

**Six simple steps towards making GEES fieldwork more accessible and inclusive**

LAWRENCE, Anya and DOWEY, Natasha

Available from Sheffield Hallam University Research Archive (SHURA) at:

<http://shura.shu.ac.uk/29656/>

---

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

**Published version**

LAWRENCE, Anya and DOWEY, Natasha (2021). Six simple steps towards making GEES fieldwork more accessible and inclusive. Area.

---

**Copyright and re-use policy**

See <http://shura.shu.ac.uk/information.html>

This is an accepted manuscript before typesetting. The final version of this manuscript will soon be published with the journal Area. Please feel free to contact any of the authors; we welcome feedback.

---

# 1 **Six simple steps towards making GEES fieldwork more accessible and** 2 **inclusive**

3 Anya Lawrence<sup>1\*</sup>, Natasha Dowey<sup>2</sup>

4 <sup>1</sup>School of Geography, Earth and Environmental Sciences, University of Birmingham,  
5 Birmingham, UK, B15 2TT

6 <sup>2</sup>Sheffield Hallam University, Sheffield, UK, S1 1WB

7 \*AXL921@student.bham.ac.uk

8

9 **Fieldwork is a defining aspect of Physical Geography, Earth and Environmental**  
10 **Science programme curricula. At its best, fieldwork offers students valuable**  
11 **opportunities to develop independent research skills in real-world situations, examine**  
12 **analogues for a range of scientific concepts, and socialise with peers. It offers**  
13 **experiences that are challenging to replicate using virtual/remote learning. However,**  
14 **at its worst, traditional fieldwork practice and culture can present barriers to access**  
15 **and hostile environments that epitomise the broader equality, diversity and inclusivity**  
16 **problems faced by GEES disciplines. With the role of fieldwork increasingly being**  
17 **called into question, here we promote simple adaptations that can make fieldwork**  
18 **more accessible and enjoyable for all.**

19

## 20 **Keywords**

21 GEES, Fieldwork, equality, diversity, inclusivity, accessibility

## 22 **Introduction**

23 Fieldwork is a key aspect of most Physical Geography, Earth and Environmental Science  
24 (GEES) degrees. From sampling Caledonian granites in Ireland, to measuring water turbidity  
25 in the Zambezi River, to logging sedimentary sequences in Utah, to using drones to analyse  
26 glaciers in Iceland; fieldwork means so many different things to geographers, earth and  
27 environmental scientists.

28 Yet this diversity of field environments is not mirrored by the wider GEES community itself.  
29 Numerous publications have now demonstrated that these disciplines have alarmingly poor  
30 representation of disabled, ethnic minority and LGBTQ+ scientists (e.g. Stokes et al., 2015;  
31 Bernard and Cooperdock, 2018; Dutt, 2020; Dowey et al. 2021). This growing awareness of  
32 the need for improved equity, diversity and inclusivity (EDI), together with the unprecedented  
33 travel disruption wrought by COVID-19, has led to the role of fieldwork in GEES education  
34 increasingly being the subject of debate (e.g. Dzombak, 2020a; Pickrell, 2020; Giles et al.,  
35 2020).

36 Fieldwork has been the subject of significant criticism for its “masculine, eurocentric origins,  
37 assumptions and languages” (Bracken and Mawdsley, 2004). In their 2014 survey of field

38 scientists from some 30 different countries, Clancy et al. found mistreatment of female early  
39 career academics to be widespread, with 71% of female respondents having experienced  
40 sexual harassment during fieldwork and over a quarter reporting sexual assault. Frequently  
41 encountered fieldwork cultures, including heavy drinking, partying and 'banter' (Nairn, 1996),  
42 have served to exclude those with markers of difference, especially LGBTQ+ and disabled  
43 scientists (Nairn, 2003; Hall et al., 2004; Pickrell, 2020).

44 GEES fieldwork involves inherent barriers to individuals from minority groups, including  
45 expense, physical exertion, alcohol culture, and access to toilets (Greene et al., 2019;  
46 Dowey et al., 2021; Abeyta et al., 2021). Even where fieldwork costs are covered, the  
47 expense of field equipment and clothing is a problem for researchers from low  
48 socioeconomic upbringings, who are disproportionately from minority ethnic backgrounds in  
49 Global North countries like the UK (Office for National Statistics, 2020). For some cultures,  
50 residential stays in mixed accommodations (Nairn, 2003), or the scheduling of field courses  
51 with regards to the religious calendar, may cause concern. Furthermore, fieldwork  
52 traditionally takes place in remote, rural, racially homogenous locations, where ethnic  
53 minority researchers may be more likely to face racism (Anadu et al., 2020).

54 In taught fieldwork, these barriers may be heightened by a lack of flexibility to adapt field  
55 locations or sites to be more inclusive for all and by employing the standard 'transmission'  
56 model of teaching, which is not conducive to active participation of students and student-  
57 centered learning (Barr and Tagg, 1995; Michael, 2006).

