

To the Department of Atmospheric and Oceanic Sciences,

We are writing as a group to urge faculty, staff, affiliate scientists, and graduate students in AOS to make a tangible commitment to support the national movement to defend Black lives and foster an inclusive environment for underrepresented students and faculty. The purpose of this message is to highlight what we, as students, would like to see happen within the department in response to the brutal murders of George Floyd, Breonna Taylor, Tony McDade, Tony Robinson and other Black men, women, queer, non-binary, and transgender folx at the hands of the police. As academics we must recognize that the systemic racism and white privilege “out in the world” is intertwined with what happens at UW-Madison and within our department. The boundary between what happens to students in the program and “in the world” is artificial.

The field of geoscience is the least diverse STEM field, showing no progress towards increasing diversity in over 40 years. According to an article in *Nature Geoscience*, only 6% of geoscience doctorates awarded to US citizens and permanent residents in 2016 went to students from underrepresented minorities (URM), a group who made up 31% of the US population that year (including American Indian or Alaska Native, Black or African American, and Hispanic or Latinx).<sup>1</sup> This lack of diversity not only prohibits achievement for people of color in higher education, but also it allows implicit biases to prevail among White people and limits talent and discovery in our own discipline. We must take immediate actions to end systemic racism.

We believe that our research must be actively engaged with and responsive to struggles for justice. Many of us are reflecting on what we can do. Being in our field of atmospheric science and the implications it has on enhancing understanding of weather forecasting capabilities and climate change, we do not doubt that some may be comforted by the potential impact of our research and teaching. But, THIS IS NOT ENOUGH. The belief that research will save us is a reflection of privilege, a privilege that our Black and other minority students and faculty will never have as they navigate the halls of this department and the streets of our communities. Without concerted action to dismantle racist institutions and systems around us, academic work by itself will only serve to conservatize and distance the academy from the rest of the world. Without concerted action, the department will fail its Black and underrepresented students and faculty, and the communities it purports to serve.

We are addressing the silence and the complacency of the department by identifying and acknowledging these issues within our department. A complacency not just limited to lack of diversity in the classrooms and offices, but also to all instances of discrimination, microaggression and non-inclusion that the students have shared and not shared. We acknowledge the symbolic statements and gestures made by faculty, but this is not enough. We should use this as a starting point to more tangible action that positively improves the conditions facing students and faculty of color in the program. Therefore, the AOS graduate students have identified two key aspects that all of us in the

department should address: 1. INCREASE DIVERSITY IN THE DEPARTMENT and 2. BUILD A MORE INCLUSIVE ENVIRONMENT. For both items, we have outlined proposed actions for both the GSA and department to implement.

## **I. Increase diversity within the department**

### **GSA actions:**

#### **1. Increase outreach committee initiatives**

In order to address the continuing lack of diversity in the geosciences, AOS GSA will make a conscious effort to implement outreach initiatives designed to encourage and empower students from underrepresented groups to enter STEM fields. Previous research has shown that collaborations between 4-year universities and 2-year community colleges or high schools have positive student outcomes, including encouraging students to transfer into or declare STEM majors at 4-year schools and creating a sense of inclusivity in research spaces.<sup>2</sup> As a step towards increasing diversity within the department, the GSA Outreach Committee will:

- Engage with local community colleges, which have much higher enrollment of underrepresented minorities compared to UW-Madison (approx. 20 % versus 10 %).<sup>3,4</sup>
- Work with programs designed to prepare middle school and high school students for college (e.g. Boys and Girls Club of Dane County TOPS program).
- Work with programs designed to support underrepresented minority, low-income, or first generation students adjust to college (e.g. UW-Madison PEOPLE program).
- Provide diverse images and examples of professionals in atmospheric and oceanic science fields during presentations at outreach events.

#### **2. Increase Welcome Committee initiatives**

Beyond outreach efforts, the GSA Welcome Committee will work to increase diversity within our own department. The Welcome Committee will commit to an increase in recruitment efforts that expand beyond traditional, predominantly White conferences and colleges to improve diversity within AOS. Furthermore, the Welcome Committee will increase communication and efforts post enrollment in the graduate program to help students get oriented and connected with resources and people within AOSS and the greater Madison area, helping foster a place of belonging to improve retention and quality of life among students. Efforts by the Welcome Committee will include:

- Have current graduate students recruit at conferences that highlight underrepresented students.

- Provide diverse images and examples of members of the AOS department at recruitment events.

