



Geochemistry Group
of the Mineralogical Society
and of the Geological Society

Registered charity numbers
233706 & 210161, respectively

**Equality, Diversity
and Inclusivity
Audit Report**

October 2022

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This report presents the results of the Geochemistry Group EDI audit that was carried out during the academic year 2021-2022 by a sub-committee of the Geochemistry Group steering committee including Dr Jane Barling, Dr Harold Bradbury and Dr Marie-Laure Bagard. The data this report is based on can be found in Appendix 1.

1 Introduction

Recently, many studies have pointed out the lack of diversity in the geoscience community (e.g. Bernard and Cooperdock, 2018; Dowey et al., 2021; Stokes et al., 2019). Along with other learned societies, the Geochemistry Group (a Special Interest Group of the Mineralogical Society of the UK and Ireland, and the Geological Society of London) has acknowledged its poor record on this matter and, following up on this, has decided to take concerted actions to promote a more inclusive environment and encourage greater diversity in its membership.

Concurrently, an Equality, Diversity and Inclusivity (EDI) audit of the Geochemistry Group activities has been carried out in order to: (a) better understand the community participating in the Group's activities; and (b) create a benchmark against which the Group will compare the diversity of its community in the future and evaluate the impact of its actions. This audit took place during the academic year 2021–2022 and considered the various areas covered by the Geochemistry Group over the past decade (2012–2021).

2 Results and discussion

The data presented in this audit were compiled from committee meeting minutes (136th to 164th committee meetings) and from the Geochemistry Group Research in Progress meeting abstract volumes covering the period of interest (2012 to 2021 inclusive).

These records were not written with EDI data collection in mind; therefore, we have only been able to create a coarse dataset, one which does not allow for many nuances. For example, it does not allow us to review gender distribution beyond 'Men' and 'Women' categories due to the lack of data on non-binary identities, and neurodiversity, disability and ethnicity information is even scarcer. There was no relevant data on neurodiversity or disability, and for ethnicity we were only able to group individuals into two categories, 'White' and 'BAME' (Black, Asian and Minority Ethnic; this wording is chosen for consistency with the Higher Education Statistic Agency denomination).

We recognise that the simplistic nature of this dataset does not allow us to get a holistic picture of the identities of the people involved in Geochemistry Group activities and that it risks homogenizing varied experiences. We nevertheless believe that it can provide a first-order overview of the diversity of the Geochemistry Group members.

In the figures presented below, the Geochemistry Group data were compared to the 2019–2020 UK data for Earth Science students from the [Higher Education Statistics Agency](#). We specifically utilised 'post-graduate students (research)' data as these are likely to represent a similar pool to the early career researcher (ECR) community that the Geochemistry Group aims to support. However, we are aware that comparing the data for categories where senior postdoctoral researchers and permanent university staff are the majority (e.g. committee members, keynote speakers, prominent lecturer award applicants and recipients) to the HESA post-graduate students pool is only marginally relevant as parameters such as gender distribution evolve significantly with career stage (e.g. Alper, 1993; Santos and Dan Van Phu, 2019).

2.1 Gender

Figure 2.1 illustrates the distribution of genders within Geochemistry Group activities, averaged over 10 years. Although the data does not allow us to evaluate the inclusion of non-binary people, it shows that, overall, there is a high proportion of women across most of the Geochemistry Group activities. Except for awards applicants, all other activities involve between 50% and 66% women (this is more than the UK Earth Sciences post-graduate HESA data, where the gender balance was ~45% women and ~55% men).

However, the combined data over 10 years hide significant variations from one year to the next in several areas. Notably, this is the case for Postdoctoral Medal applicants, Prominent Lecturer Award applicants and Geochemistry Group Research in Progress meeting (GGRiP) student prize recipients. These year-on-year statistical variations are probably due to the small numbers of applicants/recipients each year (between 2 and 8 in each of the categories in question), which artificially amplify any changes in the gender proportions.

