



#### Athena SWAN Bronze department award application

**Name of university:** Cambridge

**Department:** Earth Sciences

**Date of application:** November 2015

**Contact for application:** Professor David Hodell

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Athena SWAN **Bronze Department** awards recognise that in addition to university-wide policies the department is working to promote gender equality and to address challenges particular to the discipline.

#### **Section 1 - Letter of endorsement from the head of department**

*An accompanying letter of endorsement from the head of department should explain how the SWAN action plan and activities in the department contribute to the overall department strategy and academic mission.*

*The letter is an opportunity for the head of department to confirm their support for the application and to endorse and commend any women and STEMM activities that have made a significant contribution to the achievement of the departmental mission.*

[483/500 words]

**Professor James A. Jackson, FRS**  
Head of Department  
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2 December 2015

We<sup>1</sup> enthusiastically support this application and are committed to the principles embodied by the Athena SWAN charter. We are convinced they are essential for the future success of our Department.

Preparing our application for the Athena SWAN Bronze award has been immensely beneficial, allowing us to review current working practices and to focus on those that can, and should, be improved. The staff survey we commissioned highlighted areas for improvement, providing invaluable feedback. We have an ambitious action plan with initiatives that will foster equality, welcome diversity, and enhance the support offered to all Department members.

Like many physical science Departments, we are challenged by a low proportion of female academic staff (4 of 31, not including 2 new female lecturers not yet in post). Most concerning is the fact that this proportion has remained static for ten years. The bottlenecks in our 'leaky pipeline' are from postgraduate to postdoc and from postdoc to lecturer. To tackle and eradicate potential bias we have changed our recruitment and hiring practices. We now generate two gender-specific short lists from which candidates are selected for interview. Under this scheme, the last two searches have led to the appointment of two women lecturers in geochemistry and seismology. We are committed to continuing to redress the imbalance in proportion of female academic staff.

Historically, the Department has operated informal systems in certain areas (induction, evaluation, promotion, career opportunities). We are working towards codifying these systems to guarantee good practice across all aspects of training and support; we have developed a new appraisal system, so that academic staff and postdocs have regular and appropriate mentoring and career-development discussions.

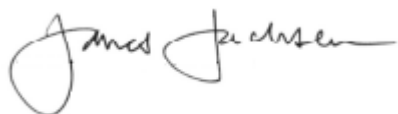
During my (James Jackson) tenure as Head of Department, I have taken personal responsibility for preparing individuals to apply for promotion, and am pleased to report that four women have been promoted in the last three years (1 to Professor and 3 to Readerships, although two of these take effect October 2015 and are not reflected in the data in this submission). As incoming Head of Department, I (Simon Redfern) will personally ensure that our new promotions committee will annually review the position of all eligible academic staff and

encourage individuals to apply for promotion when they have gained sufficient experience and expertise.

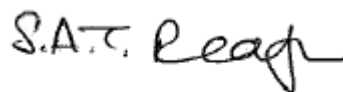
The Department physically operates across two sites, which requires careful management to ensure collaboration and equal opportunities across both. Our longer-term plan (5-7 years) is to merge into a single facility to include an on-site nursery.

We have already begun to realize positive outcomes from the Athena SWAN process. Our action plan offers a clear path towards enhancing the support that we offer members of the department, developing a welcoming and congenial environment in which all individuals thrive, to ensure the continued success of the Department. Our self-assessment, made as part of this application, has helped us to identify the next steps we must take to move forward.

James A. Jackson  
Head of Department

A handwritten signature in black ink, appearing to read 'James A. Jackson', written in a cursive style.

Professor Simon Redfern  
(HoD effective October 2106)

A handwritten signature in black ink, appearing to read 'S.A.T. Redfern', written in a cursive style.

<sup>1</sup>Leadership of the Department will change in October 2016 and, consequently, this letter is co-authored by both the incumbent and incoming Heads of Department.

