

A Roadmap to Developing the NCAR Workforce Management Plan December 31, 2009

PREFACE

NCAR has a strong and productive workforce that serves its mission well. The completion of an NCAR strategic plan for the 2009-2014 period presents an ideal opportunity to assess this workforce in the context of implementing the strategic plan. This report is a “roadmap,” intended to ensure that our future workforce will continue to be vibrant and productive, with high morale.

This roadmap is based on the material contained in five detailed subcommittee reports. The NCAR Executive Committee and Workforce Management Plan Executive Committee met together on two occasions to discuss the recommendations contained in these reports, deliberate, and agree on exact content and wording. A final round of edits/modifications were based on input from the UCAR Board of Trustees at their October 12-13, 2009, meeting. In order to keep the roadmap concise, much of the rich background material has been excluded from the overall document. However, this information is preserved in the individual subcommittee reports for the interested reader (presented in Appendix D1-D5). It is important to note that the overall roadmap is a consensus document involving the Workforce Management Plan and NCAR Executive Committees and the UCAR Board of Trustees, while the individual subcommittee reports reflect only the subcommittees’ findings and recommendations. Hence the overall report recommendations do not in all cases agree with the recommendations in the subcommittee reports.

As described in this document, many of the recommendations are tightly coupled and must be implemented together rather than individually. In addition, the recommendations were not prioritized based on a cost/benefit analysis. Full implementation of the roadmap will have important budget implications for the organization that must be carefully analyzed and assessed.

The roadmap would not have been possible without the extensive contributions of UCAR and NCAR staff. Many people contributed via membership on the five subcommittees and by providing input through town hall meetings, Web surveys, and direct correspondence with the Workforce Management Plan Executive Committee. As a result, this report is truly an organization-wide effort and is dedicated to the entire staff.

I. INTRODUCTION AND BACKGROUND

The NCAR workforce of the future will be high quality, productive, and increasingly diverse. It will support the mission of the national center and be strongly interactive with the university community, through collaborations, a healthy visitor program, and visits of NCAR staff to the universities. It will have an appropriate balance among junior and senior staff and visitors. A reasonable turnover rate will ensure renewal and foster change. It will have a significant number of student and postdoctoral appointments. Our personnel policies and practices, including salary and benefits, will be competitive with our peer institutions in the

United States. The staff will balance expertise in science, engineering, education, and administration/management/facilities. They will be provided opportunities for mentoring and career development and be supported adequately by the funds available. Staff will be evaluated and paid fairly and be resilient to minor fluctuations in budgets from year to year. When expertise does not reside in-house, strategic partnerships will provide benefit to both NCAR and partner organizations.

Purpose

The UCAR proposal to manage NCAR, submitted to the National Science Foundation in 2007, stated that “UCAR will work with the NCAR Executive Committee to develop an overall Workforce Management Plan (WMP) as part of NCAR’s overall strategic planning process.” Indeed, one of UCAR’s highest management priorities is to recruit, develop, and retain a high-quality and broadly inclusive workforce for NCAR. The development of this plan and identification of issues does not imply that the current system is ineffective. UCAR has been honored as one of the Best Companies to Work for in Colorado (large company category—more than 200 employees) and first among nonprofits. However, any successful organization should engage in a process of self-reflection periodically in order to ensure that its workforce is nimble, responsive, and at the leading edge.

NCAR is a federally funded research and development center devoted to research, service, and education in the atmospheric and related sciences. NCAR conducts scientific research, operates observational and computational facilities for the science community, and develops and transfers technology and information products to interested users. Our primary sponsor and most important strategic partner is the National Science Foundation (NSF). NSF’s support is highly leveraged by funding provided by other government agencies. NCAR supports NSF’s mission by helping the United States attain a position of world leadership in science and technology, promoting the transfer of new knowledge to society, and contributing to excellence in science and technology education. NCAR is managed by the University Corporation for Atmospheric Research (UCAR), a consortium of 75 member universities that offer PhDs in the atmospheric and related sciences. NCAR has a synergistic relationship with the UCAR member universities, who provide oversight and are one of the biggest users of our computational, modeling and observational facilities.

The WMP is intended to provide a roadmap that will allow NCAR to meet its short- and long-term objectives, consistent with its 2009-2014 Strategic Plan. It supports the “fabric” of NCAR while positioning the center to evolve with a goal of a vibrant and productive workforce that will play a leadership role for many years to come.

In creating strategies for an effective workforce, we conducted a scan of external factors that describes the environment in which we operate. Such factors include demographics of our potential workforce, especially in critical skills areas; projected labor trends such as staffing supply and demand; policies and compensation practices of our peer institutions; funding possibilities and constraints and needs shared by our external stakeholders.

A WMP also requires a snapshot of the organization’s current workforce. Demographics and expected retirement rates, employee satisfaction, compensation and benefits offerings, and current practices provide metrics to compare to our environmental scan. The plan then can

identify areas where we can take corrective measures or where we can enhance our programs to optimize our workforce to meet the demands identified in the NCAR Strategic Plan.

The Process

The organization carried out a comprehensive, thoughtful, and open process to gather the input needed for an effective WMP. This report is the result of that process and will be used by NCAR, UCAR management, and the UCAR Board of Trustees in developing a specific action plan to address many of the recommendations.

The process was launched in December 2008 with the formation of a WMP Executive Committee (EC):

Workforce Management Plan Executive Committee

Roger Wakimoto, Chair (also Subcommittee I chair)

Rick Anthes (ex officio)

Eric Barron (ex officio)

Maura Hagan (ex officio)

Bob Roesch (ex officio)

Terry Woods (ex officio)

Helen Moshak (Subcommittee II chair)

Chris Davis (Subcommittee III chair)

Jim Hurrell (Subcommittee IV chair)

Sue Schaffler (Subcommittee V chair)

Jan Wilmesmeier (administrative support)

Subcommittees were then formed to address key areas of the plan. Over 50 managers and staff participated in these very active subcommittees (**Appendix A**). The *Environmental Scan* Subcommittee looked at external and internal factors that influence our operations and metrics that document them. A *Diversity* Subcommittee analyzed NCAR hiring and promotion practices and trends and identified opportunities for diversification of our workforce. The *Staff and Visitor Balance* Subcommittee reviewed the types of jobs in our current workforce, identifying issues that should be addressed within job groups and the balance of types of jobs needed to address our strategies. Issues pertaining to scientific and research engineering appointments were the focus of the *Scientific and Engineering Appointments* Subcommittee. A *Professional Development and Work Environment* group looked at the diverse needs of our employees for workforce development and job satisfaction.

The subcommittees were not tasked with performing cost/benefit analyses for their recommendations. This guidance was provided so that their discussions could focus without constraint on what they believed was the ideal workforce of the future. However, a complete financial analysis is required and will be performed by UCAR and NCAR management as they craft an implementation plan based on the recommendations contained in this report. It is also noteworthy that many of the recommendations are tightly coupled and should be implemented together rather than alone or in piecemeal fashion. For example, the recommendations for changes in appointment policies and practices for NCAR ladder-track scientists are closely linked with the recommendation to tie the number of ladder scientist positions to the NSF base budget.

The WMP EC provided strategic and administrative guidance throughout the process. This included setting milestones to ensure that timely progress was being achieved and sharing best practices for soliciting input, identifying key findings, and providing final recommendations, all in the context of achieving the NCAR Strategic Plan. The WMP EC endeavored to create a process that was transparent, seeking broad input from the staff and providing timely updates. The EC created numerous avenues for continued communication and involvement of staff such as town hall meetings, interviews with individuals or groups, anonymous surveys, and retreats. A website was constructed and EC meeting minutes were posted and distributed via *Today@UCAR*, the electronic daily newsletter to all staff. The project timeline included scheduled opportunities to inform and seek input from NCAR’s primary stakeholders: employees, UCAR/NCAR management, the UCAR Board of Trustees, and the National Science Foundation (**Appendix B**).

The Personnel Committee of the Board of Trustees was invited to participate by phone in all WMP EC meetings, and minutes of these meetings were distributed to all UCAR staff and the Personnel Committee. A wiki site served as a source of information and also as a working site for all of those involved with creating the WMP (<https://wiki.ucar.edu/display/wmpexec/Home>).

The EC believes the process was robust and inclusive. A rich body of work was developed by the WMP subcommittees, and their findings and recommendations are central to the roadmap created to achieve a balanced and successful workforce for NCAR’s future. Recommendations that are both a continuation of and an enhancement to present institutional practices are **highlighted in blue**. The remaining recommendations are new and, in many instances, major changes to our current system. This partitioning is not precise; it is meant to call out the more significant modifications being proposed.

II. ENVIRONMENTAL SCAN AND INTERNAL DATA

The WMP EC and subcommittees (hereafter WMP Committee) organized a large data gathering effort (internal and external) in an attempt to identify trends, best practices, and areas where discussions should be focused. The survey included research, data collection and analysis, surveys, forums, and self-assessments. The WMP Committee identified the following sources and types of data as being important for input:

<u>Internal</u>	<u>External</u>
Human Resources data and charts	Peer institution survey results and summary
UCAR and NCAR policies and procedures	Detailed data from peer institutions
Institutional metrics	Web research on policies, procedures, practices, and source documents
Survey/discussion with directors and administrators	Diversity data
Workplace Climate Survey	
Diversity data	

Critical aspects of this study were a survey of peer research centers and universities, and Web research on their policies, procedures, and practices. Representatives from UCAR, NCAR, and the UCAR Board of Trustees interviewed the leaders of 16 peer institutions ranging from universities (5) to nonprofits (2) and national and international government/research centers or labs (9).

The external survey revealed a wide variety of workforce policies and practices in areas such as salaries and benefits, diversity efforts, annual performance reviews, promotions, tenure or tenure-like policies, base and outside funding practices, and visitor programs. For example, some research institutes have a tenure-like system while others do not. Almost all of the centers/universities were clear about the percentage of time that should be devoted to research, teaching, and service. Some centers enforce strict limits on the number of tenured/secured positions. There appeared to be a wide spectrum of practices for annual performance reviews. Support staff were either externally funded, supported by the organization, or shared by the scientific/technical staff through a “pool” system. Approximately half of the organizations surveyed have implemented formal mentoring programs. The others simply assign senior staff to employees or support ad hoc programs. Most of the institutions had crafted a formal diversity plan, but a few had no such plans.

Our analysis of the diverse survey results brought us to an important overarching conclusion:

Conclusion: *Successful institutions that have significant similarities to NCAR across the country and world have implemented a wide variety of workforce management practices and policies such that one best workforce management model does not appear to exist.*

Surprisingly, none of the 16 peer institutions had a workforce management plan. As a result, this report is unique and not modeled after a similar effort. In fact, most institutions contacted expressed a great deal of interest in obtaining a copy of our document when it was completed. An external survey of the community reveals an aging scientific and technical workforce and increasing competition to recruit the top people in the field. According to the National Science Board’s “Science and Engineering (S&E) Indicators 2008,”¹ we can expect that the number of trained scientists and engineers in the labor force will increase, yet the average age of this workforce will rise because of the longevity of current workers. Forty percent of all S&E doctoral degree holders² in the labor force are age 50 and older, and doctoral degree holders work slightly longer than the average worker. In fact, at age 69, 21% of those with a doctoral degree work full time (compared to 16% of those with bachelor’s and master’s degrees). Similarly, a review of NCAR’s population reveals that 26% of the current NCAR staff and approximately 40% of the current ladder scientific staff will exceed retirement age (defined as age 65) within ten years. These numbers suggest that we can expect a significant turnover of staff in the near future (Fig. 1). Accordingly, long-range planning is necessary to define the NCAR workforce of the future.

¹ National Science Foundation, “S&E Graduate Enrollments Accelerate in 2007; Enrollments of Foreign Students Reach New High” June 2009, published by the National Science Board

² The R&D labor force does not include just those in the S&E occupations. Of those who spent at least 10% of their time in R&D, only 45% were in S&E occupations.

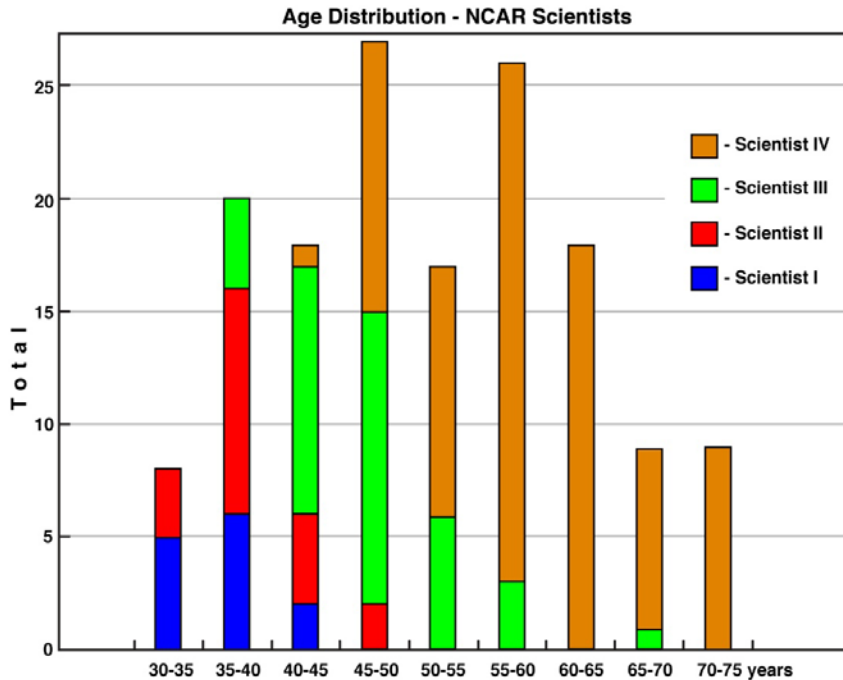


Figure 1: Age distribution of all NCAR ladder-track scientists as of July 1, 2009. Includes four scientists on leave or temporary assignments.

Our country's population is becoming more diverse. The working-age population is projected to become more than 50% minority in 2039 and be 55% minority in 2050 (up from 34% in 2008). The Hispanic population is expected to double, from 15% to 30%.³ However, the number of PhD degrees in the geosciences remains small for those in traditionally underrepresented groups (Fig. 2). At the same time, there are important scientific problems in the atmospheric and related sciences with critical socioeconomic impacts that NCAR must be able to address. As discussed in Section III, evidence suggests that creativity and problem solving, both prerequisites to scientific insight, improve in diverse teams. While it is clear that scientists are central to our programs at NCAR, there are other job categories that are also critical to the success of our mission. For example, engineers and computer scientists are a significant and important component of our workforce and provide opportunities to diversify our staff based on the available pool (<http://www.nsf.gov/statistics/>).

³ From the U.S. Census (<http://www.census.gov/Press-Release/www/releases/archives/population/012496.html>)

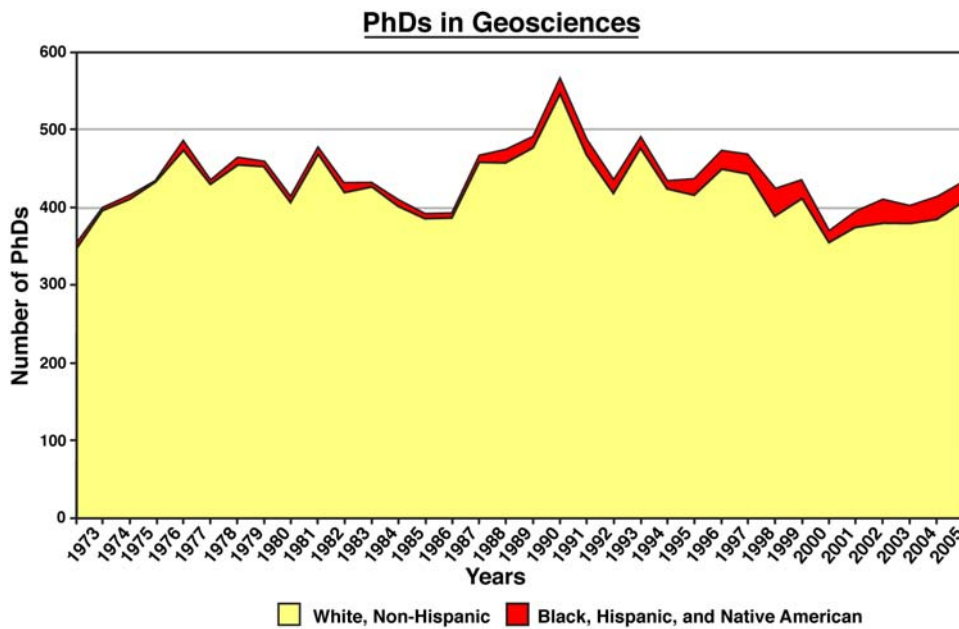


Figure 2: Number of PhDs awarded in geosciences 1973 through 2005. Source: <http://caspar.nsf.gov>

The external scan reveals that funding for the NSF Division of Atmospheric Sciences (ATM) has decreased in recent years (Fig. 3). This has resulted in a corresponding decrease in funding to NSF's grants program and NCAR. The current funding environment is challenging and places constraints on our ability to redress staffing shortages by depending on additional resources.

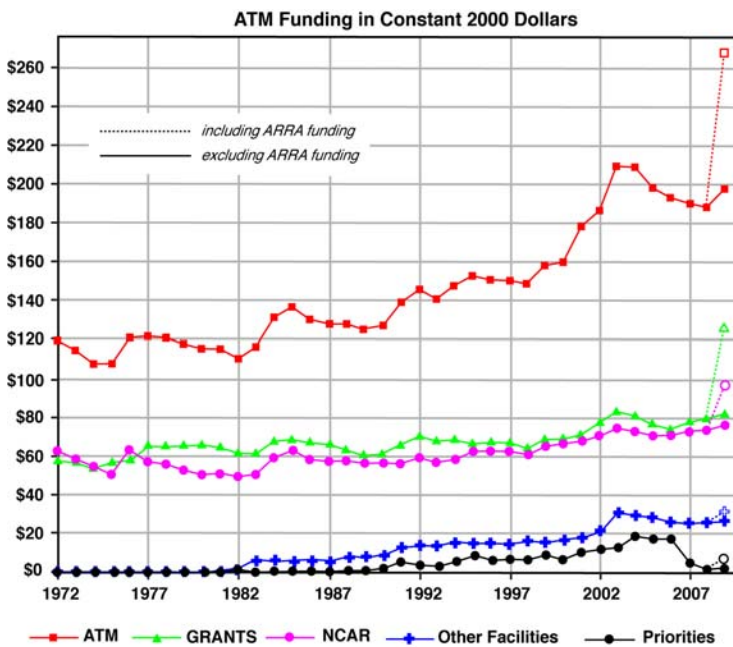


Figure 3: ATM funding in constant 2000 dollars (in millions) from 1972 through 2009. Solid and dashed lines represent funding without and with ARRA (America Recovery and Reinvestment Act). Source: NSF/ATM

The total number of UCAR staff on payroll for the past nine years is shown in Figure 4. A moderate increase in staff can be seen during the first half of the decade; however, the last half of the decade has seen essentially no growth. (Growth resumed in FY09 as a result of improved federal budgets and ARRA stimulus funding).

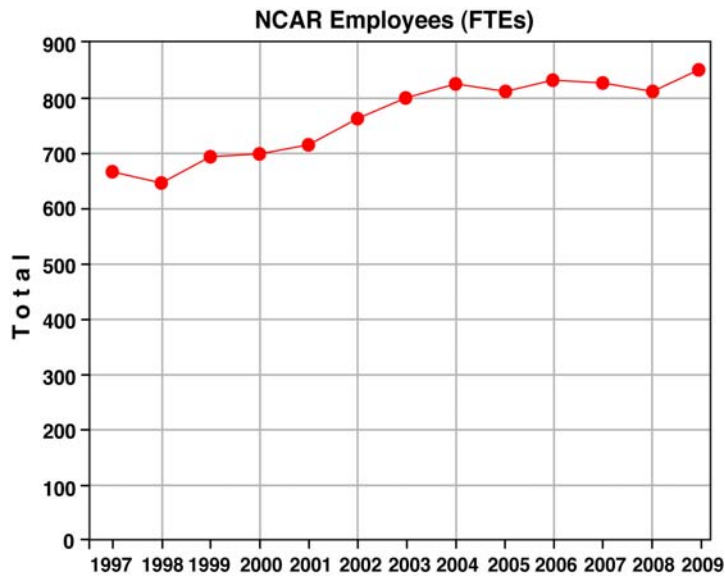


Figure 4: Snapshot of number of NCAR FTE employees, 1997 through 2009, taken on July 1 of each year.

During this time, there has been a relative increase in the number of scientific/research engineering staff and a decline in the number of paid (salaried) visitors. The numbers of scientific and computing support has increased, while the numbers of engineering/technical and administrative staff have remained relatively constant. The number of management positions has increased slightly (Fig. 5).

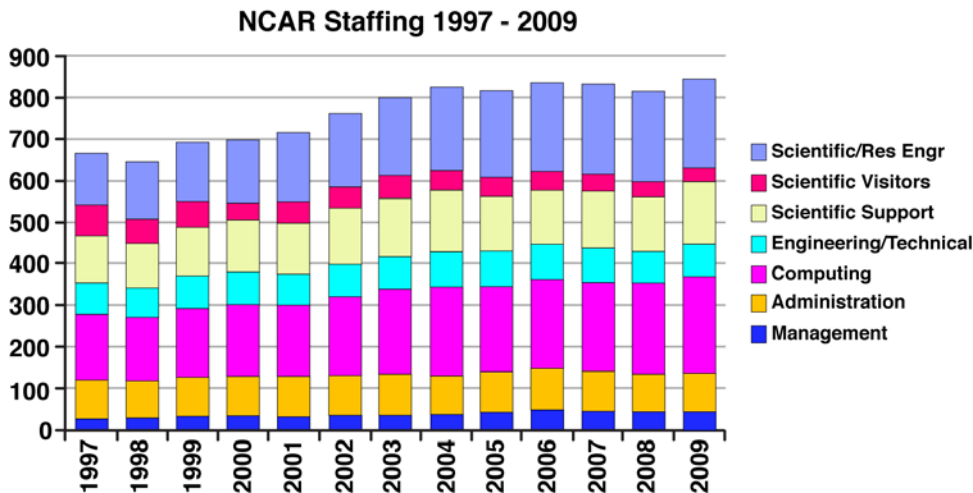


Figure 5: Number of staff (FTEs), by category, from 1997 to 2009, taken on July 1 of each year.

NCAR staff costs for FY 2005 and 2008 are shown in Figure 6. Contributions to staff support from NSF base, non-NSF funds, NSF-Special Funds, CSC⁴, and indirect monies are presented. There has been an increase in base support for senior scientists, managers and engineers. Project scientist support from soft money has increased, while there has not been a noticeable change in the funding support for associate scientists. There has been an overall decrease in support for salaried visitors.

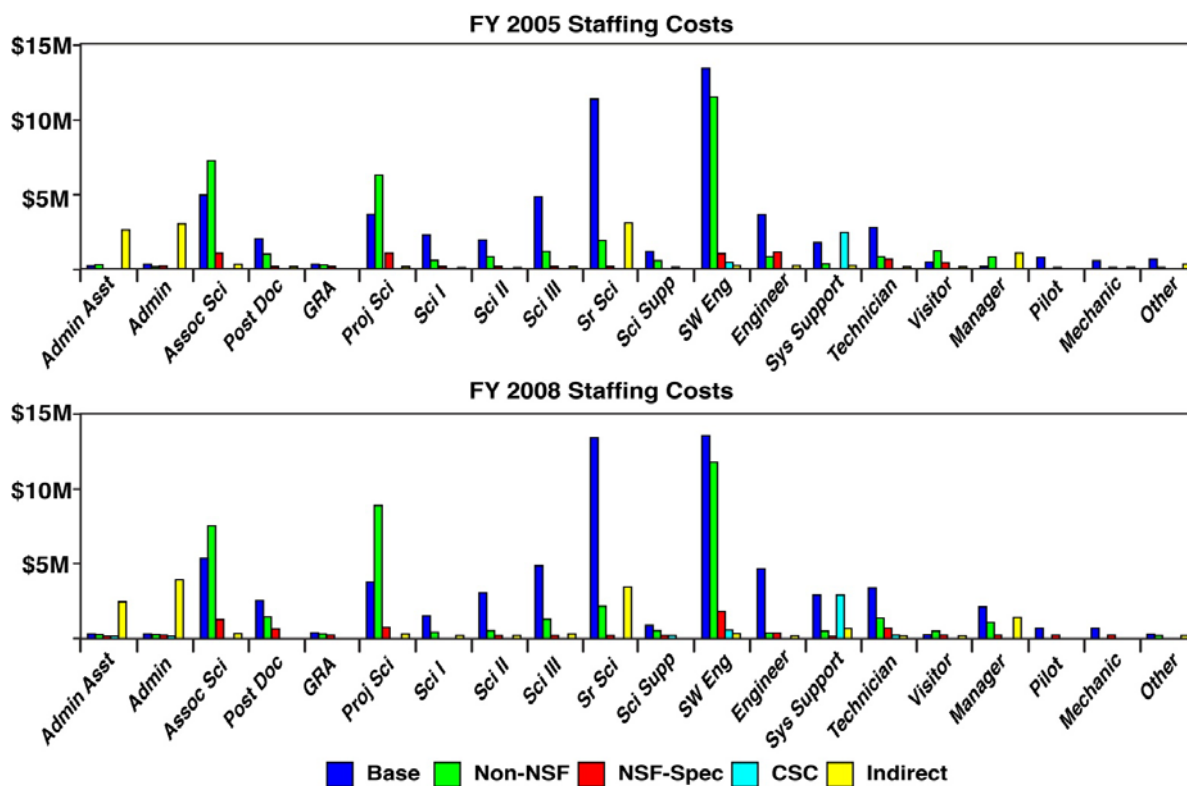


Figure 6: Staffing costs by job categories in FY05 and FY08.