Significant year-on-year variations can also be observed for GGRiP keynote speakers, although, in this case, there is a continuous evolution of the percentage of women invited as keynote speakers rather than random changes in the gender balance from one year to the next. Genders have been more balanced in the recent years (2015–2018: 43% men, 57% women; 2019–2021: 38% men, 62% women) than previously (2012–2014: 73% men, 27% women). This indicates that more consideration has been given to gender balance over time; in particular, this has been one of the explicit criteria considered when inviting keynote speakers in more recent times.

It is interesting to note that there is a much greater proportion of male applicants for the Postdoctoral Medal (67%) and Prominent Lecturer Award (80%) than the proportion of male recipients (50:50 in both cases). This could indicate that men are more confident in putting themselves forward while women only apply when they feel that they have a strong case. Indeed, several studies suggest that, amongst women and men of equal performance, women will be less likely to enter a competitive environments (e.g. Niederle and Vesterlund, 2007; Bosquet et al., 2013). However, it is worth noting that, for these two awards, numbers are quite small as they were established in 2016 and the recipient pool counts only one person per year for each award. Hence, the statistical significance of these numbers is limited and they must be discussed with care.

There is a greater proportion of female travel bursary recipients (63%) than male, but this mostly reflects the greater proportion of women applying to these bursaries (59%). Unlike for the awards, a large proportion of the travel bursary applications are funded which, together with the overall larger dataset, explains why the recipient pool better reflects the applicant pool in this case. The proportion of GGRiP student-prize recipients is also greater for women (66%; more women than men were awarded a student prize at GGRiP every year since 2015, except in 2019), although this is more complicated to explain.