## Section 2 - The self-assessment process

### ***Section 2-a - A description of the self assessment team: members' roles (both within the department and as part of the team) and their experiences of work-life balance.***

[999/1000 words] [excluding Table 1]

The Department of Earth Sciences' self-assessment team (SAT) is led by Professor David Hodell. The membership of the SAT is drawn from both the Downing and Bullard sites of the Department and includes male and female academic staff, representation from academic-related and support-staff groups, a postdoc, a graduate student, and a consultant from the University's Equality and Diversity (E&D) office.

*Table 1. Self Assessment Team (SAT) Membership , now called the Equality and Diversity Committee (E&D Committee), Staff based at Downing Street in Red, Staff based at Bullard in Blue and Staff split between the two sites in Green. \* indicates new panel member since last submission.*

SAT Member	Role	Relevant Experience
Dr Laura Bonesi	Research Grant Administrator	<ul style="list-style-type: none"><li>• Works part-time in the Department since 2012.</li><li>• Mother of two children born after PhD completed. Took 3-year maternity break.</li><li>• In a dual career family with husband working as a Cambridge University Professor.</li></ul>
Dr Andy Buckley	Department Administrator	<ul style="list-style-type: none"><li>• Employed by University for 30+ years</li><li>• Five years in senior administrative role responsible for all aspects of Department HR.</li><li>• Parent of Y8 child, partner holds a senior role in a different part of the University.</li></ul>
Professor Michael Carpenter	Professor of Mineralogy and Mineral Physics.	<ul style="list-style-type: none"><li>• Member of staff for 30+ years, Fellow Magdalene College.</li><li>• Wife is a Professor in the University.</li><li>• Shared care of two children, now in 20's.</li></ul>
Mr Kevin Coutinho	Equality & Diversity Consultant.	<ul style="list-style-type: none"><li>• Assigned Contact to the Department.</li><li>• Member of the University Equality &amp; Diversity team.</li></ul>

Dr Andrea Erhardt*	Postdoc Researcher	<ul style="list-style-type: none"> <li>• Postdoc with some teaching commitments.</li> <li>• Mother of two children ages 6 and 3 born during PhD</li> <li>• Starting a tenure-track faculty position in the US in autumn 2016.</li> </ul>
Dr. Charlotte Gladstone*	Academic Related Staff (Bullard)	<ul style="list-style-type: none"> <li>• Permanent research-based position and manager of research labs at the Bullard Site.</li> <li>• Two 6-month blocks of maternity leave, one when a postdoc. Currently 80% Full Time Employment.</li> <li>• Co-parents children (ages 3 and 10) with dual-career partner.</li> </ul>
Professor David Hodell	Woodwardian Professor of Geology, Chair of the Self-Assessment Team	<ul style="list-style-type: none"> <li>• Member of the School of Physical Sciences' Equality and Diversity Committee.</li> <li>• Leads active research group, PI on ERC Advanced Grant.</li> <li>• Dual-career civil partner who works at SOAS, University of London, no children.</li> </ul>
Professor James Jackson*	Professor of Geophysics, Geodynamics, and Tectonics Head of Department	<ul style="list-style-type: none"> <li>• Member of academic staff for 31 years and Head of Department for past 7 years</li> <li>• Wife works in graduate support and training in the University and is a tutor in a college, two grown children</li> <li>• Supervised 21 PhD students, 8 of them female</li> </ul>
Ms Lucy Matthews	Staff Welfare and Safety Coordinator (SAT Coordinator).	<ul style="list-style-type: none"> <li>• Joined the Department in 2012 in a part-time role.</li> <li>• Two children and full time job as scientific manager for much of career.</li> <li>• Paid additional hours to facilitate the Athena SWAN application.</li> </ul>
Ms Camilla Penney*	Research Student (Bullard)	<ul style="list-style-type: none"> <li>• PhD student</li> <li>• Undergraduate degree from 2010-2014 at Cambridge, including first year Earth Sciences and multiple summer projects at Bullard.</li> </ul>

Professor Simon Redfern*	Professor of Mineral Physics, Head of Department effective October 2016	<ul style="list-style-type: none"> <li>• A member of the Department for 28 years.</li> <li>• Married, spouse is a Research Assistant and Editor, with shared care of two daughters and a son, all in full time education.</li> <li>• Supervised 26 PhD students, 15 of them female.</li> </ul>
Dr Alexandra Turchyn	University Reader (effective October 2015)	<ul style="list-style-type: none"> <li>• University Reader and Staff fellow at a College, including role as Director of Studies. PI on ERC Starting Investigator Grant.</li> <li>• Mother of three children (9, 6, and 3) born after PhD completed.</li> <li>• In a dual-career marriage.</li> </ul>