58 Many authors maintain that fieldwork is a defining and indispensable aspect of GEES  
59 curricula; whilst it may be supplemented through virtual or non-field based activities  
60 (particularly during the current conditions of the Covid-19 pandemic), these alternatives  
61 cannot replicate the learning experiences from outdoor fieldwork (Stokes et al., 2019; Giles  
62 et al., 2020; Sima, 2020). Fieldwork is a compulsory part of GEES curricula; in the UK, the  
63 Quality Assurance Agency for Higher Education Benchmark Statements for these disciplines  
64 refer to fieldwork as 'core' and 'essential'(QAA, 2019a, 2019b). We cannot, therefore, make  
65 GEES disciplines more inclusive by simply removing outdoors working, or by converting it  
66 wholesale into something different. We instead must adapt our practice in the field to create  
67 more inclusive outdoor working experiences. Embedding EDI considerations into fieldwork is  
68 ethical best practice, and a crucial step in removing the barriers that fieldwork poses to  
69 access, participation and retention of minority researchers in GEES.

70 In this contribution we draw on our lived experiences as a mixed ethnicity autistic non-binary  
71 early career geoscientist and a white female physical geography lecturer with experience in  
72 industry, respectively. We do not seek to focus on any particular minority or marginalised  
73 identity but rather to offer straightforward, holistic recommendations for removing some  
74 frequently overlooked barriers and stressors that can occur in the field. Our hope is that  
75 these proposed adaptations will help make fieldwork a more accessible and rewarding  
76 experience for all.

77

78

79 **Planning is key**

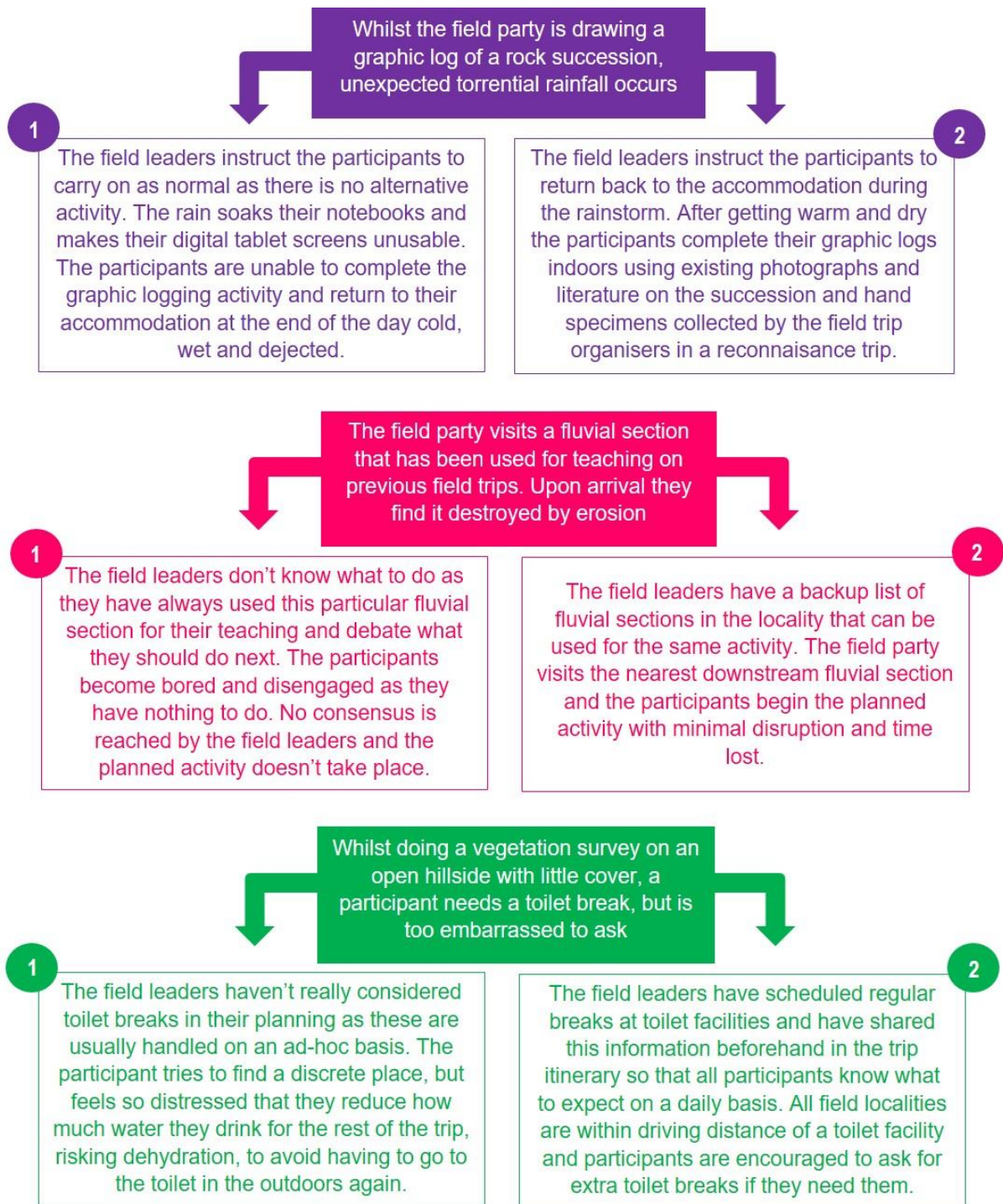
80 Fieldwork has always been prone to challenges. Poor weather, unexpected lack of access to  
81 outcrops, vehicle breakdown, a lack of toilets. Overcoming such setbacks is arguably part of  
82 the 'hidden curriculum' (Jackson, 1968), building resilience and transferable skills in students  
83 that they can draw upon in future careers. However, for some students, simply participating  
84 in a field trip can be challenging, due to pre-existing financial, physical, racial and/or  
85 emotional barriers (Stokes et al., 2019). It follows that if participants experience further  
86 adversity in the field, it may impact confidence and be a deterrent to undertaking future  
87 fieldwork or pursuing careers in field-based disciplines.