### **Department actions:**

#### **1. Promote racial and social justice in hiring, grad admissions, and academic accommodations**

Issues of ethnic and racial diversity in the geosciences exist at every career stage, starting with undergraduate recruitment and ending with the hiring of tenure track faculty. As a result, we need to rethink the ways that we currently approach diversity and allocate funds specifically for this purpose. We propose that the department:

- Redo or extend hiring/applicant pools until statistics for diversity are met.
- Provide scholarships, RA, and TA appointments designated for underrepresented students.
- Support collaborations with Madison College and offer summer internship opportunities for underrepresented minority students.
- Work with Greater University Tutoring Services (GUTS) or within the department to offer tutoring services (at minimum large lecture 100 level courses).

#### **2. Partner with programs for historically underrepresented students in STEM**

There are a number of pre-existing undergraduate and graduate summer internship and bridge programs that find and enlist students of color and other minorities in STEM, some of which are already on the UW-Madison campus. Becoming a partner of these programs is an easy way to increase the diversity of our department and show our support. Such efforts that the department should make are:

- Join minority alliance program(s) for undergrads to host URM summer interns (e.g. WiscAMP, Posse STEM Program).
- Join minority fellowship program(s) for graduate students which recruits URM students and improves diversity in partner universities (e.g. National GEM Consortium).
- Continue membership of AGU Bridge Program.
- Work towards creating a department or joint-department summer Research Experience for Undergraduates (REU) program in the long-term.

## II. Building an inclusive environment

### GSA actions:

#### 1. Ensure that incoming graduate students have a sense of belonging in the department.

The GSA has recognized that we have not done enough to create an inclusive environment for incoming graduate students. It was brought to the more senior graduate students' attention that incoming students did not feel engaged during last year's Welcome Picnic. In addition, first year students who arrived in the Spring 2020 semester received no department-wide recognition. This made the first year students lack a sense of inclusivity within the graduate student cohort and AOS. We recognize that this is unacceptable. We will work towards creating an environment in which students feel seen and are given support that they need to succeed, which, while important for all students, is most vital for incoming URM who may already feel they do not belong.

We propose to increase the responsibilities of the GSA Welcome Committee throughout the year to ensure a welcoming graduate student community for incoming students. The committee will:

- ❑ Make sure that all incoming students are promptly given the opportunity to join AOS graduate student online social groups.
- ❑ Have a team- or activity-oriented focused Welcome Picnic to begin engagement with faculty, current, and incoming graduate students.
- ❑ Hold a coffee hour or lunch with the new graduate students to see how they are transitioning to the new department and environment.
- ❑ Plan a welcome event for students who begin graduate school during the spring semester.

#### 2. Ensure a continuing inclusive environment

In addition to engaging incoming graduate students within the graduate student community, it is crucial that we increase our efforts in promoting an inclusive environment among all graduate students, and in particular with underrepresented students. Dutt (2020) makes the point: "Diversity and inclusion cannot exist without a sense of belonging. We need to acknowledge people's identities for them to feel included. Focusing on diversity without inclusion makes marginalized groups feel that they merely serve as a diversity statistic, and that in reality their voices and experiences do not count."<sup>5</sup> Thus, providing a support network will allow underrepresented students to freely express themselves and strive towards success. The GSA proposes to increase their inclusivity initiatives as follows:

- ❑ Plan a graduate student weekend retreat in which students will participate in bias training and/or bonding activities. We request that the department provides funds for lodging, meals, and transportation during this retreat.
- ❑ Begin each GSA monthly meeting with icebreakers to ensure that graduate students engage with students that they may not talk with on a regular basis.
- ❑ Plan weekly inclusive social activities (i.e. not just going to bars).
- ❑ Plan a department-wide cultural orientation event to describe and explain cultural differences such as self-identity, interpersonal relationships, communication, and resolving conflicts. Such an event to initiate discussion on culture can be centered around students sharing traditional foods from their homes.