Another way of looking at the costs of different job categories is presented in Figure 7. The greatest allocation of NSF (base) funding in FY08 was to ladder scientists (36%), software engineers (21%), engineers (7%), and project scientists (6%).

⁴ Computing Service Center: Charge per work-time hour required to cover the operating costs of the laboratory/division computing service center. The CSC charge is based on the estimated number of hours worked in a laboratory/division.

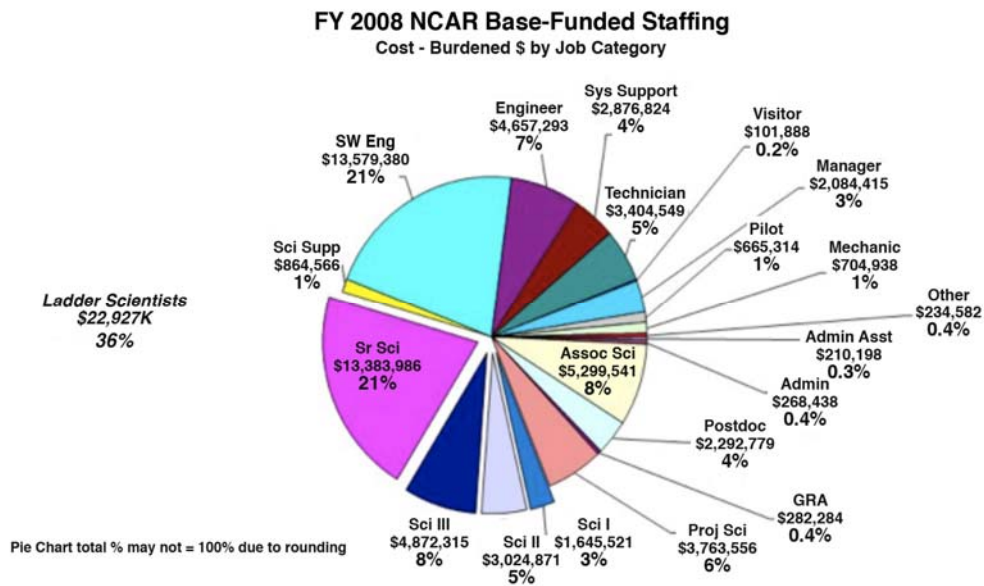


Figure 7: NSF base-funded staff costs in FY08.

One of the most important roles for NCAR is to interact and collaborate with the community, particularly the university community, through its various visitors programs. Figures 6 and 7 show a small amount of NSF base and other funds for paid visitors, and this low level of funding is of some concern. However, these figures do not provide a complete picture of the number of external visitors at NCAR. Figure 8 provides a breakdown of paid visitors and those that are and are not provided financial support (e.g., travel and per diem). NCAR provides at least some financial support for 40% of our visitors.

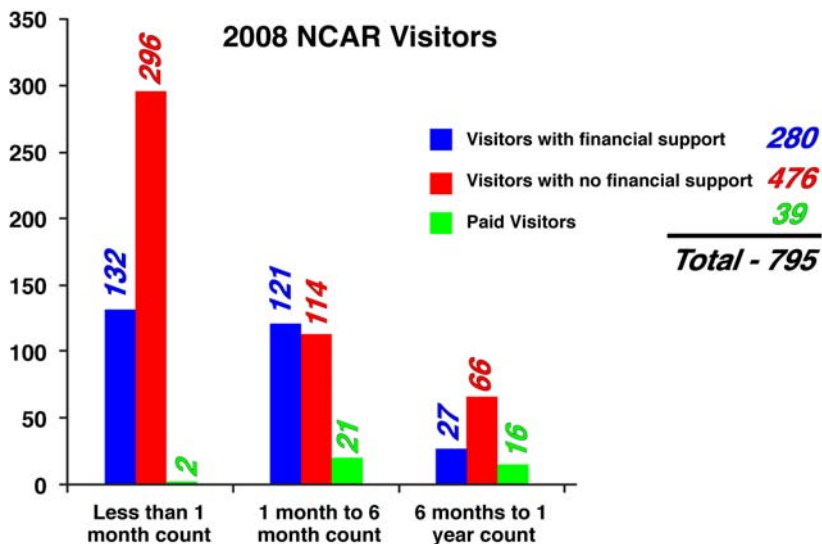


Figure 8: Number of external visitors to NCAR in 2008.

A Workplace Climate Survey was conducted with almost half of NCAR employees (413— 237 men and 176 women) responding to questions about many of the aspects of the UCAR/NCAR environment. This survey was similar to one conducted by the American Physical Society's Committee on the Status of Women in Physics in 2000. The goal of the survey was to explore employees' perceptions of their workplace.

Of the survey respondents, 149 (35.8%) were affiliated with the Earth and Sun Systems Laboratory, 85 (20.4%) with the Research Applications Laboratory, 76 (18.3%) with the Earth Observing Laboratory, and 72 (17.2%) with the Computational and Information Systems Laboratory. The majority of respondents belong to the scientific (40.6%) and engineering/computing (36.8%) groups. Other groups included administration, communication, education, or program specialist (14.9%), director/manager (6.3%), and facilities support (1.4%).

According to the survey results, 85% of respondents agree that the NCAR workplace is welcoming, 89% think that it's friendly, and 88% say it's flexible. Most respondents (93.4%) participate in NCAR-sponsored activities such as lectures, receptions, and parties. An overwhelming majority also responded positively to a series of questions about the capabilities, accessibility, and fairness of their supervisors; positive responses ranged between 76 and 89%. More than 80% of respondents are suitably challenged by their jobs and feel that their skills are well utilized. A gender breakdown of these results reveals male and female responses within 2% in each category.

The survey also contained four open-ended questions. 251 respondents (60%) commented on what contributed to their workplace success. Good supervisors and mentors were frequently cited, as were resources, flexible schedules (including work/family balance policies), supportive coworkers, intellectual freedom, and the absence of micromanagement. Respondents also pointed to their personal work ethic, training (academic and UCAR staff development), and professional competencies. 235 respondents (56%) wrote about hindrances. They cited inadequate budgets and insufficient resources, reorganizations, and moves. Overwhelming workloads, issues with management practices and decisions, and the absence of opportunities for advancement were also noted. 109 (26%) offered suggestions for improving the work environment. These included better communication (particularly as related to budget decisions), the need for better management skills, mentoring, and assistance with career planning.

Cross-cutting Issues

It was clear during the subcommittee deliberations and from the internal survey that there were two cross-cutting issues for NCAR—mentoring and evaluation of employees. Many staff wanted more opportunities for mentoring to help advance their own careers and to help them understand workforce policies and practices. They also wanted increased clarity and transparency about how they were evaluated. These concerns lead to two recommendations:

1. Promote mentoring.

Each laboratory should maintain a program for mentoring of staff, especially those who are early in their careers. Laboratories should create a pool of individuals who have agreed to serve as mentors to those in need to advice and counsel. In these programs, it should be emphasized that mentoring is a shared responsibility; however it is the obligation of the person receiving mentoring to seek advice and take advantage of resources that are available (or to

decide that they are not needed). Mentoring of staff, including managers, is especially needed in order to help increase diversity.

2. Clarify the evaluation process.

NCAR and UCAR management should more clearly define how highly diverse job functions should be evaluated within a given job category. The relative importance of jobs within a job family should be indicated by the Position Description (PD) of each employee in the organization. Over time, the PD may not fully reflect how the employee actually spends his or her time in the job; therefore, it should be reviewed and updated on a regular basis.

Procedures and practices across divisions and labs

The internal scan, highlighted by discussions with administrators and directors, led to a series of recommendations regarding procedures and practices within the organization.

1. Collaborate to establish best management practices across labs and programs and make them transparent by:

- Continuing to maintain and update the NCAR Administrators' Users Manual to document and standardize or customize lab and program processes and practices,
- Expanding new-employee orientation at the lab/program level to include an introduction to lab procedures, committees, and resource people,
- Providing regular opportunities for staff to learn about changes in procedures or staff responsibilities and review lab management protocols through town meetings, staff newsletters, and Web pages; and holding annual administration retreats to share best practices.

2. Regularly collect data on internal and external workforce trends

To support informed dialog with staff and knowledgeable decision making at the individual and institutional level, management should regularly collect and publish workforce metrics for NCAR and share this information with peer institutions.

3. Proceed with the next phases of strategic and operational workforce planning and resource allocation by:

- Including workforce data and projections in the Annual Budget Review (ABR) process,
- Estimating the costs of the WMP recommendations,
- Conducting regular internal assessments of workforce needs and gaps,
- Supporting matrix and project staff management,
- Preparing to meet future workforce requirements through long-term planning and investments in professional development opportunities for staff,
- Investing in training, recruiting, diversity efforts, and retaining and recognizing staff,

- Partnering with the research and university community to plan for the future NCAR and community workforce.

III. DIVERSITY

NCAR's responsibilities as a national center include both advancing science and serving society. Our ability to do both will be enhanced if we diversify our workforce to better reflect and leverage the changing demographics of the United States and the world. Evidence suggests that creativity and problem solving improve with diverse teams. Since both are prerequisites to scientific insight, this suggests that scientific teams will be well served by diversity. It also argues for careful management to create well functioning teams that leverage the advantages of diversity.

NCAR is committed to do science that serves *all* ethnically and culturally diverse U.S. communities. Service to a community depends on knowing the needs of the community, and we are more likely to know these needs when our workforce includes members of the community. Likewise, communities are more likely to use and benefit from research when they have had the opportunity to participate in setting the research agenda. Finally, because our democracy provides the opportunity for every community to weigh in on the value of an institution, NCAR needs to engage every community as a partner in the scientific process to ensure continued relevance and fiscal health.

The NCAR Diversity Committee, which served as the Diversity Subcommittee for this report, has recently adopted the following statement on diversity within the institution:

UCAR values and is committed to diversity in its broadest and most inclusive sense, recognizing that scientific excellence is enhanced by contributions from multiple perspectives. This means working to produce a productive, equitable, and gratifying workplace for all employees, visitors, and collaborators. To that end, we affirm our responsibility to attract, retain, and advance individuals from groups that have been historically underrepresented in the atmospheric and related sciences.

Conclusion: *NCAR must cultivate a world-class, broadly inclusive science and engineering workforce and expand scientific literacy. To address our ongoing responsibilities as a national center, NCAR will extend its research, education, and service to new communities and work internally to maximize opportunities for diversity.*

The committee identified several external and internal efforts that would support attempts to increase diversity at NCAR.

External Efforts

1. Build sustained partnerships with colleges and universities that educate a significant number of minority students.

Contact and first-hand experience with individuals increases their likelihood of being hired by NCAR. Therefore, NCAR should expand our partnerships with minority institutions engaged in research and education in atmospheric and related sciences through the following mechanisms:

- NCAR should expand on existing MOUs or create new ones to establish a robust and sustained program with approximately five minority serving institutions (MSIs).
- UCAR should recruit additional MSIs to become members or affiliates and contribute to NCAR governance.
- As part of the program with each MSI, NCAR should fund sabbaticals for faculty and opportunities for students as a high priority. NCAR should also promote opportunities for NCAR scientists to visit these universities. Providing job opportunities for individuals who are known to NCAR and have demonstrated excellence has served NCAR well, and these efforts will expand our network of participants and opportunities to engage in socially relevant science.
- NCAR should work with MSIs in order to take advantage of funds dedicated to educational deployments of NSF's lower atmosphere observational facilities (e.g., aircraft, radars, sounding systems, and profilers). These deployments are designed to excite and motivate the next generation of users.

2. Expand the NCAR graduate fellowship (GRA) program and reach out to diverse graduate students.

NCAR should fund approximately ten new GRA positions a year, at least two positions for each of the five MSI partners. The graduate fellowship experience is particularly important in competing for postdoctoral positions, which are a gateway to a scientific appointment.

3. Continue to expand summer undergraduate intern programs.

Each NCAR laboratory should maintain a summer undergraduate internship program. NCAR programs should work collaboratively with Significant Opportunities in Atmospheric Research and Science (SOARS), which has 14 years of success in supporting and encouraging students from under-represented groups to seek careers in the atmospheric sciences. NCAR's Earth Observing Laboratory and Computational and Information Systems Laboratory currently target their programs to engineers and computer scientists, respectively. The response, as measured by the number and diversity of the applications, has been highly positive (e.g., EOL's undergraduate engineering program in 2009 received 252 applications—53 female, 24 Black, 19 Hispanic, and 1 American Indian).

4. Articulate a set of guidelines for promoting recruitment and retention of a diverse workforce.

To the extent possible, all search and selection committees should be composed of both males and females and include ethnic diversity and staff with disabilities.

Internal Efforts

1. Continue to provide resources and incentives to those who promote and enhance diversity.

Each laboratory should continue to set aside funding at the beginning of the fiscal year to engage in activities to support and increase diversity. Additionally, the NCAR Director's Office and UCAR President's Office should provide funds for such purposes. These funds will be

awarded competitively and may be part of, or in addition to, programs conducted to build and sustain partnerships with MSIs.

UCAR's performance evaluation process should recognize and acknowledge employees who demonstrate a commitment to a diverse and inclusive workforce. A section in UCAR's Annual Performance Appraisal currently documents diversity-enhancing activities, and diversity efforts should be added to UCAR's Outstanding Accomplishment awards. Contributions to increasing diversity should also be explicitly included in the criteria for scientist/research engineer promotion.

2. Monitor progress toward diversity goals.

Hiring supervisors need to be educated on market availability for jobs where there has been persistent underutilization, and the qualified applicant pool should routinely be evaluated to assess recruitment and selection effectiveness. This is especially important in job categories that enhance our opportunities to diversify the workforce (e.g., engineering, computer science, administration).

Management should address institutional practices that reflect bias and conduct regular assessments to ensure that all practices are equitable. External and internal audits can help identify unfair practices.

We must continue to measure progress and fully communicate metrics to managers and staff with the goal of correcting underutilization or inequitable practices.

3. Develop strategies to leverage diversity.

NCAR should create continued opportunities for dialog with diverse staff. Such dialog should focus on both the unique needs of NCAR's minority staff and the unique skills and attributes that they bring to the workplace. The Asian Listening Circle is a model of this process and should be repeated for other affinity groups.⁵

IV. STAFF AND VISITOR BALANCE

It is important for an organization to continually assess the makeup and career paths of its staff. This self-reflection allows the institution to assess whether there is an appropriate balance and breadth of staff to support its strategic science and service objectives. In particular, NCAR must always assess whether its interactions with the university community are strong in order to fulfill its role as a national center and advance our science and societal applications.

Job categories selected for either a survey, focus group, or both were project scientists (PS), associate scientists (AS), engineers (software, network, mechanical, electrical, facilities,

⁵ The Asian Listening Group made specific suggestions that can be implemented including a) building awareness of cultural differences regarding assertiveness, b) providing technical writing resources for those whose first language is not English, c) providing mentors to those who request guidance, and d) helping NCAR identify and adopt practices and ideas from Asian cultures that could improve NCAR's operation. The success of this program has led to the initiation of a listening group for staff with disabilities.

and system administrators) and administrators (administrative assistants and administrators). The balance of staff appears to vary depending on the source of funding, and external funding has become increasingly important in shaping the fabric of NCAR. There appears to be a consensus that base-funded scientific support positions have declined within the past ten years and have been increasingly tied to large projects instead of individual scientists. The number of ASs has increased slightly, with the source of funding (NSF base versus non-NSF) remaining unchanged for the past four years. Project Scientists are funded mainly from external sources and tied to specific projects. They are generally not support scientists, but they often contribute to large projects. If “support” is defined as contributing either to individual scientists or to large projects, then it is clear that the support for science has increased; however much of the increase has been externally funded.

The science goals in the NCAR Strategic Plan emphasize large projects, both in the imperatives and frontiers (the two focuses of the plan). Although research by individuals will continue to contribute fundamentally to the goals of NCAR, it is likely in five to ten years that NCAR will have most of its scientific staff contributing a significant fraction of their time to large projects. NCAR should primarily be engaged in activities beyond the scope of individual universities. In this scenario, it is likely that the importance of project scientists, associate scientists, and engineers will increase. The need for effective project management will also grow, leading to increasing managerial demands on scientists, a larger role for project scientists in management, and/or an expanded job class of project managers. In the first two cases, there will be increased emphasis on individuals who can do both management and cutting-edge research and development. If the job class of project manager is expanded, the job matrix needs to be publicized so that NCAR can seek highly skilled project managers for large projects, where their dedicated skills are most needed.

There is a concern that there are too few faculty visitors who come for more than six months and return to their university within two years. This important class of visitors should be increased and funded out of the NSF base budget. These are the visitors most likely to form long-term relationships with NCAR staff and programs and maintain ongoing collaborations once they return to their universities, thereby enriching NCAR-university interactions. Figure 8 includes a wide variety of people who are classified as visitors, including some retirees from UCAR and other institutions, some employees of other institutions who reside at NCAR for indefinite periods, and many students. The WMP Committee had a difficult time tracking these types of visitors and recommends that a better accounting of visitors of all types be kept in the future.

Conclusion: *NCAR must be proactive in attracting people with skills to contribute to and lead large projects, must recognize the various manifestations of leadership skills in evaluation and promotion or reclassification, and must state explicitly what those valued skills are. The advent of larger, more complex projects will necessitate continued hiring of project managers, higher-level engineers, project scientists, and associate scientists. The advancement of community facilities will require increases in a variety of technical job categories.*

NCAR must also increase the number of long-term faculty visitors. These appointments often lead to sustained collaborations and bring needed expertise to NCAR as well as a valuable outside perspective on research and technical issues.

Postdoctoral Program and Visitors

The Advanced Study Program (ASP) has been extremely successful over the years, extending the education and experience of young scientists just out of graduate school and establishing productive contacts between NCAR and other institutions that go on for many years after the postdoctoral fellow leaves NCAR. Similarly, visitors from universities bring new ideas and perspectives into NCAR, contribute to NCAR projects, and establish long-term relationships between the universities and NCAR. To be most effective, university visitors should spend a significant time (at least six months) at NCAR and then return to active teaching and research at their home institutions.

1. Increase the total number of postdoctoral appointments immediately by 30% by augmenting ASP and subsequently growing its budget with NCAR NSF base funding.

2. Hire postgraduate scientists instead of postdocs when the goal is work on a specific project for a limited period of time. Hiring postgraduate scientists would effectively augment the number of postdocs and be more affordable (from a base-funding perspective).

3. Increase the number of long-term visitors from universities by about five per year. Improve the definition and tracking of all visitors to NCAR.

Career Advancement

1. Enable employees to advance their careers through current job duties and/or other opportunities.

2. Adopt the recommendation for PhD equivalence from the 2002 Dickson study (www.ncar.ucar.edu/Director/ASPS%20final%20report.pdf):

- a. A master's degree and experience past the master's level that has led to published research (which might typically extend over a ten-year period).
- b. Thematic development of some area of research to a level comparable to that expected in a PhD research project, or a record of peer-reviewed publications equivalent to that expected of a PhD scientist over a several-year period.
- c. Demonstrated expertise and general experience comparable to that expected from PhD coursework.

Relationships with Universities and Other Agencies

1. Strongly encourage sabbaticals to and from NCAR and develop an appropriate sabbatical policy, including consideration of financial incentives.

2. Eliminate "safety nets" or extended leaves of absence (more than one year) for people accepting jobs elsewhere. These people seldom return, and their leaves create budget uncertainty and lack of flexibility for new hires.

Job Categories

Seek opportunities to simplify or streamline the number of job categories.

V. SCIENTIFIC AND ENGINEERING APPOINTMENTS

NCAR's scientific and engineering staff is fundamental to its success as a federally funded research and development center. This staff is at the core of NCAR's mission of helping the United States to uphold a position of world leadership in science and technology, promoting the transfer of new knowledge to society, and contributing to excellence in science and technology education. A recent and important change in our workforce was the creation of the research engineer job track. The track is viewed as parallel to NCAR's ladder scientist track and ensures that the institution will be poised to be a leader in developing cutting-edge technology in the coming decades.

The organization has historically tracked the progression of ladder-track scientists through the various appointment levels. The flow-through diagram illustrating hires, promotions, and departures from 2002 to 2009 is shown in Figure 9.

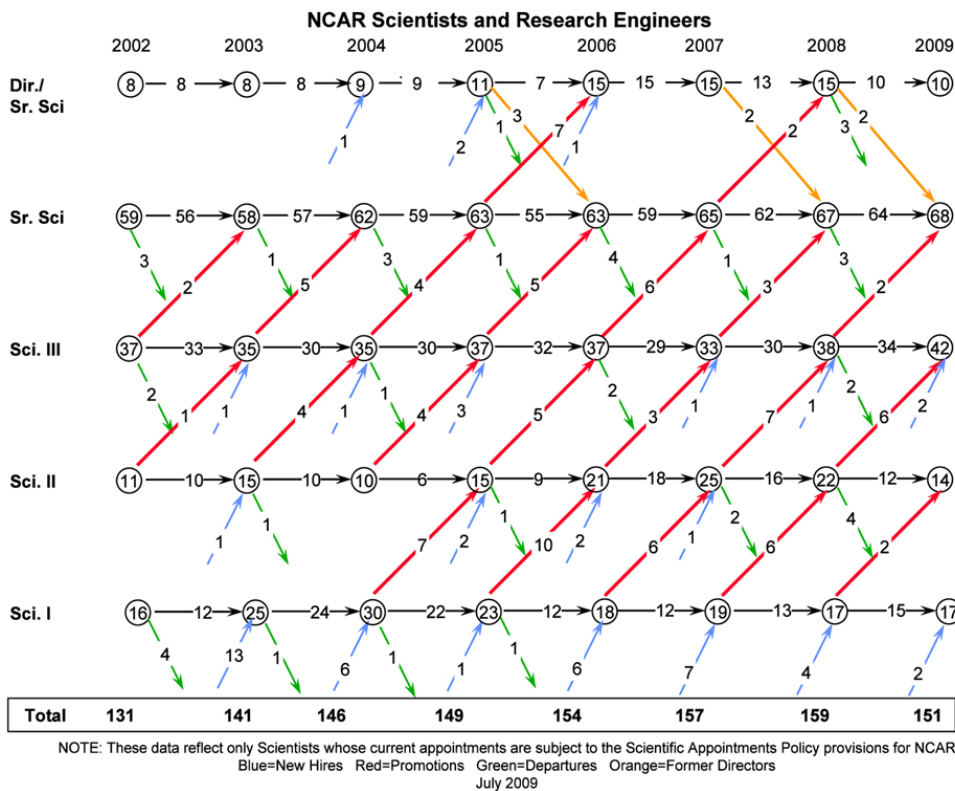


Figure 9: NCAR Scientist flow-through diagram illustrating hires, promotions, and departures.

The recommendations that are shown below can be grouped around two broad themes. The first involves clarifying the UCAR/NCAR policy on retention or termination of ladder-track scientists and research engineers in order to move from what is currently perceived as an implicit or de facto tenure system to one that is clearly described and consistently applied. The subcommittee emphasized that there should be both reasonable job security for ladder-track positions with safeguards against arbitrary or capricious terminations, and clearer delineation of

responsibilities within the ladder track. To that end, these recommendations must be packaged with limitation of ladder scientists to a number that can be afforded by the NSF base budget, a strengthened post–Appointment Review Group (ARG) review process, and a clear delineation of position responsibilities for mission-oriented research and community service.

The second theme is the intent to strengthen the roles of NCAR management units (laboratories and divisions) in the scientific appointments process. Toward that end, the recommendations suggest the transfer of the post-ARG review and some aspects of the ARG review to those units, in the belief that quality control in scientific and research engineering appointments is best done at this level and that these units must be held accountable for ensuring quality. It is also recommended that the NSF base budgets of the management units be adequate to cover the salaries of ladder-track scientists in those units; management at that level will then be responsible to exercise restraint and avoid budget over-commitment.

The subcommittee carefully examined a number of alternative models for structuring scientific and engineering appointments. They included extreme-change models (e.g., a center dominated by visitors with only a small permanent staff or a strongly entrepreneurial center following the example of RAL), various university models (e.g., with low to high retention rates from entry to tenured professor), and models that placed limits on the number of positions or promotions.

Each model was considered in light of its impacts on the following set of important attributes:

- Reputation and quality of staff and institution
- Collegiality and work environment
- Links to the external community
- Academic freedom (both freedom from dismissal for unpopular ideas or research areas and freedom to devote some fraction of time to basic, innovative research in areas favored by the scientist)
- Job security (related to academic freedom)
- Ability to address institutional goals; flexibility
- Fairness
- Overall attractiveness of positions as viewed by top-level scientists and engineers

***Conclusion:** The overwhelming consensus was that none of the other models considered have obvious advantages over the current NCAR system. The historical scientist appointment model at NCAR has been extremely successful in allowing the institution to recruit top scientists, achieve institutional scientific objectives, and maintain strong connections to the academic community.*

Job Security and Academic Freedom

1. Strengthen the appointment process for ladder scientists and research engineers, and clarify the related policies and practices.

Specific clarification should be provided for the policies and practices regarding ladder-track appointments at NCAR. An NCAR scientist policy is presented in **Appendix C**. It includes

procedures for the involuntary termination of ladder-track scientists for reasons of incompetence, neglect of duty, misconduct, or financial exigency or reduction in program.

NCAR should explore ways to increase the prestige and job security of the Scientist III position. Several pertinent issues are discussed in **Appendix C**, and many of the recommendations below are intended to address this need. Key aspects of the tenure-like system proposed in the appendix are:

- For consistency with university faculty appointment systems, authorization by the UCAR Board of Trustees should be required for appointments to the Scientist and Research Engineer III positions.
- Adoption of the policies and practices specified in **Appendix C** and other recommendations in this report would strengthen the standards for promotion to Scientist and Research Engineer III and perhaps also Scientist and Research Engineer IV at the division or laboratory level.

