Hispanics. Given the current challenges of environmental change and socioeconomic inequality, Arizona is certainly in urgent need of both.

On its 50th anniversary, UCAR should be very proud of SOARS. By developing a new generation of scientific leaders, it helps continue to prove an enduring truth in the American story—that the diversity of our nation is one of our greatest strengths and not a weakness. May we continue to take advantage of it!
For Walter Orr Roberts, it was all about “science in service to society.” And without a doubt, NCAR has been faithful to that mission since its inception—an inception that dates back half a century to the postwar halcyon days of American science and technology. Initially, service meant providing the university community (the U in UCAR) with access to the frontiers of high-performance computing. This was a novel resource at the time. It was also a necessary prerequisite for the success of numerical weather prediction. Later, society was served by the superb operational forecast products and services that emerged from these endeavors. It was, and is still, an endless journey. In 1960, NCAR and the universities took those first tentative steps together.

For me, NCAR has always been about a non-negotiable, and at times even zealous, commitment to excellence: excellence in the caliber and capabilities of the people it has attracted to carry its standard; excellence in the outcomes and impacts of the innovative programs it has pioneered; and excellence in the example of scientific integrity it set for itself and, through its pervasive influence, for the entire atmospheric and related sciences enterprise.

If my 23-year NCAR experience (1983–2006) could be captured in a single word, that word would be passion. I witnessed the passion for excellence in every person I encountered. It is true that their passion took many different forms, and it often emerged at the most unexpected times or under the most curious of circumstances. Our middle-aged NCAR remains young at heart because of its passion for partnerships: the truly astonishing number and variety of visitors that have stopped by for a day, tarried for a week, or lingered for the greater parts of their careers has enriched the NCAR experience in ways that Walt Roberts probably could not have anticipated.

The world-renowned Advanced Study Program is the jewel in the NCAR crown. ASP alumni constitute a veritable who’s-who of international science. Today they hold key leadership roles ranging from research and teaching clear across the spectrum to policy and administration. Phil Thompson took this ostensibly simple concept of an academy of young (and old!) scholars within NCAR and molded it into the most powerful instrument of enlightenment and camaraderie that our discipline has known. The ASP experience exposed graduate students and freshly minted postdocs to the intellectual giants of their times. Young minds were entrained in the eddies of knowledge and personal gravitas that these boffins left in their wakes. Captured by these alluring vortices of atmospheric intrigue and climatic quandary, the best and the brightest surrendered to what Jacques Barzun has aptly called the “glorious entertainment” of (atmospheric) science. ASP alone has provided a hundred-fold return on Alan Waterman’s initial investment in what was to be called the National Institute for Atmospheric Research (NIAR or RAIN in reverse!). Would an NSF director be permitted to make a comparable investment today? I think not.

Although much has changed since 1960, NCAR remains as vibrant and current as when it opened its first office in the old Armory Building on University Avenue, across from the verdant University of Colorado campus. Over these intervening 50 years we have progressed from slide rules to petascale cloud computing, from WATS lines to Twitter, from airmail to e-mail, from compasses to GPS, from the Cold War to global terrorism, and from unrestricted access to airport concourses to security screening queues (admittedly, there is some regress). Throughout this turmoil and (boundar-y layer) turbulence, NCAR has continued to reinvent itself and to achieve the measure of change necessary to keep pace with the needs of its staff and the international community. Change is easy to embrace but difficult to achieve. Many organizations born in the 1950s and 1960s are no longer with us, or have been relegated to inconspicuous irrelevance.

But what has not changed about NCAR over these last 50 years—and what will not change in the next 50—is its unflinching passion for excellence and its commitment to service. Happy birthday, NCAR!