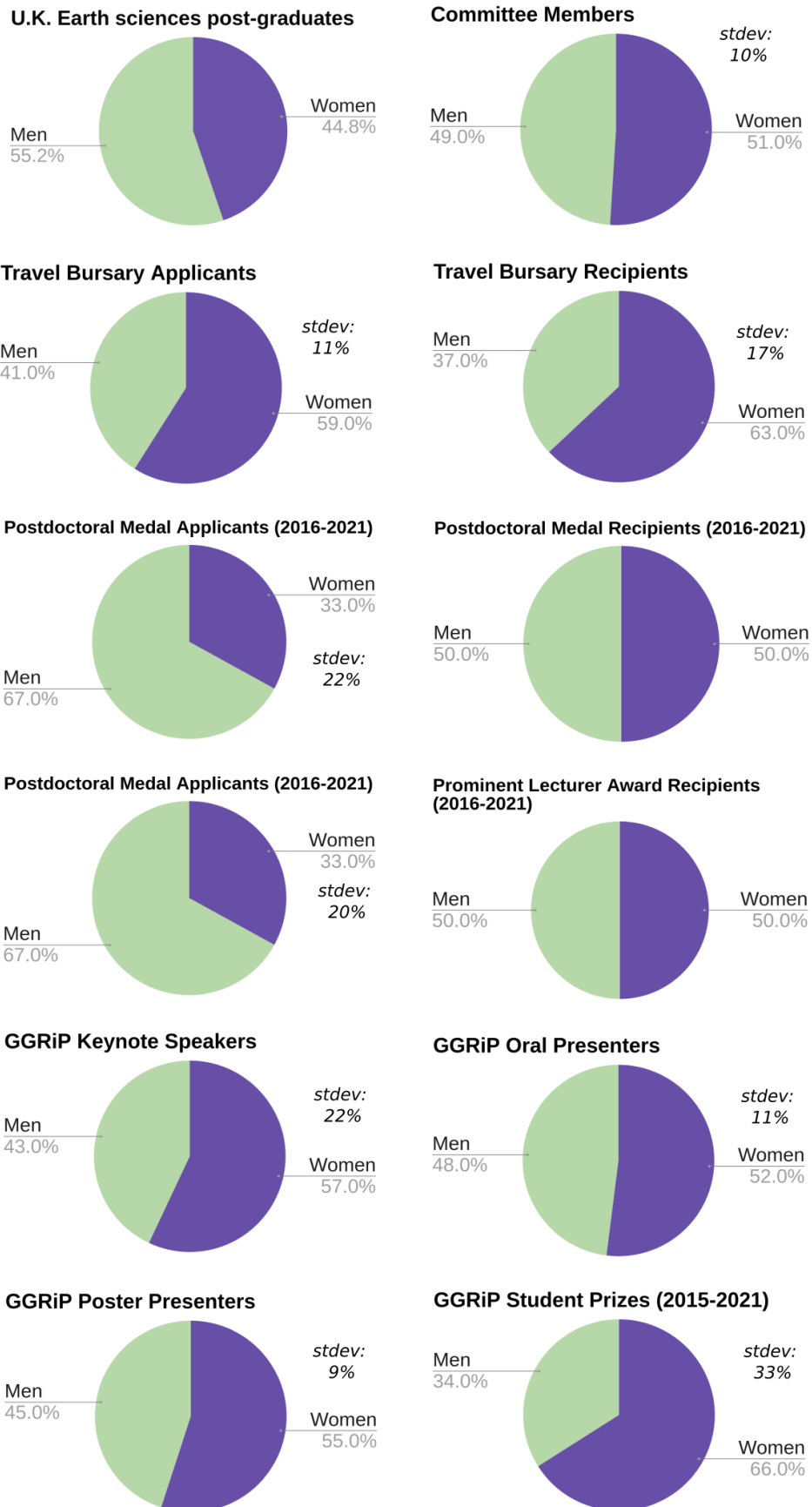


Figure 2.1: Gender balance in the different domains covered by the Geochemistry Group. 'stdev' shows the year-on-year standard deviation from the 10-year average proportion, except for the awards recipients as there is only one recipient per year. The data cover the 2012-2021 period unless otherwise specified. The Geochemistry Group recognises that gender is non-binary and that 'Women' and 'Men' categories are only a partial representation of gender diversity; other gender identities are not represented here due to the absence of data.



Figure 2.2: Ethnic diversity in the different domains covered by the Geochemistry Group. The data cover the 2012-2021 period unless otherwise specified.

2.2 Ethnicity

Figure 2.2 illustrates the ethnic diversity within Geochemistry Group activities, averaged over 10 years. As mentioned previously, the ethnicity data for those involved in Geochemistry Group activities are sparse, so the trends presented in figure 2.2 must be discussed with care as they often rely on a very small number of individuals.

That said, compared to the HESA data (~8% BAME), there is a particularly low proportion of BAME people amongst GGRiP keynote speakers (4%) and there has never been a BAME applicant to the Prominent Lecturer Award. Furthermore, the 6% of BAME committee members are explained by only 2 individuals over 10 years, suggesting that, despite a proportion close to that of the HESA data, the Geochemistry Group committee has not been particularly successful at encouraging people from diverse backgrounds to join. Similarly, the Postdoctoral Medal numbers (11% of BAME applicants and 13% of BAME recipients) are actually explained by only one individual.

The 4% of BAME keynote speakers at the GGRiP meeting highlight the effort made since 2019 to improve diversity (there were no BAME keynote speaker between 2012 and 2019), which was also noticeable in the evolution of the gender balance of keynote speakers (cf. section 2.1).

Ethnicity data for oral presenters at the GGRiP meeting were available for just four years, spread out over the past decade (2013, 2016, 2017 and 2021). Nonetheless, they show a greater proportion of BAME presenters (18%) than amongst the UK Earth Sciences post-graduate community. This encouraging representation of BAME early career researchers at GGRiP demonstrates the relevance of this meeting focused on early career researchers (ECR) in supporting diversity amongst the UK geochemistry community.