***Section 2-b - an account of the self assessment process: details of the self assessment team meetings, including any consultation with staff or individuals outside of the university, and how these have fed into the submission.***

The decision to apply for an Athena SWAN Bronze Award was taken in July 2013. The Chair of the E&D committee was appointed by Professor James Jackson. The Department appointed a paid coordinator, Ms Lucy Matthews, to collect data, organise meetings and collate documents.

Committee timeline:

July 2013	Monthly SAT meetings commenced
October 2013	Decision to apply discussed at the Department meeting
Jan, March, Oct 2014 and April, Oct 2015	Presentations to Department meetings included: <ul style="list-style-type: none"> <li>• Progress of application</li> <li>• Staff survey plans</li> <li>• Staff survey outcome</li> </ul>
2014/2015	Athena SWAN application and implications discussed at meetings of the department's Advisory Committee
Nov 2014	Initial submission for Bronze Award
Jan 2015	E&D meeting to progress Action Plan
April 2015	Bronze award unsuccessful
May 2015	E&D committee expanded to include members from the Bullard Site and future Head of Department
May – Nov 2015	E&D committee meet twice a month to prepare resubmission

The Chair of the E&D Committee, Professor David Hodell, is also a member of the School of Physical Sciences Equality and Diversity (E&D) Forum and thus good practice from Earth Sciences is shared widely within the School of Physical Sciences **[AP 8.1C]**. The School of Physical Sciences also has two E&D School Champions who meet termly with the Earth Sciences E&D Committee **[AP 8.1D]**.

### ***Section 2-b-(i) The self-assessment team meetings:***

For this submission, meetings have been held twice a month, including a sub-group meeting at the Bullard Site. Minutes of all meetings are published on the Department's intranet. The responsibility for writing the document was divided among group members with all contributing to developing the Action Plan.

### ***Section 2-b-(ii) Consultation with staff:***

Prior to the initial submission, the E&D committee created and administered an anonymous staff survey for **all** members of the Department, including post-graduates, to collect data on a variety of issues.

- The survey was modelled after ones administered by the School of Biological Sciences and Department of Chemistry.
- Following the Department's survey, the School of Physical Sciences undertook a survey modelled after ours with many common questions. This will allow future benchmarking.
- Areas covered in our survey included:
  - Induction and Probation
  - Feedback
  - Training and Development
  - Career Progression
  - Senior Academic Promotions
  - Leadership and Management
  - Work-Life Balance
  - Flexible Working
  - Core Hours
  - Caring Responsibilities
  - Pay and Benefits
  - Equality and Diversity
  - Bullying and Harassment
  - Communication.
- The survey was open for three weeks during January 2014 and analysed in February 2014 by an external consultant statistician.
- The response rate on the survey was 78%. While 10.3% did not identify their gender, of the rest 53.4% were male and 46.6% were female.
- The survey results were presented at the March 2014 E&D committee meeting, published on the Department intranet and comments were invited. The key results were:
  - People are generally happy with the Department and find it a friendly and collegial work environment and supportive of flexible working.
  - There has been an informal approach to appraisals and people would like more formal constructive feedback.
  - There are too few female academics, which may highlight problems with our recruitment and hiring processes. The gender imbalance provides too few role models for postgraduates and postdocs.

- The responses to each question were analysed by gender, age group, staff group and site using an ordinal logistic regression model. Survey results and comments from the survey are included in this submission.
- The survey results provide a valuable benchmark for a follow-up survey to assess progress **[AP 8.2C]**.

One of the challenges associated with being a smaller department is that some categories of staff are small in number. While we had enough postgraduate students and postdocs to be able to examine male and female replies separately, for academic staff, the small sample size did not allow gender disaggregation without compromising anonymity. Therefore, Dr Turchyn arranged informal discussions with all female academics to gain their insight into Athena SWAN issues; summaries from these discussions are included in this submission.

