**comment** Race and racism in the geosciences   
Geoscientists in the United States are predominantly White. Progress towards diversifcation can only come with a concerted shift in mindsets and a deeper understanding of the complexities of race.

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| The geosciences are among the | **Nature Geoscience** | www.nature.com/naturegeoscience | malice. For example, the 2019 Survey of |
| race. People of colour tend to view race | US College and University Presidents7 |
| showed that whereas only 25% of |
| as an important part of their identity, | presidents viewed |
| whereas White people tend to view it as |
| race relations on college campuses |
| least diverse science, technology, | incidental. Moreover, references to race |
| overall as good or excellent, 81% of |
| engineering and mathematics | and racism often make people of colour |
| presidents rated race relations on their |
| (STEM) fields in the United States, with | feel seen and heard, whereas White |
| own campus as good or excellent. |
| almost 90% of doctoral degrees awarded | people tend to view such references as |
| Furthermore, in US colleges, more |
| to White people1. And racial diversity in | unnecessary or even inappropriate. |
| than 80% of presidencies and 75% of |
| PhD-level Earth scientists has not | Another consistent pattern I have noticed |
| managerial positions are held by |
| improved over the past four decades, | is that most people of colour do not feel |
| White people. That is, people who do |
| with faculty of colour holding only 3.8% | comfortable discussing race with White |
| not experience systemic racial |
| of tenured or tenure track positions in the | colleagues. This is not because they |
| oppression themselves end up |
| top 100 geoscience departments2. The | think those White people are bad people |
| dominating the racial narrative, |
| less diverse a field, the less welcoming it | — on the contrary, I often hear glowing |
| regardless of the actual experiences |
| is to minorities, and the more prevalent | accounts about mentors and supervisors. |
| of people of colour. |
| implicit biases become. Combined with | But people of colour fear that such |
| Earlier this summer, our graduate |
| structural and social factors, the relative | discussions might trigger tensions that |
| students were targeted with hateful, racist |
| homogeneity in geoscience reinforces | they want to avoid, especially in |
| e-mails from an anonymous sender. |
| the dominant culture. As a result, | hierarchical settings such as academia. |
| Many were shaken by the incident, and |
| women3, people from sexual and gender | “Most people of colour do |
| we took the opportunity to open up a |
| minorities4, and Black and Hispanic |
| deeper conversation on campus about |
| people5all leave the field at higher rates |
| not feel comfortable | race and racial bias. There was |
| than the average student or practitioner. |
| widespread condemnation of the |
| The term ‘colourblind racism’6is | discussing race with White |
| incident. However, people responded |
| used to describe the declaration that |
| colleagues. This is not | differently in terms of the ownership that |
| someone simply does not see colour, |
| they felt when a minority group was |
| denoting a subtler form of racism than | because they think those | attacked. Whereas some engaged in |
| overt racism. Many White people who | White people are | community events around the incident, |
| are not aware of (and would deny having) |
| others expressed concern that they were |
| any racist tendencies unwittingly engage | bad people.” |
| being asked to attend a racial bias |
| in it. Although this is not intentional, | training despite not being responsible for |
| disregarding race in a setting with a | Implicit racism is deeply embedded in |
| the e-mails. If we truly want to create an |
| strong imbalance in power — as is the | US society, and geoscience culture is no |
| inclusive geoscience culture, dominant |
| case in many US geoscience | exception. A lack of awareness | groups need to take ownership, instead |
| departments — reinforces race being | exacerbates the problem. First, many | of minorities bearing the burden8. |
| viewed by default from a perspective of | individuals who are privileged by |
| This is easier said than done, when |
| being White. | belonging to dominant groups do not feel | different groups do not even see the |
| **Racism versus prejudice** | responsible for the systemic racism in |
| problem through the same lens. A survey |
| that culture. Second, the subject of | by the Pew Center on perceptions of race |
| Racism and prejudice are distinct, in that | privileges that White researchers enjoy is | and inequality in the United States found |
| racism denotes a systemic advantage | an uncomfortable topic as many White | profound differences between Black and |
| that benefits a dominant group, such as | people equate it with being implicated in | White adults, with 88% of Black |
| White people, whereas prejudice | racism, feeling that it challenges their | respondents expressing that racial |
| suggests individual bias. People of any | identities as good people. This is a | inequality needed to be addressed, |
| race can be prejudiced, yet systemic | misconception: having privileges as a | compared with only 53% of White |
| racism is not so much about prejudice as | consequence of being White does not | respondents9. In a different study that |
| it is about a power differential between | mean that one has not experienced other | included STEM and non-STEM faculty, |
| majority and minority groups. Many | forms of oppression, it just means that | as well as people from the general |
| White people do not acknowledge | racism is not one of them. Third, when it | public, men tended to be more skeptical |
| systemic racism. This can be perceived | is the norm to be White, maintaining the | of gender bias research than women, and |
| by people of colour as a lack of | comfort of White people becomes part of | this was especially prominent among |
