

NCAR/UCAR Diversity and Inclusion Statement

At NCAR/UCAR, we see it as a moral and scientific imperative to create an environment of full inclusion - a supportive and welcoming workplace that values all individuals and their perspectives, contributions, and ideas in the pursuit of NCAR/UCAR's mission. We believe that everyone with the interest and skillset to work at NCAR/UCAR should have an equal opportunity to do so. We recognize that fostering a diverse, welcoming, and psychologically safe workplace is a fundamental requirement to achieving our goal of innovative, world-leading science, engineering, education, and management.

Conducting the best science requires the recruitment, development, and retention of individuals with different perspectives, experiences, and values. These include but are not limited to the dimensions and intersections of race, ethnicity, gender identity and expression, sexual orientation, socio-economic status, age, physical abilities, neurodiversity, body shape and size, veteran status, religious beliefs, political beliefs, citizenship, country of origin, academic discipline, job category, education level, cultural background, and marital and parental status.

At NCAR/UCAR, our goal is to build a workforce and workplace environment that integrates values of diversity, equity, inclusion, and justice into the way that we operate and conduct research.

The Critical Importance of Diversity and Inclusion at NCAR/UCAR

As a global leader in the development of climate and weather science, NCAR/UCAR is tasked with observing, modeling, assessing, and helping to mitigate the impacts of global climate change, severe weather, and solar storms, all of which affect the global community. This task requires talented and committed teams working together to build innovative solutions that can be disseminated to a broad community. An essential component of these teams is the full inclusion and participation of individuals from a broad diversity of backgrounds, who bring a range of perspectives, values, and tools to bear on major scientific problems.

A plethora of research shows the power of diverse groups in tackling complex problems. Groups with diverse membership find solutions that are more innovative, creative, and responsive to complex problems, promote higher-order thinking amongst the group, and have even been shown to outperform homogeneous groups comprised of the highest performing individuals (Antonio et al, 2004; Page, 2007; Sommers, 2007; Phillips, 2014). Page (2007) notes that not only does casting a wider recruitment net increase the chances of finding exceptional candidates, it also helps us leverage the enormous power brought by a diverse team: *"In choosing a team, admitting a class, or hiring employees, our concern should not be the average ability of the people hired, chosen, or admitted. Our concern should be the collective performance, which depends as much on collective diversity as it does on individual ability. The belief that the best group consists of the best individual people rests on faulty logic. Instead, the best collections contain people who are both diverse and capable."* This measured power of diverse teams carries over into scientific publications: diverse author groups publish in higher quality journals and receive higher citation rates than scientists in homogeneous teams (Freeman & Huang, 2014). Put simply, diversity in our workforce is a scientific imperative if we are to continue to lead the world in our fields of research.

From a business perspective, UCAR and NCAR have many reasons to embrace diversity as an institutional imperative. In studies of industry, companies with greater workforce diversity and inclusion have been found to have higher profits, and increased innovation compared to those with a homogeneous workforce (Herring, 2009; Forbes, 2011; McKinsey, 2015). More relevant to our organization is the finding that employees who feel that they work in a fully inclusive and culturally competent environment, where their diverse identities and contributions are valued, are happier, more productive, and suffer fewer

physical and mental health issues (Goffee & Jones, 2013; Hitlan et al. 2006; Nadal, 2011). They are also less likely to leave the organization for another job (McKay et al. 2007), which also creates financial and intellectual savings by decreasing hiring searches, reducing time spent training new employees, and increasing the retention of institutional knowledge. While recruiting diverse talent requires an up-front time and financial investment, in the long term, it pays for itself as recruitment and retention becomes easier as an institution becomes known for a welcoming and inclusive workplace environment (Dalbotten et al. 2014). In the non-profit sector, the alignment between employees' values and organizational mission is referred to as mission valence and it has been shown to improve performance, recruitment, and satisfaction; especially, when linked to identities whether collective or individual (Wright et al., 2012). Businesses, the military, and universities are pouring huge resources into increasing diversity because they understand that it brings enormous business and educational benefits, not just because they believe it is the right thing to do.

The power of diversity is further amplified when we turn to societal impacts of our work. The communities most at risk when faced with severe weather and climate extremes are those who are traditionally underrepresented in the sciences - primarily people of color, and those from low socio-economic communities, with limited resources to commit to mitigation strategies. This is true in both the developed and developing world (Adger, 2006). Empowering all communities to be part of a global solution to weather and climate extremes is essential: anthropologists have documented how science and technology introduced into communities as creative solutions fail without an understanding of the cultural and social aspects of those communities, and how *"...public uptake of science depends primarily upon the trust and credibility public groups are prepared to invest in scientific institutions and representatives"* (Wynne, 1992). This is vital to understand in the context of racial disparities in public trust of science, where communities of color report lower trust of science and scientists than white communities (Sewell, 2015; NAP, 2015). We cannot develop solutions for climate change or severe weather mitigation without an understanding of, or the trust of, the communities we're trying to reach. Without creating teams of scientists from a broad range of backgrounds who are invested in focusing on diverse regions and problems, we cannot hope to gain credibility and build trust with at-risk portions of society. Furthermore, teams that seek to serve underrepresented or marginalized identities will be more successful in developing ideas that reflect the cultural and social aspects of those communities if identities are shared, thereby maximizing uptake of solutions (Conner, 2016).

