



Tackling the racial diversity crisis in geoscience postgraduate research

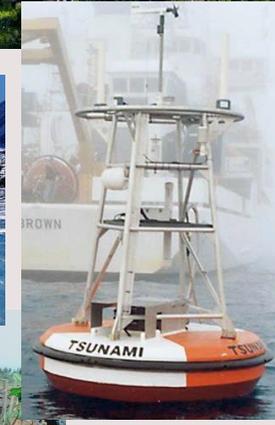
Jacqueline Houghton, University of Leeds.

Slide acknowledgements:
Chris Jackson, Natasha Dowey and Rebecca Williams.

Jenny Barclay, Ben Fernando, Sam Giles, Anjana Khatwa, Anya
Lawrence, Keely Mills, Alicia Newton and Steven Rogers.

What are the Geosciences?

- Geosciences: disciplines that apply science to the study of the Earth (and other planets); past, present and future, from atmosphere to core.
- Geoscientists *“often work in the field – perhaps climbing mountains, exploring the seabed, crawling through caves, or wading in swamps. They measure and collect samples (such as rocks or river water), then record their findings*



GEOSCIENCE FOR THE FUTURE

Geoscientists will be crucial in meeting society's future challenges, be that through the United Nations Sustainable Development Goals, the Paris Agreement to avoid dangerous climate change, or through other important policies to protect the environment and ensure the availability of vital resources for all.

- Geoscientists will be critical in:
- Ensuring access to clean and sustainable water supplies
 - Sourcing and extracting critical minerals needed for green technologies like solar and wind power
 - Understanding the subsurface to harness geothermal energy, enable safe infrastructure development, and carbon capture and storage technologies
 - Mitigating climate change and influencing governmental policy through understanding past climates, modelling potential future outcomes and understanding climate impacts on environment, livelihoods and natural hazards.

SUSTAINABLE DEVELOPMENT GOALS



THE GEOLOGICAL SOCIETY OF LONDON SUPPORTS THE SUSTAINABLE DEVELOPMENT GOALS



Headlines

comment

Race and racism in the geosciences

Geoscientists in the United States are predominantly White. Progress towards diversification can only come with a concerted shift in mindsets and a deeper understanding of the complexities of race.

Kuheli Dutt

nature
geoscience

NEWS · 24 AUGUST 2020

Racism and harassment are common in field research – scientists are speaking up

Researchers call on universities to offer inclusive policies that make fieldwork safer.

nature

comment

No progress on diversity in 40 years

Ethnic and racial diversity are extremely low among United States citizens and permanent residents who earned doctorates in earth, atmospheric and ocean sciences. Worse, there has been little to no improvement over the past four decades.