### **Department actions:**

#### **1. Mandatory bias training at the beginning of the school year for all faculty, staff, affiliate scientists, and graduate students**

Although many of the action items presented in this document relate to increasing diversity within the department, it is important to make the distinction that if we aren't fostering an environment that is supportive of the individuals being recruited, we will ultimately be unsuccessful. Within our own department, several individuals have shared their experiences with microaggressions and the negative impacts they've dealt with as an underrepresented minority. If we hope to not only attract, but also retain diverse faculty and students, we need to create an environment where individuals are both welcomed and able to thrive. In order for these efforts to succeed, we recommend that the department institute:

- ❑ Yearly mandatory training for faculty, staff, affiliate scientists, and graduate students, with a focus on addressing implicit or unconscious bias and bystander intervention. There are a variety of formats available for this training, including workshops hosted by UW-Madison's Women in Science & Engineering Leadership Institute (WISELI), or working through materials made available by the NCAR and UCAR Equity and Inclusion office through UNEION 101, the introductory course in the UNEION bias, gender, race, and bystander intervention training series.
- ❑ Prior to attending training, individuals should assess their own implicit or unconscious biases through a self-quiz, such as the one offered through Project Implicit.
- ❑ Annual surveys should be conducted to assess our progress as a department towards creating an inclusive environment, as well as allowing a space for individuals to express concerns anonymously without fear of professional retribution.

Links to resources mentioned in the first two bullet points can be found in the "Additional Resources and Reading" section.

## **2. Statement of solidarity from department heads sent out to the department**

The Department needs to make clear its position on the racial and ethnic inequalities that exist in our discipline and share its plan of action to effectively address and resolve these issues going forward. We can no longer ignore the difficult conversations over discrimination, or we become complicit in systemic issues that benefit certain groups while restricting others.

## **3. Increased focus on the importance of outreach and mentorship**

Mentoring is a valuable strategy to provide all students with the support they need to succeed professionally. Specifically, mentoring URM students has been shown to drastically amplify success, with students being twice as likely to persist in their degree as non-mentored URM students, as well having higher average GPAs.<sup>6</sup> Outreach is a key element in attracting a diverse student population, as well as an opportunity to expose underrepresented groups to STEM opportunities and foster early interest. Despite the demonstrated importance of outreach and mentorship, faculty are rarely rewarded for these activities, and incentive to engage is often intrinsic. The addition of the below elements will help remedy this while supporting a culture within AOS of giving back to our community, underscoring our commitment to the Wisconsin Idea.

- ❑ The Graduate Student Association (GSA) would like to recognize excellence in these areas with an annual outreach and mentorship award, given in conjunction with the newly formed Diversity, Inclusion, and Equity Committee.
- ❑ Outreach and mentorship should be included as a mandatory requirement for both faculty and graduate students, with 5 hours required annually.

## **4. Increase diversity in Colloquium and Seminar talks**

Engaging speakers for colloquium and seminar talks from a more diverse pool will both increase representation as well as highlight the achievements of individuals belonging to marginalized groups. This means reevaluating the template used to invite speakers, and using recognition over recollection (ie the first people that come to mind tend to be those we have interacted with often or that are similar to ourselves). The Colloquium Committee will be responsible for the following changes:

- ❑ Increasing demographic of visiting professors: invite speakers from a range of career stages, a variety of institution levels (not just R1), and those with experience in different career paths (government, industry, non-profit).
- ❑ Increasing diversity of topics discussed in these talks (i.e. environmental justice, humanitarian impact of science like air quality, etc.).

**5. The Department will commit to weave equity and diversity in a classroom setting**

Classroom interactions are a large part of initial experiences with AOS, both as an undergraduate and graduate student. For graduate students, classes offer a chance to interact with students outside one's research group. For undergraduates, classes provide a space to meet fellow majors and learn about career opportunities. Adopting inclusive teaching techniques will help create a welcoming environment and foster a sense of belonging in general.<sup>7,8,9,10</sup> Inclusive teaching will also help empower students to feel confident in the fields of atmospheric and oceanic sciences.

- Restructure syllabus to incorporate inclusive practices and language, including UW-Madison accommodations and resources available.
- Redesign curriculum to be inclusive, including an increase in diversity and equity in topics.
- Encourage faculty and TAs to adopt more active and group-based teaching practices, especially at the graduate level (600 level in particular).
- Require that faculty members take an inclusive teaching course through Delta or another program.
- Evaluate the results of an AOS diversity survey distributed by the Diversity, Inclusion, and Equity Committee at the end of each course, and make modifications to courses as necessary.

**6. Creation of a Diversity, Inclusion, and Equity Committee**

To ensure that concrete efforts will be made to increase diversity, equity, and inclusion within AOS, we propose forming a committee that will enact the recommended action items outlined above. This committee will include faculty, graduate students, and undergraduate representatives. Recommended responsibilities of the committee include, but are not limited to, the following:

- Hold meetings at least twice a semester to evaluate current progress and determine what actions still need to be taken.
- Promote racial and social justice and equity in hiring and student admissions.
- Set up a department scholarship for URM students.
- Oversee that faculty and graduate students attend bias training and inclusive teaching workshops, and meet outreach requirements.
- Increase underrepresented minority graduate representation on departmental committees, such as the Colloquium and Faculty Hiring committees.
- Ensure that there is increased diversity in colloquium and seminar talks.
- Use one department seminar spot every semester to organize an activity or talk centered on diversity, equity, inclusion, and/or social justice within AOS/STEM.