2. Clarify balance between fundamental scientific research and community service.

Expectations for each ladder-track position should be quantified in terms of percentage of time devoted to independent research, mission-oriented research, and both internal and external service. These percentages should be regularly updated as part of the annual review process.

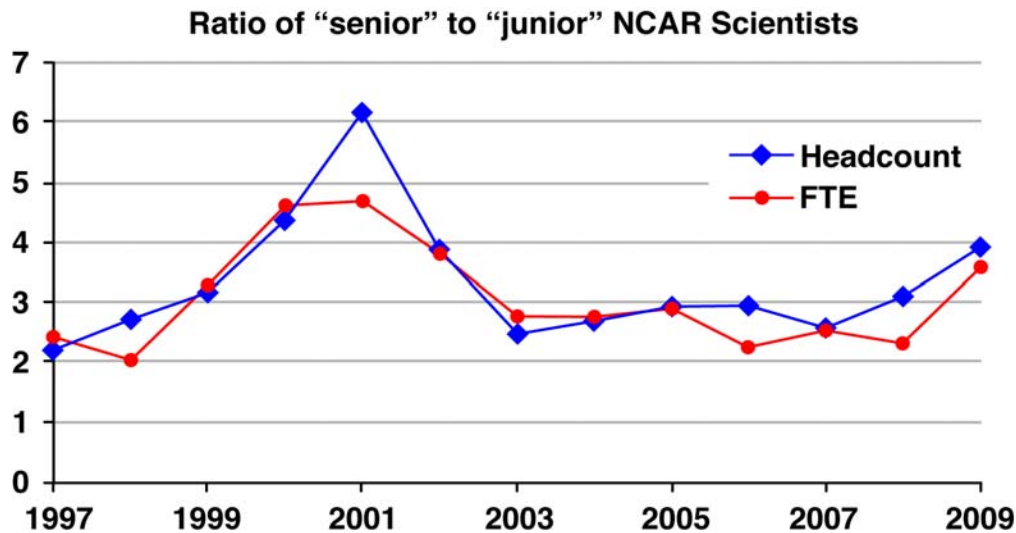
New and prospective employees should be better informed about the dual roles of NCAR scientists and research engineers, expectations of their involvement in basic research and community service projects, and the level and type of support that is available for community service.

The promotion process needs to be clarified to reflect the expected balance between scientific contributions to basic research and community service projects, to ensure that all expected activities are considered appropriately in scientific promotions.

3. Base support and expectations of external funding.

In recent years the number of senior scientists (Scientist III and IV) has increased to a level that is significantly higher than what can be supported by NSF base funds. This has led to stresses in the NCAR budget, including lack of base funds to support other important positions in the science divisions, such as visitors, support staff, and junior scientists. It is critical that NCAR restore an appropriate balance between support for senior scientists and support for other activities.

An appropriate balance between junior and senior scientific staff is difficult to define. This issue was studied in 1997 by a committee of NCAR senior scientists led by NCAR Senior Scientist Bill Mankin. The Mankin Report (<https://wiki.ucar.edu/download/attachments/37423256/Mankin.report.pdf?version=1&modificationDate=1252939596910>) suggested that the ratio of senior (Scientists III and IV) to junior scientists (Scientists I and II) should be about 2.5 to 1. History has shown that this ratio has often been considerably higher than 2.5, reaching a maximum of 6 to 1 in 2001 (Figure 10), when it became quite apparent that NCAR needed to increase its number of junior scientists. A resulting surge in hiring of Scientists I in the next several years restored the balance to near 2.5, but budget shortfalls in recent years have reduced the ability to



hire new staff, and the ratio has crept back to almost 4 to 1. In addition, the budget shortfalls have required the termination of some senior scientists for the first time in many years.

Figure 10: Ratio of senior scientists (Scientists III and IV) and junior scientists (Scientists I and II) at NCAR from 1997 to 2009 (as of July 1 each year). The Mankin Report suggested that this ratio should be about 2.5 to 1.

There is also concern that the ratio of staff costs to total costs in some NCAR divisions has become too high. Experience indicates that when the permanent staff costs exceed 75-80% of the division’s budget, the division becomes stressed in its ability to support travel, computers, visitors, reserves, new initiatives, and other important functions. In some divisions this ratio has approached 90%, which is clearly unhealthy.

The above concerns suggest that NCAR should limit the total number of permanent staff to a cost that is approximately 75-80% of the NSF base budget. Ladder-scientist positions need to be held to a level that is affordable when considering the other needs of the institution.

Support for scientists is currently deficient in many groups at NCAR, and scientists are inefficient in their work as a result. Those groups need to take steps to address this imbalance, even if it requires hiring fewer scientists and research engineers. This critical aspect of the work environment is making NCAR less attractive to scientists and research engineers, who see greater opportunities in university environments where they have greater control over support.

NCAR units should be able to cover the salaries of ladder-track positions from base funds if so required. This inherently limits the number of ladder-track positions a laboratory or division can support. While external funds can temporarily provide salary relief, units should manage budgets so that ladder-track positions can be covered when these funds are no longer available. External funding should supplement base funding to support NCAR’s strategic goals.

Expectations for obtaining external funding need to be defined, clearly communicated (in writing), and incorporated into criteria for review and promotion. Successful fund raising should be weighed as evidence of scientific and engineering excellence and productivity.

NCAR/UCAR management should continue to communicate with agencies and other sponsors and the university community so that they understand funding needs and restrictions at NCAR. For example, NCAR scientists cannot normally compete for NSF funds, and often other agencies' support does not cover NCAR scientists' salaries. In addition, external funding supports many activities that directly advance the science done by university colleagues and the vast majority of non-core proposals are collaborative with the community.

Criteria, Process, and Policy for Scientific and Research Engineering Appointments

Revise appointment criteria and processes and clarify expectations for promotion.

The current Appointments Review Group (ARG) criteria need some revision. ARG promotion is based on a single overarching criterion—scientific and engineering excellence—as demonstrated by substantial (1) scientific productivity, (2) leadership, (3) national and international reputation, (4) contribution to NCAR programs, (5) breadth, (6) scientific and technical service in the NCAR context, (7) broad community service, and (8) awards. We recommend more explicit recognition of some other characteristics including creativity, innovation, and scientific insight. We also recommend some clarification of the programmatic criteria (items 4, 6, and 7) in order to make them easier to understand, particularly for external referees, who, for example, often struggle with the meaning of item 6.

A uniform and standardized set of criteria should be developed by the ARG, reviewed and approved by the senior scientists and research engineers, and recommended to NCAR management. These criteria should be applied in hiring, evaluating, and promoting NCAR scientists and research engineers.

Scientists and research engineers at all levels should have easy access to clear descriptions of the promotion processes, including those within divisions and laboratories, and should receive ongoing advice regarding their progress toward meeting the qualifications for promotion. Annual performance review criteria should be closely aligned with the criteria for promotion, thereby facilitating better assessment of progress toward promotion. There should be uniform promotion/review criteria across laboratories and divisions, although the relative weighting of the criteria may vary, depending on the mission of the division/program and the job requirements of the scientist or research engineer.

More of the responsibility for promotion review should be assigned to the nominating laboratory or division, where the primary quality control is imposed. Laboratories and divisions should solicit an initial set of letters of reference for their own deliberations, assemble and review nomination packages, reach their own recommendation on whether the case should proceed to the ARG, and summarize the process, deliberations, and recommendation in writing along with their assessment of the strengths and weaknesses of the case.

The laboratory or division has full responsibility for deciding which cases will be taken forward to the ARG. Failure of a nomination at the ARG level should trigger the NCAR director to consider why the nomination failed and if quality control failed at the level of the nominating entity. The nomination packages, all solicited letters, and the written summary prepared by the

laboratory or division should be forwarded without change to the ARG, which would remain authorized to solicit additional letters of reference, if necessary. ARG review would thus continue to maintain standards for the institution, but would also assess how well the standards are being maintained at the laboratory and divisional levels. NCAR management should emphasize to the laboratories/divisions that they must forward recommendations to the ARG at the appropriate time, not prematurely or so belatedly as to hold back qualified cases.

A systematic and documented review at the time of promotion from Scientist/Research Engineer I to Scientist/Research Engineer II should be instituted by the home laboratory or division, providing more formal guidance to scientists and research engineers regarding their career development. This procedure would closely mimic the pre-tenure review process at many universities.

The ARG procedures should provide for enough flexibility to allow consideration of cases out of the normal ARG cycle, including both external hires and internal promotions.

2. Clarify the boundaries between the ladder tracks and other appointments.

There are a number of job categories at NCAR in which a scientist's or engineer's contributions could be of great benefit to the organization, so the "up-or-out" policy should apply only to the scientist and research engineer ladder and not explicitly to continued employment at NCAR. Those on the ladder who are unsuccessful in being promoted to the II and III levels should be given fair consideration for available positions in other job categories that are openly advertised and competed.

For consistency with the "up-or-out" policy, if a candidate for promotion to Scientist/Research Engineer III is unsuccessful in the ARG, that individual will not be considered for future appointments or promotions on the scientist/research engineer ladders.

Ladder-track positions have a special nature (person-based and with greater risk), so entering the ladder should require an open process of advertising and hiring. Thus, an employee in a job category outside the scientist or research engineer ladder should first be selected in an open competition before moving to the ladder (or seeking ARG approval for positions at the III and IV levels). If unsuccessful, the individual could then stay in his or her current position, provided that position is retained. (Note: waivers to the search and selection process can be requested following UCAR Policies & Procedures 6-3.6).

3. Better define the policy on stopping or slowing the clock.

The current policy on stopping the clock should be clarified by addressing the following issues:

- How the promotion clock timing is determined and applied.
- How and if the clock and its associated metrics should be interpreted when considering external applicants to the Scientist and Research Engineer II and III positions.
- Circumstances that warrant stopping the promotion clock (which should still allow flexibility for individual circumstances).

- Procedures and responsibilities for granting extensions—for example, the division director makes the recommendation, to be reviewed and approved at the laboratory level.
- Explicit instructions to the ARG that promotion should be based solely on the record, not on the time the candidate’s case has taken to reach the ARG.
- Clear communication of clock policies to the scientific and research engineering staff.

4. Revise and strengthen the post-ARG review.

A strengthened post-ARG review process is needed to guard against abuse of the job security that comes with Scientist and Research Engineering III-IV positions.

To improve the effectiveness of the review and reduce its administrative burden, we recommend transfer of the process to the division or laboratory level. The unit director would use the unit's senior scientists, plus some additional senior scientists appointed by the NCAR director for the expertise needed to assess the case. These scientists are in the best position to assess the quality and significance of the individual's work and contributions to NCAR programs. We further recommend using the current process as a guideline that can be adapted as appropriate to specific needs within the laboratories or divisions. Recommendations would be conveyed to the NCAR director for his or her final decision.

VI. PROFESSIONAL DEVELOPMENT/WORK ENVIRONMENT

A major goal of the WMP is attracting, developing, and retaining world-class employees to achieve the imperatives and frontiers outlined in the NCAR Strategic Plan. This goal is consistent with two goals of the NSF Workforce Plan contained in the NSF Human Capital Strategic Plan (2008). These goals are “Effectively recruit a diverse, world-class, forward-looking and adaptable workforce” and “Build and sustain a capable, diverse, well-trained, forward-looking, and adaptable NSF workforce and enhance retention through learning and professional development opportunities.” UCAR recognizes that a healthy and vibrant organization is continually monitoring the working conditions of its staff. These conditions include equity within UCAR and with comparable organizations for salaries, benefits, promotions or reclassifications, employee recognition, office/lab space, respect in the workplace, and problem resolution processes.

An external survey of 16 successful institutions that have similarities to NCAR is revealing. Most of the institutions offer flextime to their employees. However, only two reported that they offer daycare facilities. All offer a combination of bonuses and incentive awards to recognize their employees, and all but one have formal training and development programs. NCAR offers flextime, daycare facilities, bonus/incentive programs, and training and development programs. Not surprisingly, the external survey revealed a spectrum of performance evaluation/appraisal processes that include goal setting, pay for performance, ranking of employees, self-appraisals, and a focus on deliverables.

A healthy and vibrant organization must always be alert to professional development opportunities to ensure that employees maintain world-class expertise. These include staff training, mentoring, and effective performance appraisals. It is important that employees understand how they can move up in the organization or be prepared for job opportunities

outside of UCAR. Indeed, although our ultimate goal is to retain excellent employees, the institution can also feel a great sense of pride when a former staff member excels in another organization.

Conclusion: UCAR and NCAR enjoy a low attrition rate. Over the past ten years total attrition has ranged between 5 and 11% per year. For regular (without term) employees, it varies between 2 and 4% per year. The UCAR Climate Survey results indicate that 85% of employees find the climate in their workplace welcoming, 88% feel their current job provides ample professional challenge, and 91% would recommend their workplace to others. These findings suggest that our professional development and work environment are excellent. The organization must continually monitor and evaluate these areas to ensure a content, productive, and respectful workforce.

Attracting and Retaining Employees

1. Position salaries strategically.

UCAR's total compensation package (pay, benefits, working conditions, performance management, etc.) should be crafted strategically to meet the needs of the organization in terms of attracting and retaining employees.

2. Promote benefits.

Supervisors should be given training on the benefits available to staff. This includes flexible work options, leadership training programs, and comparison of UCAR benefits with other organizations.

3. Tailor processes so that we can hire the best people in a competitive environment.

Information about salaries should be provided at the time of a job opening. Supervisors should be able to decide the level of preliminary filtering that occurs in HR. For scientist positions (including some project scientists), NCAR should consider developing a central pool of start-up resources (e.g. computer, high-performance computing time, shared support staff, and possibly major laboratory equipment) and funds for other needs and ongoing support so that we can attract the best of the best.

4. Make office/lab space equitable and promote telecommuting.

NCAR and its laboratories/divisions should clarify and communicate to staff the process for allocation of office/lab space, to ensure that the process is open and transparent.

NCAR should provide teleconferencing facilities for all staff so that less time is spent commuting to meetings and UCAR/NCAR's carbon footprint is reduced.

Developing and Evaluating Employees

1. Promote and expand staff training and continuing education.

Technical Training

Management should fund staff training and continuing education and clearly communicate the policies for use and reporting requirements. Supervisors should be made aware of their respective lab policies and their responsibility to ensure that employees are adequately trained for their current job requirements.

Management should publicize and promote opportunities for professional training and continuing education on the employee benefits website, and in new employee orientation. HR should continue to work with internal professional groups to expand employee training and continuing education as resources permit.

The UCAR HR website should advertise the types of training and continuing education that are available to employees, and the procedures to follow to obtain such training.

Training of Managers and Directors

UCAR/NCAR management should continue to support leadership programs that meet the organization's needs for future talent, especially considering that a significant percentage of senior executives and middle managers will be eligible for retirement over the next decade.

LA (Leadership Academy - http://www.fin.ucar.edu/hr/leadership_academy/index.html) and ELP (Executive Leadership Program - http://www.fin.ucar.edu/hr/elp_webpage/) are intense training programs that require a significant time commitment. NCAR and UCAR management should explore additional forums such as comprehensive Web-enabled development tools that provide online training on a 24/7 basis. An example is NOAA's Commerce Learning Center, which hosts a variety of courses and services through the NOAA Workforce Management Office. It may be possible to tie into already existing management tools.

NCAR management should continue the Leadership Assessment and Development (LAD) process—surveying direct reports and colleagues for feedback on supervisors' strengths and areas for additional work. Career coaching and professional development should be incorporated into the follow-up to the LAD. Feedback from employees should be obtained regularly on the performance of managers and leadership to further develop and fine-tune management skills.

2. Tie performance appraisals to other management systems.

Performance appraisals should be linked to other important management systems including pay and rewards, employee development, promotions, mentoring, employee recognition, and succession planning.

3. Continue to emphasize employee recognition.

UCAR should ensure that its employee recognition and rewards policies and practices continue to be part of the UCAR culture to support the organization's goals and mission and are communicated to all staff. Supervisors should be well trained in the application of these policies.

4. Plan for succession.

Management should continually assess whether critical areas need to be strengthened to ensure continued operation if key staff leave the organization. Talented and interested staff need to be provided with opportunities to gain experience in key positions.

Workplace Environment

1. Promote processes for problem resolution.

A communications program is needed to increase supervisor and employee awareness of avenues for problem resolution. HR should continue to provide training and support to help employees deal with staff who are having a negative impact on the climate of UCAR as an accepting and respectful place to work.

2. Expand conferencing tools.

The number of meeting rooms with conference capability needs to be increased at each campus to facilitate improved interaction/collaboration among staff.

There needs to be at least one video seminar room per campus that will display seminars presented at other facilities. Employees should be trained to use Web-based conferencing tools in their own offices for meetings of small groups or distributed staff.

APPENDIX A
Workforce Management Subcommittees

I. Diversity – Subcommittee Chair: Roger Wakimoto

Members – LuAnna Allapowa, Jack Fellows, Maura Hagan, Helen Moshak, Raj Pandja, Mohan Ramamurthy, Warren Washington, Terry Woods, and Cindy Worster

II. Environmental Scan (internal and external) – Subcommittee Chair: Helen Moshak

Members – Rick Anthes, Brant Foote, Leslie Forehand, Pam Johnson, Rick Johnson, Jamaica Jones, Mary Marlino, Meg McClellan, Michelle Rangel, Bob Roesch, and Steve Worley

III. Staff and Visitor Balance – Subcommittee Chair: Chris Davis

Members – Mike Daniels, Sarah Gibson, Gene Harano, Joanie Kleypas, Janice Kauvar, Scott Spuler, Sarah Tessendorf, Bobbie Weaver, and Olga Wilhelmi

IV. Scientific and Engineering Appointments – Subcommittee Chair: Jim Hurrell

Members – Christina Book, Al Cooper, Clara Deser, Jack Fox, Maura Hagan, Marika Holland, Arlene Laing, Joe Klemp, Sasha Madronich, Brian O’Neill, Art Richmond, and Dirk Richter

V. Professional Development/Work Environment – Subcommittee Chair: Sue Schauffler

Members – Brigitte Baeuerle, Jackie Bunting, Rebecca Morss, Alan Norton, Doug Nychka, Delaine Orendorff, Roy Rasmussen, Bob Roesch, Katy Schmoll, Tim Spangler, and June Wang

APPENDIX B

Stakeholders' Meetings

Major meetings were held to inform and solicit input from UCAR's primary stakeholders: employees, management, the UCAR Board of Trustees, and the National Science Foundation.

December 2008

NCAR Scientists' Assembly Executive Committee

January 2009

NCAR Town Hall

February 2009

UCAR Board of Trustees, Personnel Committee

March 2009

UCAR Finance and Administration Town Hall Meeting

April 2009

NCAR Scientists' Assembly, All-Day Retreat

NCAR Town Hall Meeting

May 2009

NCAR Directors and Administrators--Program Management Scan

Asian Listening Meeting

March – June 2009

Survey of External Institutions

June 2009

Scientist Support Jobs Focus Group

Project Scientist Focus Group

July 2009

UCAR Management Committee

Workplace Climate Survey—all staff

Administration Focus Group

Engineer Survey

Associate Scientist Focus Group

September 2009

NCAR Town Hall

UCAR Board of Trustees, Personnel Committee

October 2009

UCAR Board of Trustees

National Science Foundation

APPENDIX C

Scientist and Research Engineering Appointments at NCAR

The following statement is intended to record NCAR's policy and procedures with respect to academic freedom, responsibilities, and appointment policies for individuals on the scientist and research engineer appointment ladders (collectively referred to as scientists herein). It is modeled after the academic policies of UCAR member universities for the purpose of attracting and retaining a high-quality research staff, ensuring and protecting the academic freedom of the staff, and promoting mobility between NCAR scientist and academic faculty positions. This statement refers to the rights and responsibilities that apply to scientists in the organization, and in particular to protection from reduction of salary or termination of employment, and from imposition of serious sanctions, except upon grounds and in accordance with UCAR policies and procedures already in place as well as additional procedures related to this policy.

During the development of the Workforce Management Plan and in discussions with the UCAR Board of Trustees, there was extensive debate about the notion of "tenure" for NCAR ladder-track scientists and research engineers. There was considerable sentiment among NCAR scientists and engineers in favor of a more formal tenure policy, similar to that in many UCAR universities. In contrast, the trustees supported the recommendations involving appointment and possible termination of ladder-track scientists and research engineers, but noted that the formal use of the word "tenure" creates unnecessary confusion between the mission of a university and that of NCAR. The trustees did not support the development of a formal tenure policy at NCAR. In practice, the UCAR policies for appointment and termination of these classes of employees are similar to the policies for tenured faculty at many universities; hence the UCAR-NCAR policies in this area are often referred to as "tenure like."

I. ACADEMIC FREEDOM

Excellence in research depends upon an uninhibited search for truth and its open expression. Hence, it is essential that each scientist be free to pursue scholarly inquiry and to voice and publish individual conclusions concerning the significance of evidence that the researcher considers relevant. Each scientist must be free from the corrosive fear that others, inside or outside the organization, because of biases, differing opinions, or other inappropriate factors, may threaten that individual's job security or professional career. When speaking, writing, or acting as a member of the broader community, a scientist must be free from institutional censorship or discipline, subject to academic responsibility. In such instances, the scientist should clearly state that he or she is not speaking for the institution.

A scientist's comments are protected even though they may be highly critical in tone or content, or erroneous, but such statements are not protected if they either substantially impede the individual's performance of daily duties or materially and substantially interfere with the regular operation of the institution. False statements made with knowledge of their falsity or in reckless disregard of the truth are not protected, nor are public statements without foundation that call into question the fitness of the scientist to perform his or her professional duties.

II. ACADEMIC RESPONSIBILITY

The concept of academic freedom for scientists must be accompanied by an equally rigorous concept of academic responsibility. Scientists have a responsibility to the institution, their profession, and society at large. The rights and privileges of scientists defined through written policies and procedures require the assumption of certain reciprocal responsibilities. Fundamental is the responsibility of scientists to maintain scientific excellence as described in the ARG criteria (<http://www.ncar.ucar.edu/central/arg/docs/criteria.pdf>), including the exhibition of professional leadership and productivity through publications, lectures, contributions to NCAR programs as well as national and international programs, participation in professional organizations and meetings, and community service.

III. LADDER SCIENTIST AND RESEARCH ENGINEER APPOINTMENTS

The policies for appointment of scientific staff to the positions Scientist I-IV and Research Engineer I-IV are described in the NCAR Scientific and Research Engineering Appointments Policy 6-5. Scientist III-IV and Research Engineer III-IV positions are appointments without term and are therefore subject to different standards for termination. The promotion from level II to level III is an “up or out” decision and is subject to time constraints as outlined in NCAR Policy 6-5. The process for appointments to Level III and Level IV positions is:

Review and recommendation to the NCAR director by the Appointments Review Group, NCAR director approval and recommendation to the UCAR Board of Trustees, and Authorization by the UCAR Board of Trustees.

3.1 Termination for Unsatisfactory Performance or Misconduct

Other than for financial exigencies and reductions of programs as described below, a Scientist or Research Engineer III or IV may be suspended or discharged from employment only for violations of UCAR policies, including, but not limited to, reasons of incompetence, neglect of duty, sustained unsatisfactory performance, mistreatment of other employees, research misconduct, financial fraud, criminal or other illegal or unethical conduct, or misconduct of such a nature as to indicate that the individual is unfit to continue as a member of the scientific and engineering staff (hereinafter “for cause”).

The post-ARG review is the process by which the NCAR director obtains the advice and recommendations of peers regarding the performance of Scientist or Research Engineer III or IV. Therefore, the decision to terminate a person in these positions due to unsatisfactory performance shall be made by the NCAR director after considering the evaluations, recommendations, and outcomes from the post-ARG review, which will be conducted every five years for individuals in these positions. The NCAR director may also solicit an interim post-ARG review, triggered by unsatisfactory evaluations in a scientist’s annual performance reviews or regularly scheduled post-ARG review.

If termination for cause is deemed warranted, the NCAR director must request and receive the approval of the UCAR president prior to taking any action. The Board of Trustees shall be provided with a full assessment of all procedures followed, including the post-ARG

process, if applicable, as well as the recommendation of the NCAR director. In a termination for cause, all other UCAR policies and procedures will apply and be followed, including, but not limited to, the Research Misconduct Policy and Procedures 2-5 and those applying to discipline and problem resolution. Following an approval by the Board of Trustees, the NCAR Director shall inform the individual in writing of the decision to discharge the individual.

3.2 Termination for Financial Exigency or Reduction of Programs

The employment of a Scientist or Research Engineer III or IV may be terminated because of: (1) a demonstrable, bona fide institutional financial exigency; or (2) the significant curtailment or elimination of a program within the institution. Financial exigency is defined as a change in the financial resources of the institution that compels a significant reduction in the institution's current operations budget. The determination of whether a bona fide condition of financial exigency exists or whether there shall be a significant curtailment or elimination of a major program shall be made by the NCAR director after consulting with the UCAR president and NCAR Executive Committee, and with approval of the UCAR Board of Trustees. In this or any subsequent consultation process, a Scientist or Research Engineer III or IV appointment may be terminated only after it is determined by the director, following careful review of alternatives, that the condition of financial exigency cannot otherwise be alleviated without more serious damage to the institution.

If there is a termination of a Scientist or Research Engineer III or IV, the NCAR director shall give consideration to quality and productivity of research and relevance to the priorities of the institution and other relevant factors. The primary consideration, however, shall be the maintenance of a sound and balanced research program that is consistent with the functions and priorities of the institution.

In the event of a financial exigency, the NCAR director shall seek the specific recommendations for solving financial exigencies or program reductions from laboratory and division directors, the NCAR Executive Committee, and the President's Council. The NCAR director shall assess all recommendations prior to submitting a documented recommendation for termination to the Board of Trustees. If the termination of a Scientist or Research Engineer III or IV is approved by the Board of Trustees, the individual whose employment is terminated because of financial exigency or reduction of programs shall be notified of this fact in writing, and is normally given one year's notice, consistent with UCAR Policy 6-5. This notice shall include a statement of the conditions requiring termination and a general description of the procedures followed in making the decision. For a period of 12 months after the effective date of termination, the institution shall not fill a new Scientist or Research Engineer III or IV position in the same field of specialization without first offering the position to the person whose employment was terminated.