There is also a greater proportion of BAME early career researchers who applied (19%) and were granted (22%) travel bursaries than the overall proportion of BAME ECR involved in the other domains covered by the Geochemistry Group. Although ethnicity data for travel bursaries was only available from 2019 onwards and is potentially strongly affected by the pandemic, this may reflect the fact that students from overseas who attend a British or Irish university, and students from minority groups in general, tend to have more precarious/limited funding and consequently tend to have a greater need for additional conference funding. Thus, over the 3 years in question (2019, 2020, 2021), 66% of the BAME ECRs who were granted a bursary were Chinese students on CSC scholarships which do not cover conference attendance costs. It is necessary to keep monitoring the characteristics of travel bursary applicants and recipient in the coming years to confirm this trend.

2.3 Host institution

Although this is not a traditional criterion in EDI studies, the distribution of those taking part in Geochemistry Group activities by host institution and nation is relevant as it may reveal biases in the way that these activities, and more particularly the awards and bursaries, are promoted in the various British and Irish institutions within the remit of the Geochemistry Group.

In this context, for comparison purposes, it is important to note that HESA data covers only the United Kingdom, whereas the Geochemistry Group remit includes Éire (Republic of Ireland) as well.

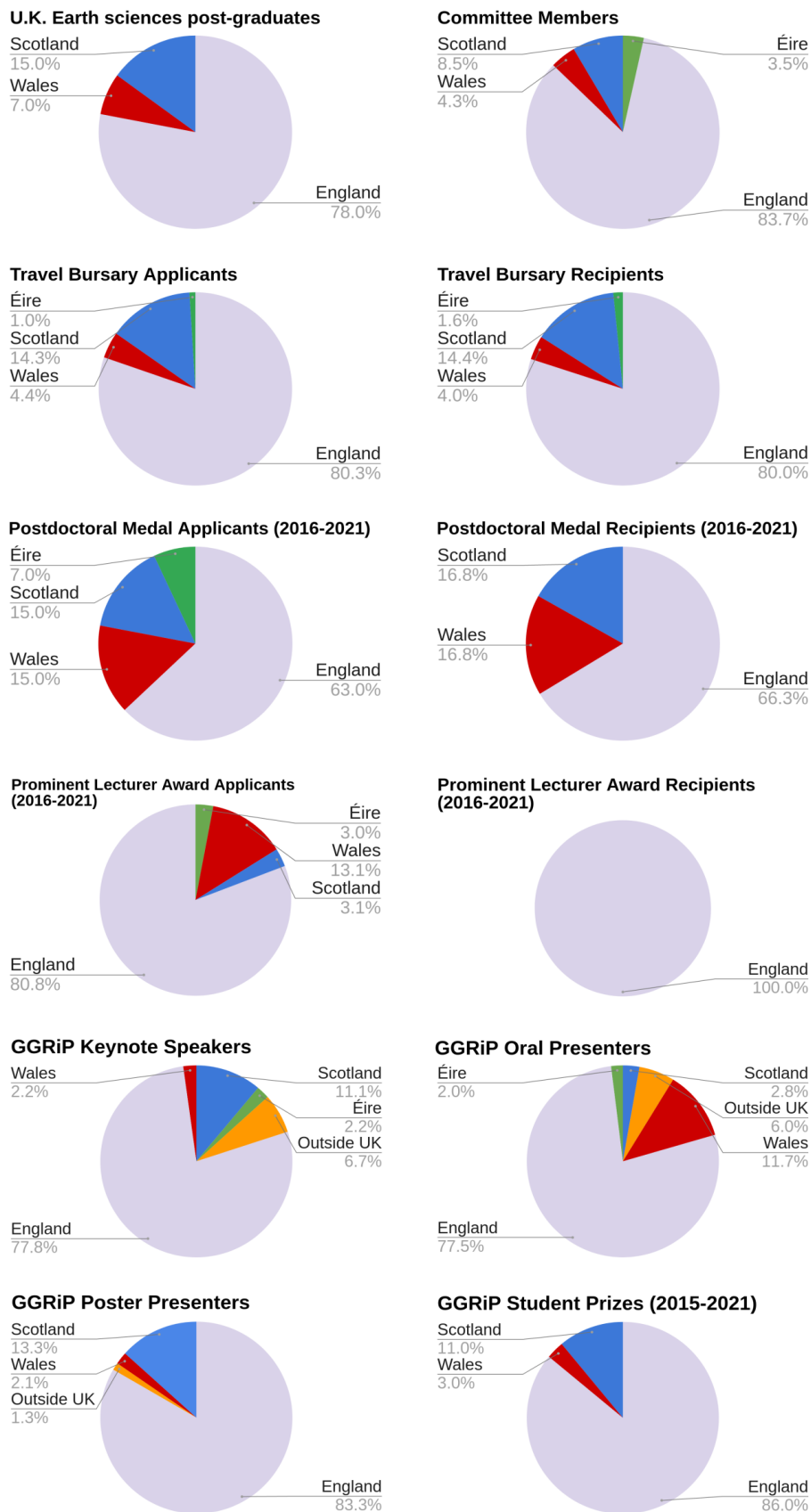


Figure 2.3: Location of the host institutions of those involved in the Geochemistry Group activities. The data cover the 2012-2021 period unless otherwise specified.

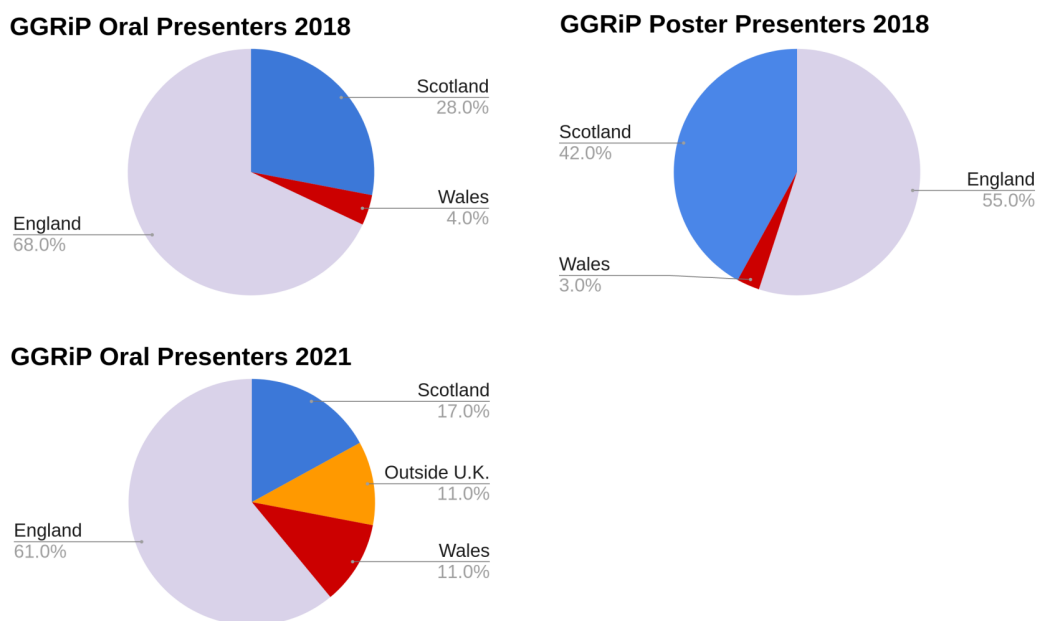


Figure 2.4: Location of the host institutions of the presenters at GGRiP 2018 and 2021.

The island of Ireland is seldom represented overall in the Geochemistry Group activities and only by Irish universities, mostly due to the limited geochemistry community present in Northern Ireland as illustrated by the HESA data (figure 2.3).