Rachel E. Bernard and Emily H. G. Cooperdock

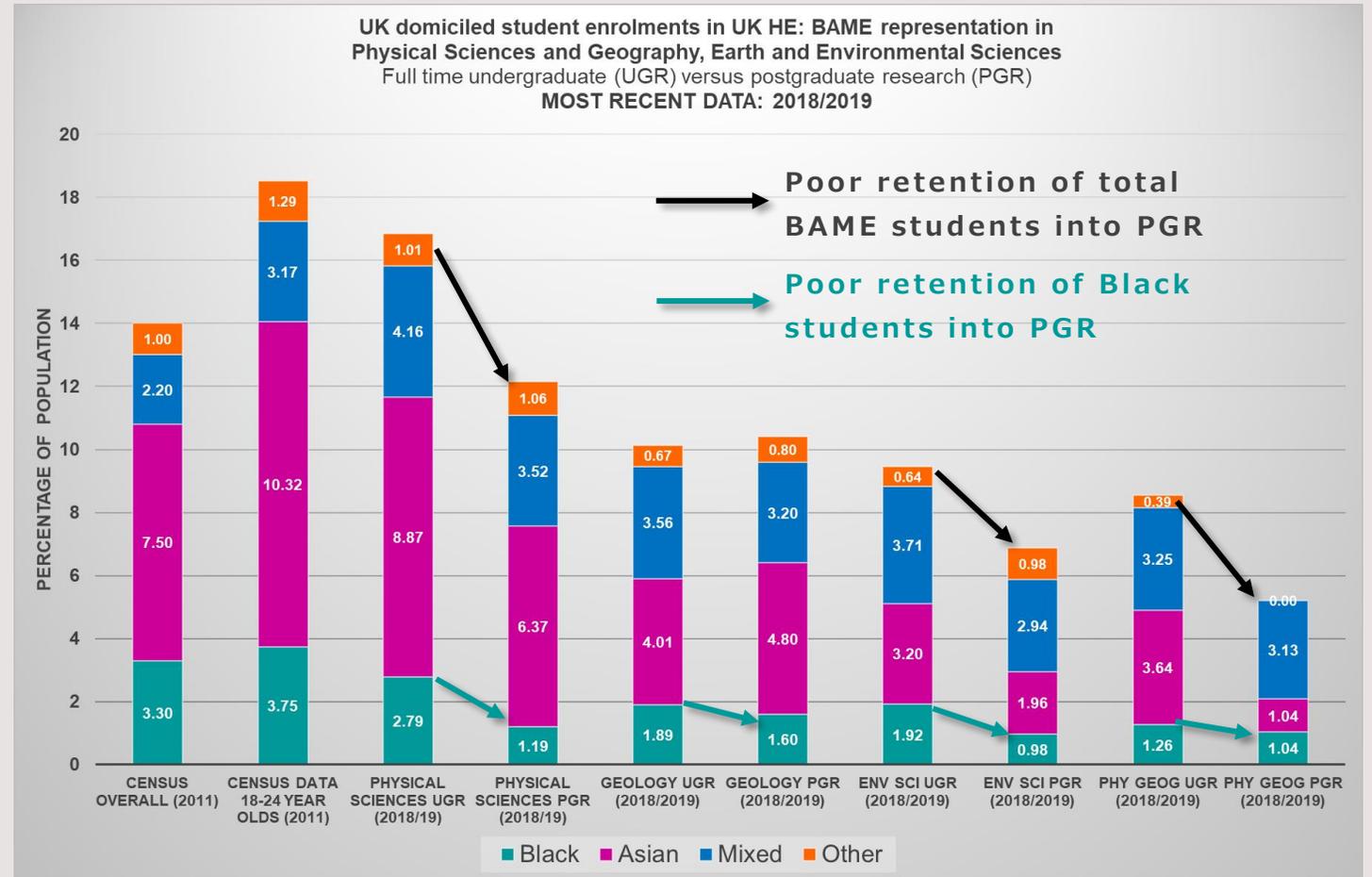
A UK perspective on tackling the geoscience racial diversity crisis in the Global North

nature
geoscience

Natasha Dowey , Jenni Barclay, Ben Fernando, Sam Giles, Jacqueline Houghton, Christopher Jackson, Anjana Khatwa, Anya Lawrence, Keely Mills, Alicia Newton, Steven Rogers & Rebecca Williams