APPENDIX D Subcommittee Reports

Subcommittee I—Diversity

August 13, 2009

I. INTRODUCTION

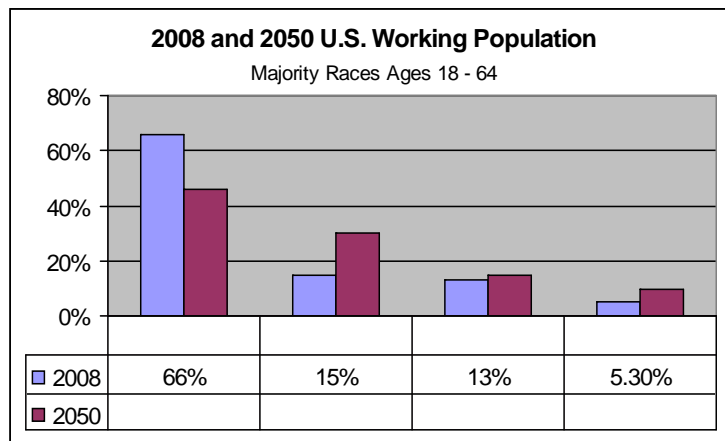
NCAR’s responsibilities, as a national center, include both advancing science and serving society. Our ability to do both will be enhanced if we diversify our workforce to better reflect and leverage the changing demographics of the US and the world.

Scientific understanding is enhanced by diverse conceptual approaches, since multiple perspectives will be closer to approximating the “truth” than any single perspective. Evidence suggests that creativity and problem solving improve in diverse teams.⁵ Since both are prerequisites to scientific insight, this implies that scientific teams will be well served by diversity. It also argues for careful management to create well functioning teams that leverage the advantages of diversity.

As an institution that receives federal funding, NCAR accepts a commitment to do science that addresses the priorities of *all* US communities. Service to a community depends on knowing the needs of the community, and we

are more likely to know these needs when our workforce includes members of the community.

Likewise, communities are more likely to use and benefit from research when they have had the opportunity to participate in setting the research agenda. If NCAR is to follow this more participatory model, we need a workforce that can connect with diverse communities.



Pursuing diversity now positions NCAR to have a stronger

workforce in the future. Increasing diversity is also a pragmatic goal. By 2039 the United States will be a Majority-Minority nation, meaning that members of traditional minority groups will collectively outnumber the historic majority. The U.S. Census Bureau tells us that by 2050 we

⁵ Groups of diverse problem solvers can outperform groups of high-ability problem solvers. Lu Hong and Scott E. Page, Proceedings of the National Academy of Sciences, November 16, 2004, vol. 101, no. 46, 16385–16389

see even larger shifts. For example, Hispanics will comprise nearly one-third of our working population.⁶ This relates to the entirety of NCAR, not only its scientific staff.

Finally, because our democracy provides the opportunity for every community to weigh in on the value of an institution, NCAR needs to engage every community as a partner in the scientific process to ensure its continued relevance and fiscal health.

Two obstacles to realizing the vision of a diverse NCAR workforce are the homogeneous local demographics of Boulder, CO and nationally the low rates of minority participation in science, especially the geosciences. Our survey of peer institutions tells us that other institutions also face these barriers to diversity.

These factors neither excuse our current lack of diversity nor negate the need for more diversity; rather they require a comprehensive and proactive strategy to increase diversity. NCAR must work externally to diversify the pool of candidates available for all jobs, especially those in science and engineering, and internally to build awareness of and opportunity for diversity. Indeed, NCAR and UCAR have placed significant effort into successful endeavors such as SOARS (Significant Opportunities in Atmospheric Research and Science), and the ASP's Faculty Fellowship Program.

In summary, NCAR must diversify its workforce to meet its mandate to do innovative science relevant to an increasingly diverse Nation. To address our ongoing responsibilities as a national center, NCAR must extend its research, education, and service to new communities and work internally to maximize opportunities for diversity.

II. EXTERNAL EFFORTS

NCAR is a center for scientific interaction including a highly skilled network of collaborators. This has historically been a key part of our successful efforts to recruit and retain a talented workforce and to understand relevant science agendas. Most NCAR scientific hires are people already known to NCAR, either as post-docs, visitors, or current employees. A current snapshot shows that less than one-third of our Ph.D. level scientific staff is hired from outside of NCAR. Many NCAR scientists are first NCAR Post-doctoral fellows and many of our Postdocs are already known to NCAR through previous collaboration or are recommended by those who already collaborate with NCAR. While we have made exceptional hires through our network of collaborations, the network is no longer sufficient to produce the kind of diversity in hires necessary to respond to changing demographics.

We identify several steps to take that will continue and enhance NCAR and UCAR's diversity efforts to broaden participation in atmospheric and related sciences.

⁶ <http://www.census.gov/Press-Release/www/releases/archives/population/012496.html>

Recommendation 1:**Build sustained partnerships with schools that educate a large percentage of minority students.**

Our experience and the experience of peer institutions shows that collaboration with minority serving institutions, like all collaborations, must be planned, funded and sustained. NCAR should expand its partnerships with minority institutions engaged in atmospheric sciences education and research activities. NCAR should engage over the long-term, listening to priorities, assessing our ability to collaborate around those priorities, and committing resources to partnerships that serve minority-serving institutions and also return to NCAR an increased understanding of the society we serve and the science in which we engage.

NCAR should expand on existing MOUs, or create new ones, that allow a robust and sustained program with approximately five minority serving institutions (MSIs). As part of the program with each MSI, NCAR should consider funding sabbaticals for faculty and opportunities for students as a high priority. NCAR should also promote and provide opportunities for NCAR scientists to visit these universities. Providing job opportunities for individuals who are known to NCAR and have demonstrated excellence has served NCAR well and these efforts will expand our opportunities not only to engage in socially relevant science, but to expand our network of participants.⁷

NCAR can also be creative about exposing science and our facilities to a broad range of students, with a particular focus on gaining the interest of underrepresented youth in science and technology careers. For example, the NSF recently reserved a portion of the Deployment Pool of funds (\$100,000) for use by educators wishing to gain access to observational facilities for classroom instruction and hands-on learning experience. NCAR/EOL will work with MSIs so that they will be able to submit competitive proposals that will result in the deployment of NSF observational facilities to their campuses.

Recommendation 2:**Expand the graduate fellowship (GRA) program and reach out to diverse graduate students to participate in NCAR.**

NCAR should fund approximately ten new GRA positions on an annual basis, at least two positions for each of the five MSI partners. The graduate fellowship experience is particularly important in competing for the post-doctoral positions which are a gateway to scientific appointment.

⁷ As an example of the rich possibilities of sustained partnerships, since becoming a member of UCAR in 2000, Howard University has graduated 10 Master's students and 6 PhDs in atmospheric science, all of whom are closely tied to NCAR. These students have participated in WRF workshops, SOARS, and visited NCAR through the Advanced Study Program. It is only a matter of time before one of them ends up a permanent employee of NCAR.

**Recommendation 3:
Continue to expand summer intern programs.**

This is a proven vehicle to expose those from diverse communities to our organization, to advance their technical and other job-related skills, and for NCAR staff to learn with members of diverse populations. In addition to expanding ongoing programs in RAL, EOL and CISL, a program needs to be created in what is now ESSL. These programs should work collaboratively with SOARS, which has 14 years of success in supporting and encouraging students from under-represented groups to seek careers in the atmospheric sciences.

**Recommendation 4:
Explore best practices from our external survey and integrate those that fit our institution.**

Among others, Lawrence Berkeley Laboratory, the University of Washington and NOAA have innovative programs that yield results.⁸

**Recommendation 5:
Recruit additional Minority Serving Institutions to become members of UCAR and contribute to NCAR governance.**

**Recommendation 6:
Develop research collaborations that link atmospheric science with the priorities of diverse communities.**

In order to serve society, NCAR must understand how its expertise can serve the diverse priorities of all communities, especially communities who have been historically underserved by science. To do this, NCAR should develop a research agenda that can contribute to broader societal goals. The priorities of underserved communities often lie outside the specific boundaries of atmospheric science, but require atmospheric science knowledge. For example, weather and climate research can and should inform planning around issues as diverse as public health, sustainability, energy, and even economic growth – all important to many diverse communities. NCAR should partner with diverse communities and populations, to contribute its expertise to a broader scope of societal interests, and, even more importantly, create venues for those communities to help shape the research agenda in atmospheric science and NCAR.

III. INTERNAL EFFORTS

The strength of a great National Center depends on its inclusiveness. A measure of such inclusiveness is the gender and racial diversity of staff at all levels, and support for each employee's success. But a diverse workforce alone is not sufficient; NCAR must develop and implement strategies to ensure that diversity is leveraged as a competitive advantage and to align our practices with our values.

⁸ The University of Washington ADVANCE programs successfully recruits women. NOAA works with Vanderbilt and Fisk on a "bridge program" to prepare students for PhD programs, funded by NSF and NASA. Lawrence Berkeley National Laboratory engages employees in a Best Practices Diversity Council.

Recommendation 1:**Continue to provide resources and incentives to those who promote and enhance diversity.**

Each laboratory should continue to set aside funding at the beginning of the fiscal year to engage in such activities. Additionally, the NCAR Director's Office and UCAR should continue providing funding for such purposes⁹. These funds should be awarded competitively and the funds may be part of, or in addition to, programs conducted to build and sustain partnerships with minority serving institutions.

NCAR should recognize and acknowledge employees who demonstrate an awareness and commitment to a diverse and inclusive workforce. This includes a section in UCAR's Annual Performance Appraisal documenting diversity-enhancing activities, and adding diversity efforts to UCAR's Outstanding Accomplishment awards.

Hiring entities should provide funds for relocation of candidates for jobs where local demographics and/or unique expertise make diversity particularly challenging.

Recommendation 2:**Monitor institutional progress toward diversity goals.**

Each year UCAR prepares an Affirmative Action Plan that measures our hiring, promotion and compensation practices. We are pleased that overall this Plan has shown an absence of adverse impact in our practices. The Diversity Subcommittee also engaged in an extensive look at historical practices, particularly for jobs where we have an underrepresentation of female or minority employees. While we find an absence of discriminatory practices we do find patterns of recruitment, such as using our existing networks, which fail to produce diverse candidate pools. In addition to the external activities described above, NCAR can take specific measures to promote progress in this area:

- Provide hiring supervisors with the data necessary to evaluate their own success in recruiting. This means educating hiring supervisors on market availability and demographics for jobs where we have persistent underutilization, and routinely evaluating the demographics of the qualified applicant pool to assess recruitment and selection effectiveness.
- Remain alert to and address institutional practices that reflect bias, or unfairly advantage or disadvantage some groups. For example, studies have shown that a female's contribution to cooperative work tends to be under-valued in tenure decisions at many institutions. External and internal audits can help identify unfair practices.

⁹ Five laboratories/programs currently budget \$20,000 each for diversity programs, and the NCAR Director's Office provides matching funds, for a total fund of \$200,000. In addition NCAR allocates \$141,755 for activities specific to diversity.

- Continue to measure our progress and fully communicate our metrics to management staff and hold them accountable for improving areas of underutilization or unfair practices.
- Require that all search and selection committees be comprised of both male and female staff members and include ethnic diversity to the extent possible.

Recommendation 3: Develop conscious strategies to leverage diversity.

In order to realize the advantages of diversity, an organization has to change in response to the input, ideas, and customs of new employees. We need to ask for, evaluate, and honor new strategies and approaches; and even open up the discussion to include new problems.

- Create continued opportunities for dialog with diverse staff. Such dialog should focus on both the unique needs of NCAR’s minority staff, as well as the unique skills and attributes that they bring to the workplace. The Asian Listening Circle is a model of this process and should be repeated for other affinity groups.¹⁰ (A listening forum for disabled employees is in the formation stage.)
- Identify training and mentoring needed to equip talented staff to progress, particularly in job groups where there is a history of underrepresentation.
- Identify and invest in training and mentoring needs for managers so that they can best understand how to leverage the unique contributions of diverse employees, and can ensure equal opportunities for success of these employees.
- Improve policies that support diverse staff, such as “stopping the clock” for our scientists and greater application of flextime and leave.
- Provide affirmation and where needed, seed funding, for employee-initiated efforts such as the Communicating Science Program.¹¹

¹⁰ During the course of developing NCAR’s Workforce Management Plan we engaged in an Asian Listening Circle as a first step in understanding the priorities of this minority group. This groups suggested a) building awareness of cultural differences regarding assertiveness, b) providing technical writing resources for those whose first language is not English and c) providing mentors to those who request guidance, and d) helping NCAR identify and adopt practices and ideas from Asian cultures and could improve NCAR’s operation

¹¹ The Communicating Science Program seeks to equip UCAR and NCAR scientific and technical staff to be world-class communicators by engaging them in identifying and developing learning opportunities, experiences, and resources to enhance their skills in oral and written communication. Specifically, the ESL program helps scientific staff for whom English is a second language and includes cultural awareness for those traveling abroad.

Subcommittee II—Environmental Scan

August 6, 2009

An environmental scan provides context and data for strategic and workforce management planning. It helps our decision makers and staff develop a common perception based on accurate data and shared knowledge. It identifies strengths, weaknesses, trends, and conditions. It draws on internal and external information. An environmental scan is key to an ongoing process for internal and external openness and responsiveness to changing conditions.

I. BACKGROUND AND PROCESS

There are many approaches to environmental scanning including research, data collection and analysis, surveys, open forums, and self-assessment. We began the process by working closely with each of the WMP subcommittees to identify their issues and ask what internal and external data and information would be useful to them.

Together with the subcommittees, WMP Executive Committee, and NCAR staff we developed the following list of categories for scan data:

<u>Internal:</u>	<u>External</u>
Human Resources data and charts	Peer institution survey results and summary
UCAR and NCAR Policies and Procedures	Detailed data from peer institutions
Institutional metrics	Web research on policies, procedures, practices and source documents
Survey/discussion with directors and administrators	Diversity data
Workplace Climate Survey	
Diversity data	

II. INTERNAL SCAN

Our internal scan data focuses primarily on information from UCAR Human Resources and on staff surveys. NCAR Human Resources data covers topics ranging from staff employment data and demographics to UCAR policies. Please note that most of the HR data is filtered to reflect only NCAR staff (not UCAR and UCP) for the purposes of this NCAR WMP. When appropriate, all UCAR employees are included, and this is duly noted.

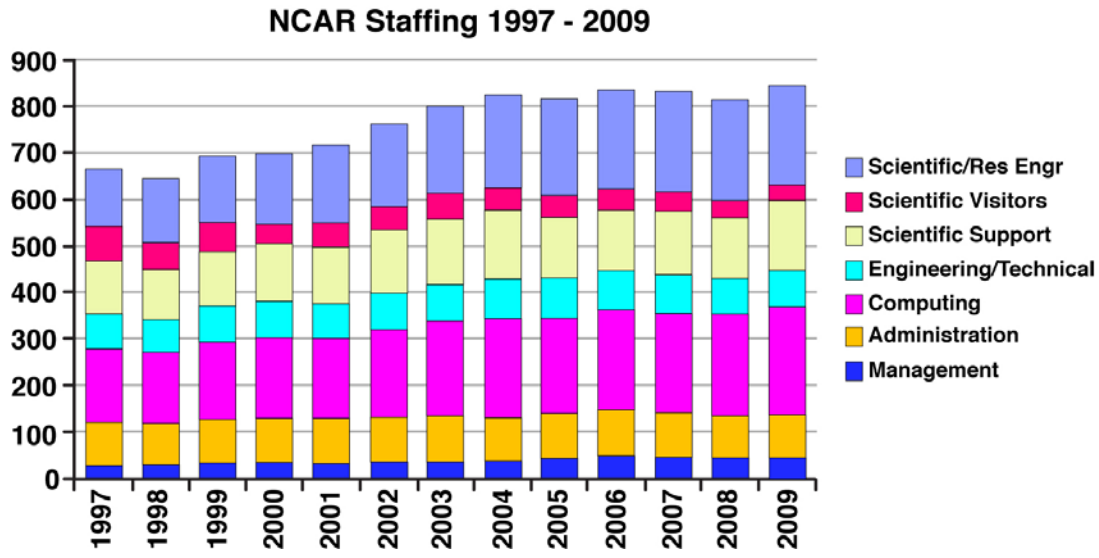


Figure 1: Number of staff (FTEs), by category, from 1997 to 2009, taken on July 1 of each year.

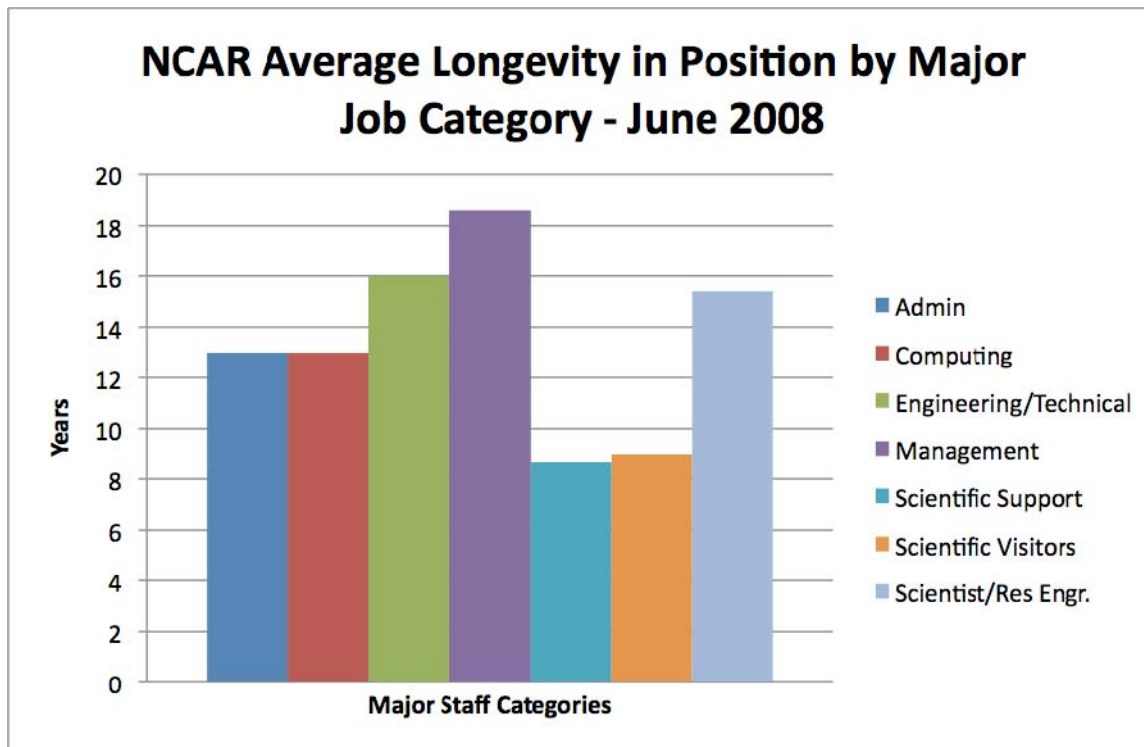


Figure 2: Average time in position by major job categories at NCAR as of June 2008.

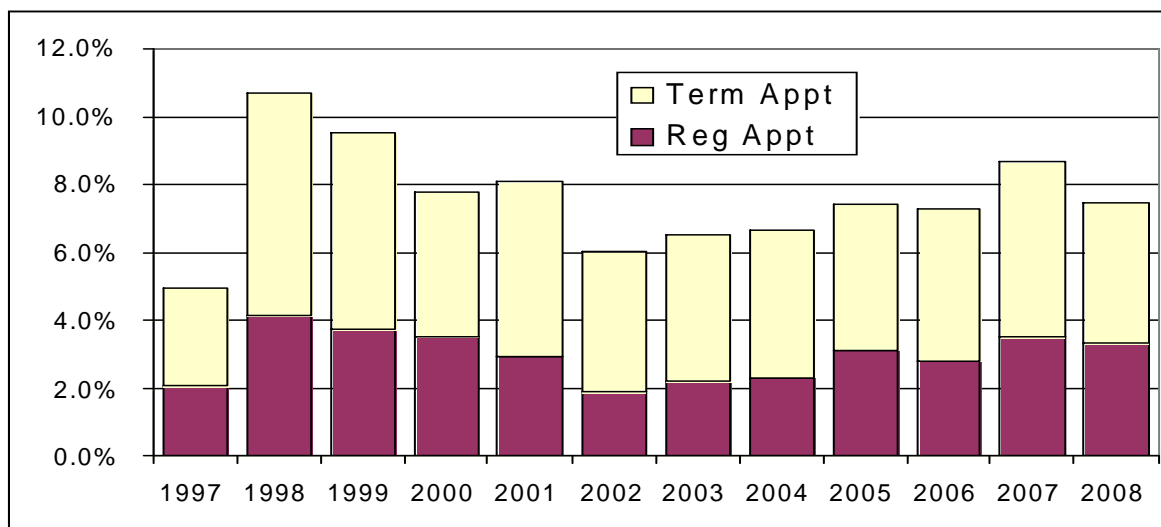


Figure 3: Average annual turnover in percent per year to NCAR term and regular appointments

Our internal scan also includes a survey/discussion with lab and division directors and administrators that highlighted the need for continued efforts to:

- increase transparency at the lab and division management levels,
- communicate management priorities and approaches,
- educate staff about current common and unique administration practices,
- continue to discuss best practices and brainstorm solutions.

413 NCAR employees participated in the Workplace Climate Survey answering questions about many of the aspects of the UCAR/NCAR environment. This survey was a follow on to a survey conducted by the American Physical Society's Committee on the Status of Women in Physics (CSWP) conducted in 2000. The goal of the survey was to explore UCAR employees' perceptions of their workplace. UCAR Human Resources downloaded the synthesized survey results for the President's Council, the Executive Committee for the NCAR Workforce Management Plan, and the ad hoc committee of female scientists who are working with the CSWP. These groups met to analyze the aggregate results and are working to develop strategies to address outstanding issues. A final report will be available to all staff upon the completion of this process.

The Diversity Committee collected and analyzed data on internal and external diversity and staffing to understand the context and impact of UCAR diversity goals and results.

III. EXTERNAL SCAN

Our external scan data were gathered from surveys of peer research centers and universities and Web research on their policies, procedures, and practices. Representatives from UCAR, NCAR, and the UCAR Board of Trustees interviewed the leaders of 16 peer institutions ranging from universities (5) to non-profits (2) and national and international government/research centers or

labs (10). NCAR also participated in the survey. The survey allowed us to learn more about approaches to recruiting, retaining and engaging staff, setting workforce priorities, and achieving workforce management goals. A brief summary follows.

Attracting/Retaining/Developing. Across our community, recruiting appears to be a level playing field based on common compensation systems and models for support staff. Work-life balance programs, correlation between individual and institution mission, and workplace location may impact recruiting.

Retention may be impacted by institutional expectations of staff (e.g. 90% mission-based research/10% individual research or 50% individual research/40% teaching/10% service). These expectations often also involve requirements for obtaining external funding ranging from 0% to 100% depending on the institution.

Very few institutions have formal mentoring programs. Most have merit pay and award programs to recognize and reward employees within budget and funding constraints. All have annual events to celebrate achievements or create opportunities for staff to socialize. Performance evaluation models vary from traditional narrative/bilateral communications to ranking and rating systems with limits. Some institutions have standardized performance evaluation assessments across the organization.

Promotion/tenure or similar processes. The universities in the pool have traditional tenure systems for promotion, while most government labs follow a civil servant model. Internal funding commitments varied for the university respondents with tenure systems. Most tenure systems do not include post-appointment reviews with consequences from a negative review.

Diversity. Organizations are focusing on recruiting and building relationships with minority-serving partners, and recognize that there is a common problem with lack of diversity in the pipeline and competition for highly qualified candidates. Work continues at all institutions on how to improve strategies and accountability.

Web research. Web research produced hundreds of pages of sample policies and procedures in the areas of training, performance reviews, awards/bonuses/incentives, compensation, promotion, tenure, termination, hiring, retention, leave, other workforce policies, benefits, and visitor programs.

IV. ENVIRONMENTAL SCAN GOALS

Desired state:

Consistent transparency on procedures and practices across divisions and labs.

Current state:

NCAR relies on an extensive network of management and administrative staff with expert institutional knowledge and solid administrative skills. Minimal documentation of processes and limited proactive communication with staff result in only partial transparency and a lack of knowledge of business operations at the regular staff level.

Recommendations:

- Increase transparency and collaborative efforts to determine and implement best management practices across labs and programs. Management and staff benefit from the improved openness, communication, and accountability resulting from transparency.
- Continue work on the NCAR Administrators' Users Manual to document and standardize or customize lab and program processes and practices where appropriate.
- Expand new employee orientation at the lab/program level to include an introduction to lab procedures, committees, and resource people.
- Provide regular opportunities for staff to learn about changes in procedures or staff responsibilities and review summaries of lab management protocols through town meetings, staff newsletters, and Web pages.
- Continue and expand on lab/program administrator meetings and teamwork.
- Hold annual administration retreats to learn about and implement best practices.

Desired state:

Conduct and publish regular environmental scans to support informed decision making and transparency.

Current state:

There are extensive data in systems and databases throughout the institution. The information is analyzed and shared in presentations and periodic communications. Detailed scans are conducted in response to specific requests or communications with high-level audiences.