- ❑ Add a diversity, equity, and inclusion statement to the AOS website. This could include a list of resources/potential scholarships for minorities (bridge program from UW as a whole, AGU/AMS scholarships, etc.) and publicising ESWN, AMS Board on Women and Minorities, etc.
- ❑ Conduct an annual review of how the department is doing to meet these diversity and inclusion initiatives, such as an AOS diversity survey distributed to students in AOS courses at the end of the semester.

Through the proposed action items outlined above, we hope to see an increased effort from the AOS department to support Black graduate students and faculty and other students and faculty of color. Our signatures below signify our commitment to increasing diversity and promoting equity and inclusivity within the department. Over the next few months and beyond, we look forward to continuing this conversation and following-up on the changes we want to see. The actions by AOS should not stop at inconsequential statements of support. We ask the department--graduate students, faculty, research affiliate, and administrative staff--to put action into symbolic gestures of solidarity. We will continue to pay attention to the action that our department takes.

We look forward to your response,  
UW-Madison AOS Graduate Students

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## References

1. Bernard, R. & Cooperdock, E. No progress on diversity in 40 years. *Nat. Geosci.* 2018; 11. 10.1038/s41561-018-0116-6.
2. Hirst, R., Bolduc, G., Liotta, L., & Packard, B. Cultivating the STEM transfer pathway and capacity for research: A partnership between a community college and a 4-year college. *Journal of College Science Teaching*, 2014; 43(4): 12-17.
3. Madison Area Technical College Profile. Madison, WI. Community College Review. [www.communitycollegereview.com/madison-area-technical-college-profile](http://www.communitycollegereview.com/madison-area-technical-college-profile). Published 2014. Accessed June 15, 2020.
4. University of Wisconsin-Madison. Data USA. [datausa.io/profile/university/university-of-wisconsin-madison](https://datausa.io/profile/university/university-of-wisconsin-madison). Published 2020. Accessed June 15, 2020.
5. Dutt, K. Race and racism in the geosciences. *Nat. Geosci.* 2020; 13: 2–3.
6. Coles, A. Research to Practice Brief: The Role Of Mentoring In College Access And Success. Institute for Higher Education Policy. <https://www.liberalartscolleges.com/wp-content/uploads/2017/12/The-Role-of-Mentoring-in-College-Access-and-Success.pdf>. Accessed June 15, 2020.
7. Cabrera, A. F., Nora, A., Crissman, J. L., Terenzini, P. T., Bernal, E. M., & Pascarella, E. T. Collaborative learning: Its impact on college students' development and diversity. *Journal of College Student Development*. 2002; 43(1): 20–34.
8. Larke, P. Culturally responsive teaching in higher education: What professors need to know. *Counterpoints*. 2013; 391: 38-50.
9. Sensoy, Ö., & DiAngelo, R. Respect differences? Challenging the common guidelines in social justice education. *Democracy & Education*. 2014; 22(2).
10. Scott, S., McGuire, J., & Shaw, S. Universal design for instruction: A new paradigm for adult instruction in postsecondary education. *Remedial and Special Education*. 2003; 24: 369-379.

## Additional Resources and Reading

1. Boys and Girls Club of Dane County:  
<https://www.bgcdc.org/programs/school-based-programs>
2. UW- Madison Precollege Enrichment Opportunity Program for Learning Excellence:  
<https://peopleprogram.wisc.edu/>
3. WISELI 'Breaking the Bias Habit' workshop:  
<https://wiseli.wisc.edu/workshops/bbh-inclusive-campus/>
4. UNEION 101 syllabus and materials:  
<https://www.ucar.edu/who-we-are/diversity-inclusion/community-resources/uneion-101>
5. Project Implicit: <https://implicit.harvard.edu/implicit/takeatest.html>
6. Trujillo, G. & K.D. Tanner. Considering the role of affect in learning: Monitoring students' self-efficacy, sense of belonging, and science identity. *Life Sciences Education*. 2017; 13(1).  
<https://doi.org/10.1187/cbe.13-12-0241>