

## **The UCAR Open Access Mandate: A Community-Centered Model of Action**

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### **Introduction**

In its role of managing the US federally-funded National Center for Atmospheric Research (NCAR), the non-profit University Corporation for Atmospheric Research (UCAR) has a strong history of supporting and promoting the atmospheric sciences and related fields. In September 2009, UCAR joined a growing number of other institutions worldwide in passing an Open Access mandate requiring that all peer-reviewed research published in scientific journals by its scientists and staff be made publicly available online through its institutional repository, *OpenSky*. The new policy and accompanying repository will enable UCAR to compile, preserve and share a complete record of its intellectual output; increase its community visibility and impact; and advance research in the atmospheric sciences by providing free, worldwide access to UCAR and NCAR scholarship.

The passage of the UCAR Open Access policy was especially noteworthy as it marked the first instance of a National Science Foundation-funded national laboratory to mandate Open Access. Also noteworthy was the broad community-driven process that the NCAR Library, as the leader in this initiative, employed. This presentation will outline the three-phase process adopted by the Library in its effort to reflect both institutional and disciplinary community values and needs through *OpenSky* services and policies.

### **Phase I: Institutional and Sponsor Engagement**

UCAR is a research consortium with members from nearly 100 US universities and over 50 international academic institutions offering graduate programs in the atmospheric and related sciences. The institution was created by the university community fifty years ago to enhance the computing and observational capabilities of the universities and to focus on scientific problems that are beyond the scale of a single institution. UCAR is the governing body that manages the National Center for Atmospheric Research (NCAR), sponsored by the US National Science Foundation (NSF), and has conducted research in the atmospheric sciences since its inception in 1960. For fifty years, we have been a leader in the development of climate models, software tools, support facilities ranging from computational to aircraft, and support services required to perform innovative and global research.

Given our structure and funding model, the network of stakeholders in our research is unique. Universities are our constituents; their faculty members are also our colleagues and peers. The community is highly diverse, especially in terms of each institution's ability to provide scholarly resources to support scientific research. These institutions have looked to UCAR, in keeping with its role as a leader in atmospheric science, for access to our publications. Unfortunately, owing to the traditional restrictions inherent in the scholarly publishing system, we have not been able to provide our members direct access to our research as published in scholarly journals. Motivated to find a solution to this challenge, and buoyed by recent successes within the larger Open Access ecosystem, the NCAR Library began its advocacy efforts with an extensive internal public relations campaign, reaching out to all possible stakeholders, from the Library's own advisory board to NCAR and UCAR governance bodies, including the UCAR Board of Directors, the scientific and support staff, and the NSF, our primary funding agency, all of whom gave the Open Access policy their support.

There were concerns raised during this process. The most frequent was a genuine concern about our relationships with publishers and scientific societies. Unlike a traditional university setting, which supports many disciplines, NCAR research is focused primarily on the atmospheric and related sciences. Over 90% of our scientists are members of at least one of the two major professional societies serving the atmospheric sciences: the American Meteorological Society (AMS) and the American Geophysical Union (AGU). NCAR and UCAR have strong institutional ties to these societies and a deep respect for the integral relationship between their health and stability, their role in promoting scholarship, and the development of a scientific workforce. Over 50% of our peer-reviewed papers are published by either AMS or AGU. Recognizing the heightened tension surrounding the subject of Open Access by publishers in general, and the importance of publishing as a revenue stream for societies in particular, it became apparent to us that for our Open Access initiative to have broad community support, the second step in the process must include ensuring that we move forward in concert with AMS and AGU.

### **Phase II: Professional Society Engagement**

Historically, professional societies have promoted the development and dissemination of disciplinary information and education. More recently, revenues from publishing have become increasingly important to subsidizing those society services and operations. The transition to online-only publishing is an attempt to reduce their increasing costs while preserving support for other society services. However, in the absence of new and viable production and business models, it is clear that most societies will continue to rely heavily on journal subscriptions to underwrite operations for some time to come.