Figures

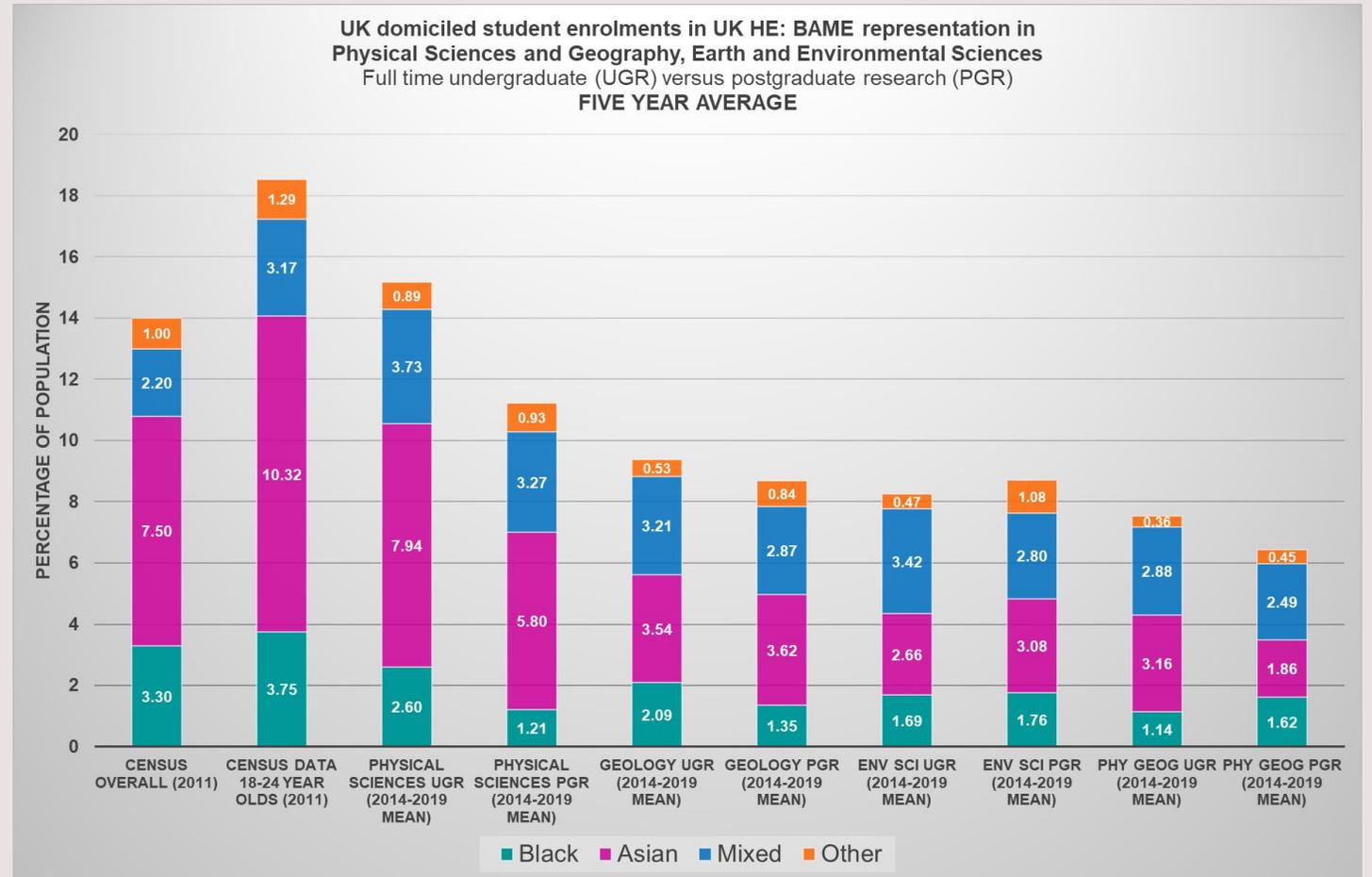
Geography, Earth and Environmental Sciences are amongst the worst Physical Sciences for BAME student participation, and for retention of BAME students into postgraduate research.



Data from HESA UK "Subject by Ethnicity" for 'Geology', 'Physical Geography' and 'Science of Aquatic and Terrestrial Environments'.

Figures

- In 2018/2019 retention of Physical Geography and Environmental Science BAME students into PGR worse than 2014 to 2019
- In two of the past five years, Geology and Physical Geography have seen NO Black Women starting Postgraduate degrees.



Data from HESA UK "Subject by Ethnicity" for 'Geology', 'Physical Geography' and 'Science of Aquatic and Terrestrial Environments'.