88 GEES educators are trained to undertake broad planning for health and safety scenarios in  
89 the field. However, more can be done to ensure preparedness for a broad range of other  
90 challenging situations, some of which have serious health and safety implications. For  
91 example, Prior-Jones et al. (2020) recommend embedding inclusion into risk assessments  
92 so that greater consideration is given to hazards and appropriate mitigations that  
93 particularly affect those from minorities with protected characteristics such as disability,  
94 gender reassignment, marriage and civil partnership, religion or belief, sex, and sexual  
95 orientation. Anadu et al. (2020) provide detailed recommendations to protect fieldwork  
96 participants from racism and prejudice, including racial risk assessments and  
97 antidiscrimination training for field leaders.

98 Kingsbury et al. (2020) advocate creating daily schedules that factor in non-academic  
99 aspects of working in the field, such as taking breaks from working in groups to preclude  
100 overstimulation and related meltdowns/ shutdowns in autistic individuals.

101 Considered logistical preparation, involving lists of alternative accessible outcrops, digital  
102 resources and plans B, C and D, may be crucial in avoiding demoralisation and  
103 disengagement, particularly for students with disabilities. Although devising backup plans  
104 may require creativity and additional effort on the trip organiser's part, having alternatives  
105 such as wet-weather activities can be beneficial for entire student cohorts and can easily be  
106 reused for each presentation of the field course (Houghton et al. 2020; Figure 1).

107 Field leaders can be open about their mitigations and planning, promoting measures made  
108 to improve accessibility and also training students on how to problem-solve when planning  
109 their own independent field activities.



110

111

112 **Figure 1** Example problems in the field and outcomes. Outcome 1 results from  
 113 rudimentary fieldwork planning while outcome 2 reflects more considered planning

114

115

116

117 **Fun not fear**

118 Experiences shared on social media in recent years have revealed a glimpse of the  
119 discrimination faced by minority geoscientists in the field (e.g. Larson, 2020; Litchfield, 2020;  
120 Anadu, 2020). Even where comprehensive fieldwork planning and preparation is undertaken,  
121 such experiences could understandably discourage some to forgo fieldwork altogether  
122 because of fear. For LGBTQ+ geographers, fear of travelling to countries where their status  
123 is criminalized (Olcott and Downen, 2020; Mackay, 2021); for ethnic minority geoscientists,  
124 fear of experiencing racism (Anadu et al., 2020); for disabled environmental scientists, fear  
125 of being in unfamiliar and poorly accessible areas far from the safety net of home and  
126 professional healthcare support (Hall and Healy, 2005; Tucker and Horton, 2019; Stokes et  
127 al., 2019).

128 Although these concerns may be difficult to fully address, a good first step is to remove  
129 problematic destinations, such as countries that criminalise homosexuality, from field  
130 itineraries altogether (Murphy, 2020; Jackson, 2021). To further ensure that all participants  
131 can feel safe and find fun in their field experiences a complete package of support should be  
132 offered, that goes beyond the standard field trip leader, health and safety officer, or informal  
133 buddy schemes.

134 Assigning personal assistants or mentors to vulnerable individuals can enhance inclusion  
135 and access in field environments, especially if the mentor is someone with shared  
136 experiences that allow them to relate well to their mentees (Olcott and Downen, 2020). This  
137 mentor/assistant can liaise with their mentees prior to the field course, to gain understanding  
138 of their personal and cultural circumstances and abilities. As well as ensuring that all  
139 prospective mentors and field staff are offered general training in allyship (Anadu et al.  
140 2020), institutions must adopt a flexible approach to fieldwork mentoring, working on a case-  
141 by-case basis. Institutional disability service providers may not have the pedagogic  
142 experience or familiarity with GEES disciplines required to provide appropriate mentoring  
143 support for academics outside of traditional workplace settings (Feig et al. 2019). For  
144 example, the first author of this study is provided assistance by their parents in the field as,  
145 being full-time carers, they have the greatest insight into the author's disability, including how  
146 it affects them on a day-to-day basis and their specific needs in the context of geoscience  
147 fieldwork.

148 Upon arrival at the field locality, mentors could offer a meet-and-greet service for their  
149 mentees to replace any initial feelings of trepidation and anxiety with a sense of welcome  
150 and belonging. During the fieldwork itself, mentors should maintain regular communication  
151 with their mentees to assess how much support they require to feel comfortable and  
152 effectively engage in the learning experience (Hendricks et al., 2017).