The GGRiP meeting attendance has been dominated by institutions located in England (figure 2.3), however there were much larger proportions of presenters from outside of England both at GGRiP 2018, which took place in St Andrews, and GGRiP 2021, which was online (figure 2.4). This demonstrates the importance of regularly running GGRiP at locations outside of the southern England area, to encourage the attendance of early career researchers from Northern England and from the rest of the UK and Éire.

The host institutions of the applicants and recipients of the conference attendance bursaries show a similar distribution throughout the UK to the host institutions of the graduate students from the HESA survey (figure 2.3). In contrast, there were greater proportions of applicants and recipients of the Postdoctoral Medal from nations other than England, while England appears over-represented within the Prominent Lecturer Award applicants and recipients. Yet, the significance of these observations may be limited due to the small sample size, given that these awards have existed for only 5 years. Interestingly, when the numbers for both awards are combined, which is relevant considering that they are advertised simultaneously to the same ECR population, there is a more balanced geographical distribution of the host institutions (award applicants: England 72%, Wales 14%, Scotland 9%, Éire 5%; award recipients: England 83%, Wales 8%, Scotland 8%, Éire 0%).

Moreover, the presence of a committee member in an institution may have a greater impact than the location of that institution on the number of early career researchers applying for bursaries/awards (figure 2.5). This is likely to be explained by the fact that committee members actively promote Geochemistry Group bursaries and awards within their own departments. Similarly, attendance at

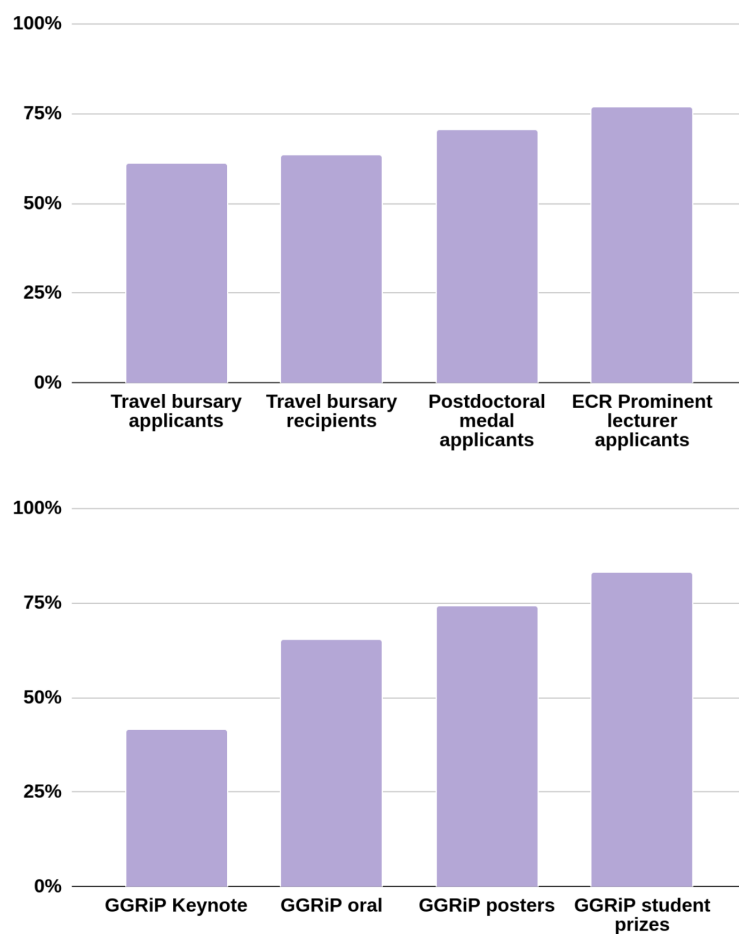


Figure 2.5: Proportion of those involved in the Geochemistry Group activities who are hosted at the same institution as a committee member.

GGRiP will be encouraged by committee members, which explains the large proportion of both oral and poster presentations by ECRs from the same institution as a committee member. This confirms the importance of having a diverse committee, with committee members coming from a wide range of institutions within the UK and Ireland, to relay information about Geochemistry Group activities. This also suggests a limited efficacy of the Geochemistry Group University Champion scheme that was aimed at promoting the Group's activities within institutions with no committee member.

