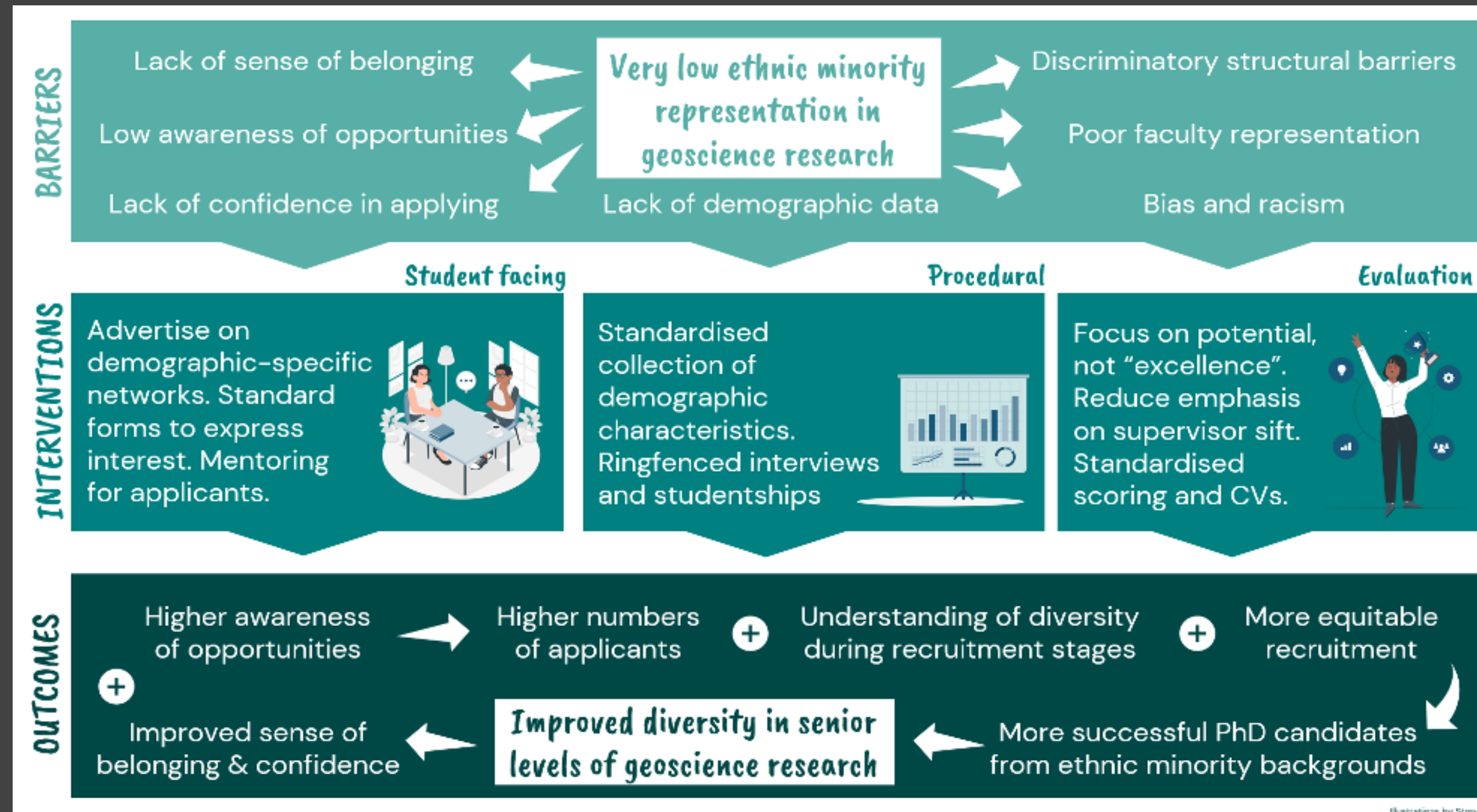


# But what can we do?

## Equality, Diversity, and Inclusion during your PhD



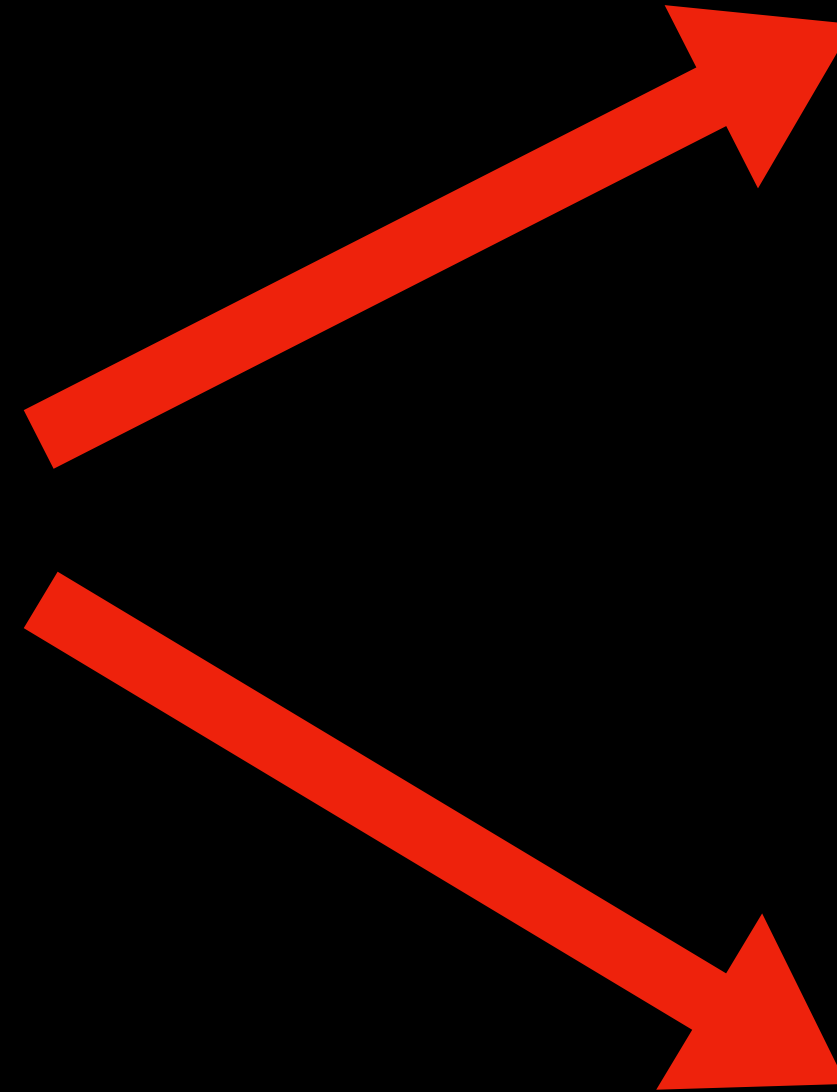
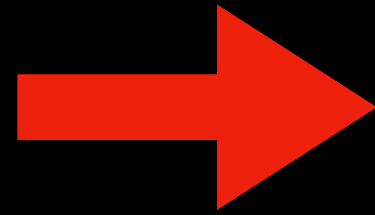
**Benjamin Fernando (he/him)**

[benjamin.fernando@physics.ox.ac.uk](mailto:benjamin.fernando@physics.ox.ac.uk) | @space\_quakes

*With thanks to many other collaborators*



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[Benjamin Fernando](#)  [Gordon Brown](#) [Emily Thomas](#) [Michael Head](#) [Paul Nurse](#) & [Martin Rees](#)

**THERE IS NO PLANET B: AN INITIAL ASSESSMENT FRAMEWORK TO CALCULATE THE ENVIRONMENTAL IMPACT OF THE INSIGHT MARS MISSION.** C. A. Bill<sup>1</sup>, B. A. Fernando<sup>2</sup>, N. Schmeier<sup>3</sup>, W. B. Banert<sup>4</sup>, <sup>1</sup>Department of Earth