Extensive communication and trust-building were critical to the success of the partnership between the NCAR Library, AMS, and AGU. Opening the conversations, we reiterated our belief that the health of the professional societies and the health of the discipline were deeply intertwined. Further, we suggested that Open Access represents a potential and significant reimagining of their business models, rather than a threat. While the conversation was at first a challenge, we were ultimately asked to take the lead in developing a partnership, and to spearhead a collaborative approach to forging innovative solutions to what are now well-documented tensions between Open Access advocacy by libraries and the interests of academic societies and publishers. Working in tandem for nearly a year, the NCAR Library, AMS, and AGU maintain a healthy respect for each other's positions and now strive for mutually profitable solutions. As a result of our conversations with AMS and AGU, both professional societies have made significant steps towards more openness, not only in reductions to their embargo periods, but equally important, in their willingness to engage with us in the conversation.

### **Phase III: User Engagement in Repository Design**

With support from our internal and external advisory boards, the UCAR Open Access Policy went into effect in September 2009. Its primary provision states that all UCAR authors must deposit the final manuscripts of their published, peer-reviewed works into our institutional repository, *OpenSky*. The obvious next step, then, was to begin development of this resource. Building upon infrastructure that was developed in two US digital library initiatives over the last decade - the Digital Library for Earth Systems Education (DLESE) and the National Science Digital Library (NSDL) - *OpenSky* will be formally released in the fall of 2010.

Throughout our early development efforts, we maintained on-going communications with the many scientific divisions that comprise our institution. In so doing, we were delighted to discover sustained interest in the project and a broad diversity in potential collections. Additionally, we were met with requests for assistance to track usage metrics and impact factors for a number of resources, such as the

NCAR supercomputing facility, which researchers throughout the university community use. Accommodating these requests is a high priority.

In response to both these needs and to the distributed nature of the organization, the NCAR Library adopted a new model of delivery for *OpenSky*. This model relies on an underlying repository, which will house all digitized and born-digital Library resources (including archival resources, special collections such as the NCAR Technical Reports, and *OpenSky* content). The traditional repository functions, including storage, search and discovery, embargo control, and metadata services will be provided. However, we will also provide a suite of web services that integrate repository resources in departmental and divisional work practices in ways that have been tailored to their specific needs and interests. We also anticipate supporting links to related information, including primary atmospheric data managed by the NCAR Data Center. Although the NCAR Library itself does not manage data, we are cognizant of the increasing demand for access to derived atmospheric data and related data products in journal publications, along with the new demands for openness and interoperability amongst data, systems, tools and archives that this will impose on scientific repositories.

Finally, we are challenged by accommodating the decentralized nature of our institution and the irrepressible “creative adaptation” of community resources by divisions and programs. Given the distributed nature of born-digital scholarship, as well as our organizational culture, the challenges inherent in both discovering repurposed objects and of preserving the original object in are considerable.

### **Reflections and Considerations**

We recognize that these are early days in our development; however, we are cautiously optimistic that owing to our approach, *OpenSky* will be successful in dealing with persistent areas of concern for repositories, such as deposit compliance. Based on our experience thus far, we conclude with several reflections and considerations:

1. Open Access is inevitable; however, its implementation is still very much in play. Advocacy and explicating the issues remain important, but equally important is the development of new business models that will ensure the vitality of our academic societies.
2. Technological models that will fulfill traditional IR roles must also meet a community’s expressed needs and in a manner that is consistent with the community’s “lived” culture. Long – standing work flows and processes, some of which are highly idiosyncratic, are not changed without resistance, and in some cases, apathy. There is a tension inherent in designing both for those needs and for new delivery models that will probably not be resolved in the very near term.
3. Know your community and your disciplinary culture; build advocacy from the beginning of the effort. Find the strengths and the “ties that bind” you to your stakeholders. Use these “ties” as tools in the development of community-centered approaches. Because of the time that we invested in understanding our culture and the changes to work processes that a successful and vibrant repository will require, we were able to build advocacy not just internally, but with the professional societies as well.
4. Finally, ideology is inspiring, but not practical. It is critical to be honest about the nature of your community, the relationship between the producers and the providers, and what is sustainable and what is not. In our case, we understood early on that if we did not engage with the societies as partners in this endeavor, we would fail. We believe that the social and political aspects of repository development and management are absolutely essential to building advocacy and participation, which ultimately will determine the success of any institutional repository.

UCAR is a unique institution supporting a unique community. This truth does not diminish the broad implications or applications of its successes in the advocacy or implementation of its recent Open Access initiatives. We believe that the lessons we have learned over the past twelve months may be useful to other academic and research communities, and look forward to contributing to and supporting further advances in the effort to make research more freely and openly available to all.