153 Whilst universities and colleges may not consider it their responsibility to provide off-campus  
154 support (Anadu et al., 2020), they do have a duty of care to ensure the safety and wellbeing  
155 of all staff and students, and it is important that individuals who need it have the safety net of  
156 a designated person that can listen and respond to their concerns as they arise.

157

158

159 **Skills over hills**

160 A key aim of field training is to allow scientists to gain practical, transferable skills that they  
161 can reuse in the future when independently gathering primary data.

162 However, skills development can be undermined not only by safety concerns but also by  
163 fieldwork cultures. It is well-reported that a machismo culture of 'we must visit that outcrop  
164 because it's there' pervades fieldwork in many physical science disciplines (e.g. Maguire,  
165 1998; Hall et al., 2004; Fitzpatrick, 2020). This may lead to a focus on who can 'bag' the  
166 most locations, rather than who is able to accurately conduct the analyses necessary. Where  
167 fieldwork grades into adventure tourism rather than a purposeful, educative experience, it  
168 reinforces casual ableism and excludes people with disabilities (Tucker and Horton, 2018;  
169 Pickrell, 2020).

170 To create more inclusive instructional environments and equitable access to the field, these  
171 traditional attitudes and hostile climates must be dismantled. Part of this effort involves  
172 institutions reviewing materials used to promote fieldwork, which routinely depict white,  
173 physically fit scientists in rugged outdoor settings (Hall et al., 2004; Atchison and Libarkin,  
174 2016; Dowe et al., 2021).

175 Careful and considered field work design is also needed (Gilley et al., 2015). For example,  
176 where a field locality presents accessibility issues, the trip organisers should endeavour to  
177 find an alternative that is easily reachable for those with mobility issues or lower levels of  
178 physical fitness. Where this isn't feasible, portable Wi-fi networks and mobile technology can  
179 provide students remote access to the inaccessible field site and thereby create an  
180 environment conducive to active participation and social inclusion, as demonstrated through  
181 the Enabling Remote Activity (ERA) approach pioneered by the Open University (Collins et  
182 al., 2016).

183 In this way, no students need to miss out on experiencing outdoor field activity and related  
184 opportunities to build skills just because they are unable to reach the outcrop at the end of a  
185 slippery, rocky beach or atop the highest, most difficult hill.

186

187 **One size never fits all**

188 Another factor which can deter GEES scientists from participating in outdoor field activities is  
189 the course length. The prospect of spending many days or even weeks in the field can raise  
190 significant anxieties not just for students but for scientists at various different levels within the  
191 academic hierarchy (Tucker and Horton, 2018).

192 Whereas postgraduates and more senior academics often have independence to determine  
193 the duration of fieldwork that they undertake for their own research, undergraduates and  
194 teaching staff involved in field courses rarely have the autonomy to decide.

195 Therefore, institutions should be open to creating more flexible fieldwork timetables that  
196 allow for several shorter field courses or daytrips. This may be preferable to the  
197 concentrated social environment, typically long working hours and intense nature of a



198 multiday residential trip, which for some is an “ordeal” rather than a constructive experience  
199 (Tucker and Horton, 2018). This has the added advantage of providing thinking and planning  
200 time in between field trips; students and staff can reflect on what worked well for them on a  
201 trip and whether this can be replicated during their next field visit. Likewise, they can  
202 consider what didn’t work so well and how this could be improved next time.

203 Another consideration here is financial (Abeyta et al., 2021). Field skills training in overseas  
204 locations, where not fully subsidised, is an expensive and inaccessible option for many  
205 researchers. The feasibility of offering domestic trips, that offer the same degree of  
206 pedagogic rigour and generate similar learning outcomes (Figure 2), should be considered  
207 for those with caring responsibilities, on a restricted budget and/or not wanting to stray too  
208 far from home.



209 **Figure 2** Different destinations, same  
210 aims; The authors of this study photographing field exposures of igneous rocks in overseas  
211 (left) and domestic (right) destinations

212

### 213 **Embracing diversity – and being actively anti-prejudice**

214 As well as offering flexibility in terms of field work destinations and course lengths, when  
215 working with those from diverse backgrounds it is important to show open-mindedness and  
216 acceptance towards different personal needs and requirements.

217 For example, autistic individuals may need to carry a tactile object like a blanket, engage in  
218 stimming or use toys such as fidget spinners, to help maintain focus and cope with the  
219 myriad of external sensory stimuli in field environments (Kingsbury et al., 2020).

220 Researchers who are practising religious fasting may have eating patterns that differ from  
221 the traditional meal times that many field courses are structured around. In these cases,  
222 leaders should avoid scheduling trips during religious fasting periods such as Ramadan  
223 where possible. If this is unavoidable, and students practising fasting are participating in the  
224 fieldwork, leaders must ensure that suitable food is available at the appropriate times  
225 (including suitable gluten-free, vegetarian, vegan, halal and kosher options), and that the trip

226 does not involve an unnecessarily high level of strenuous physical exertion. The risk  
227 assessment of the trip should be adapted to include the possibility of students experiencing  
228 acute dehydration or fainting. Furthermore, to promote the positive wellbeing of those from  
229 various religious groups, it is essential that the accommodation in residential field courses  
230 contains quiet, suitable spaces for worship and prayer that can be used in between field  
231 activities (ECU, 2009; Advance HE, 2018).