Sciences, University of Oxford, UK (Email: [carys.bill@st-ames.ox.ac.uk](mailto:carys.bill@st-ames.ox.ac.uk)); <sup>2</sup>Department of Physics, University of Maryland, MD, USA; <sup>3</sup>Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA.

**Strategies for making geoscience PhD recruitment more equitable**

Ben Fernando<sup>\*</sup>, Sam Giles, Christopher Jackson, Anya Lawrence, Munira Raji, Rebecca Williams, Jenni Barclay, Louisa Brotherson, Ethny Childs, Jacqueline Houghton, Anjana Khatwa, Alicia Newton, Keely Mills, Francisca Rorke, Steven Rogers, Catherine Smith, Natasha Dwyer

<sup>\*</sup>Department of Physics @space\_quakes

**natureastronomy**

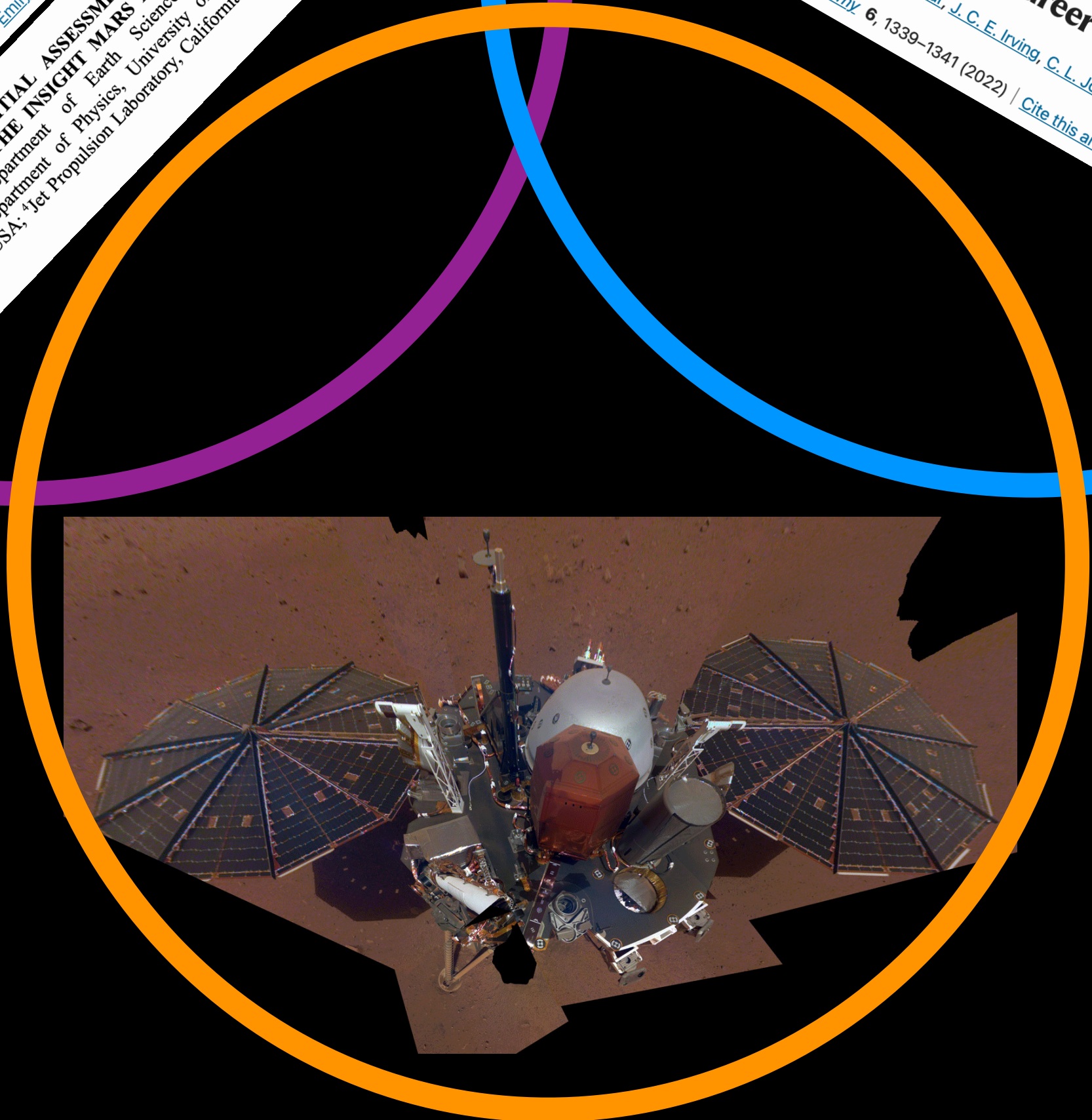
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**Inclusion of early-career researchers in space missions**