Recommendations:

- Increase transparency and institutional knowledge about internal and external workforce data and trends to improve informed dialog with staff and increase knowledgeable decision making at the individual and institutional level.
- Review the data collected and determine a set of standard institutional workforce metrics.
- Publish the workforce metrics to staff on an annual basis.
- Standardize definitions and report on trends to provide context and a baseline.
- Continue to dialog and share information with peer institution leadership to keep channels of communication open and external data available and current.
- Invest in reporting tools, training, and resources to support scanning.
- Support the newly created UCAR Ombuds Office with accurate and current data.

Desired state:

Fully equip and support supervisors to effectively manage their teams

Current state:

Supervisor training is available but not required. Supervisors often rely on experience, education, and informal mentoring to build skills and expand their knowledge.

Recommendations:

- Increase training and support networks for supervisors.
- Expand on professional development courses for leadership and supervisors.
- Customize training and materials on business operations from a supervisor's perspective.
- Support calibrating HR functions of supervisors of similar teams (performance evaluations, reclassifications, disciplinary actions, salary increase recommendations, and project management) to empower the supervisor and assure equity across the institution.
- Emphasize and reward continuing education in management/administration as part of the annual evaluation process.
- Continue the Leadership Assessment and Development (LAD) process – surveying direct reports and colleagues for feedback on supervisors' strengths and areas for additional work. Incorporate career coaching and professional development into the follow-up on the LAD.
- Create a network for supervisors to share best practices, mentor, and problem solve together.
- Share comparison and detailed workforce data with supervisors and supervisors of supervisors to provide solid data for planning and improvements.
- Educate and support supervisors in matrix and project management to maximize team potential and maintain good communication and productive staff.

Desired state:

Incorporate workforce management planning into the Annual Budget Review process and the development of operational as well as strategic plans.

Current state:

In 2009 we developed a new NCAR strategic plan and the workforce management plan. Our emphasis has been on developing and prioritizing imperatives and frontiers, and identifying action items to meet these goals. Workforce planning and assessment within the context of the strategic and future operational plans is an essential component for success.

Recommendations:

- Integrate workforce planning into NCAR strategic and operational planning and resource allocation.
- Include workforce data collection and reporting and projections in the Annual Budget Review process.
- Create and implement methodology projecting WMP recommendation costs.
- Conduct regular internal assessments of workforce needs and gaps.
- Support matrix and project staff management.
- Prepare for the redirection of the workforce to meet future requirements through long- term planning and investments in professional development for staff.
- Invest in workforce planning through training, recruiting, increasing diversity, retaining, and recognizing staff.
- Partner with the research and university community to plan for the future NCAR and community workforce.

As we compiled the lists and worked on the scan we faced some of the challenges common to conducting environmental scans:

- Too much data and analysis paralysis – the sheer quantity of requested data and analysis may threaten to overwhelm or delay the decision-making process itself.
Solution: Close collaboration between the data stewards, scan committee, and subcommittee members to tailor the queries and ensure that the data is relevant and helps us ask or answer the question.
- The perception that the data are already in and nothing has changed.
Solution: Checking early data and initial results against currently held assumptions to identify and confirm areas experiencing change or innovation.
- The concern that even if there is new information, it won't change how business is conducted because of substantial investments in current programs and firm cultural traditions or that the new plan has already been decided on and this data and effort won't change the predetermined outcome.
Solution: Demonstrated commitment by NCAR and UCAR leaders and staff to support and engage in the workforce management process through participation, transparency, regular updates, investments, and well-reasoned decision making.
- Worry that the public airing of major or sensitive issues may increase dissent and could add to problems.

Solution: Balance public discussion with internal and external data and goal setting that focuses on facts and solutions instead of anecdotes and problems. There is an opportunity for dialog and creating ownership in the plan when all participate in good faith. Staff and leaders are communicating, learning, and brainstorming together and the plan will be better for it.

- The need to understand that change takes time, energy, and funding.
Solution: Continue scanning and tracking change and improvements during the development and implementation of the plan. This will ensure that progress is being made, investments are paying off, and staff are recognized and celebrated for their efforts and accomplishments. Use this opportunity to make course corrections or propose plan revisions.

Our environmental scanning exercise was designed to support the development of the workforce management plan and strategic planning process with the goal of providing strategic intelligence on internal and external conditions. These data were useful in the planning process and in determining organizational strategies to recruit, retain, engage, develop, and reward staff.

Subcommittee III—Staff and Visitor Balance

August 14, 2009

I. SUMMARY OF PROCESS

The WMP3 subcommittee charge is

To assess the makeup and career paths of NCAR staff and recommend changes, as needed, in order to advance NCAR's scientific leadership and service to the university and broader scientific community.

During its early deliberations, the committee defined two overarching questions related to this charge:

1. Makeup of staff: Do we have the balance and breadth of staff to support the NCAR strategic science and service objectives?
2. University collaborations: Are we making the most of interactions with universities to further science and service objectives?

Data to address these questions were collected by the subcommittee in the form of external scans of peer institutions and time series of numbers of NCAR staff in each job category from 1997 through 2008. These were augmented by surveys of selected job categories and focus group meetings with selected job categories as well as an institution-wide survey.

Job categories selected for either a survey, focus group, or both, were project scientists (PS), associate scientists (AS), engineers (software, network, mechanical, electrical, facilities, and system administrators) and administrators (administrative assistants and administrators). The career path of scientists and research engineers, including the ARG process and tenure, was considered by Subcommittee IV.

For PS, both a survey and a focus group meeting were conducted. This was the first group examined and therefore it was not known which approach would provide more information, so both were tried. PS represent the fastest growing job category at NCAR (Fig. 1) and a job category with considerable breadth of function. Associate scientists represent a large group (nearly 100) that has a long history at NCAR, but one that has undergone some notable changes. First, many fewer associate scientists are base funded than in the past. Second, very few entry-level AS are hired (there are fewer than three AS-I FTEs currently). Third, the model of an associate scientist tied to a particular scientist is rapidly vanishing.

The engineering group (of which most are software engineers or systems administrators) represented the largest group and one that has grown steadily over the past decade. Because of its size, it was important to examine the career tracks of employees in this group. Finally, the administrator group was examined because it was a large group (about 90, including administrative assistants and administrators), but it has not grown in 12 years despite the increase of staff overall. This fact implied a change in workload or job duties over time.

We could not examine all job categories. As mentioned, scientists were not examined because the scientist career path was being examined by Subcommittee IV. However, some issues we examined do pertain to scientists, such as management responsibilities and the inequities introduced by the varied requirements of external funding. In all, the job categories we examined cover nearly 60% of NCAR. We also included UCP employees in surveys and focus groups.

II. OVERARCHING QUESTIONS AND LINK TO THE NCAR STRATEGIC PLAN

The first overarching question about the balance of staff appears to have two answers depending on the source of funding, and this underscores the importance of external funding in shaping the fabric of NCAR. Although accurate statistics are not available, there was a consensus that base-funded support positions have declined within the past ten years and have been increasingly tied to large projects instead of individual scientists. The number of AS has increased slightly, but there has been a perceived shift toward external funding. Project scientists are funded mainly from external sources and tied to specific projects. They are not support scientists in general, but they often contribute to large projects. If “support” is defined as contributing either to individual scientists or to large projects (with one person often contributing to more than one), then it is clear that the support for science has increased, and much of the increase appears to be externally funded.

The science goals in the NCAR Strategic Plan emphasize large projects, both in the imperatives and frontiers. Although the research of individuals will continue to contribute fundamentally to the goals of NCAR, it is likely that in five or ten years NCAR will have most of its scientific staff contributing a significant fraction of their time to large projects. It has been repeatedly emphasized that NCAR should be primarily engaged in large projects that university researchers cannot realistically do. In this scenario, it is likely that the importance of project scientists, associate scientists, and engineers will increase. Furthermore, the need for effective project management will also increase. This could have one of three consequences: increasing the managerial demands on scientists, increasing the role of project scientists in management, or expanding the job class of project managers. In the first two cases, there will be increased emphasis on individuals who can do both management and cutting-edge research. If the job class of project manager is expanded, the job matrix needs to be publicized, and NCAR should proactively seek highly skilled project managers for large projects.

At present, the tie of NCAR to the university faculty model tends to downplay the role of effective project management. NCAR tends to be reactive rather than proactive about ensuring that people with project management skills are available. Among scientists and perhaps project scientists as well, NCAR tends to measure productivity in publications, citations and, to varying degrees, success in obtaining external funding and de-emphasizes project management skills. This is clearly aligned with the university value system. As large projects become more important, the university model will grow less relevant.

An important question to answer is to what extent NCAR will value management skill as part of a scientist appointment, and to what extent NCAR will proactively seek individuals who exhibit research excellence and managerial promise. A second question is whether the evaluation process for NCAR scientists will evolve as large projects become increasingly important. Will NCAR continue to adopt the university model, will NCAR move more toward a NASA model

(where project managers have considerable power), or will we move to a position somewhere in between? NCAR is currently at a crossroads, with non-NSF funding prominent and ESSL being reorganized. Non-NSF funding is creating tension within the staff (discussed below) and the scientific reorganization provides an opportunity to reduce this tension and position the organization for the next decade of research. *As part of this repositioning, we recommend that NCAR proactively attract people with skills to contribute to and lead large projects, recognize the various manifestations of leadership skills in evaluation and promotion or reclassification, and state explicitly what those valued skills are.*

The NCAR Strategic Plan emphasizes “predictive science and modeling.” A crucial question is whether NCAR has the balance of staff to maintain the development, use, and community support of its models. Areas of possible disciplinary understaffing, either because of too few current staff or potential retirements in the next five to ten years are (a) base-funded expertise in developing new Earth-system models; and (b) base-funded data assimilation, combining observations and models. Currently much of the data assimilation effort is funded through external grants. The available pool of talent for data assimilation is also small because few universities provide this training. However, the trend appears positive (for example, Andersen et al., 2009, BAMS). NCAR, through effective partnerships with universities could help provide the necessary knowledge base for this important area.

The advent of larger, more complex projects will necessitate the continued hiring of higher-level engineers, project scientists, and associate scientists in the coming years. The advancement of community facilities will require further increases in staff, in a variety of technical job categories, to support those facilities for the broad atmospheric science community.

Below is a series of more specific recommendations that have been derived from the composite of external and internal scan information referred to above.

1. Postdoctoral program and visitors

By far, the most visitors on base funds reside in the postdoctoral program. This represents a significant shift from the late 1990s when the number of base-fund-salaried visitors exceeded 30 (37 in 1997). Currently NCAR has about 30 postdocs per year. This number has been roughly constant over the past 12 years despite a 20% increase in the number of NCAR staff. NCAR-wide, the number of visitors (including postdocs) on base funds has decreased from about 10% of the workforce to about 4%. We would argue that this trend is unfavorable for two reasons. First, NCAR is a national center, and as such it should attract visitors who stay for relatively long periods (e.g. at least two years) in addition to facilitating short-term visits. Long-term visits are especially beneficial for early-career scientists (postdocs) prior to beginning their careers in more permanent jobs because it allows these scientists to collaborate, explore new research areas, and publish papers. Second, the turnover rate at NCAR is extremely low (1-2% per year). Increasing the number of visitors is a natural way to increase the turnover rate. A potential problem related to low turnover rates is an aging workforce. This issue becomes more acute in bad budget times that tend to limit hiring of early-career employees.

We note that the Advanced Study Program (ASP) selects only 10% of applicants or fewer. We often turn away highly qualified people. NCAR could probably choose the top 15% each year and not dilute the talent pool. This way we could make offers to nearly all the top candidates.

Post-docs benefit from greater collaboration potential, development of incipient colleague relationships, etc. Since so many staff members are hired through post-docs (for example, about 1/3 of Scientists I, II, and III), NCAR would benefit by increasing the number of postdocs and thus providing the organization with a broader pool of people who have already undergone extensive screening and with whom we are familiar. Increasing the number of postdocs would also counter the trend of an aging workforce and increase the turnover rate.

Recommendation:

Expand the total number of postdocs to 40 at any one time by augmenting the ASP program.

Level of importance: high

Degree of difficulty: low (apart from tradeoffs that have to be made to find the money)

Cost of implementation: At about \$120K per postdoc per year, it would require a nearly \$1.2M budget increase to support an additional ten postdocs fully on base.

There is apparent confusion about the freedom of non-ASP postdoctoral positions. Technically there are no constraints on what postdoctoral fellows do, but outside of ASP they are often hired for specific projects. Perhaps postgraduate scientists could be more widely utilized to support soft-money programs. To the extent that external funding can augment large, base-funded programs, postgraduate scientists would offer a less expensive option for contributing to specific programs than increasing the number of ASP postdocs. Further, with fully term appointments, there would be turnover consistent with changes in projects. However, there is some confusion about distinction between postgraduate scientist and an entry level project scientist on a term appointment. This should be clarified.

Recommendation:

Encourage the hire of postgraduate scientists instead of postdocs when the goal is work on a specific project. Hire postdoctoral fellows when the intended work is on a particular topic without explicit ties to a particular project. Postgraduate scientists would effectively augment the number of postdocs in a more affordable way (from a base-funding perspective).

Level of importance: medium-high

Degree of difficulty: low

Cost: essentially zero to base

Finally, we note that an alternative approach would be to increase the number of long-term visitors on base funds, where these visitors could be junior- or senior-level people. In particular areas where there is an acute need for expertise, this is a possible strategy. However, in many cases, hiring a project scientist may be the best way to meet such a need. Another motivation for enhancing long-term visitor support would be to attract internationally renowned scientists who could catalyze an area of research through their visit. This is an important consideration for use of base funds.

2. Evaluation of employees in job categories with diverse functions

Focus group meetings and surveys indicated that the evaluation and compensation process may not be adequate for job categories whose functions are diverse. Examples of how job diversity affects different job classes appear below:

- Project scientists may be doing primarily management or research, yet PSs are evaluated with the same form used for scientists. There is a tendency to project the same criteria for performance onto both categories, which typically means publications carry more weight than management. Yet for many project scientists, publications are difficult to produce because of project demands (62% of PSs responding to the survey indicated they did not have adequate time to publish). Some enhancement of publication opportunity is discussed in Item 3, below.
- Administrators have seen their job functions shift to the point where new matrices have been developed (not yet released). The changes in job duties have occurred in response to the increased number of overall staff without commensurate increase in administrative staff, plus new technologies (requiring computer and Web skills).
- Associate scientists have taken on responsibility for obtaining external funding and project leadership roles in addition to traditional science support.
- Engineers, particularly software engineers, have seen a growth in programming languages, distributed computing, and management responsibility.

Some of the above changes are expected in a technical field. Others, particularly securing external funding and increasing management roles, present challenges for fairly evaluating and compensating employees.

Recommendation:

More clearly define how highly diverse job functions should be evaluated within a given job category, especially for project scientists. The relative importance of a particular job should be indicated by the PDQ of each employee, but it is not clear whether the PDQs are consulted during the evaluation of project scientists. It is also possible that over time, the PDQ has become a less accurate description of how the employee allocates time. It is also possible that this issue affects other job classes, but project scientists seem to have a particularly large diversity of job tasks.

Priority: medium-high

Difficulty: medium

Cost: some additional effort for HR and supervisors; hard to estimate cost.

3. Promotion and reclassification

At present, there is considerable confusion about expectations for advancement to higher levels in non-ladder-track jobs (longevity at a given level is not a criterion for advancement per se). Most employees feel they should have a career path but it is not clear that they do. Furthermore the process of promotion or reclassification appears highly variable across units. There is a need for improved communication of the reclassification process outside of the ladder tracks at the time of hire and during performance evaluations. This includes clarification of who and what factors initiate the process.

Furthermore, focus group meetings have suggested that some employees who wish to advance feel frustrated that the duties of the current job make it very hard to advance. Specific examples: (a) project scientists are required to develop a substantial body of refereed publications to advance to Level III, but publications are not required for Levels I and II. In many cases, based on the focus group discussion and survey results, project scientists would like to produce publications, but their current tasks allow little or no time for this; (b) many large models are coded in Fortran, but software engineers often have no training in this language and there is essentially no call for Fortran experience in the software engineering job market; (c) administrators have noted that the gradual increase of job requirements makes it more challenging to demonstrate they are functioning at a higher level.

A career track is not uniformly realizable for members of a given job category because access to higher-level positions is tied to specific job duties. In the engineer survey, about 20% of respondents felt this way. Many PS respondents indicate that even 15% of their time would be valuable for pursuing publications. Typically these publications would result directly from their work on projects, and it would help NCAR to have externally-funded work published.

Recommendations:

a. Address to the extent possible inconsistencies between career advancement and duties of a current job while recognizing that not everyone wishes to advance or has the skills to do so.

For those who express a desire to advance to a higher job category, supervisors or project managers should be encouraged to create flexibility that allows the employee to demonstrate skills commensurate with the higher level. Subcommittee V recommended that a fraction of each FTE be set aside for professional development. With a similar intent, we recommend that a pool of funds be created for this purpose. It would be a competed pool of money whose amount and administration are to be determined. It would be used to cover time for writing a paper, classes, or sabbaticals for those on external funds. A suggestion is roughly \$100K per lab per year (in the post-ESSL reorganizational structure). By making this a competitive process, one could select the opportunities most likely to be helpful to NCAR as well as an individual.

In the case of software engineers and Fortran, the career path should be considered at the time of hire or as part of decisions about which projects SEs will be working on and with what tools. For newly hired associate scientists or project scientists, adopting standard software engineering practices, might be a better fit than asking software engineers to work on large Fortran codes. These individuals are more likely to remain in the atmospheric sciences for their career, where large models written in Fortran will continue to be used for some time. More generally, associate

scientists and project scientists would benefit from adopting more standard software engineering practices.

b. Job matrices may need updating. For example, the PS matrix does not emphasize publications until Level III. By adding something about publications at Level II it could make it easier to satisfy the higher-level requirement, provided (a) is also enacted. The new job matrix for the administrator group should be implemented as soon as possible.

c. Improve communication of the process for reclassification at hiring (generally speaking) and at performance evaluation time (on a personal basis).

d. Better define the equivalence of a PhD. Associate scientists who want to move to PS but do not have a PhD are unclear about what constitutes PhD equivalence. The Dickson (2002) study of the AS and PS categories recommended better defining the equivalence of the PhD and there is still a need to do this.

Priority:

- a. high
- b. medium
- c. high
- d. medium

Level of Difficulty:

- a. medium
- b. low
- c. low
- d. low-medium

Cost:

- a. \$500K - \$1M per year
- b. \$50K in HR personnel cost
- c. nearly zero
- d. probably a small cost, hard to quantify

4. Base funding versus external funding

a. Funding source affects job function, career advancement, and university interaction. External funding may be described as a great “unequalizer.” Base funded scientists usually enjoy more freedom to pursue research, publish papers, attend meetings, serve on university committees, go on sabbaticals, etc. Recommendation 3a may help alleviate some of the career advancement concerns faced by those funded externally.

b. Nearly all scientists desire assistance in research from support staff. Few of the externally scanned institutes provide such support as a matter of course. The notion of a support person linked to a particular scientist is vanishing and being replaced by more project-linked, distributed support. Much of this support is externally funded. However, an increased emphasis on large projects in the future will likely require additional scientific and technical support, or a more

efficient arrangement of the support that exists. Furthermore, the support for publications and travel is highly variable across units.

Recommendation:

Better define the expectations and process for obtaining research assistance from science or engineering support staff and expectations for publication and travel support. Consider models such as a pool of technical expertise to which scientists or project scientists can apply. These would be partly base-funded, perhaps from a redistribution of existing resources, and thus be close to budget neutral. For travel and publication support, consider an institute pool of resources that can be competed if unit funds are insufficient.

c. Currently there is no substantive constraint on the type of external funding that is sought. There is a perceived danger that NCAR is becoming more of a “job shop” as pressure to acquire additional funds rises.

Recommendation:

More effort should be made to link external funding with strategic priorities. This could reduce some of the unevenness associated with external funding across the institute by (i) making less distinction between funding sources; (ii) making shared science support for research feasible (shared between base and external); (iii) making more efficient use of overall talent to accomplish broad research objectives; (iv) reducing complaints of direct competition with universities by focusing on larger projects. The NCAR strategic objectives emphasize large projects.

Importance:

- b. high
- c. high

Difficulty:

- b. medium
- c. high

Cost:

- b. definition costs little: pool of support people would have cost associated with its oversight
- c. unknown; leveraging external and base funds would be cost saving; but saying ‘no’ to external funds has a definite cost in terms of staffing (non-base).

5. Relationships with universities and other agencies

a. NCAR employees seldom take sabbaticals. They should be encouraged, but it is not clear that a drastic increase is needed or even wanted by the university community. Sabbaticals at non-university institutes are even less common but could be more beneficial to NCAR in the long run, establishing working relationships on large collaborative projects. The external scan data suggest that few sabbaticals are taken by staff at non-university facilities. There is also the difficulty of taking a sabbatical when funded by soft money or managing ongoing projects with high demands. We recommend that sabbaticals continue to be encouraged but not emphasized more than they have been in the recent past.

b. It is recommended that “safety nets” (extended-time contingencies for returning to NCAR for people accepting jobs elsewhere) be drastically reduced or eliminated. People seldom return and the situation creates budget pressure and lack of flexibility for new hires.

Importance:

- a. low-medium
- b. high

Difficulty:

- a. low
- b. low

Cost:

- a. no additional cost
- b. some cost saving if any salary is going to people working elsewhere. Otherwise, benefit is in budget flexibility.

6. Job categories

More than 100 jobs have single or no current incumbents. A concern is that it may be difficult to properly evaluate those in single incumbent positions. In some cases there may be enough overlap of these positions with other job classes to consider combining them. For instance, many single incumbents are in the management class. Perhaps some of these could be considered project managers.

Recommendation:

Reduce the number of single-incumbent positions by evaluating which positions are either obsolete or can be combined into larger job categories.

Priority: low-medium

Difficulty: low

Cost: low

References

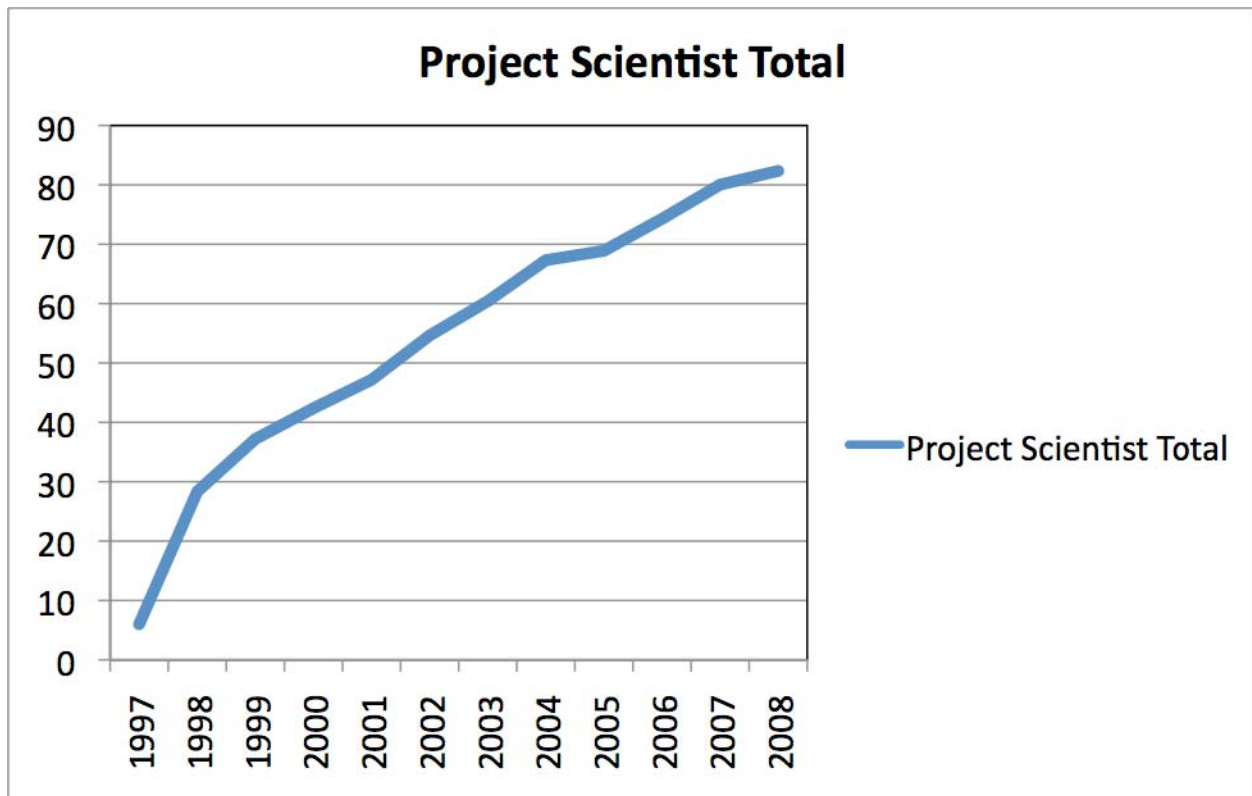


Figure 1. Project Scientists versus time (the Project Scientist job class began in 1997).

Subcommittee IV—Scientific and Engineering Appointments

September 8, 2009

I. INTRODUCTION AND OVERVIEW

The development of a Workforce Management Plan (WMP) is part of the overall strategic planning process at NCAR. It will lay the foundation to retain and continue to attract the high quality, motivated and well-supported staff necessary for NCAR to realize its evolving scientific goals and grow as a thriving national center. The subcommittee on **Scientific and Engineering Appointments** (WMP Subcommittee IV) was charged with identifying and addressing workforce issues pertaining to ladder-track scientific and research engineering appointments at NCAR.

Since January 2009 the subcommittee has met nine times. In addition, sub-groups of subcommittee members have gathered to discuss specific issues and develop associated recommendations. The entire subcommittee also often communicated via email.

To gather broad input from staff, the subcommittee organized a one-day retreat open to all NCAR Scientist Assembly (NSA) members. Approximately 90 people attended the retreat. Eight different working groups discussed issues and summarized thoughts in written reports¹². Comments on the report were solicited from NSA members, NCAR management, the WMP Executive Committee, and the personnel committee of the UCAR Board of Trustees (UCAR BOT). This final version reflects much of the input received.