232 Research indicates that 40% of trans and 52% of non-binary people in the UK feel they must  
233 adjust the way they dress to avoid discrimination or harassment (Stonewall, 2017). Being  
234 given the freedom to dress in outdoor gear and clothing that they feel comfortable and  
235 confident wearing is essential for trans and non-binary individuals (Dzombak, 2020b).  
236 Furthermore, careful consideration of toilet and changing facilities on fieldtrips is necessary  
237 to ensure that everyone can safely use these spaces. Fieldwork leaders should avoid  
238 unnecessary gender divisions (e.g. girls queue on the left), ensure that there is universal  
239 provision available at the accommodation, and bear in mind that not all trans people feel  
240 comfortable using public conveniences (Gendered Intelligence, 2020).

241 Whatever the difference, tolerance must be extended towards those from underrepresented  
242 groups to make the field a more welcoming and diverse place.

### 243 **Carry on the conversation**

244 It is imperative that the critical thought provoked by the coronavirus pandemic about field  
245 work accessibility and inclusion remains at the forefront of our minds long after lockdowns  
246 and travel restrictions have ceased. The momentum must continue in order to improve  
247 equity, diversity and accessibility within GEES and associated field work (Sima, 2020).

248 To see positive, lasting change take effect, those who have been previously excluded should  
249 be included in the dialogue and lead the conversation going forward (Scarpelli, 2017). Social  
250 media, focus groups and workshops (Pickrell, 2020) are powerful forums through which  
251 academics, fieldwork leaders and those in management roles can be educated on the  
252 challenges faced by minority groups. Conferences, such as those held on accessible virtual  
253 platforms during the pandemic (see Batty and Worsfold, 2021; iCrag, 2021) can enable  
254 solution-focussed discussions to take place within the wider GEES community and provide  
255 opportunities for disseminating information on best practice to broad, international  
256 audiences.

### 257 **Summary**

258 The six steps outlined here (Figure 3) have the potential to create meaningful change and  
259 transform the nature of fieldwork. They can also form part of broader conversations about  
260 ethical code of conduct within departments. Increasing accessibility of GEES subjects is very  
261 much aligned to the Cape Town Statement of Geoethics, one of the fundamental values of  
262 which is to “promote geoduction for all” (Di Capua et al., 2017). Our suggestions are broad,  
263 and what is perceived as ‘ethical practice’ may differ amongst different groups and  
264 individuals. For that reason, it is important that we listen to diverse groups, and are flexible to  
265 actioning their thoughts and ideas where possible. If we do not act on their concerns, we risk  
266 losing unique and irreplaceable geographers, earth scientists and environmental scientists  
267 not only from the field, but from our disciplines altogether.

268

269



270

271 **Figure 3** Summary of the Six simple steps towards making fieldwork more accessible and  
272 inclusive