[B. Fernando](#)  [I. J. Daubar](#), [J. C. E. Irving](#), [C. L. Johnson](#), [A. G. Marusiak](#), [M. M. Baker](#) & [S. Stanley](#)

*Nature Astronomy* **6**, 1339–1341 (2022) | [Cite this article](#)



Seismology

# Disclaimer & Preamble

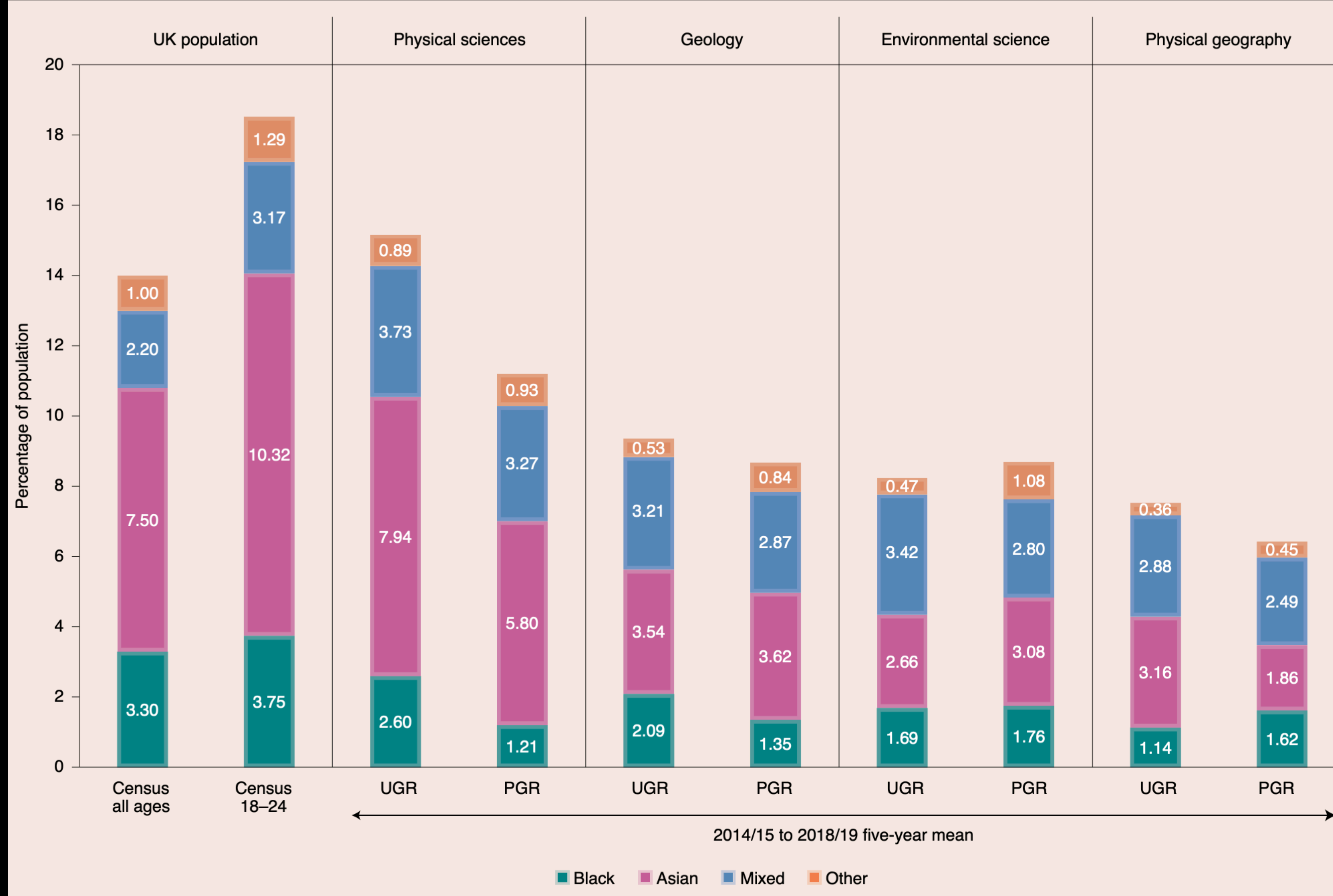
*“All models are wrong, but some are useful”  
(~George Box)*