This process was focused in substantive terms on three broad areas: (1) overall organizational models for scientific appointments; (2) job security and academic freedom; and (3) the criteria and process associated with the NCAR appointment system. The remainder of this report is organized around these areas. We conclude that the basic NCAR appointment system is appropriate to its mission, and there is no need for radical change. However, we do make a number of significant recommendations that would both clarify and modify parts of the system.

One theme in these recommendations revolves around clarifying the NCAR policy on tenure, in order to move from what is currently perceived as an implicit or de facto tenure system to one that is clearly described and consistently applied. In this sense, the recommendations would move NCAR somewhat closer to a university model. However, the recommendation on tenure policy does not imply that tenured NCAR Scientists and Research Engineers would have a guaranteed lifetime position with unfettered freedom to pursue any topic of interest. Rather, we emphasize that such a policy would also include important responsibilities of tenured Scientists and Research Engineers. To that end, the recommendation for a formal tenure policy must be seen as packaged with other recommendations for a strengthened post-Appointment Review

¹² See <http://www.cgd.ucar.edu/cas/jhurrell/downloads/NSA.Retreat/>. Other supporting documents used at the NSA retreat are available as well.

Group (ARG) review process to guard against abuse of job security, and a clear delineation of position responsibilities for mission-oriented research and community service.

A second theme in the following recommendations is the intent to retain and strengthen the roles of NCAR management units (laboratories and divisions) in the scientific appointments process. Toward that end, we suggest transfer of the post-ARG review and some aspects of the ARG review to those units, reinforcing the expectation that quality control in scientific and research engineering appointments is best made at this level, and that these units must be held accountable for ensuring this quality. We also recommend that base budgets of the management units should be adequate to cover the salaries of the ladder-track scientists in those units if so required, emphasizing it is at that management level that restraint is needed to avoid budget over-commitment.

II. ORGANIZATIONAL MODELS FOR SCIENTIFIC APPOINTMENTS

The current NCAR system for scientific appointments could be described as a mix between a pure university model and a model for an independent research institute. The NCAR system includes positions similar to tenure-track university faculty, as well as a substantial number of non-tenure track research positions. Visitors play an important role, but make up a relatively small fraction of staff. There are no formal limits on numbers of positions of particular types.

The WMP Subcommittee IV developed a set of alternate models of how NCAR scientific appointments might be structured. These alternate models were discussed within the subcommittee and at the NSA retreat. Models included:

1. Extreme-change examples:
 - A staff primarily based on visitors, with only a small or rotating “permanent” staff, closer to the original “Blue Book” concept or to the present European Centre for Medium-Range Weather Forecasting (ECMWF) structure;
 - A structure like that of the Lawrence Berkeley Laboratory, strongly based on teams conducting pioneering science and enabled/authorized to pursue lines of research of their own choice;
 - A strongly entrepreneurial center, perhaps following the example of RAL.
2. University models:
 - A stringent university system modeled, for example, after Stanford, with perhaps 50% or lower retention from entry to tenure;
 - A mid-to-upper-tier university system, where the retention rate might exceed 90%;
 - Innovative university models, providing extra pay for untenured positions, part-time tenure track, automatic time extension for parents, etc.;
 - Other models regarding promotion review structure, including who chooses the members of promotion and tenure committees, independence or interdependence of administrative versus faculty recommendations, etc.
3. Models that feature:
 - Higher ratios of support staff to tenure-track staff and more autonomy for senior faculty members;
 - Limits on the number of positions or promotions (e.g., Yale);

- Higher reliance on non-tenured term appointments to meet components of the primary mission (a trend at many universities).

Each model was considered in terms of how it might affect the ability of NCAR to meet strategic goals and, in particular, how it might affect the following set of important attributes:

- Reputation and quality
- Collegiality and work environment
- Links to the community
- Academic freedom (both in terms of freedom from dismissal for unpopular ideas or research areas, and freedom to devote some fraction of time toward basic, innovative research in areas favored by the scientist)
- Job security (related to academic freedom)
- Ability to address institutional goals and flexibility
- Fairness
- Overall attractiveness of positions as viewed by top-level scientists

The subcommittee's process, pursued at the NSA retreat, was to consider these attributes in terms of the current system at NCAR, and how they would be enhanced or degraded by a change to other models or parts of other models.

The overwhelming sense was that none of the other models considered has obvious advantages over the current NCAR system. The historical scientist appointment model at NCAR has been extremely successful in allowing the institution to recruit top scientists, achieve institutional scientific objectives, and maintain strong connections to the academic community.

There was considerable concern expressed at the NSA retreat and within the subcommittee, however, over: (1) the absence of a clear definition of the present system; and (2) the status and security of those in the Scientist III position. Several recommendations contained in the remainder of this report, in particular regarding the clarification of the NCAR policy on tenure, are aimed at addressing these concerns.

III. JOB SECURITY AND ACADEMIC FREEDOM

3.1 Tenured Appointments

Policy: <http://www.fin.ucar.edu/polpro/section6/6-5.html>¹³

Scientific and Research Engineer positions at NCAR are loosely modeled after university faculty positions, with Scientist I and II positions corresponding in time to Assistant Professor positions, Scientist III to Associate Professor, and Senior Scientist to Full Professor. However, those corresponding faculty positions almost all benefit from extensive and explicit definitions of the associated tenure systems. In contrast, NCAR does not have a tenure system except for what has developed from common practice and understanding over decades. The result has been to regard Scientist III and IV positions as “tenure-like”. Scientists (and now Research Engineers) in those positions undergo a thorough review at the time of promotion, with important weight given to external opinions in ways that parallel university systems where this review leads to tenure.

There are strong arguments for a formal tenure policy at NCAR:

- It would clarify expectations regarding job security in the tenured positions (Scientist and Research Engineer III and IV).
- It would be consistent with (and provide justification for) other accepted aspects of the NCAR scientific appointment policies, such as the “up-or-out” aspect of promotion to Scientist III, term limits on Scientist I/II appointments, and the necessity of post-ARG review.
- It would increase overall attractiveness of NCAR scientific appointments by offering tenure that is similar to that in university faculty positions.
- It should, over time, increase the quality of the ladder-track scientific staff, both through attractiveness and through an associated increase in the value the institution places on the investment made in tenured positions.
- It would place the institution on record as supporting academic freedom.

¹³ **Note:** Changes to the NCAR Scientific Appointments Policy 6-5 were approved by NSF on June 12, 2009. In particular, the revised policy incorporates the following changes:

- New Title – NCAR Scientific and Research Engineering Appointments Policy 6-5
- Addition of the Research Engineer position to the appointments system.
- Change from “authorization” to “approval” by the UCAR Board of Trustees of senior level appointments.
- Addition of the following text: “The involuntary termination of a level I, II or III Scientist or research engineer requires approval by the NCAR Director. The involuntary termination of a senior level Scientist or Research Engineer requires approval of the NCAR Director, the UCAR President and the UCAR Board of Trustees.”

- It would emphasize that scientists have special responsibilities that include contributing to the mission of NCAR and to the thematic projects that NCAR undertakes.
- It would bring NCAR appointments more in line with university faculty appointments, potentially making interchanges between NCAR and faculty appointments easier and more parallel.

Potential negative impacts of a tenure policy were also considered by the subcommittee. They include:

- Resentment by non-ladder track staff over the enhanced level of job security for tenured Scientists and Research Engineers at NCAR;
- Resentment from parts of the university community who might believe that ladder-track scientific and research engineering staff at NCAR already have sufficient job security;
- Loss of flexibility to change programmatic direction or address fiscal difficulties of the institution;
- Loss of flexibility of management units (laboratories and divisions) to hire new Scientists and Research Engineers because of the need to assure sufficient base funding to support them;
- Reduction of the fraction of NCAR scientific staff on the Scientist/Research Engineer tracks, perhaps leading to more research carried out by Project Scientists and visitors;
- Decrease in collegiality resulting from enhanced competition among scientists associated with an increase in the threshold for or number of available appointments; and
- The possibility that securing tenure might lead to a tendency for some to neglect the programmatic needs of NCAR or decrease the level of their scientific effort.

Overall, the committee felt these potential negatives are strongly outweighed by the positive benefits of a formal tenure policy. Some of the potential negative impacts, for instance, are either not likely (e.g., a decrease in collegiality) or they would be effectively mitigated by some of the additional recommendations made in this report. For instance, a decrease in scientific effort or neglect of programmatic needs would be addressed by an effective post-ARG review process, independent evaluations and salary adjustments, and retention of dismissal for cause or budget stringencies.

Issues:

- In the NCAR appointment system, Scientist and Research Engineer III/IV positions are thought of as “tenured” appointments. However, there is no clear statement on what “tenure” at NCAR means in terms of an individual’s rights, responsibilities, and job security. Moreover, the term does not appear in policy statements.

- Although both Senior Scientist and Scientist III positions are thought of as “tenured” appointments, they are not given the same protections with regard to termination.
- Prestige and job security of the Scientist III position is inadequate. In past experience, this position was sometimes the most vulnerable to involuntary termination among the scientist positions.

Recommendations:

- More specific clarification should be provided for the meaning of “tenured” appointments at NCAR. A draft NCAR scientist tenure policy is in the Appendix of this report. It includes procedures for the involuntary termination of a tenured scientist for reasons of incompetence, neglect of duty, or misconduct, or because of financial exigency or reduction in program.
- NCAR should take steps to increase the prestige and job security of the Scientist III position. Several pertinent issues are discussed in the Appendix, and many of the other recommendations in this report are intended to address this need. Key aspects of the draft tenure system in the Appendix that contribute are:
 - For consistency with university tenure systems, authorization¹⁴ by the UCAR Board of Trustees should be required for appointments to the Scientist and Research Engineer III positions.
 - Adoption of the tenure system specified in the Appendix and other recommendations in this report would contribute to this goal by, over time, strengthening the standards for promotion to Scientist III, and perhaps also Scientist IV at the division or laboratory level.

3.2 Balance between fundamental scientific research and community service

Issues:

- NCAR Scientists and Research Engineers often struggle with allocating their efforts between the two key missions of basic scientific research and community service (internal, national and international). NCAR scientists need to contribute to both of these. There is concern, however, that the relative roles of each (at least for some staff) are:

¹⁴ The subcommittee recommends the NCAR Scientific Appointments Policy 6-5 state that senior level appointments require “authorization” rather than “approval” by the UCAR Board of Trustees (see the previous footnote).

- Not well balanced, possibly due to the loss of support staff with recent budget pressures.
- Not well communicated, especially to incoming and early career scientists. This includes both the expectations of how much time should be spent on basic science versus service and the level and type of support that is available at NCAR for community services.
- Not appropriately weighed in the ARG promotion process or the hiring process.

Recommendations:

- Quantify expectations for each ladder-track position in terms of percentage of time devoted to independent research, mission-oriented research, and both internal and external service. Regularly update these percentages as part of the annual review process.
- Better inform new and prospective employees about the dual roles of NCAR scientists and research engineers, expectations of their involvement in basic research and community service projects, and the level and type of support that is available for community services.
- Clarify how the promotion process weighs scientific contributions to basic research and community service, to ensure that all expected activities are considered appropriately in scientific promotions.

3.3 Base support and expectations of external funding

Issues:

- A substantial fraction of Scientist and Research Engineer positions are supported by external funds. These positions would be at risk if those funds were no longer available.
- Expectations for obtaining external funding vary widely across NCAR and are often unclear to early-career scientists. Expectations for substantial fund raising can be problematic, especially to early career scientists, for several reasons:
 - The relevance of fund raising to the promotion process is unclear.
 - Given the growing dependence of programs on external funds in order to maintain support staff, hardware/software, and travel, there may be pressure to generate funding even if it is not directly related to priority scientific goals.
 - NCAR scientists have inherent limitations on their fund raising potential, including limits on funding available from NSF, discouragement from competing with universities, ineligibility for funding from private foundations with overhead limits, the general requirement to include funding for university co-investigators in proposals (which reduces the funding coming to the NCAR PI), and perceptions by some funders that NCAR staff do not need financial support. The opportunities vary greatly with research area, so pressure to obtain external funding can have undesirable influence on research directions of scientists.

Recommendations:

- Many groups at NCAR are presently deficient in support for scientists, and scientists are inefficient in their work as a result. Those groups need to take steps to address this imbalance, even if this requires hiring fewer Scientists and Research Engineers. This is a critical aspect of the work environment that is making NCAR less attractive to Scientists and Research Engineers, who see greater opportunities to work efficiently in university environments where they have greater control over support.
- NCAR units should make a commitment to cover the salary of ladder track positions from base funds if so required. This inherently limits the number of ladder-track positions a laboratory or division can support. While external funds can temporarily provide salary relief, units should manage budgets so that ladder track positions can be covered when these funds are no longer available.
 - External funding should aim to support NCAR's strategic goals.
- External funding expectations need to be defined, clearly communicated, and incorporated into criteria for review and promotion.
 - Communication of expectations is especially important for new scientists and should be in writing.
 - Review and promotion criteria regarding fund raising need not be uniformly applied across NCAR, since different units face different conditions regarding external funding. However, successful fund raising should be explicitly recognized as evidence of scientific excellence and productivity.
- NCAR/UCAR management should improve communication with funders and the university community about the funding needs of NCAR scientists. For example, external funding supports many activities that directly support the science done by university colleagues.

IV. CRITERIA, PROCESS AND POLICY FOR SCIENTIFIC AND RESEARCH ENGINEERING APPOINTMENTS

4.1 Appointment criteria and expectations for promotion

ARG procedures: <http://www.ncar.ucar.edu/central/arg>

Current criteria: <http://www.ncar.ucar.edu/central/arg/docs/criteria.pdf>

Issues:

- Various existing documents specify criteria for hiring, evaluating and promoting scientists and research engineers. They share common goals, but each document has different emphases on the importance of and balance between service and science, leadership (scientific and organizational), innovation and discovery, impact, and relevance to NCAR. The appointment criteria have not been reviewed and approved by current management or current NCAR Senior Scientists. It is not clear, therefore, that the criteria reflect the

collective judgment of the current institution or provide good guidance regarding requirements for promotion. It is also not clear that a single set of criteria can adequately accommodate the highly diverse backgrounds of both NCAR scientists and research engineers.

- Some standardization of criteria is desirable. It is an opportunity for communicating institutional values. Similar templates can guide evaluations for hiring, annual review, promotion (ARG), and post-ARG review. A more standardized set of criteria can also facilitate comparisons across institutional units. Objective metrics (publications, citations, web hits, etc.) are important and should be used across the board, but they must also be understood (e.g., publication rates and citation counts can differ greatly across disciplines).
- While a summary list of criteria for promotion is provided, practical advice for fulfilling those criteria is not readily available. Much of the advice, available from NCAR websites, is from panel discussions and “Staff Notes” articles in which individuals describe their understanding of the expectations and process. It is difficult for early-career scientists to assess how reliable and generally accepted these statements are.
- The primary decisions for promotion are made at the division/program level, but the procedures and criteria are often obscure to the Scientists and Research Engineers being considered. There are considerable differences among divisions/programs in how promotions are handled. The criteria are not always in line with the criteria used in annual performance appraisals.
- The current guidelines specify that the ARG meets in January and again in April or May. It is therefore not clear how cases can be brought to the attention of the ARG outside of this normal cycle. Not having such flexibility, and not being able to “fast-track” certain cases, might possibly put NCAR at a competitive disadvantage in the recruitment for Scientist and Research Engineer III/IV positions.

Recommendations:

- The current ARG criteria are a good starting point but some revision is desirable. The ARG recognizes a single over-arching criterion - scientific excellence - as demonstrated by substantial measures of: (1) productivity; (2) leadership; (3) national and international reputation; (4) contribution to NCAR programs; (5) breadth; (6) scientific and technical service in the NCAR context; (7) broad community service; and (8) awards. We recommend more explicit recognition of some other characteristics including creativity, innovation, and scientific insight. We also recommend some consolidation of the programmatic criteria (items 4, 6, and 7) in order to make the criteria easier to understand, including for external referees (e.g., they often struggle with the meaning of item 6).
- A uniform and standardized set of criteria should be developed by the ARG and reviewed and approved by current NCAR management and Senior Scientists. These criteria should be applied for hiring, evaluating, and promoting NCAR scientists and research engineers.

- The same broad criteria should apply to both Scientist and Research Engineer ladders, although each specific case may present a different balance of various metrics.
- Scientists at all levels should have easy access to clear descriptions of the promotion processes, including those within divisions and laboratories, and should receive ongoing advice regarding their progress toward meeting the qualifications for promotion. Annual performance review criteria should be closely aligned with the criteria for promotion, thereby facilitating better assessment of progress towards promotion.
- There should be uniform promotion/review criteria across laboratories and divisions, although the relative weighting of the criteria may be different, depending on the mission of the division/program and the job requirements of the scientist and research engineer.
- More of the responsibility for promotion review should be assigned to the nominating laboratory or division, because it is expected that the primary quality control will be imposed at that level. Laboratories and divisions should solicit an initial set of letters of reference for their own deliberations, assemble and review nomination packages, reach their own recommendation on whether or not the case should proceed to the ARG, and summarize the process, deliberations and recommendation in writing along with their assessment of the strengths and weaknesses of the case.
- The laboratory or division has full responsibility for deciding which cases will be taken forward to the ARG. Failure of a nomination at the ARG level should trigger consideration by the NCAR Director of why quality control failed at the level of the nominating entity. The nomination packages, all solicited letters and the written summary prepared by the laboratory or division should be forwarded without change to the ARG, which will remain authorized to solicit additional letters of reference, if necessary. ARG review will thus continue to maintain standards for the institution, but will also assess how well the standards are being maintained at the laboratory and divisional levels.
- A systematic and documented review at the time of promotion from Scientist I to Scientist II should be instituted by the home laboratory or division, providing more formal guidance to scientists and research engineers regarding their career development.
- The ARG procedures should provide for enough flexibility to consider cases out of the normal ARG cycle.

4.2 Entering and exiting the ladder track: defining “up or out”

Issues:

- The “up-or-out” aspect of promotions on the NCAR Scientist and Research Engineer Ladder is part of an overall scientific appointments policy that is intended to be similar to university faculty appointments. However, Scientist and Research Engineer level III/IV positions do not have the tenure protections given to university faculty appointments.

- The policy is ambiguous as to whether or not “out” means out of the organization or out of the Ladder.
- The policy does not address the conditions under which candidates not currently on the ladder may enter the track.

Recommendations:

- There are a number of other job categories at NCAR in which a scientist’s contributions could be of great benefit to the organization, so the “up-or-out” policy should apply only to continued appointment on the Scientist and Research Engineer Ladder and not explicitly to continued employment at NCAR. Consequently, those on the Ladder who are unsuccessful in being promoted to II and III levels should be given fair consideration for positions in other job categories that become available and are openly advertised and competed.
- For consistency with the “up-or-out” policy, if a candidate for promotion to Scientist/Research Engineer III is unsuccessful in the ARG, that individual should not be considered for future appointments or promotions on the Scientist/Research Engineer ladders.
- Ladder-track positions have a special nature (person-based and greater risk), so entering that ladder should require an open process for advertising and filling the position. Thus, an individual in a job category outside the Scientist or Research Engineer Ladder must first successfully be selected in an open competition¹⁵ for an appointment before moving to the Ladder (or seeking ARG approval for positions at the III and IV levels.) If unsuccessful in the selection process, the individual can then continue in his or her current position, provided that position is retained. (An exception to this requirement for an open competition should be made for someone in a management job category who seeks a scientist appointment while retaining the management position.)

4.3 Defining the clock, and stopping or slowing the clock

Policy: <http://www.fin.ucar.edu/polpro/section6/6-5.html>

The NCAR Scientific Appointments Policy currently recognizes two mechanisms (italicized below) for extending the length of appointments: (1) in “certain cases the NCAR Associate Director may request a single *extension* of up to three years”; and (2) in “certain circumstances, it may be appropriate to ‘*stop or slow the clock*’ in the appointments sequence. The length of the interruption is determined by individual circumstances, and NCAR agrees to extend the time allowed before evaluation for promotion during that period.”

Although not specified in the Policy, practice has been that the first mechanism is used in cases where the nature of the work is lengthy (e.g., large model or instrument development) and the 3-year extension could make a major difference in the application, dissemination, and publications

¹⁵ Exceptions are possible by obtaining a waiver as described in current UCAR Policy 6-3.6).

of the work. The second mechanism is used in situations not directly related to the nature of the work at NCAR, but rather to family or other reasons (e.g., parenthood, illness, etc.) Hereafter, for convenience and consistency with historical usage, we refer to the first mechanism as an *extension* and to the second mechanism as *stopping/slowing the clock*.

Issues:

- The definition of the promotion clock is not clear. In particular, how the timing for promotions is currently determined (e.g. whether it depends on hire date, ARG submission date, etc.) is not clear and may vary across the institution.
- While the flexibility implicit in the extension and the stopping/slowing the clock mechanisms is useful and should be retained, the policy is too vague. There are no specific guidelines or clear definition of the circumstances that warrant either an extension or stopping/slowing of the clock, and for the latter the policy does not specify who is authorized to grant this extension. Some staff members are also concerned that a stigma may exist in cases where an extension or stopping/slowing of the clock is requested or given.
- The policy does not address how the clock is to be applied to candidates for Scientist or Research Engineer II or III who are entering the track from another position within or outside NCAR.

Recommendations:

- Revise the current policy statement to clarify:
 - How the promotion clock timing is determined and applied. Specifically, for example, to be relative to the hire date, with promotion review conducted at the division level before expiration of the term, but with ARG review possibly extending to after expiration in cases of a positive recommendation.
 - How and if the clock and its associated metrics should be interpreted when considering external applicants to the Scientist and Research Engineer II and III positions. For example, nominations of external applicants and internal applicants should discuss the issue and justify cases where the time in scientific positions has been long compared to norms for NCAR ladder-track appointments.
 - Valid reasons that warrant extensions (while still allowing flexibility for individual circumstances). For example, for Scientists and Research Engineers whose goal is to develop new models, technologies, and state-of-the-art instrumentation with associated new infrastructure, the time needed to produce common ARG metrics can be significantly longer than the current clock schedules may permit. We suggest that these circumstances can be valid reasons for extension of time if they interfere with establishment of an acceptable record for promotion.
 - Valid reasons for granting a slowing or stopping of the clock.

- Procedures and decision-making responsibilities for granting extensions and for stopping/slowing of the clock, as these responsibilities are currently not defined. For example, the division director should make the recommendation, to be reviewed and approved at the laboratory level.
- Provide explicit instructions to the ARG on how to evaluate extensions and stopping/slowing of the clock. In the case of extensions, the ARG may evaluate why the extension was granted and whether the merits of the case have changed significantly because of it. For stopping/slowing of the clock, it should be made clear that the ARG will not consider this a factor and that the case should be judged, like others, only on how well the record matches the appointment criteria.
- Clearly communicate these policies to the scientific staff.

4.4 Post-ARG review

Current Policy: <http://www.ncar.ucar.edu/central/postarg/>

Issues:

- The justification for the PAR is contingent upon Scientist III/IV appointments having tenure protections similar to tenured academic faculty positions.
- Scientist sentiment regarding the current PAR process is predominantly ambivalent or negative. There is a pervasive perception that it adds significant burden and stress but does not achieve the objective of a critical review. Scientists III/IV already undergo an annual review, which is basically the same as that for every other job category at NCAR (and identical to that for Scientists I and II) that is intended to address performance issues.
- The current PAR process requires “considerable effort, particularly on the part of upper management” (NCAR PAR Policy statement). It is estimated up to 38 hours of senior staff and administrative time are required for each case (including **no** estimate for the reviewee’s time), and that 20-25 reviews will be conducted each year.

Recommendations:

- If the draft tenure policy in the Appendix is adopted, a strengthened post-ARG review process is needed to guard against abuse of the added job security.
- To improve the effectiveness of the review and reduce its administrative burden, we recommend transfer of the process to the division or laboratory level, where the unit Director would have responsibility for the review. The Director would use the unit’s senior scientists, plus some additional senior scientists from outside of that unit, as the expertise needed to assess the case. These are the scientists in the best position to assess the quality and significance of the individual’s work. We further recommend making the specific process less rigid and using the current process as a guideline that can be adapted as appropriate to specific needs within the laboratories or divisions. Results would be conveyed to the NCAR Director, and if there are concerns there should be a follow-up instituted (perhaps under the terms of the proposed tenure policy).

4.5 Mentoring

Issues:

- There is a strong desire among many members of NCAR staff to establish an organized mentoring program. Such a program should be encouraged across the organization.

Recommendations:

- Each laboratory should establish a program for mentoring that will enhance interactions among Scientists and Research Engineers, especially those early in their career. Participation should be voluntary.
- In these programs, it should be emphasized that mentoring is primarily the responsibility of the person receiving mentoring and that it is his/her obligation to seek advice and take advantage of resources that are available (or to decide that they are not needed). The primary purpose of the mentoring programs will be to identify appropriate mechanisms for interactions and to emphasize that it is part of the responsibility of scientists to serve as scientific mentors to others when they request/welcome the interactions. Mechanisms should be available to seek and receive such advice outside the supervisory structure in the division/program/unit.

Statement on Scientist and Research Engineering Appointments at NCAR

Note: This statement also appears as Appendix C in the full report. The following statement is intended to record NCAR's policy and procedures with respect to academic freedom, responsibilities, and tenure for individuals on the Scientist and Research Engineer appointment ladders (collectively referred to as scientists herein). It is modeled after the academic policies of UCAR member universities for the purpose of attracting and retaining a high-quality research staff, ensuring and protecting the academic freedom of the staff, and promoting mobility between NCAR-scientist and academic-faculty positions. Tenure refers to the conditions and guarantees that apply to a scientist's rights and responsibilities in the organization, and in particular to protection from discriminatory reduction of salary or termination of employment, and from imposition of serious sanctions, except upon grounds and in accordance with procedures set forth in this policy.