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288 **References**

- 289 Abeyta, A., Fernandes, A.M., Mahon, R.C., & Swanson, T.E. (2021) The True Cost of Field  
290 Education is a Barrier to Diversifying Geosciences. EarthArXiv.  
291 <https://doi.org/10.31223/X5BG70>
- 292 Advance HE (2018) *Religion and belief: supporting inclusion of staff and students in higher*  
293 *education and colleges*. [https://www.advance-he.ac.uk/knowledge-hub/religion-and-belief-](https://www.advance-he.ac.uk/knowledge-hub/religion-and-belief-supporting-inclusion-staff-and-students-higher-education-and)  
294 [supporting-inclusion-staff-and-students-higher-education-and](https://www.advance-he.ac.uk/knowledge-hub/religion-and-belief-supporting-inclusion-staff-and-students-higher-education-and)
- 295 Anadu, J. (2020, 22 June). *Black Thoughts: Hazards of Field Work While Black* [Video].  
296 Youtube. <https://www.youtube.com/watch?v=W0B7xwGkl00>
- 297 Anadu, J., H. Ali, & C. Jackson (2020). Ten steps to protect BIPOC scholars in the field. *Eos*,  
298 101, <https://doi.org/10.1029/2020EO150525>
- 299 Atchison, C. L. & Libarkin, J. C. (2016). Professionally held perceptions about the  
300 accessibility of the geosciences, *Geosphere*, 12(4), 1154–1165,  
301 <https://doi.org/10.1130/ges01264.1>
- 302 Barr R.B. & Tagg J. (1995) From teaching to learning—a new paradigm for undergraduate  
303 education. *Change*: 27(6) 13–25.  
304
- 305 Batty, L. & Worsfold (2021, March 17). Post-COVID teaching in ecology – reflections from  
306 our BES Festival of Ecology workshop. *BES Teaching and Learning*.  
307 [https://besteachingandlearning.wordpress.com/2021/03/17/post-covid-teaching-in-ecology-](https://besteachingandlearning.wordpress.com/2021/03/17/post-covid-teaching-in-ecology-reflections-from-our-bes-festival-of-ecology-workshop/)  
308 [reflections-from-our-bes-festival-of-ecology-workshop/](https://besteachingandlearning.wordpress.com/2021/03/17/post-covid-teaching-in-ecology-reflections-from-our-bes-festival-of-ecology-workshop/)
- 309 Bracken, L. & Mawdsley E. (2004). ‘Muddy glee’: rounding out the picture of women and  
310 physical geography fieldwork. *Area*, 36(3), 280-286. [https://doi.org/10.1111/j.0004-](https://doi.org/10.1111/j.0004-0894.2004.00225.x)  
311 [0894.2004.00225.x](https://doi.org/10.1111/j.0004-0894.2004.00225.x)
- 312 Bernard, R.E. & Cooperdock, E.H.G. (2018). No progress on diversity in 40 years. *Nature*  
313 *Geoscience*, 11, 292–295, <https://doi.org/10.1038/s41561-018-0116-6>
- 314 Clancy K.B.H., Nelson R.G., Rutherford J.N. & Hinde K. (2014). Survey of Academic Field  
315 Experiences (SAFE): Trainees Report Harassment and Assault. *PLoS ONE* 9(7), Article  
316 e102172. <https://doi.org/10.1371/journal.pone.0102172>
- 317 Collins, T., Davies, S., & Gaved, M. (2016). Enabling remote activity: widening participation  
318 in field study courses. In: D. Kennepohl (ed.) *Teaching Science Online: Practical Guidance*  
319 *for Effective Instruction and Lab Work*. Sterling, VA, USA: Stylus Publishing, 183–195.
- 320 Di Capua G., Peppoloni S. and Bobrowsky P.T. (2017). The Cape Town Statement on  
321 Geoethics. *Annals of Geophysics*, Vol. 60, Fast Track 7, doi: 10.4401/ag-7553
- 322 Dutt, K. (2020). Race and racism in the geosciences. *Nature Geoscience*, 13, 2–3  
323 <https://doi.org/10.1038/s41561-019-0519-z>

- 324 Dowey, N., Barclay, J., Fernando, B., Giles, S., Houghton, J., Jackson, C., Khatwa, A.,  
325 Lawrence, A., Mills, K., Newton, A., Rogers, S.L. & Williams, R. (2021). A UK perspective on  
326 tackling the geoscience racial diversity crisis in the Global North. *Nature Geoscience*, 14,  
327 256–259. <https://doi.org/10.31223/osf.io/z4cju>
- 328 Dzomback, R (2020a, July 22). It's time to change the geosciences' outdated, exclusionary,  
329 and ableist field requirements. *Sister*. [https://sisterstem.org/2020/07/22/its-time-to-change-](https://sisterstem.org/2020/07/22/its-time-to-change-the-geosciences-field-requirements/)  
330 [the-geosciences-field-requirements/](https://sisterstem.org/2020/07/22/its-time-to-change-the-geosciences-field-requirements/)
- 331 Dzomback, R. (2020b, 28 October). Queer visibility in geoscience has been almost  
332 nonexistent for decades. A new generation is working to change that. *Speaking of*  
333 *Geoscience*<sup>™</sup>, [https://speakingofgeoscience.org/2020/10/28/queer-visibility-in-geoscience-](https://speakingofgeoscience.org/2020/10/28/queer-visibility-in-geoscience-has-been-almost-nonexistent-for-decades-a-new-generation-is-working-to-change-that/)  
334 [has-been-almost-nonexistent-for-decades-a-new-generation-is-working-to-change-that/](https://speakingofgeoscience.org/2020/10/28/queer-visibility-in-geoscience-has-been-almost-nonexistent-for-decades-a-new-generation-is-working-to-change-that/)
- 335 ECU (2009) *Religious observance in higher education: facilities and services*.  
336 [www.ecu.ac.uk/publications/religious-obs-facilities](http://www.ecu.ac.uk/publications/religious-obs-facilities).
- 337 Feig, A.D., Atchison, C.L., Stokes, A., & Gilley, B. (2019). Achieving inclusive field-based  
338 education: Results and recommendations from an accessible geoscience field trip. *The*  
339 *Journal of Scholarship of Teaching and Learning*, 19(2), 66–87.  
340 <https://doi.org/10.14434/josotl.v19i1.23455>
- 341 Fitzpatrick, A. (2020, 17 March). You Will Never Be Indiana Jones. *Lady Science*.  
342 [https://www.ladyscience.com/essays/you-will-never-be-indiana-jones-toxic-masculinity-](https://www.ladyscience.com/essays/you-will-never-be-indiana-jones-toxic-masculinity-archaeology)  
343 [archaeology](https://www.ladyscience.com/essays/you-will-never-be-indiana-jones-toxic-masculinity-archaeology)
- 344 Greene, S., Ashley, K., Dunne, E., Edgar, K., Giles, S. & Hanson, E. (2020). *Toilet Stops in*  
345 *the Field: An Educational Primer and Recommended Best Practices for Field-based*  
346 *Teaching*. OSF Preprints. <https://doi.org/10.31219/osf.io/gnhj2>
- 347 Gendered Intelligence. (2020). All gender toilet signs.  
348 <http://genderedintelligence.co.uk/professionals/resources/toilets>
- 349 Giles, S., Jackson, C. & Stephen, N. (2020). Barriers to fieldwork in undergraduate  
350 geoscience degrees. *Nature Reviews Earth & Environment*, 1, 77–78.  
351 <https://doi.org/10.1038/s43017-020-0022-5>
- 352 Gilley, B.H., Atchison, C.L., Feig, A. & Stokes, A. (2015). Impact of inclusive field trips.  
353 *Nature Geoscience*, 8, 579-580. <https://doi.org/10.1038/ngeo2500>
- 354 Hall, T., Healey, M., & Harrison, M. (2004). Fieldwork and disabled students: Discourses of  
355 exclusion and inclusion. *Journal of Geography in Higher Education*, 28(2), 255–280.  
356 <https://doi.org/10.1080/0309826042000242495>
- 357 Hall, T., & Healey, M. (2005). Disabled students' experiences of fieldwork. *Area*. 37(4),  
358 p.446–449, <https://doi.org/10.1111/j.1475-4762.2005.00649.x>.
- 359 Hendricks, J. E., Atchison, C. L., & Feig, A. D. (2017). Effective use of personal assistants  
360 for students with disabilities: Lessons learned from the 2014 accessible geoscience field trip.  
361 *Journal of Geoscience Education*, 65(1), 72–80, <https://doi.org/10.5408/16-185.1>