Finally, increasing diversity, equity, and inclusion of our workforce and of our fields are goals that are included explicitly in our current strategic plans for UCAR and NCAR, and mandated by our primary funding agency, the NSF, which includes diversity in its strategic plan as a strategic objective (G1/02) and as a core strategy (National Science Foundation Strategic Plan for 2014-2018). Feedback from the NSF Site Visits in 2016 provides a strong recommendation for increasing the diversity and inclusivity of our workforce, for all the reasons outlined above. In describing the future NCAR, the authors of the so-called Blue Book outlined the need for 'manpower development' with the stated intent to develop and provide the 'diversity of talents' needed not only by NCAR but also by communities at large (University Committee on Atmospheric Research, 1959, p. 67). While the writers of this time did not use the word diversity in the modern sense, they did scope NCAR to train and deliver needed scientific talent in a range of disciplines for institutions and communities across the nation. To this end, the authors specifically recommended that NCAR staff should include visiting or rotational scientists that would learn and transfer new knowledge and ways of conducting science across the country (University Committee on Atmospheric Research, 1959). Inclusive diversity is fundamental to that goal.

As our nation and the field of geosciences grow more diverse, we find ourselves in a position of enormous potential and opportunity, with the best minds and most diverse perspectives our field has ever seen, poised to drive innovation and creativity to solve our most difficult problems. We have a responsibility

and opportunity here at NCAR/UCAR to be world leaders in creating the environment where this innovation and potential can be realized.

References

Adger, W. N. (2006). Vulnerability. *Global environmental change*, 16(3), 268-281.

Antonio, A. L., Chang, M. J., Hakuta, K., Kenny, D. A., Levin, S., Milem, J. F. (2004). Effects of racial diversity on complex thinking in college students. *Psychological Science*, 15(8), 507-510

Conner, T. W. (2016). Representation and Collaboration: Exploring the Role of Shared Identity in the Collaborative Process. *Public Administration Review*, 76(2), 288-301.

Dalbotten, D., R. Haacker-Santos, and S. Zurn-Birkhimer, 2014: The role of undergraduate geoscience research in supporting alternative perspectives on the anthropocene. *Future Earth-Advancing Civic Understanding of the Anthropocene*, D. Dalbotten, G. Roehrig, and P. Hamilton, Eds., J. Wiley and Sons, 77-88.

Goffee, R. & Jones, G. (2013). *Creating the Best Workplace on Earth*. Harvard Business Review. See <https://hbr.org/2013/05/creating-the-best-workplace-on-earth>

Herring, C. A. (2009). Does Diversity Pay?: Race, Gender, and the Business Case for Diversity. *American Sociological Review*, 74, 208-224.

Hitlan, R. T., Clifton, R. J., DeSoto, M. C. (2006). Perceived Exclusion in the Workplace: The Moderating Effects of Gender on Work Related Attitudes and Psychological Health. *North American Journal of Psychology*, 8(2), 217-236.

McKay, P. F., Avery, D. R., Tonidandel, S., Morris, M. A., Hernandez, M., Hebl, M. R. (2007). Racial Differences in Employee Retention: Are Diversity Climate Perceptions the Key? *Personnel Psychology*, 60(1), 35-62.

McKinsey (2015). *Diversity Matters*.

<http://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters>

Nadal, K.L. (2011). The Racial and Ethnic Microaggressions Scale (REMS): Construction, reliability, and validity. *Journal of Counseling Psychology*, 58(4), 470-480.

National Science Foundation Strategic Plan for 2014 – 2018. Downloaded from <https://www.nsf.gov/pubs/2014/nsf14043/nsf14043.pdf>

New York: Forbes Insights (2011). *Fostering Innovation Through a Diverse Workforce*. Downloaded from http://images.forbes.com/forbesinsights/StudyPDFs/Innovation_Through_Diversity.pdf

National Academies of Sciences, Engineering, and Medicine (2015). *Does the Public Trust Science? Trust and Confidence at the Intersections of the Life Sciences and Society. A Workshop Summary*. Washington, DC: The National Academies Press.

Phillips, K. W. (2014). How Diversity Makes Us Smarter. *Scientific American*, 311(4). Available at <https://www.scientificamerican.com/article/how-diversity-makes-us-smarter/>

Sewell, A. A (2015). Disaggregating ethnoracial disparities in physician trust. *Social Science Research*, 54(1).

Sommers, S. R. (2007). Race and the decision making of juries. *Legal and Criminal Psychology*, 12, 171-187

University Committee on Atmospheric Research (1959) Preliminary Plans for a National Institute of Atmospheric Research, referred to as the NCAR Blue Book. Downloaded at <http://www.ncar.ucar.edu/documents/bluebook1959.pdf>

Wright, B. E., Moynihan, D. P., & Pandey, S. K. (2012). Pulling the levers: Transformational leadership, public service motivation, and mission valence. *Public Administration Review*, 72(2), 206-215.

Wynne, B. (1992). Misunderstood misunderstanding: social identities and public uptake of science. *Public Understanding of Science*, 1(3), 281