*(I didn't really know what I was doing when I started this - and  
don't really still!)*

*(Also, the views of an old and cynical postdoc are not gospel!)*



# What's the issue?

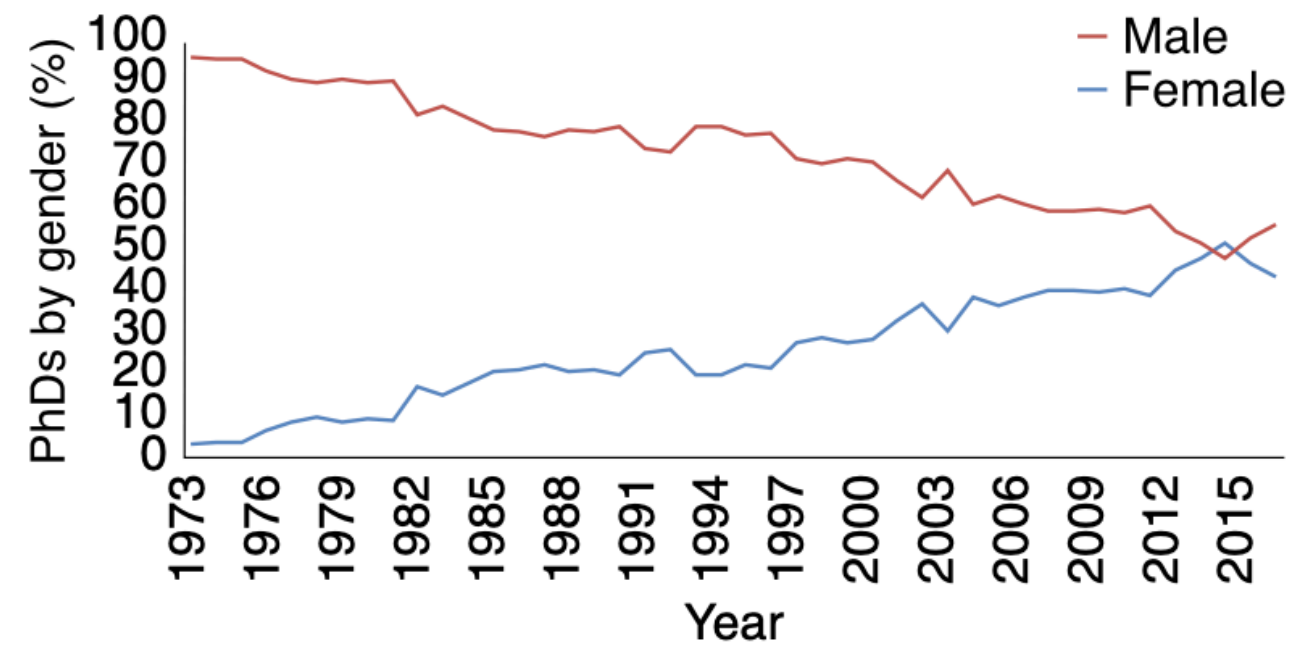


Dowey et al, 2021 (Nature Geoscience)

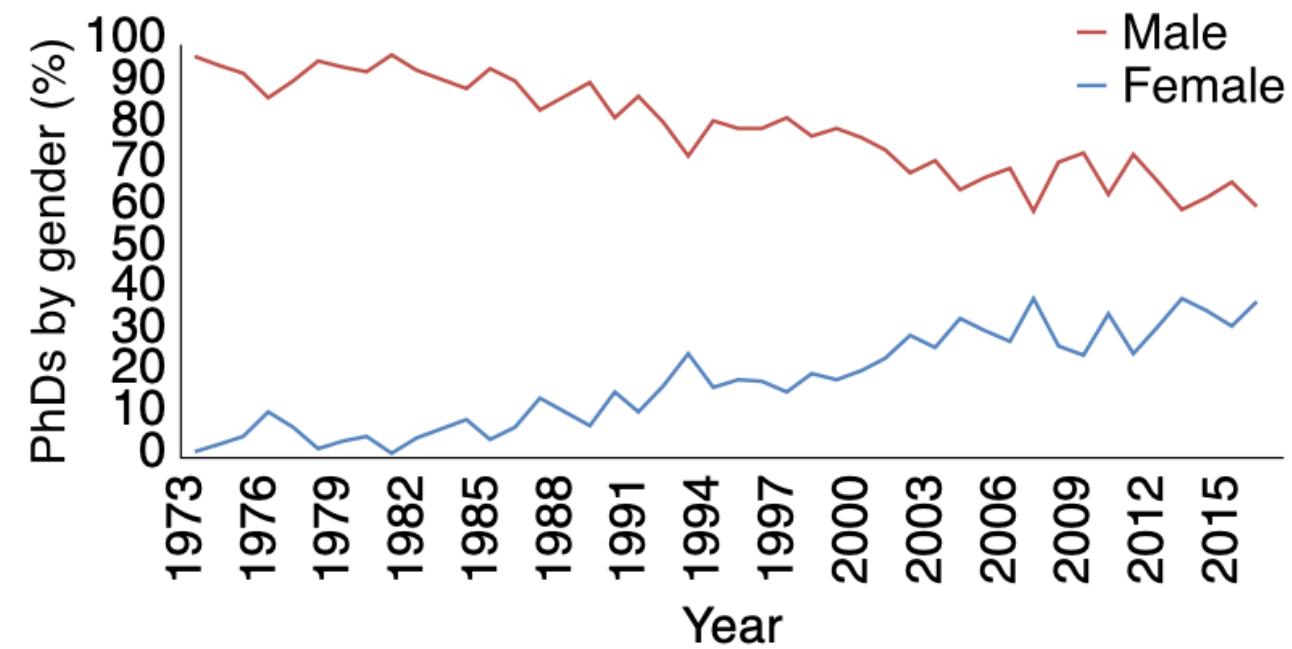
# What's the issue?