I. ACADEMIC FREEDOM

Excellence in research depends upon an uninhibited search for truth and its open expression. Hence, it is essential that each scientist be free to pursue scholarly inquiry, and to voice and publish individual conclusions concerning the significance of evidence that the researcher considers relevant. Each scientist must be free from the corrosive fear that others, inside or outside the organization, because of biases, differing opinions or other inappropriate factors, may threaten that individual's job security or professional career. When speaking, writing or acting as a member of the broader community, a scientist must be free from institutional censorship or discipline, subject to academic responsibility. In such instances, the scientist should clearly state that he or she is not speaking for the institution.

A scientist's comments are protected even though they may be highly critical in tone or content, or erroneous, but such statements are not protected free speech if they either substantially impede the individual's performance of daily duties or materially and substantially interfere with the regular operation of the institution. False statements made with knowledge of their falsity or in reckless disregard of the truth are not protected, nor are public statements without foundation that call into question the fitness of the scientist to perform his or her professional duties.

II. ACADEMIC RESPONSIBILITY

The concept of academic freedom for scientists must be accompanied by an equally demanding concept of academic responsibility. Scientists have a responsibility to the institution, their profession, and society at large. The rights and privileges of scientists through written policies and procedures on academic freedom and tenure, require the assumption of certain reciprocal responsibilities. Fundamental is the responsibility of scientists to maintain scientific excellence as described in the ARG criteria (see Section 4.1), including the exhibition of professional leadership and productivity through publications, lectures, contributions to NCAR programs as well as national and international programs, participation in professional organizations and meetings, and community service.

III. TENURED SCIENTIST AND RESEARCH ENGINEER APPOINTMENTS

The policies for appointment of scientific staff in the positions Scientist I-IV and Research Engineer I-IV are described in the NCAR Scientific and Research Engineering Appointments Policy 6-5. Individuals in Scientist III-IV and Research Engineer III-IV positions are considered tenured Scientists and Research Engineers. The promotion from level II to level III is an "up or out" decision, and is subject to time constraints as outlined in NCAR Policy 6-5. Appointment to level III and level IV positions are conferred by the NCAR Director with authorization³ of the UCAR Board of Trustees after review and recommendation of the Appointments Review Group.

3.1 Termination for Unsatisfactory Performance or Misconduct

Other than for financial exigencies as described below, a scientist having a tenured appointment may be suspended or discharged from employment only for reasons of incompetence, neglect of duty, or misconduct of such a nature as to indicate that the individual is unfit to continue as a member of the scientific and engineering staff. These reasons include significant, sustained unsatisfactory performance after the individual has been given an opportunity to remedy such performance and fails to do so within a reasonable time; sustained failure to follow through on commitments to organized programs or to perform other significant scientist obligations; or violations of professional ethics, mistreatment of other employees, research misconduct, financial fraud, criminal, or other illegal or unethical conduct.

The post-ARG review is the process by which the NCAR Director obtains the advice and recommendations of peers regarding the performance of tenured staff. Therefore, the decision to terminate a tenured scientist due to unsatisfactory performance shall be made by the Director after considering the evaluations, recommendations and outcomes from the post-ARG review, which will be conducted every five years for a tenured scientist. The Director may also solicit an interim post-ARG review, triggered by unsatisfactory evaluations in a scientist's annual

performance reviews. If termination due to unsatisfactory performance is deemed warranted, the NCAR Director must request and receive the approval of the UCAR President and Board of Trustees prior to taking any action. The Board of Trustees shall be provided with the full assessment of the post-ARG process as well as the recommendation of the NCAR Director. Following an approval by the Board, the NCAR Director shall inform the individual in writing of the decision to discharge the individual.

Cases involving termination based on misconduct present special circumstances, often demanding confidentiality or being bound by the rule of law. As such, these cases require a separate set of procedures. The NCAR Director and UCAR legal counsel shall inform the individual in writing of the intention to discharge the individual. The statement shall include specification of the reasons for the intended discharge. A confidential opportunity to respond to the charges shall be provided to the individual. If the evidence of misconduct is not mitigated, then the NCAR Director must request and receive approval of the UCAR President and the Board of Trustees prior to discharging the individual. Depending on the nature of the misconduct, both UCAR and the individual can seek legal remedy.

In cases of research misconduct (e.g. plagiarism, fabrication or falsification of evidence), the individual shall be able to request a hearing from a panel of peers prior to the NCAR Director seeking approval for dismissal from the UCAR President and the Board of Trustees. If the individual makes no written request for a hearing, he/she may be discharged without recourse to any institutional grievance. If the individual requests a hearing, the NCAR Director shall appoint a hearing committee comprised of Senior Scientists to review the case. The hearing shall be on the written specification of the case for academic dishonesty. The hearing committee shall formulate explicit findings with respect to each of the grounds for removal presented and shall recommend whether or not, in its judgment, there are grounds for dismissal. The burden of proof is on the institution to establish, by a preponderance of the evidence, the existence of good cause for dismissal based on academic dishonesty. If the NCAR Director decides that termination is still warranted after receiving the committee's recommendations, the committee's report shall be provided to the UCAR President and Board of Trustees in requesting approval for dismissal.

3.2 Termination for Financial Exigency or Reduction Of Programs

The employment of a tenured Scientist or Research Engineer may be terminated because of: (1) a demonstrable, bona fide institutional financial exigency; or (2) the significant curtailment or elimination of a program within the institution. Financial exigency is defined as a change in the financial resources of the institution that compels a significant reduction in the institution's current operations budget. The determination of whether a bona fide condition of financial exigency exists or whether there shall be a significant curtailment or elimination of a major program shall be made by the NCAR Director after consulting with the UCAR President and senior NCAR management and staff, and with approval of the UCAR Board of Trustees. In this or any subsequent consultation process, a tenured scientist appointment may be terminated only after it is determined by the Director, following careful review of alternatives, that the condition of financial exigency cannot otherwise be alleviated without more serious damage to the institution.

If there must be termination of Scientist or Research Engineer appointments, the NCAR Director shall give consideration to tenure status, years of service at the institution, quality and productivity of research and relevance to the priorities of the institution, and other factors deemed relevant in determining whose employment is to be terminated. The primary consideration, however, shall be the maintenance of a sound and balanced research program that is consistent with the functions and priorities of the institution.

In the event of a financial exigency, the NCAR Director shall seek the specific recommendations for solving financial exigencies or program reductions from Laboratory and Division Directors and other senior NCAR and UCAR management, including the President's Council, as appropriate. The NCAR Director shall assess all recommendations, including the interview of Laboratory and Division Directors, prior to submitting a documented recommendation for termination to the Board of Trustees. If the termination of a tenured Scientist or Research Engineer is approved by the Board of Trustees, the individual whose employment is terminated because of financial exigency or reduction of programs shall be notified of this fact in writing. This notice shall include a statement of the conditions requiring termination, including disclosure of the financial data upon which the termination decision was based, and a general description of the procedures followed in making the decision. For a period of two years after the effective date of termination, the institution shall not fill a new Scientist or Research Engineer position in a similar field of specialization without first offering the position to the person whose tenured employment was terminated.

Subcommittee V—Professional Development/Work Environment

August 26, 2009

Subcommittee Process

The Professional Development and Workplace Environment (PDWE) Subcommittee members: Sue Schauffler (chair), Brigitte Baeuerle, Rebecca Morss, Alan Doug Nychka, Delaine Orendorff, Roy Rasmussen, Bob Roesch, Katy Schmoll, Tim Spangler, June Wang.

The PDWE Subcommittee was tasked to examine several topics developed by members of the WMP Executive Committee as follows:

- performance reviews (including review of management)
- problem resolution procedure
- promotions/salaries and recognition of high achievers
- mentoring
- retention
- hiring the best people in a highly competitive environment
- benefits (health and retirement)
- use (or lack of use) of PTO
- identifying/training the next generation of Directors/Managers
- succession planning, retirements
- review of Leadership Academy (LA) and Executive Leadership Program (ELP)
- flexible work opportunities, UCAR shuttle, Eco Passes
- distribution of staff at the various UCAR campuses (soon to include Wyoming)
- office/lab space
- respect in the workplace

The full Subcommittee discussed all topics and then divided into three Subgroups to focus on the following groupings:

I. Training for staff, managers, and leaders (*Brigitte Baeuerle, Alan Norton, Delaine Orendorff, June Wang*)

Professional Development topics:

1. identifying/training the next generation of Directors/Managers
2. staff training
3. review of Leadership Academy and ELP

Work Environment topics:

4. problem resolution procedure

II. Mentoring and performance (*Rebecca Morss, Delaine Orendorff, Roy Rasmussen, Bob Roesch*)

Professional Development topics:

1. mentoring
2. performance reviews (including review of management)
3. promotions/salaries and recognition of high achievers
4. distribution of staff at the various UCAR campuses

Work Environment topics:

5. respect in the workplace
6. use (or lack of use) of PTO

III. Hiring the best people, retention, and succession (*Joanne Graham, Doug Nychka, Katy Schmoll, Tim Spangler*)

Professional Development topics:

1. succession planning, retirements
2. retention
3. hiring the best people in a highly competitive environment

Work Environment topics:

4. office/lab/meeting space
5. benefits (health and retirement)
6. flexible work opportunities, UCAR shuttle, Eco Passes

Subgroup members continued discussion on each topic and wrote a report on each that included the Current State (includes internal scan information), the Desired State, E-Scan information (includes external scan information), and Recommendations. The topics were compiled and the full Subcommittee commented on the PDWE report. The outline for the report is as follows:

I. Attracting and Retaining Employees

- A. Salaries
- B. Benefits
- C. Promotions/Reclassifications
- D. Hiring the best people in a competitive environment
- E. Retention
- F. Office/lab space

II. Developing and Evaluating Employees

- A. Staff Training: Includes new staff training, Director and manager training, and professional development for all staff.
 1. Staff Training
 2. Training of Directors/Managers and review of the LA and ELP
- B. Mentoring
- C. Performance Appraisals
- D. Employee Recognition
- E. Succession Planning

III. Workplace Environment

- A. Respect in the Workplace
- B. Problem Resolution

C. Distribution of Staff

SUBCOMMITTEE REPORT

A major aspect of this Workforce Management Plan is attracting, developing, and retaining world-class employees to achieve the Imperatives and Frontiers outlined in the NCAR Strategic Plan. This is consistent with two of the NSF Workforce Plan Goals contained in the NSF Human Capital Strategic Plan (2008). These Goals are “Effectively recruit a diverse, world-class, forward-looking and adaptable workforce” and “Build and sustain a capable, diverse, well-trained, forward-looking, and adaptable NSF workforce and enhance retention through learning and professional development opportunities”. UCAR recognizes that a healthy and vibrant organization is continually monitoring the working conditions for its staff. This includes equity within UCAR and with comparable organizations for salaries, benefits, promotions or reclassifications, employee recognition, office/lab space, respect in the workplace, and problem resolution processes.

In addition, a healthy and vibrant organization must always be alert to professional development opportunities to ensure employees maintain world-class expertise. This includes staff training, mentoring, and effective performance appraisals. It is important that employees understand how they can “move up” in the organization or be prepared to accept excellent job opportunities outside of UCAR. Indeed, although our ultimate goal is to retain excellent employees, there are times when the institute can feel a great sense of pride when a former staff member excels in another organization.

This section of the Workforce Management Plan addresses these issues in three parts: Attracting and Retaining Employees, Developing and Evaluating Employees, and Workplace Environment.

***Conclusion:** UCAR enjoys a low attrition rate. Over the past 10 years total attrition has ranged between 5-11%. For regular employees, it varies between 2-4% per year. The UCAR Climate Survey results indicated that 85% of employees find the climate in their workplace to be welcoming, 88% feel their current job provides ample professional challenge, and 91% would recommend their workplace to others. These facts suggest that our professional development and work environment are very good. However, there are areas that could benefit from improvements and enhanced communication of processes. In addition, the organization must continually monitor and evaluate these areas to ensure a content and productive workforce.*

I. ATTRACTING AND RETAINING EMPLOYEES

A. Salaries:

Current State:

The UCAR Compensation philosophy is as follows:

It is the philosophy of UCAR to pay salaries designed to attract, retain, and motivate the highest caliber talent to ensure UCAR's continued world leadership role in the scientific research community. To this end, within the means of the organization, the salary ranges will be set at or above specified levels in designated labor markets while considering internal equity as an additional factor.

UCAR participates in 14 salary surveys that represent our labor market competitors in order to market price our jobs. Current practice is to match UCAR jobs to the 50th percentile of base pay. There is a general sense that UCAR salaries are competitive with peer institutions and that UCAR salaries are not as competitive with private sector companies for some job categories. This may be true, especially if private companies offer bonuses and stock options, which UCAR does not offer. There is some confusion between market data which determines salary range and pay within a position. In some job categories the compa ratios are low in general, meaning that pay in the range is below the market point, not that the range itself is below the 50th percentile of market data.

It is difficult to ensure equity across the organization given that different groups have more or less available funding for salaries. There is also some concern that it can be difficult to hire new employees at competitive rates if current employees across the organization are low in their range, which causes equity issues. The Workplace Climate Survey results showed about 20% of respondents were not satisfied with their compensation and with the fairness of compensation policies and practices.

Desired State:

UCAR should be competitive with its total compensation, specifically when compared with clearly defined labor market competitors (whoever management determines these to be) or should have a mechanism to offer competitive salaries for key, high performance employees. Creating differentiating factors for high performers would be key to this process so that employees understand what it takes to be a high performer and how they can achieve this distinction.

Recommendations:

The President's Council should discuss UCAR's total compensation package, e.g., pay, benefits, working conditions, performance management, etc. and determine, in a strategic context, whether our current total compensation is meeting the needs of the organization in terms of attracting and retaining employees or whether modifications to the current state are desirable.

B. Benefits

Current State:

UCAR offers a comprehensive set of benefits, including flexible work alternatives (flextime, flexiplace, compressed work week, etc.), dependent care assistance, family sick leave, a subsidized day care center, short term salary continuation and long term disability, as well as health and life insurance and a 10% of salary contribution to employees' TIAA-CREF accounts. The Workplace Climate survey showed 92% of respondents felt they can take short-term leave without jeopardizing their career opportunities, however 23% do not feel free to work part-time without retribution or conveying the misperception that they don't take their jobs seriously. Although 76% of survey respondents indicated their supervisor supports their Flexible Work Alternative needs, there is anecdotal evidence that flexible work alternatives are not always made available for eligible employees.

UCAR has a liberal vacation/Paid Time Off (PTO) policy. There is a concern that, due to workload, some staff do not take PTO and are, therefore, risking job burnout.

E-Scan Information:

The UCAR benefit program is competitive with other institutions and, in many cases, more generous.

Desired State:

Supervisors are encouraged to grant flexible work alternatives to employees. Supervisors are sensitive to high stress periods for their employees. Employees understand the various benefits available to them. HR continues to regularly evaluate benefits offered to ensure that we are competitive with our peer institutions. Employees and supervisors recognize the importance of taking adequate time off.

Recommendations:

In order to ensure fair application of available benefits, provide training for supervisors and managers so that they can identify and successfully deal with stressful situations for their employees and also understand the flexible work options supported by UCAR. Supervisors and managers should also be given tools to adjust workloads and job assignments in order to give employees the flexibility to take vacation/PTO. Training should be provided in a number of ways: leadership academy, supervisor certificate classes in staff development, UMC and NCAR Directors meetings. Show how UCAR benefits compare to other organizations by providing data available from surveys and the web. Communicate to staff how to address questions concerning benefits.

C. Promotions/Reclassifications

Current State:

Promotions are handled differently for Scientists and Research Engineers than other employee classifications. Ladder track scientists are promoted through NCAR Scientific and Research Engineering Appointments Policy, which is a person-based process. The person gains the necessary skills to move to the next level in the career track. Issues relevant to this group are being handled by a different working group, so the focus here will be on the remainder of the UCAR staff.

UCAR does not routinely “promote” staff. Employees can be promoted through applying for higher level positions and competing with either internal or external candidates for the job. UCAR does recognize the growth of duties and responsibilities performed by individuals, however, through its “reclassification” process. A position reclassification is the assignment of a new job title and/or range to an existing position. A position may be reclassified to recognize significant changes in the duties and responsibilities of the position. The evaluation may result in an upward or downward move, or no change, in the salary range of the position. A revised Position Description is proposed by the supervisor and authorized by the Laboratory or Program Director. An employee should be fully performing all of the new duties and responsibilities listed in the new Position Description prior to a reclassification request. There is also anecdotal evidence that employees do not understand the reclassification process in general, and specifically in terms of when a reclassification is appropriate (a significant increase in higher

level job duties and responsibilities.) There remains confusion around what our job based system means in terms of reclassifications.

In the Workplace Climate Survey, 51% of respondents felt their current job provides opportunities for advancement, 56% see a career path for them in the organization, 53% felt that promotion or reclassification decisions are based on a record of accomplishments, and 31% felt there are opportunities for them to be promoted to management positions.

E-Scan Info:

The E-Scan information primarily deals with tenure track scientific and research positions. Little data has been gathered on the rest of the staff within these organizations, and the questions posed did not solicit this type of information. MITRE did mention that their promotion process is based on demonstrated higher levels of capability.

Desired State:

The desired state would be that employees feel that position reclassifications are dealt with fairly and equitably and that there is transparency in the process so that employees clearly know the criteria for reclassification.

The reclassification process could be affected by succession planning. For example, if UCAR decides to support promotional opportunities through succession planning, UCAR could support this by promoting employees internally first, and then hire external candidates to fill vacated positions. Promotional policies should be developed consistent with this and be clearly communicated to all staff.

Recommendations:

This recommendation is based on the staff not covered by the UCAR Scientific Appointments policy.

Clarify and communicate to all staff the reclassification process and philosophy behind it. Ensure a mechanism is in place to hold supervisors accountable for appropriate classification and salary levels of their employees and to provide employees with a path of recourse if needed.

D. Hiring the best people in a competitive environment

Current State:

NCAR strives to hire the best people into the organization at all levels. For most advertised positions competition is very steep. For higher level positions hiring supervisors often find that the salary expectation on the outside is significantly higher than what the UCAR ranges offer. Since candidates do not know our salary ranges in advance, it is difficult for a hiring supervisor to know if a candidate will still be interested once they are aware of the pay range (at the interview phase). This creates a challenge for supervisors who are trying to find the right candidate in a large pool.

For Scientists, early career scientist openings are competitive and attract a good number of young scientists. More senior positions take a very long time to fill, in part, because positions become more specialized as they become more senior and there is no translation between a level

that one has achieved at a University or National Lab and NCAR. As a result potential incumbents must wait for the ARG process to occur before a solid offer can be made that guarantees the position level. Young scientists going through the central Scientist I process are given start up funds of 20K including overhead from the NCAR Directorate. This is generally used for personal computing equipment, international travel, and sometimes to furnish an office. It is not the NCAR norm to provide support staff or a generous start-up fund to divisional scientist hires, though some divisions provide small start up funds to all new scientists.

E-Scan:

The internal scan revealed that many hiring supervisors and administrators feel that the screening process in HR might be flawed and would prefer less screening. There is a strong sense that automatic filters applied in Open Hire do not work properly and there is some sense that HR should not weed out applicants unless there are completely obvious reasons. As evidence, there was recently an offer made to a Scientist III who was originally removed from the candidate pool by HR filters.

There is a sense that for some positions we could do a better job at casting a wider net. In other words, we might strengthen the pool of "best" employees if HR and hiring supervisors work together to determine optimal locations for advertising.

From the external scan it was clear that various institutions provide start-up scientists with varying levels of support. One institution reported offering their new scientist up to 750K to be spent or lost in three years. This provides the new scientist with the opportunity to build a program. Others offered nothing in terms of actual start up funds, but those that did were mostly much more generous than NCAR's standard 20K. Additionally, some institutions (not all) reported offering their scientist hires ample support staff.

Desired State:

NCAR is competitive at attracting the top talent in all job categories. HR and divisions work to streamline hiring processes while also assuring that hiring supervisors do the vast majority of eliminating candidates from the pool (or specifically ask HR to do it). Salary ranges are posted in order to attract appropriate candidates. A culture where it is normal to use the whole salary range when making job offers to acknowledge the range of qualifications within that job range. Work toward better equity in this way (not equality in pay based on current criteria, but equity in terms of qualifications).

Recommendations:

Provide information about salaries at time of job opening. Allow supervisors to decide level of filtering that occurs in HR before applicants are presented to hiring supervisors. For scientist positions (including some project scientists), consider developing a central pool of ample start-up resources (e.g., computer, high-performance computing time, shared support staff, possibly major laboratory equipment) and funds for other needs and ongoing support for key positions so that we can attract the best of the best.

E. Retention

Current State:

NCAR enjoys fairly low attrition rates. Over the past ten years total attrition has been from five to approximately 11%. For regular employees it varies between two and four percent per year (Certain types of employees are not classified as “regular”; those excluded include term employees, student assistants, visitors, post-docs, graduate research assistants and casuals). It appears that attrition rates are consistently highest in areas such as scientific support and administration and slightly lower in Scientific and Research categories. There is a sense in some of the science divisions that we are losing key scientific staff to organizations that can offer higher salaries and comparable benefits.

E-scan data:

There were no significant trends reported in the data received that seemed different from the NCAR/UCAR experience with regard to loss of staff. Some groups have experienced loss of key personnel, others did not report specifics on this. Most groups reported that they have formal retention policies and programs (with varying degrees of success), though nearly all of them seemed reactive (i.e., bring in a firm offer and we’ll match or increase it). At least one reported that it seems to be used as a way for staff to seek higher salaries. Another group reported offering 80K bonuses to key staff who considered leaving—paying them over two years. Many organizations have similar flexible work policies to UCAR, but there didn’t seem to always be a correlation between this and retention, though it was clear that employees enjoy that in some of the reports. Some organizations offer excellent start up packages to key staff. For example CIRES reported offering start up packages to fresh PhD in social sciences of \$50 – 75K, and that same position in physical sciences would be on the order of \$100K. Senior staff receive significantly more (reported up to \$400K). CIRES reports wanting to do as much as they can for their new hires in hope that they can be successful. A foreign agency, ECMWF, reports excellent retention even though they offer management positions a maximum of two five-year terms in same management position. Scientists do not receive tenure but get five year contracts subject to renewal upon excellent performance. They report that this provides a strong motivation to continue excellent performance on an ongoing basis.

Desired State:

Retain a staff of motivated, hard-working individuals who strive for excellence throughout their careers and are working to their potential. Also, maintain opportunities to infuse the staff body with new ideas and fresh perspectives to guide us into the future. Since the budget is not infinite, some moderate amount of turnover in all classifications and at all levels is desirable.

Recommendations:

Retention at UCAR is generally not an issue, however, management should continue to monitor it. Management should assess whether there are critical areas that may need to be strengthened to ensure continued operation if key staff members leave the organization.

F. Office/lab space

Current State:

NCAR and UCAR staff in Colorado are spread across many buildings on four campuses. Other staff are located in Washington D.C. A variety of work space types are available throughout the campuses including cubicles, windowed offices, interior offices, laboratories, computer rooms and aircraft hangars. UCAR has standards for how they allocate bulk space (i.e., 110 square feet

per person), but labs, divisions and programs are responsible for the allocation of this space once it is identified. Many staff occupy offices on more than one campus. NCAR/UCAR employees spend a great deal of time in transit to meetings which are held on all of the campuses depending on who is hosting the meeting. The current allocation of space to divisions and programs is not currently ideal for keeping groups in close proximity to one-another and divisional visitors.

Internal Scan Data:

Survey data of administrators and managers indicates that labs, divisions and programs have methods for allocating space and those are generally known by the staff they serve. One person described the system as chaotic. Eighty-eight percent of staff who completed the all-staff survey feels that space allocations are fair. Those who use lab space also indicated they thought the allocation process is fair.

Desired Outcomes:

A reassessment and reallocation of space “flow” across the organization is necessary so that staff are in close proximity to other divisional staff and visitors. A well-understood policy on space allocation that includes information on the provision of space to staff with joint appointments, multi-campus collaborations and space for retirees is needed. Continued feeling that fairness prevails in decisions and policies is also desirable. Additionally, NCAR/UCAR should strive to reduce time commuting to and from meetings by providing technological options across the organization.

Recommendations:

Positive steps are already being made to reassess space issues in our organization. Continue to empower Directors and Administrators in these discussions so that all occupants of a given building are treated equitably. Laboratories/Divisions should clarify and communicate to staff their respective process for allocation of office/lab space. In this way, communication and open processes for space allocation are known. Assess simple but effective means of providing tele-meeting solutions to all staff so that less time is spent commuting to meetings and to further reduce NCAR/UCAR carbon footprint.

II. DEVELOPING AND EVALUATING EMPLOYEES

A. Staff Training: Includes new staff training, director and manager training, and professional development for all staff.

1. Staff Training

Current State of Technical Training for UCAR employees:

UCAR has several programs by which employees can get technical training:

1. UCAR’s Educational Assistance Program, by which eligible employees have expenses paid to attend an educational (degree) program.
2. UCAR provides a number of internal training classes on a regular basis, such as security training, application training, personal development training.
3. With permission of employee’s management, employees can have expenses and time paid to attend courses given at conferences or educational institutions.

4. UCAR's sabbatical program will pay six months employee salary for Software Engineer IV, Engineer IV, Project Scientist III, Scientist and Research Engineer III's, and senior scientists once every six years, for employee to participate in management-approved professional development activities.
5. UCAR employees are welcome to take on-line training, provided free through HR or COMET.
6. The NCAR Software Engineering Assembly (SEA) has recently obtained funding from NCAR for several software engineering classes that are being provided through HR.