3 Conclusions and actions

The Geochemistry Group data covering the 2012–2021 period demonstrates that there seems to be a representative and fair women:men gender balance within the Geochemistry Group activities, but there is a critical lack of information preventing us from properly evaluating and discussing EDI issues beyond this. Therefore, going forward it is crucial to improve/target data collection to better our understanding of EDI dynamics within the Geochemistry Group activities. This has already been set

in motion in 2022 with EDI questionnaires being sent to the bursary/award applicants, as well as to those registering for GGRiP. However, it is essential that this data collection process is implemented carefully to respect people's privacy; the Geochemistry Group has to guarantee that responses to EDI questionnaires are treated confidentially and that stored data are kept anonymously

Nevertheless, the data presented in this report suggest several opportunities for improvement, some of which the Geochemistry Group has already been implementing over the past year. Until recently, the Geochemistry Group committee had limited input and involvement from people with diverse backgrounds. This has mostly been the result of a lack of applicant diversity. To remedy this, the committee now assures that all open positions are widely advertised on the Geochemistry Group social media, website, and through a 'University Champions' mailing list. However, this could still be improved further. In 2021–2022, the chair of the Geochemistry Group, Marc-Alban Millet, actively encouraged individuals from less represented institutions and wider ranging backgrounds to apply for committee positions. This was a significant effort but it bore fruit; the hope is that it shows that the committee actively wants to engage and generate involvement with people from diverse backgrounds and that it creates a new, more welcoming dynamic.

Regarding award applications, specific advertisement at GGRiP could encourage early career researchers to informally discuss a potential application with a committee member, at the meeting or by email, and subsequently to apply the following year. More generally, when it comes to GGRiP meetings, the recent effort to increase the diversity of keynote speakers (GGRiP 2021 and 2022) should be continued. In order to help with speaker selection, it would be useful to keep and regularly update a list of potential keynote speakers that would include more diverse researchers, from a wider range of institutions. It is also essential to keep developing an inclusive environment at meetings. Measures such as keeping the meeting hybrid, to facilitate the attendance of those who can not easily travel due to either caring responsibilities, health problems or financial constraints, and improving the meeting accessibility by publishing information during the registration process and providing presentation guidelines, were implemented at the 2022 GGRiP in Cardiff. Moreover, the meeting organisers should ensure that all the activities/rooms are as accessible as possible by default, so that people do not feel compelled to disclose a disability (while leaving the options to contact the Geochemistry Group EDI officer should greater levels of accommodation be needed). When organising future meetings, the Inclusivity Protocol of the Geological Society of London may be used as a guide to make sure that the inclusivity of the different aspects of the event has been considered, and buildings accessibility can be checked further using tools such as the [UCU accessibility checklist](#).

In addition, the Geochemistry Group is currently developing new resources to support early career researchers. These resources aim at reaching a diverse group of ECRs from a wide range of Geoscience departments to provide them with the tools and opportunities to expand their academic and non-academic prospects. They should complement the resources offered by each institution and help 'level the playing field' across Earth Sciences departments and research groups. Two series of ECR-focused online workshops have already been running over the past year, the 'Skills' and 'Out of Academia' series. A mentoring program is due to start in 2023 and the Geochemistry Group

is considering setting up an internship program for undergraduate students, focused on increasing diversity in all geochemistry-related fields of study relevant to the Mineralogical Society and the Geological Society.

The ongoing discussions and future actions of the Geochemistry Group aiming to create a more inclusive and diverse environment will be conducted in synergy with the actions instigated by the Geological Society of London and those instigated by the Mineralogical Society of the UK and Ireland following up on the survey they carried out in 2021. In particular, the Geochemistry Group EDI officer will join the newly created Mineralogical Society EDI committee.

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