## Per cent of PhDs earned by gender over time

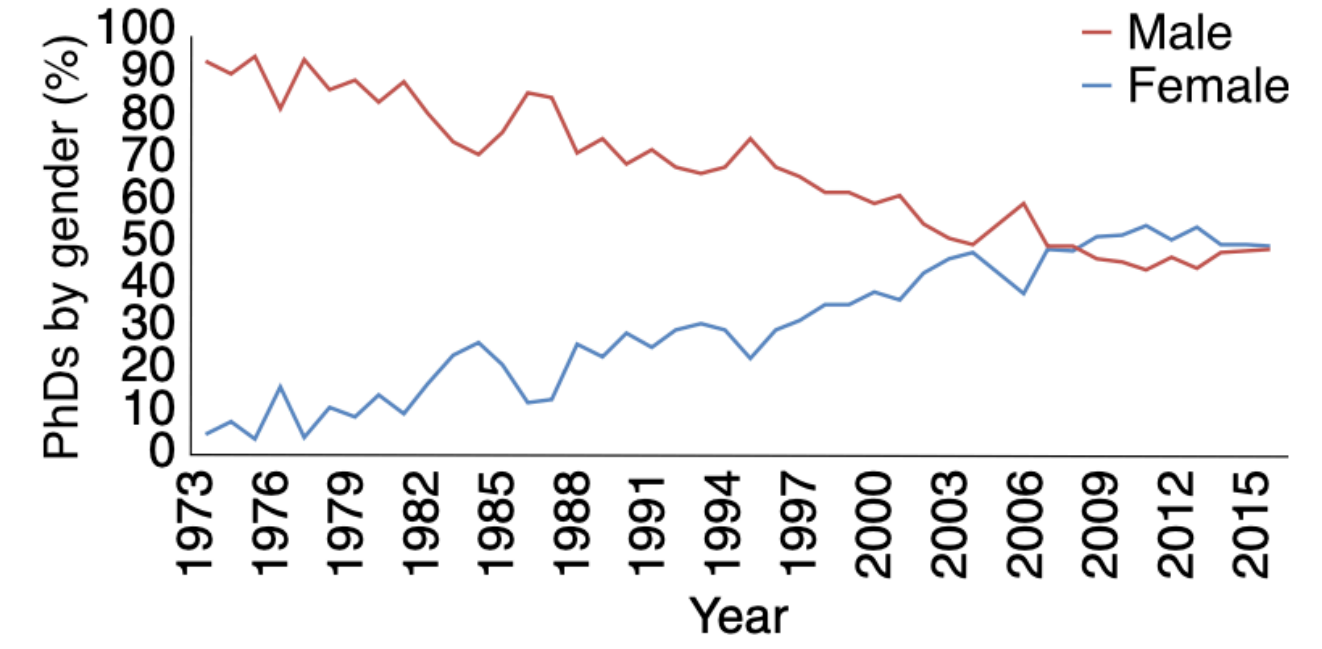
**a** Earth sciences



**b** Atmospheric sciences

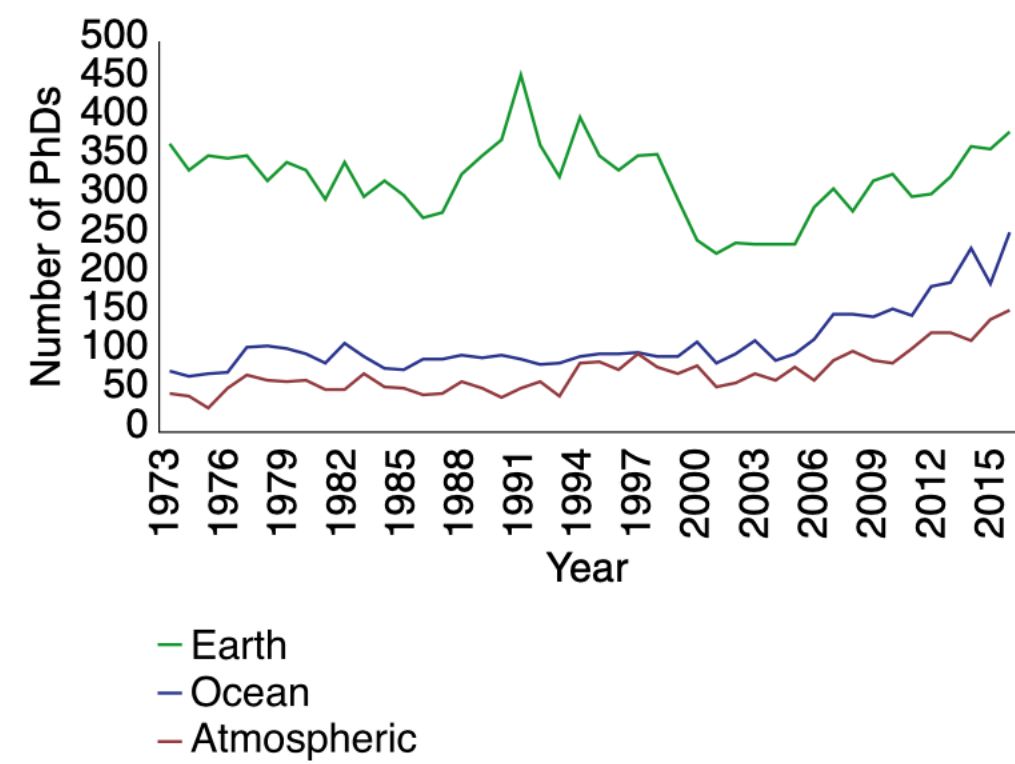


**c** Ocean sciences

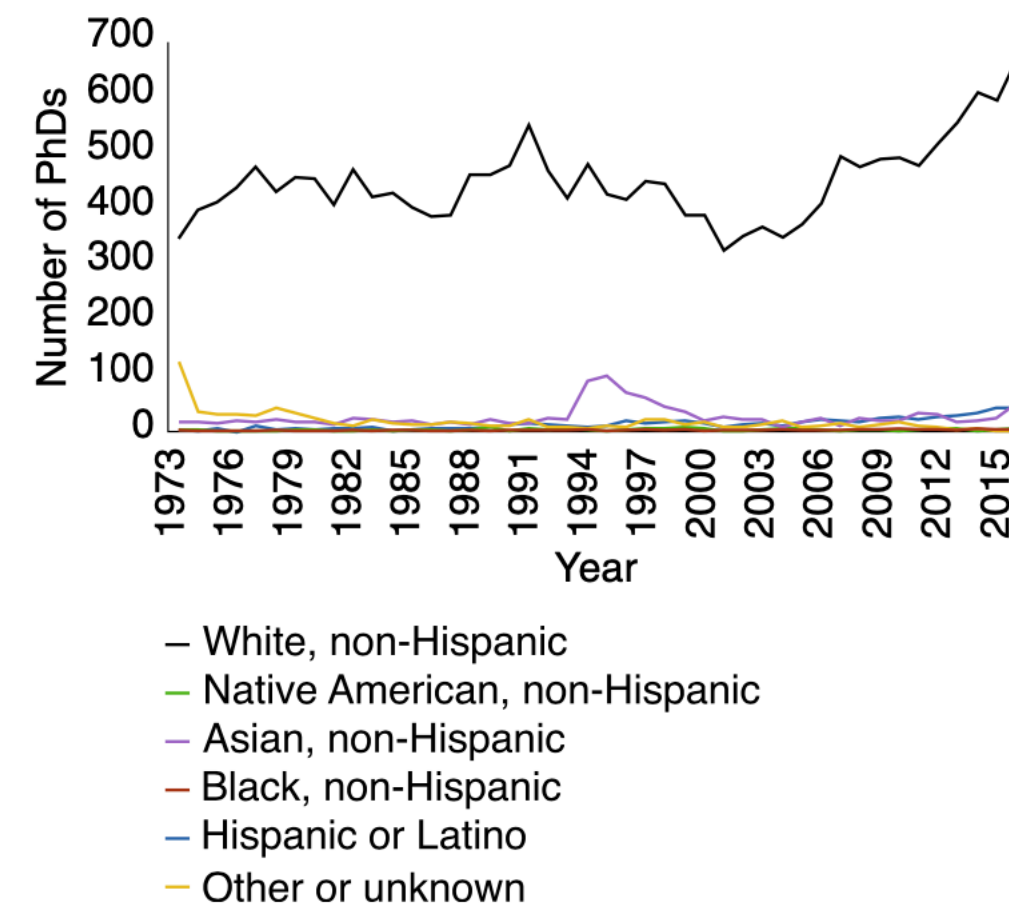


## Total PhDs earned over time

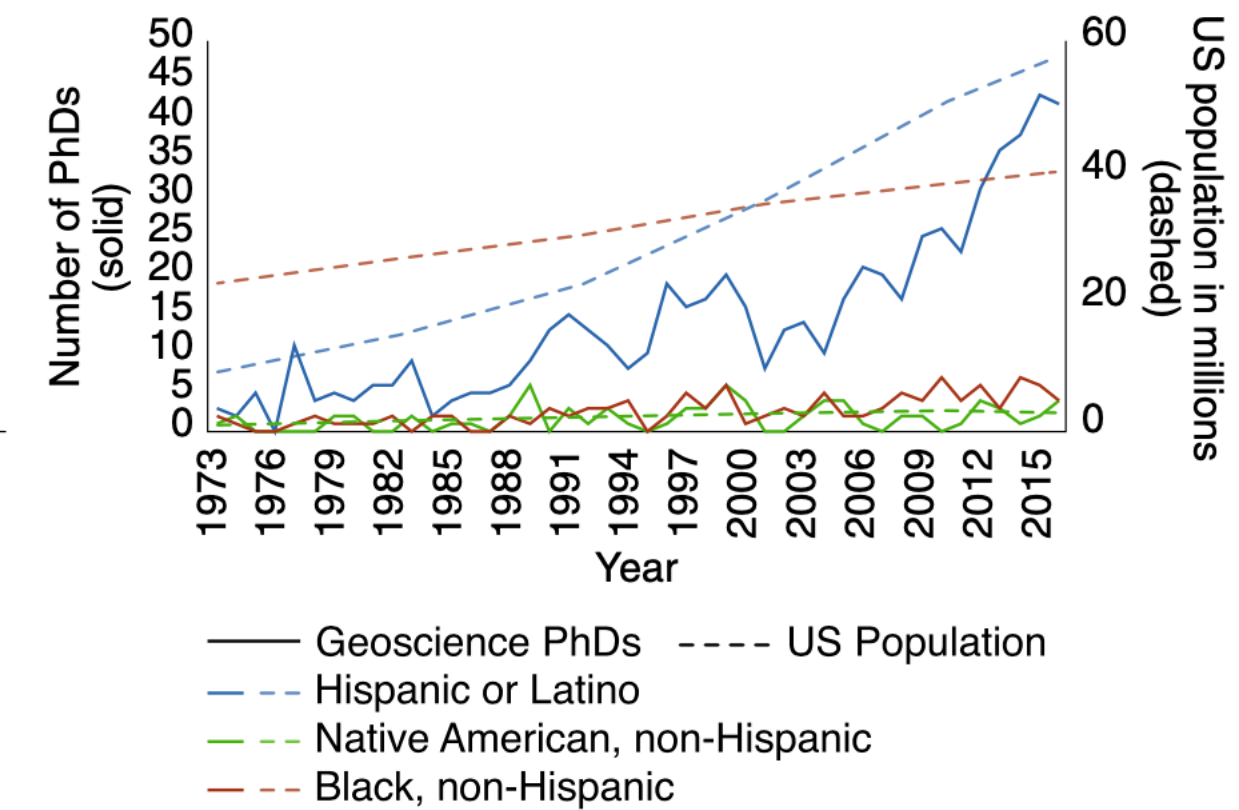
**a** By subfield



**b** By race and ethnicity (subfields combined)



**c** For underrepresented minorities only (subfields combined)



# Why does it matter?

**Equity**: harder to eliminate social inequality

**Funding**: some communities unconvinced by need for geoscience research

**Activism**: under-representation of knowledgeable local/indigenous voices in some communities

**Value for money**: not all taxpayers equally served by spending

**Missing perspectives**: harder to study holistic/whole-society impacts

**Locality**: more challenging to work in diverse places without local knowledge

**Research quality**: more diverse groups tend to perform better

# What are the barriers to change?

**Representation:** lack of relevant voices at the top levels of organisations

**Retention:** higher non-completion/non-progression at each stage of education process

**Recruitment:** lower