362 Houghton, J. J., Morgan, D. J., Gordon, C. E., Stokes, A., Atchison, C. L., Collins, T. D.,  
363 Craven, B., & Willis, K. (2020). Access Anglesey 2018: Lessons from an inclusive field  
364 course. *Advances in Geosciences*, 53, 183–194, [https://doi.org/10.5194/adgeo-53-183-](https://doi.org/10.5194/adgeo-53-183-2020)  
365 2020

366 iCrag. (2021). *EDIG Conference*. <https://www.icrag-centre.org/edig/conference/>

367 Jackson, P. (1968). *Life in Classrooms*. New York, NY: Holt, Rinehart and Winston.

368 Jackson, C. (2021, March 1). Some barriers are invisible. *Geoscientist*, Spring 2021, 16.  
369 [https://geoscientist.online/wp-content/uploads/2021/03/GEO\\_SPRING\\_2021\\_WEB.pdf](https://geoscientist.online/wp-content/uploads/2021/03/GEO_SPRING_2021_WEB.pdf)

370 Kingsbury, C. G., Sibert, E.C., Killingback, Z. and Atchison, C. L. (2020). “Nothing about us  
371 without us:” The perspectives of autistic geoscientists on inclusive instructional practices in  
372 geoscience education. *Journal of Geoscience Education*, 68(4), 302-310,  
373 <https://doi.org/10.1080/10899995.2020.1768017>

374 Larson, C. (2020, September 15). Calling out racism, Black scientists say they face  
375 discrimination while doing fieldwork. *Chicago Sun Times*.  
376 <https://chicago.suntimes.com/2020/9/15/21436543/black-scientists-racism>

377 Litchfield, E. (2020). ‘Widespread ableism is exhausting’: What it’s like being a disabled  
378 student at Soton. *The Southampton Tab*. [https://thetab.com/uk/soton/2020/10/20/how-soton-](https://thetab.com/uk/soton/2020/10/20/how-soton-uni-are-failing-disabled-students-84771)  
379 [uni-are-failing-disabled-students-84771](https://thetab.com/uk/soton/2020/10/20/how-soton-uni-are-failing-disabled-students-84771)

380 Mackay, A. (2021, 27 April). Out in the Field. *Geography Directions: Pride in the field*.  
381 <https://blog.geographydirections.com/2021/04/27/out-in-the-field/>  
382

383 Maguire, S. (1998). Gender differences in attitudes to undergraduate fieldwork. *Area*, 30(3),  
384 207–214. <https://doi.org/10.1111/j.1475-4762.1998.tb00065.x>  
385

386 Michael, J. (2006). Where’s the evidence that active learning works? *Advances in physiology*  
387 *education*. 30(4), 159–67. <https://doi.org/10.1152/advan.00053.2006>  
388

389 Murphy, V. (2020, July 3) *Geoscience course stops running Oman fieldtrip to be more*  
390 *inclusive*. [Press release]. [https://www.imperial.ac.uk/news/198915/geoscience-course-](https://www.imperial.ac.uk/news/198915/geoscience-course-stops-running-oman-fieldtrip/)  
391 [stops-running-oman-fieldtrip/](https://www.imperial.ac.uk/news/198915/geoscience-course-stops-running-oman-fieldtrip/)  
392

393 Nairn, K. (1996). Parties on Geography Fieldtrips: Embodied Fieldwork? *Women's Studies*  
394 *Journal*. 12(2), 86-97.  
395