| awareness, or as a lack of caring from | the unwritten code of a culture, a code | male STEM faculty10. These results |
| those who are not exposed to it. | that people of colour often follow. | suggests that people who don’t |
| As the Diversity Officer for a geoscience | **Oblivious to bias** | experience a certain type of inequity tend |
| campus with predominantly White | to dismiss it more easily than those who |
| students and staff, I have noticed a | Not acknowledging this bias means that | do. If the experiences of minorities are |
| consistent pattern: there is a massive | the realities of people of colour are | collectively dismissed, that |
| disconnect between how White people | dismissed, often by obliviousness rather | **comment** |
| and people of colour view | than out of |

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| can lead to a feeling of not belonging, | Furthermore, bias training needs to be |  |
| which in the geosciences is a powerful | considered on a par with scientific and |  |
| force that can drive minorities away from | technical training. To set an example, |  |
| the field11. | institutional leaders should visibly and |  |
| Diversity and inclusion cannot exist | actively participate in bias trainings16. |  |
| without a sense of belonging. We need to | There are mixed opinions about the |  |
| acknowledge people’s identities for them | efficacy of bias trainings, as it takes more |
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| to feel included. Focusing on diversity | than training to transform a culture. |  |
| without inclusion makes marginalized | Nevertheless, bias trainings are still an |  |
| groups feel that they merely serve as a | essential first step towards better |  |
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| diversity statistic, and that in reality their | understanding race and racism. |
| voices and experiences do not count. | A lack of diversity and inclusion is the |  |
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| Besides, the culture of objectivity, or | single largest cultural problem facing the |
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| being removed from the subject matter | geosciences today, and this is probably |
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| — which is essential for science — | not just limited to the United States. We |
| works abysmally for topics like racism, | need a systemic cultural change that |  |
| where feelings, emotions, and identities | can only happen when people are not |  |
| play an enormous role. | only willing to |  |
| **Individual responsibility** | acknowledge the problem, but also to |  |
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| On a personal level there are three things |  |
| that White geoscientists can do |  |
| immediately. First, they should separate |
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| their privilege as a White person from |
| take individual responsibility for it. The |  |
| their identity as a good person. |
| Conflating the two leads to feelings of | only way we can change the geoscience |  |
| anger, denial and defensiveness, |
| culture is by a massive shift in individual |
| because racism tends to be viewed as a |
| character defect rather than the system | mindsets, with the aim of moving the |
| of advantage and social conditioning that |
| field from passively non-racist to actively |
| it really is. Second, to see these issues |
| more clearly, White people need to better | anti-racist. ❐ |
| understand the perspectives of people of |
| colour by, for example, reading about |  |
| them6,12,13. These topics are |
| uncomfortable, and often evoke strong |  |
| reactions, but avoiding them will only |  |
| worsen the problem. Those in positions of |
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| privilege should regularly ask themselves |
| what they are doing to combat racism and |  |
| promote inclusion, as a simple, but |
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| effective, reality check. Third, White |
| people need to engage in discussions |  |
| about race with other White people to |
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| move the dial from personal |
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| awareness to addressing the dominant |
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| culture, ideally in campus-wide |  |
| dialogues. It is important to avoid |
| putting minorities on the spot: just as |  |
| there is no single White opinion on |
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| race, there is no single Black or Latinx |
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| or Asian opinion. |
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| At an institutional level, leaders need |
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| to be especially proactive. Affinity bias — |
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| the tendency to prefer people like |
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| ourselves — is extremely powerful and |
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| exists within each of us. When the |
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| leadership is predominantly White, new |
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| faculty and leadership appointments are |
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| often White. This is sometimes blamed |
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| on the low percentage of minorities in |
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| geoscience, but the reality is more |
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| complex: we tend to see merit in people |
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| who resemble us. More people of colour |
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| need to be appointed to leadership |
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| positions, and we need to invest in |
| minority students14and faculty15. |  |
| Diversity and inclusion need to be |  |
| prioritized in institutional procedures such |  |
| as search and awards committees. |  |