awareness/interest at the outset

**Lack of time/money:** change/disruption is expensive and time-consuming

**Career checking:** Unclear that undertaking such work is worthwhile

**Lack of prior knowledge:** sometimes feels like we really are making it up as we go along (!)

**Complex societal influences:** biases, prejudices, uncertainties, inequalities, and legacies all combine



# Onto the positives!

*There is room for hope!*

*(Lots of people have spent a long time working on these things)*

*(Lots of people haven't spent too long working on these things, but are willing to help)*

Ideas?

*Have you noticed issues in your studies related to  
EDI? How did they make you feel?*



# How I learnt to 'do' EDI

**Issue:** *UKRI doesn't want to pay their interns minimum wage*

**What we tried:** *getting the University to top-up wages and lobby UKRI*

**What worked:** *getting someone to ambush the Science Minister with an awkward question*

# How I learnt to 'do' EDI

**Issue:** *The representation of BAME students in Earth Sciences is below-average and has stagnated*

**What we tried:** *working with the department to develop an actionable plan*

**What worked:** *the above*



<https://bit.ly/oxford-bame-report>



# How I learnt to 'do' EDI

**Issue:** *Oxford charges students £75 per PhD application*

**What we tried:** *lobbying through committees to remove the fee*

**What worked:** *forcing a vote in the University parliament to over-rule the Education Committee*

# Methodology

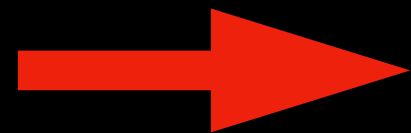
Identification → Triage → Solution



# An example

Identification → Triage → Solution

Marketing materials focus  
almost solely on 'outdoors'  
work within the department



Something we can  
change internally. Easy  
to do.



Diversify 'showcase'  
activities to show  
computational/theoretical  
work or non-European  
fieldwork

# Identification

- What evidence is there?
- Which groups does it affect?
- How are different groups affected?



# Triage

- Whose problem is it?
- How important is the problem?
- How much time will it take to solve?
- Am I in a position to do anything about it?
- Are other people already working on this?

# Solutions

- What is already being done on this?
- How will we monitor success?
- How will we share outcomes?
- How realistic are these outcome?
- What potential is there to do unintentional damage?
- How much will it cost?
- How much does it rely on other people?