396 Nairn, K. (2003). What Has the Geography of Sleeping Arrangements Got to Do with the  
397 Geography of Our Teaching Spaces? *Gender, Place and Culture: A Journal of Feminist*  
398 *Geography*. 10(1), 67-81. <https://doi.org/10.1080/0966369032000052667>

399 Office for National Statistics (2020) Child poverty and education outcomes by ethnicity.  
400 [https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economic](https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economic-review/february2020/childpovertyandeducationoutcomesbyethnicity#child-poverty-and-ethnicity)  
401 [review/february2020/childpovertyandeducationoutcomesbyethnicity#child-poverty-and-](https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economic-review/february2020/childpovertyandeducationoutcomesbyethnicity#child-poverty-and-ethnicity)  
402 [ethnicity](https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economic-review/february2020/childpovertyandeducationoutcomesbyethnicity#child-poverty-and-ethnicity)

403 Olcott, A. N. & Downen, M. R. (2020). The challenges of fieldwork for LGBTQ+  
404 geoscientists. *Eos*, 101. <https://doi.org/10.1029/2020EO148200>

405 Pickrell, J. (2020. March 11) Scientists push against barriers to diversity in the field sciences.  
406 *Science*. 374. <https://doi:10.1126/science.caredit.abb6887>

407 Prior-Jones, M., Pinnion, J., Millet, M.-A., Bagshaw, E., Fagereng, A., & Ballinger, R. (2020,  
408 May 4-8) An inclusive risk assessment tool for travel and fieldwork.[Conference  
409 presentation]. EGU General Assembly 2020, Online. [https://doi.org/10.5194/egusphere-](https://doi.org/10.5194/egusphere-egu2020-7678)  
410 [egu2020-7678](https://doi.org/10.5194/egusphere-egu2020-7678), 2020

411

412 Quality Assurance Agency. (2019a). *Subject Benchmark Statement: Earth Sciences,*  
413 *Environmental Sciences and Environmental Studies.*  
414 [https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-](https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-earth-sciences-environmental-sciences-and-environmental-studies.pdf)  
415 [statement-earth-sciences-environmental-sciences-and-environmental-studies.pdf](https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-earth-sciences-environmental-sciences-and-environmental-studies.pdf)  
416

417 Quality Assurance Agency. (2019b). *Subject Benchmark Statement: Geography.*  
418 [https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-](https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-geography.pdf)  
419 [statement-geography.pdf](https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-geography.pdf)

420 Scarpelli, A. (2017, 19 October). How I realized that LGBT+ scientists like me can inspire  
421 others in their field. *Massive Science*. [https://massivesci.com/articles/stem-lgbt-diversity-](https://massivesci.com/articles/stem-lgbt-diversity-science/)  
422 [science/](https://massivesci.com/articles/stem-lgbt-diversity-science/)

423 Sima, R. J. (2020). Accessibility and fieldwork in the time of coronavirus. *Eos*, 101,  
424 <https://doi.org/10.1029/2020EO147056>

425 Stokes, P., Levine, R., and Flessa, K.W. (2015). Choosing the geoscience major: Important  
426 factors, race/ethnicity, and gender. *Journal of Geoscience Education*, 63(3), 250–263.  
427 <https://doi.org/10.5408/14-038.1>

428 Stokes, A., Feig, A., Atchison, C., & Gilley, B. (2019). Making geoscience fieldwork inclusive  
429 and accessible for students with disabilities. *Geosphere*, 15(6), 1809–1817.  
430 <https://doi.org/10.1130/GES02006.1>

431 Stonewall. (2018). *LGBT in Britain - Trans report*. [https://www.stonewall.org.uk/lgbt-britain-](https://www.stonewall.org.uk/lgbt-britain-trans-report)  
432 [trans-report](https://www.stonewall.org.uk/lgbt-britain-trans-report)

433 Tucker, F. & Horton, J. (2018). “The show must go on!” Fieldwork, mental health and  
434 wellbeing in Geography, Earth and Environmental Sciences. *Area*, 51(1), 84–93.  
435 <https://doi.org/10.1111/area.12437>  
436  
437  
438

439 Dear Sir/ Madam,  
440

441 I am writing to you, as the editor in chief of ....., to make a presubmission inquiry  
442 about an original piece that we believe would be classed as a 'commentary'  
443 according to the content types outlined on the ..... journal website.

444

445 The article is concerned with improving accessibility and inclusivity in geoscience  
446 fieldwork. It is informed by recent literature and our perspectives and personal  
447 experiences as a mixed-ethnicity, disabled (autistic) early career geoscientist and a  
448 geoscience lecturer with experience in industry, respectively.

449

450 Our article focuses on the simple adaptations that can make fieldwork more  
451 accessible and enjoyable for all. It is written in an accessible and non-technical style  
452 that would appeal to a diverse, non-specialist readership, including those from  
453 academic disciplines beyond Geoscience.

454

455 We have attached the short piece here. Could you please let us know if our article  
456 could be of interest to you and if we should submit the manuscript to your online  
457 system for your further consideration?

458

459 Kind regards,

460 Miss Anya Lawrence and Dr Natasha Dowey

461

462