There is no UCAR-wide policy for determining an employee's eligibility for training. There is no budgetary standard to cover training, so that the available training opportunities can vary depending on a department's current financial condition. The HR website lists many of the above educational opportunities; however other options such as the sabbatical program or management-paid courses are not widely publicized. The standard staff appraisal form has a section for development, which may potentially be used as an incentive for training (depending on management priorities). In the Workplace Climate Survey, 70% of respondents rated staff training and development as adequate and 63% felt the time and funds for training and other business were allocated fairly.

E-Scan information:

Many of the peer institutions surveyed were academic institutions, whose training programs were fairly unstructured, probably because of the availability of academic courses for staff within the institution.

The nonacademic institutions that were surveyed did indicate the availability of technical training for staff, including many programs similar to the UCAR programs listed above. However most of these reports included no detail to indicate the level of support for the training or to evaluate its effectiveness; e.g., how many employees participated or what incentives were provided for participation. An important exception was NOAA ESRL, who reported that employees "Have to take a certain number of courses to stay current" and that "roughly 6% of funds are supposed to be set aside for training but this is variable".

Desired State:

Employees understand that UCAR is supportive of each employee's professional career development as it applies to the needs of the organization, and that, as a professional, each employee has the opportunity to participate in training programs that advance their skills. Employees understand that UCAR values their continued professional development, as evidenced by UCAR management encouragement for attending such courses.

In some job categories, technical training may be regarded as an essential part of the job at UCAR. This expectation should be communicated and encouraged by explicit mention of it in job descriptions, employee benefits website, and performance reviews.

All employees should have a plan for their continuing development, specified in their annual performance review and agreed to by management.

Training courses that are widely attended should be offered through HR. However it is understood by employee and management alike that employee training may need to be customized to fit the needs of the organization and employee's career objectives; and that specialized training courses (and associated travel costs) that meet this objective will be paid for by UCAR as needed and when financially feasible. A reasonable amount of funds for professional training should be available for each Laboratory.

Recommendation:

Management should establish a line item in the ABR for staff training and clearly communicate the policies for use and reporting requirements of the funds. Supervisors should be made aware of their respective Lab policies and their responsibility to ensure employees are adequately trained for their current job requirements.

Management should publicize the availability and, if needed, expectation of professional training in the employee benefits website, and in the new employee training courses. HR should continue to work with internal professional groups to expand its offering of employee training as resources permit.

The UCAR F&A education website should explain all the types of training that are available to employees, an explanation of the procedures that are followed to obtain such training, and the requirements for obtaining other training.

2. Training of Directors/Managers and review of the LA and ELP

Current State:

UCAR currently offers three programs that specifically focus on training of current and future managers:

1. Executive Leadership Program (ELP), which targets management at the highest level within UCAR/NCAR;
2. UCAR Leadership Academy (LA), which provides knowledge and skills for middle management and/or future leaders;
3. UCAR Supervisor Certificate Program (SCP), which targets entry-level supervisors and managers.

In addition, employees can take advantage of training supported through

4. UCAR's Educational Assistance Program, i.e., financial support for completion of a degree program such as an Executive MBA. Degree programs require permission from an employee's supervisor/ management.
5. The use of divisional program funds that pay for expenses related to off-site and/or on-line training courses provided by outside training institutes. These training classes are often expensive, require travel support and require permission from an employee's supervisor/management.
6. UCAR Staff development classes offered through UCAR HR, which cover areas such as supervisory skills, hiring skills, performance management, etc.

The overall assessment of the ELP has been positive and is considered a worthwhile program, especially as a follow on to the Leadership Academy. Queried participants agreed that the ELP program met expectations and was relevant to their jobs, and that the majority of the key areas of learning elements are now implemented into participant's leadership style. Nevertheless there seems to be a lack of interest or reluctance to participate in this program due to the significant time commitment required (9 months). Due to the small number of eligible UCAR/NCAR staff, the ELP is not offered every year.

A set of UCAR Management Competencies is posted on the HR website at http://www.fin.ucar.edu/hr/leadership_academy/competencies.html. Training in and development of these competencies are the main focus of the LA. To participate in the LA, the employee has to be nominated by the division or laboratory director. In 2008, Human Resources, with the help of a LA graduates focus group conducted an in-depth review of the program. Feedback on the program was solicited to understand its lasting and/or immediate impact, and to obtain suggestions to continue to fine-tune the program. Overall, the large majority of the LA participants considered the course a very worthwhile, exciting, and interesting part of their professional development. Suggested improvements, training of additional skills, and topics for future sessions resulting from the review were incorporated into the updated/revised 2010 LA program.

No formal review of the SCP has been conducted, and the usefulness/value of the program is currently unclear. Thirty-five people are enrolled in the program of which eight have completed enough credits to get their certificate. Certificates are placed into the employee record and copies are sent to their supervisors.

Access to training outside the ELP, LA and SCP is available and there is a wide selection of programs and classes to choose from. Most of these programs target for-profit-organizations and may have a somewhat different approach to management. Participation is primarily driven by an employee's initiative, motivation and resourcefulness, and heavily dependent on financial support by management.

Most managers within UCAR are promoted through the ranks because they have strong job skills and they have a proven track record for getting results, not necessarily because they have effective leadership and people skills.

There are no UCAR-wide guidelines on how much time and resources should be invested in ongoing training of managers and leaders.

Since most jobs at UCAR/NCAR are not performance-based and turn-over at the management level is low, there seems to be limited incentive to pursue management training.

E-Scan information:

Three of the government organizations surveyed (NOAA/ESRL, NREL and MITRE) require and offer structured management training programs that focus on leadership skills and performance management. Training courses are either provided by affiliated universities, or federal/agency-wide training institutes. NOAA requires annual refresher courses and has a set of requirements

for executive level staff. Unfortunately there was not enough detail to examine training programs in depth.

Several of the academic institutions surveyed rely on the availability of academic courses within the institution, but ongoing training is not mandatory. For obvious reasons, the main focus at universities is on effective teaching skills. Other activities included shadowing of managers and lateral transfers from project to project to gain additional experience in project management and budgets. No detailed information was provided to evaluate the effectiveness of these programs.

Desired State:

All managers and leaders receive or have access to on-going training, refresher courses and mentoring to deal with common management issues.

All managers have a plan for their continuing professional training, specified in their annual performance review and agreed to by management. Five-year development plans are living documents with realistic goals that focus on improving and fine-tuning management and leadership skills. A reasonable amount of funds for professional training should be available for each manager.

Recommendation:

UCAR/NCAR management should continue to implement a leadership program that meets the organizations' needs for future talent especially considering that a significant percentage of senior executives and middle managers will be eligible for retirement over the next decade.

LA and ELP are intense training classes that require a significant time commitment. Explore additional forums such as comprehensive, web-enabled development tools that provide online training classes on a 24/7 basis. An example is NOAA's Commerce Learning Center, which hosts a variety of courses and services through the NOAA Workforce Management Office. It may be possible to tie into already existing management tools.

Further explore NREL, MITRE and NOAA training curriculums to assess usefulness and effectiveness, especially of ongoing training requirements and content.

Regularly obtain feedback from employees on the performance of managers and leadership to further develop and fine-tune management skills.

B. Mentoring

Current state:

The workforce climate survey indicates that only 52% of staff feel adequately mentored and a significant fraction of staff rarely or never have conversations with supervisors about topics important in many mentoring relationships. Despite much discussion, the mentoring system at NCAR/UCAR overall remains largely ad hoc, for both scientific and non-scientific staff, and some people are not provided with mentoring.

Based on the Director and Administrator meeting, most UCAR programs do not currently have a formal mentoring program. One laboratory has a lead person who works with all early career

scientists to understand and prepare for the promotion process, and this lab involves senior management and group leaders in mentoring early career scientists and/or identifying other mentors. No specific programs for staff besides early career scientists were discussed. Directors and administrators reported that more formal efforts have been attempted previously but were not successful. Nevertheless, some UCAR programs support a model where employees or supervisors can request to be mentored or to mentor. Challenges raised include assessing the need for and success of mentoring efforts and providing mentoring training/support.

Several of the external organizations surveyed have no formal mentoring program, relying on informal mentoring or mentoring through supervisors as in most UCAR programs. A few organizations said that mentoring was regarded as part of a supervisor's job, and one said that performance evaluations include a mentoring component. Several said that junior faculty or employees were assigned one or two more senior mentors. In one case, the junior faculty member meets with his/her mentors monthly. One organization reported a new program to focus on traditional and reverse mentoring, with each division having a champion for mentoring. Another organization reported active mentoring in terms of moving people from research "support" positions (scientists and post-docs) to more leadership/management/PI roles in research groups.

Desired state:

Employees in all job categories feel that adequate mentoring resources are available to them, and supervisors and mentors feel that they have adequate time, training, and resources to mentor. Mentoring is rewarded within the organization.

Recommendations:

UCAR should establish a mentoring program for mentor training and to serve as a clearing house for mentors. This program would not be required but would serve as a resource for mentors and those seeking mentoring. Mentoring to help interested people move into leadership /management roles should be included.

C. Performance Appraisals

Current State:

UCAR has four standard forms for Performance Appraisals (PA):

1. NCAR Scientists 1 and 2
2. NCAR Scientist 3
3. NCAR Senior Scientist
4. All other staff

There are also optional forms that may be used for Employee Evaluation of Supervisor and Five Year Career Plans. Standard instructions and schedules are provided.

The forms for Scientists include some of the same sections as the general PA, but also include sections on publications and work in progress. These forms also include an evaluation of the Scientist's likelihood of advance and continued appointment.

The general PA form has four sections:

a. Proficiency of job related skills and competencies

This section is required for employees new to the job and optional for other employees. It is recommended for employees who have had a significant change in skills or competencies.

b. Performance of key activities

Employees who have been in their current job for less than two years must have a detailed annual performance review on all key activities it is optional for other employees unless there are deficiencies.

For supervisors, key activities include Leadership and Administration and effective administration of the performance management system for subordinates. For all employees, a list of activities that encourage diversity is requested.

c. Coaching and development planning

This section should be completed each year for every employee. For employees whose job is focused on annual projects or assignments, the development of goals for the upcoming performance period may be the most important part of the appraisal.

d. Overall performance

There are two ratings: "Performance Meets or Exceeds Job Requirements" or "Performance Does Not Meet Job Requirements." All ratings of "Does Not Meet" require consultation with HR. A written summary of the employee's performance is also included. This describes the employee's performance for the year and any change in the employee's long term performance, either up or down.

Submission of the PA by each employee's supervisor is mandatory and every employee receives an evaluation each year.

Training is offered to supervisors on Performance Management and Appraisal Skills. The training is optional, but part of the UCAR Supervisor Certificate Program. The Program includes the following competencies:

1. Communicates clear performance standards, goals and expectations.
2. Provides timely and appropriate feedback to acknowledge good work, and also to correct deficiencies including under-performance, inappropriate behavior, etc.
3. Helps staff feel valued, appreciated and included.
4. Provides resources for employees needing assistance.
5. Assignments are appropriate to employee capabilities and provide growth opportunities.
6. Identifies and discusses professional development opportunities, including optional five-year career plans (career goals)
7. Aware of internal training and development opportunities.
8. Provides effective orientation programs (within program) for new staff.

There is no mandatory training for supervisors on PAs.

In practice, the components of the form are submitted either using the standard form or in a memorandum. There is a wide variety in the look of PAs throughout the organization; a rating of "Performance Meets or Exceeds Job Requirements" or "Performance Does Not Meet Job Requirements" is supplied for all employees. Some areas of the organization use different internal processes to evaluate employees and may use an internal rating process or scale to distinguish levels of performance, especially to determine merit increases. In general, the written summaries of performance correspond to the level of increases and when audited support pay actions. The skill sets of supervisors vary widely, and most supervisors submit passable PAs. Anecdotal input suggests that some supervisors do not spend a lot of quality time working with employees during the year in the area of performance or personal development.

Overall, the standard PA process is designed to measure competencies and results on key activities. The design is primarily focused on personal development. The lack of a true performance rating is consistent with developmental focused PAs. There is no section for personal results driven objectives (MBO) although it may be a part of the performance discussion for project based jobs. There is no formal planning step for the upcoming year, other than for developmental goals; the PA appears to be more "look back" than "look forward". There is no formal link to program or organizational goals...no cascading of strategic or tactical goals, again consistent with a developmental focus. The link to strategic competencies is weak, although the addition of a diversity component is certainly a strategic competency/activity. UCAR has developed a list of competencies for management that are not strongly linked to the PA. There are no critical deficiencies in the current PA process. The biggest deficiency is in supervisor training, which is true for most systems.

E-Scan information:

Of the peer institutions surveyed, most had a traditional PAs. Several had standard 4 to 5 point rating scales and some restrict the number of employees in top ratings. One has a 100 point scale, one uses three tiers with top tier limited to 10%, and some are linked to merit pay systems. Did not get the sense that any were considered "best practice" (some effective, some in need of improvement). In the internal survey of Labs, most of the discussion of the PA centered on its use for training, development and mentoring. There is a perception that not enough is done to recognize exceptional performance, but it is often identified in the appraisal process.

Desired State:

The PA process should support organizational strategy and help achieve organizational goals. It should be consistent with the desired culture. It should appropriately support other internal systems such as pay, training, discipline, termination, promotion, succession planning, promotions, etc. The PA process should be efficient and easy to use. The process should add value to users and not seen as just an administrative burden. It must conform to legal requirements for PAs. The process should be ongoing throughout the year. All users of the process should be adequately trained. The process should be seen as equitable. The process should meet the needs of the organization at all levels.

Recommendation:

Performance Appraisals are linked to other important systems including pay and rewards, employee development, promotions, mentoring, employee recognition and succession planning.

Once a final recommendation has been made in these other areas, the appropriate type of Performance Management System needs to be developed to support those systems. The modification or redesign of the PA should be led by a project team including representatives throughout the organization. Ownership of the PA should be with managers and supervisors across UCAR and not held within HR. UCAR also needs to address the appropriate balance between consistency in the organization and flexibility for appropriate use in different subsets of the organization.

D. Employee Recognition

Current State:

“It is the philosophy of UCAR to pay salaries designed to attract, retain, and motivate the highest caliber talent to ensure UCAR's continued world leadership role in the scientific research community. To this end, within the means of the organization, the salary ranges will be set at or above specified levels in designated labor markets while considering internal equity as an additional factor. Additionally, UCAR will reward employees according to their contributions through a pay-for-performance evaluation system. UCAR rewards high achievers through higher than average merit increases.” Over time, a high achiever with sustained performance should have a higher compa ratio (pay divided by the midpoint of the range) than an average performer. The challenge for UCAR is to apply this practice uniformly throughout the organization, and the criteria for what defines a high performer is largely left up to individual entities or supervisors. Since we do not have a formal link of pay and performance, we could have “high performers” in one group with lower compa ratios than other groups.

UCAR currently has a variety of methods of rewarding and/or recognizing employees. Employee Recognition Awards Policy 6-14 sets out the criteria for Distinguished Achievement Awards, Outstanding Accomplishment Awards and Local Appreciation awards. All employees are eligible for these awards. Either an individual or a team may be nominated.

The Distinguished Achievement Award recognizes distinct and extraordinary accomplishments with identifiable impacts that have provided a significant advance in enabling, understanding, or communicating key scientific issues during the past five years. The monetary value consists of an individual winner receiving \$10,000; a team shares an award of no more than \$25,000.

The Outstanding Accomplishment Awards recognize contributions and achievements in the following categories: Publication, Scientific and Technical Advancement, Administrative Achievement, Education and Outreach and Mentoring. Monetary prizes are awarded as follows: \$3,500 to a single winner; \$1,750 each to two winners sharing an award; \$1500 each for three to six winners sharing an award; and a total of \$10,000 split equally among seven or more winners sharing an award. UCAR pays the personal income taxes on these awards for recipients who are current UCAR employees.

The Special Recognition Awards program is designed to recognize single instances of extraordinary work performed by employees. Employees may qualify for a Special Recognition Award if one or more of the following criteria are met. The employee has:

1. Performed single-instance services that are of outstanding quality or of unusual importance to the execution of UCAR's programs;
2. Displayed commitment to activities or demonstrated outstanding skill or effort above and beyond his or her prescribed duties and workload;
3. Saved significant time or money; and
4. Maintained an excellent level of performance during an organizational emergency or period of high stress, or shown great ingenuity or perseverance.

Special Recognition Awards are not for the purpose of recognizing sustained excellence in assigned duties; such service is rewarded through the regular salary administration system. Nor are the awards intended to recognize sustained performance of duties not included in the employee's job description. In those instances, a new job description should be generated and reclassification considered.

Finance and Administration has a spot award program called the STAR Program. The purpose of this program is to provide a means for co-workers to immediately recognize a fellow employee's performance. Other parts of the organizations have similar programs.

E-Scan Info:

The E-Scan identifies programs similar in nature to the UCAR Recognition programs listed above. Some of the federal agencies appear to have a salary plus bonus system in place, where employees can get annual bonuses for performing well. Some of the E-Scan organizations also pay for dollars brought into their organizations.

Desired State:

Employee recognition programs should support the organizational strategy and goals and reward the types of behaviors that the organization wants to encourage. The process should be seen as transparent and equitable so that all employees understand the actions necessary for eligibility for employee recognition awards and merit increases.

Recognition of high achievers and employee recognition in general should be addressed through the pay for performance system. Criteria that can be applied equitably across the organization should be developed and communicated across the organization, allowing for differences in job groups. Supervisors will need to be trained in the relevant procedures and how to identify high achievers.

Recommendations:

UCAR should ensure that its employee recognition and rewards policies and practices:

1. Continue to be part of the UCAR culture to support the organizations goals and mission
2. The criteria are well communicated to all staff
3. Supervisors are trained in the application of these policies
4. Develop and communicate processes within the Labs for awards less than \$500.

E. Succession Planning

Current State:

Divisions, Laboratories, and Programs have no formal program to identify and mentor candidates for key positions such as supervisor, engineer IV, project scientist III, manager, and director positions. Identification and mentorship does occur in many entities and is effective at times but is not consistent across the organization, and talented individuals with significant potential can be overlooked. UCAR offers both leadership and executive leadership programs that effectively assist current and future UCAR leaders to develop their skills. The decision on whether to employ an internal or external search is often driven by budget considerations, and some internal candidates are unable to compete effectively with external candidates.

Desired State:

A program exists throughout the institution where both interested candidates and candidates nominated by their organization can apply to enter a training program that can prepare them for key positions. This program, over several years time, provides both in-residence instruction, opportunities for external training, and temporary assignments that provide real world experience. The institution consistently employs external searches for leadership positions and internal candidates successfully compete with external candidates.

Recommendations:

Create a training program that prepares talented and interested staff to move into key positions. This program would go beyond leadership programs by providing training and experience in management, project management, administration, corporate and public policy, business development, and supervision. The program could include classes as well as temporary assignments throughout UCAR, including acting Director/Manager positions, and in sponsoring agencies. The program would involve a review of applicants for admission in order to maintain quality and diversity. As a result of this program, individuals in one division could come to the attention of other divisions, and UCAR would have an internal pool of well trained and mentored candidates who could effectively compete in external searches as well.

III. WORKPLACE ENVIRONMENT

A. Respect in the Workplace: We define *Respect* as Respect of self and of others. *Respect* includes: respect for the environment; respect for other people's privacy, their physical space and belongings; and respect for different viewpoints, philosophies, religion, gender, lifestyle, ethnic origin, physical ability, beliefs and personality.

Current State:

According to the Workplace Climate survey, over 85% of UCAR staff find the workplace climate at UCAR to be welcoming or accepting, suggesting that the current work environment has a high degree of respect. The answer to the question "Does my supervisor treat me with respect?" engendered the most positive responses of all the supervisor questions, with over 95% agreeing strongly. The positive respect environment at UCAR is also supported by strongly favorable responses to questions such as "My supervisor is accessible, My supervisor is easy to discuss ideas with". The lowest response, while also strongly positive, was "My supervisor encourages me in my career goals". This suggests that mentoring activities could be a mechanism to further increase respect in the workplace. This topic is addressed separately in this report.

The workplace climate survey results indicate that employees find UCAR/NCAR a very respectful workplace. However, there was some small amount of dissatisfaction that should be addressed if possible.

Desired State:

An organization in which all employees are respected and valued. We are very close to the desired state now according to the workforce climate survey, so any changes to the UCAR culture and environment should be minor.

Recommendations:

It is suggested that HR continue to provide training/processes/support on how employees can deal with staff that are having a negative impact on the climate of UCAR as an accepting a respectful place to work.

B. Problem Resolution

Current State:

UCAR currently has a number of avenues for problem resolution. Policy 6-8 states that “The interests of both employees and UCAR are best served when any problems relating to the workplace are resolved as part of the regular communication between employees and between employees and supervisors.” The policy goes on to outline the various options available to employees, listed below.

Informal Discussion: Many problems can be resolved through communicating with the individual(s) with whom the complaint exists, whether it is with a fellow employee, subordinate or supervisor. Employees are encouraged to discuss concerns at an early stage with intent toward resolution. The employee's supervisor should normally be the first source of assistance.

Discussion with Supervisor: An employee who disagrees or is dissatisfied with a supervisor or manager action should, if possible, discuss the concern with that individual. If preferred, or if the employee is unable to resolve the problem with the supervisor or manager, the employee should discuss the matter with the next level supervisor or manager. The majority of misunderstandings can be resolved at this level. This discussion should be held promptly, typically within five days, to allow for a timely resolution. If the problem cannot be resolved in a satisfactory manner, the problem may be discussed with the next level manager, up to and including the Division, Lab, or Program Director.

President's Council Member: If the Division or Program Director is unable to resolve the employee's problem, the employee must submit a written complaint stating the relevant facts and desired remedy to the appropriate President's Council member for review and a decision. The President's Council member will respond in writing to the complaint within 30 days.

President's Council: Finally, if resolution has not been achieved in previous steps, an employee may seek to have the President's Council review the concern. A written complaint stating the relevant facts and desired remedy must be provided to any one member of the President's Council. The President's Council will carefully review the situation by considering the facts presented. At its sole discretion, the President's Council may exercise other options that may

include: (a) additional fact gathering; (b) informal mediation with an internal or external neutral third party to mediate between the concerned parties; and (c) forming an ad hoc advisory panel to include peers of the concerned parties.

The President will review the President's Council recommendations, and after full consideration the President will issue a written decision. This decision is final.

Employees and management may consult with the Human Resources Department at any time for counsel, coaching or clarification of this policy and these procedures.

In addition to the policy employees can engage the Delphi process if they have a workplace concern. The UMC recently approved the addition of a volunteer Ombuds position, although to date this position has yet to be filled. UCAR also offers employees numerous training classes to deal with issues such as conflict in the workplace, and supervisory mediation training.

Options available for problem resolution are covered in new employee orientation and employees are informed of the various steps, as well as the fact that UCAR offers training and individual coaching around these issues. From an informal survey of working group members, however, it appears that employees who have been with UCAR for an extensive length of time are generally unfamiliar with the policy or the options available for problem resolution at UCAR in general. In addition, only 44% of the respondents to the Workplace Climate Survey were aware of the process and protocol outlined in the Problem Resolution policies and procedures.

Desired State:

Employees would feel that they have sufficient resources available to resolve issues.

Recommendations:

There are quite a number of resources already available to employees around problem resolution. The main issues are whether employees know that these resources exist and are they comfortable using these as a resource to assist in problem resolution. A communication program to increase employee awareness should be developed, as well as additional training for employees around problem resolution. Avenues for problem resolution such as the Ombuds program should be monitored for effectiveness.

C. Distribution of Staff

Current Status:

Staff are currently distributed across four campuses, with a fifth on the horizon once the Wyoming computing facility is completed. Distributed staff can result in decreased face-to-face communications and reduced participation in meetings and seminars. This can also lead to a sense of isolation and lack of identification with overall NCAR/UCAR strategies, decreased productivity and delayed progression on specific projects, as well as lost opportunities for the development of new ideas across divisions, labs and disciplines. Recent discussions suggest that in order for NCAR to be able to tackle the significant scientific challenges, such as Earth System modeling, it will need to be able to tap into staff expertise across divisions and labs. The current distribution of staff across campuses does not optimally allow staff to work on these major projects as an effective team. The current number of meeting rooms at the Mesa Lab is sub-

optimal for the likely number of meetings needed to support such activities in the future. The meeting rooms at other facilities, such as Foothills, are also heavily used.

Desired State:

Recognizing that UCAR is unable to co-locate all staff, we understand and act on the need to maximize communication options between campuses. This includes providing conference/meeting rooms that can be linked to other campuses seamlessly, and without the need for Audio Visual staff involvement. UCAR has a culture where these options are widely used and accepted as viable mechanisms to offset issues arising from distributed staff. Wikis and other electronic mechanisms for communication are already being used, but should be optimized for NCAR needs.

Opportunities for team interactions should also be optimized. This can take the form of more face-to-face meetings, conference rooms that are linked to other campuses seamlessly, and opportunities for extended interactions. Most of these options will require additional and improved meeting space.

All seminars held at any campus should be broadcast to a designated video seminar room at each campus that allows for interaction with the speaker. This will allow scientists and staff to keep up to speed with the science and discussions with minimal time lost due to travel between campuses.

Collaborative office space should be available at all campuses in order to allow staff to work at other facilities for a period. This would be particularly relevant for scientists that are collaborating on a project/paper, or team members that need to be co-located for a period of time. This could be for as short as one day, to as long as a few months if needed by the project/collaboration.

Recommendations:

- Upgrade a number of meeting rooms at each campus to include conference capability. This is similar to a proposal put forward by the library committee led by Mary Marlino.
- Designate at least one video seminar room per campus that will display seminars presented at other facilities.
- Allocate offices at each campus to facilitate improved interaction/collaboration among staff.
- Increase the number of meeting rooms at all facilities where feasible
- Educate employees on the availability/use of web based conferencing tools that can be used in their respective offices for meetings of small groups of distributed staff.