# Presenting outcomes

	Idea	Justification	Example specification
1	Pre-application workshops or ‘office hours’ for interested students (either all students or ringfenced for students from a particular group), conducted virtually	DTOs suggest that candidates from diverse backgrounds are not submitting applications even if interested. Targeted sessions to answer common questions may help address this.	Virtual sessions with DTO Academic Directors and/or academics, akin to mini undergraduate open days. Events may be co-hosted with relevant networks (e.g. Black Students’ Network).
2	Greater use of demographic-specific networks to advertise projects to minority applicants	Data suggest that advertising through ‘traditional’ channels (websites, social media, etc.) is not effective at encouraging applicants from minoritised backgrounds to apply.	Coordinated partnerships with relevant networks (e.g. Black Geographers) may reach a more diverse range of candidates, and in a more targeted way.
3	Standardised webform/email provided for applicant expressions of interest	Many applicants are uncomfortable emailing supervisors prior to application. They may be unsure how to approach them, or what to include in the email.	Template emails provided on the DTO website with relevant headers to be filled in (e.g. applicant’s name, current course of study, interests, and short CV).
5	Arrange pre-interview peer mentoring for minority applicants	Supporting applicants from minoritised backgrounds with advice on presentation and techniques is likely to be useful, given the esoteric nature of PhD applications	Paid mentorship (e.g. 1hr per self-identified applicant) by PhDs/PostDocs from similar backgrounds with appropriate training. Emphasise this has no impact on interview scoring.
4	Greater emphasis on the NERC Research Experience Placement (REP) scheme as a recruiting tool	With their focus on inter-disciplinary, cross-institution work, REPs are an ideal recruitment tool to introduce students to research.	Broad advertising targeted at those with no research knowledge; ring-fenced placements for students from underrepresented groups; guaranteed DTO interviews for REP students.



# Ideas?

*What's a DEI related issue that you might like to help solve? How would you go about it?*

*(Try and be specific, and have a SMART plan)*

# Some tips (report)

- Don't reinvent where unnecessary
- Don't rely on external inputs
- Have a way of measuring success
- Keep 'check-out' options throughout
- Focus on actions, not complaints
- Don't treat minority groups as homogenous

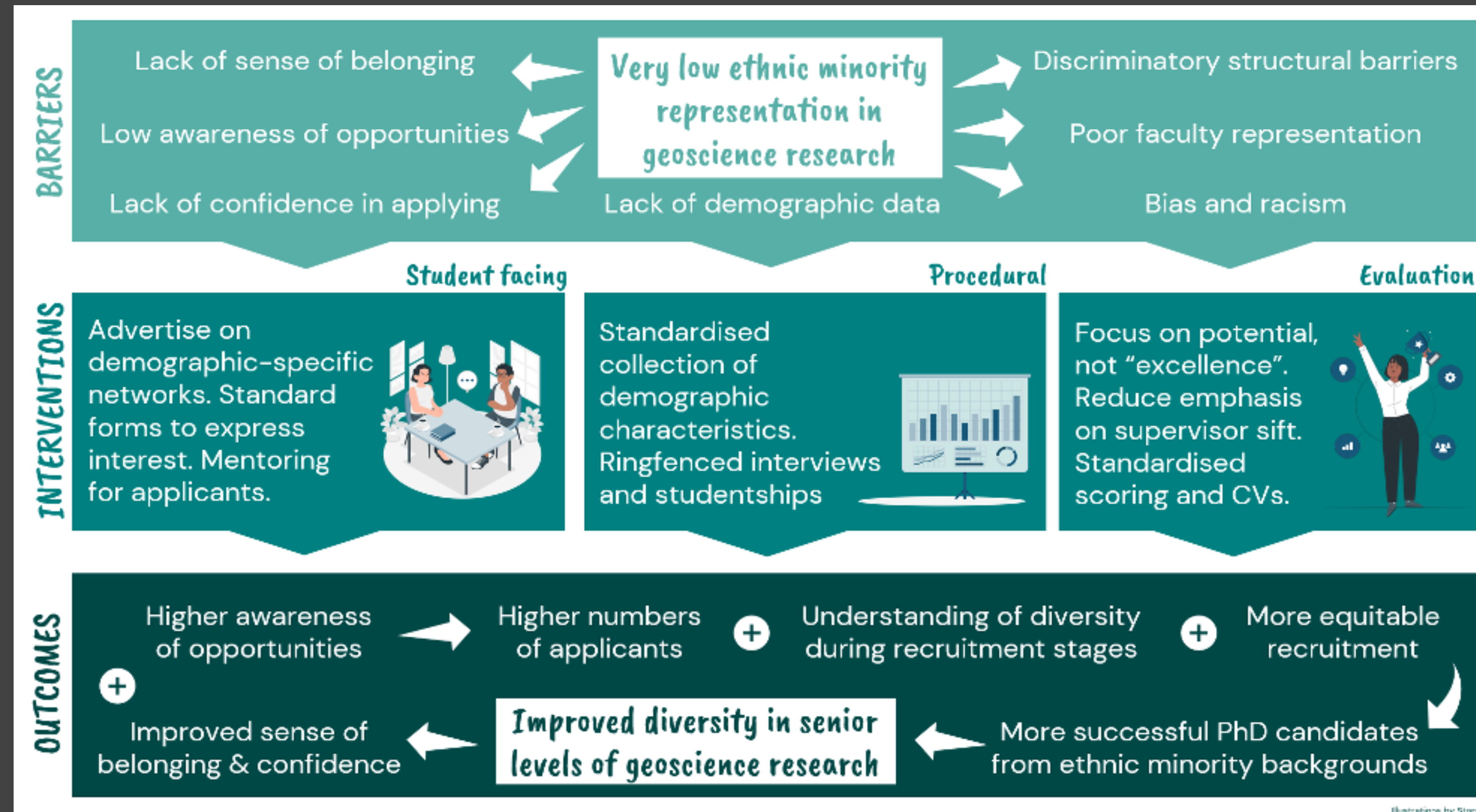
# Some tips (engagement)

- Easier to work with than against
- (But, having said that, sometimes pressure is good)
- Maintain perspective on the issues
- Direct strong feelings appropriately
- Have fun - you also have a PhD to do!



# But what can we do?

## Equality, Diversity, and Inclusion during your PhD



**Benjamin Fernando (he/him)**

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*With thanks to many other collaborators*