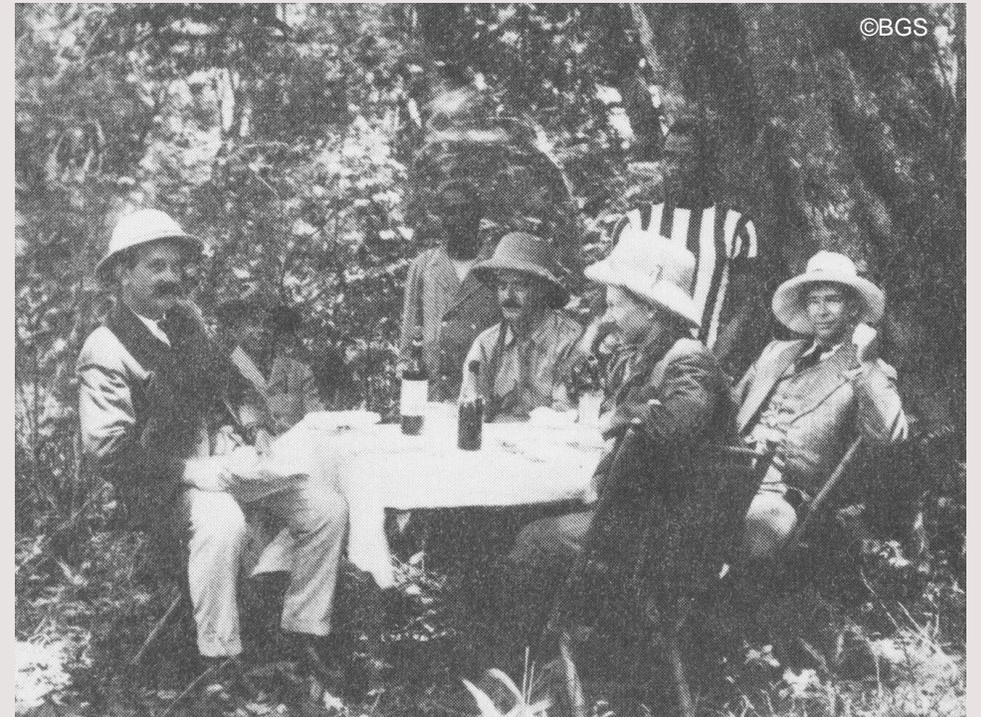
Geoscience specific issues

- Rural environments less accessible to children who grow up in urban settings or low-income households.
- Stereotypical image of white man in challenging outdoor environment.
- Poor career perceptions relative to other scientific/medical subjects.
- Fieldwork barriers: cultural sensitivity, costs including outdoor clothing, inclusivity, racial harassment, alcohol and the macho culture.
- Lack of recognition of colonial links and lack of representation at faculty level.
- Hostile environments deter BAME students from applying to, and continuing in the geosciences.



Colonial links

- Many of the roots of modern geoscience lay in the surveying of the expanding British Empire.
- Production of geoscience knowledge has been historically tied to a desire to explain the distribution and extractability of resources.
- Field-based disciplines can take a colonial approach: white, western field scientists visit a location, remove samples (often with the help of local people), extract knowledge and publish in paywalled,



Imperial Institute Geologists in Mozambique in 1911

What can we do?

BROADEN PARTICIPATION



Teach sustainability, decolonisation, urban geoscience



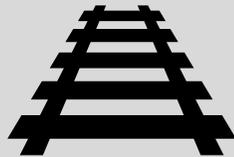
Adapt fieldwork to be more inclusive



Paid summer schools and internships



Push professional bodies for accreditation reform



Work along pipeline (incl. pre-university)



Industry links and improve career perceptions

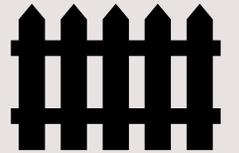
REMOVE STRUCTURAL INEQUITY



Tackle exclusionary colonial foundations of institutions



Increase faculty diversity



Ringfenced funding for research



Make application processes more transparent



Pressure funders for greater transparency in recruitment



Encourage our CDTs to remove discriminatory practises

What can we do?

Broaden participation and improve inclusivity

Equality vs. equity in the short and long term

Remove structural inequity

Summer schools and paid internships

Adapt fieldwork experiences and reform accreditation

Modernise teaching



In this first image, it is assumed that everyone benefits from the same support. They are being treated **equally**.



Individuals are given different support to make it possible for them to have equal access to the view. They are being treated **equitably**.



All three can see the view without any support because the cause of inequality was addressed. The systemic barrier has been **removed**.

Make application process more transparent

Remove discriminatory practises

Ringfence funding

Summary

- As geoscientists we need to acknowledge the historic systemic racism and discipline-specific issues (particularly around fieldwork) that have led to the hostile environments for BAME students.
- We need to have difficult conversations about personal and structural biases if we are to remove structural inequities and broaden participation in our disciplines.
- We need to be actively anti-racist.
- We need to act now to create a modern geoscience research culture that can meet the challenges of building a more sustainable future and reflects the diverse nature of the planet we study.

For more information...

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Natasha Dowey , Jenni Barclay, Ben Fernando, Sam Giles, Jacqueline Houghton, Christopher Jackson, Anjana Khatwa, Anya Lawrence, Keely Mills, Alicia Newton, Steven Rogers & Rebecca Williams

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Geoscientists will play key roles in the grand challenges of the twenty-first century, but this requires our field to address its past when it comes to diversity and inclusion. Considering the bleak picture of racial diversity in the UK, we put forward steps institutions can take to break down barriers and make the geosciences equitable.

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