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Geography, Earth and Environmental Science research;
perspectives from the UK [abstract only]**

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Recommendation for combatting the diversity crisis in Geography, Earth and Environmental Science research; perspectives from the UK

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The roots of modern geoscience lie in early colonial principles that land could belong to those willing to use its products, regardless of indigenous territories and practices. The production of geoscience knowledge has therefore been historically tied to a desire to explain the distribution and extractability of resources, largely for the benefit of the colonising force. This knowledge now has an essential role to play in equitable and sustainable development, but it cannot be successfully applied without diverse representation amongst geoscientists. However, Geoscience in the Global North is disproportionately white. Following on from the work of Bernard and Cooperdock in the USA, we highlight dismal representation data from Geography, Earth and Environmental Science (GEES) disciplines in UK HE and make recommendations for positive action based on evidenced effective practice.

Geography, Earth and Environmental Sciences are the three worst Physical Science subjects for Black, Asian and Minority Ethnic student undergraduate participation in UK HE, and are very poor for retention of these students into postgraduate research (PGR). Physical Geography had just 5.2% PGR students who identified as Black, Asian, Mixed or Other (HESA data categories) in 2018/19. On average, over the past 5 years just 1.4% of postgraduate Geology PGR students were Black (HESA, 2020). By comparison, in the 2011 Census, 18.5% of UK 18-24 year olds were from Black, Asian or Minority Ethnic backgrounds, and 3.8% were Black. In two years out of the last five,

no Black women have started PGR study in Geology or Physical Geography. Retention of Black, Asian and Minority Ethnic Physical Geography and Environmental Science students into PGR was worse in 2018/2019 than over the five years from 2014 to 2019; the situation is not improving with time (HESA, 2020)

We summarise well-documented factors involved in inequity in research training across UK HE, and review subject-specific structural and cultural barriers to ethnic diversity in GEES subjects. These include early pipeline issues around access to nature, a scarcity of diverse role models, careers perceptions, and a lack of acknowledgement that the geosciences are deeply rooted in colonialism and white power.

Our recommendations are wide-reaching, and build upon effective practice elsewhere. We take a whole-pipeline approach, making proposals that include both advocacy to remove barriers to entry (for example by combatting structural bias in application processes and accreditation requirements), and action to broaden participation (for example, by creating paid ambassador and internship schemes, and through decolonisation and inclusive pedagogic redesign).

We must acknowledge the hostile environments that deter ethnic minority students from applying to, and continuing with, our discipline. We must address bias and be actively anti-racist. We must act now, to create a modern geoscience research culture that reflects the diverse nature of the planet we study.