In October 2014 and October 2015, a draft of the Athena SWAN application was prepared for the Department Meeting and emailed to all Earth Sciences staff, welcoming comments from everyone. Approximately 20% of staff gave feedback. In October 2015, a large MindMap of our Action Plan (see appendix A) was made available in the Common Rooms of both the Downing and Bullard sites, promoting discussion over coffee. Furthermore, prior to submission of the initial and current applications, other members of the University reviewed our documentation and provided feedback, including the School of Physical Sciences E&D Champions and others who have sat on panels and have experience in evaluating Athena SWAN submissions.

All of the above feeds into our Action Plan (**see appendix A**). Specific action items are cited in the text according to their numeric designation in the Action Plan **[e.g., AP X.Y]**

***Section 2- c-Plans for the future of the self-assessment team (i), such as how often the team will continue to meet, any reporting mechanisms and in particular how the self assessment team intends to monitor implementation of the action plan (ii).***

#### ***Section 2-c-(i) The future of the self-assessment team***

Following the original submission in November 2014, the self-assessment team transformed into the Department of Earth Sciences Equality and Diversity (E&D) Committee with revised terms of reference **[AP 8.1A]**. The composition of that committee will be reviewed annually to ensure broad representation from all parts of our Department **[AP 8.1B]**; it will meet twice every term, and will report to the Head of Department, the Departmental Advisory Committee and at the Department Meetings **[AP 8.1A]**. Minutes will be published on the intranet. This reporting will ensure that progress is made on the actions outlined in this submission **[AP 8.2]**.

#### ***Section 2-c-(ii) Implementation of the Action Plan***

The Action Plan is a living document; the bi-termly meetings of the E&D committee will include a progress review of timed activities in the Action Plan **[AP 8.2A,B]**. The implementation of the Action Plan will be the responsibility of the department administration (Head of Department, Departmental Advisory Committee) in cooperation with the E&D committee.



## Section 3 - A picture of the department

[1976/2000 words] [excluding Figure 1]

### ***Section 3-a - Provide a pen-picture of the department to set the context for the application, outlining in particular any significant and relevant features.***

The University of Cambridge is organised into six academic schools that sit alongside the Colleges and the central administration within the University; the Department of Earth Sciences is part of the School of Physical Sciences (see Fig. 1). The Department's research is loosely grouped into five thematic areas:

- Climate
- Geophysics
- Mineral Sciences
- Paleobiology
- Petrology

We offer a four-year undergraduate degree under the "Natural Sciences course" – a diverse course offered at the University of Cambridge comprising Physics, Chemistry, Earth Sciences, Materials Science, and Biology. The Department physically operates across two sites: the Downing Site in the centre of Cambridge and the Bullard Site on the NorthWest Cambridge campus, around 2 miles away (30 minute walking, 10 min. by bicycle, 30 min. bus and 15 min. car). The Downing Site accounts for 2/3 of academics, postdocs and postgraduate students, and almost all support staff. All undergraduate teaching takes place on the Downing Site. The Bullard Site accounts for 1/3 of the academics, postdocs and postgrads. This split-site arrangement requires careful management to ensure interaction between members via teaching, seminars, social events, jointly-supervised postgrads, and active research collaborations. Several Academic staff, including the Head of Department have offices on both sites. We have a defined organizational structure and regularly review the age and gender profiles on both sites [AP 8.2E]. An organised active social group within the Department also provides an informal support structure for both sites as well as opportunities for induction and networking across the Undergraduates, Postgraduates, Postdocs and Academic Staff.

The longer-term plan is to merge the two sites at a single location in NorthWest Cambridge; the time frame is 5-7 years. Land has been identified and approved by the University, architectural plans drawn up, and the current focus is on securing project funding. The move to a joint site is supported by the Department; only a third (28.4%) of the survey respondents agreed that there was effective cooperation between the two sites, and common comments included "The split between the two sites is a real barrier to collaboration between members of the department. I would like to see us all on one site in the future." The E&D committee is playing an active role in the planning process and an integral part of the new department will be onsite nursery provision [AP 8.2E, 5.3B].

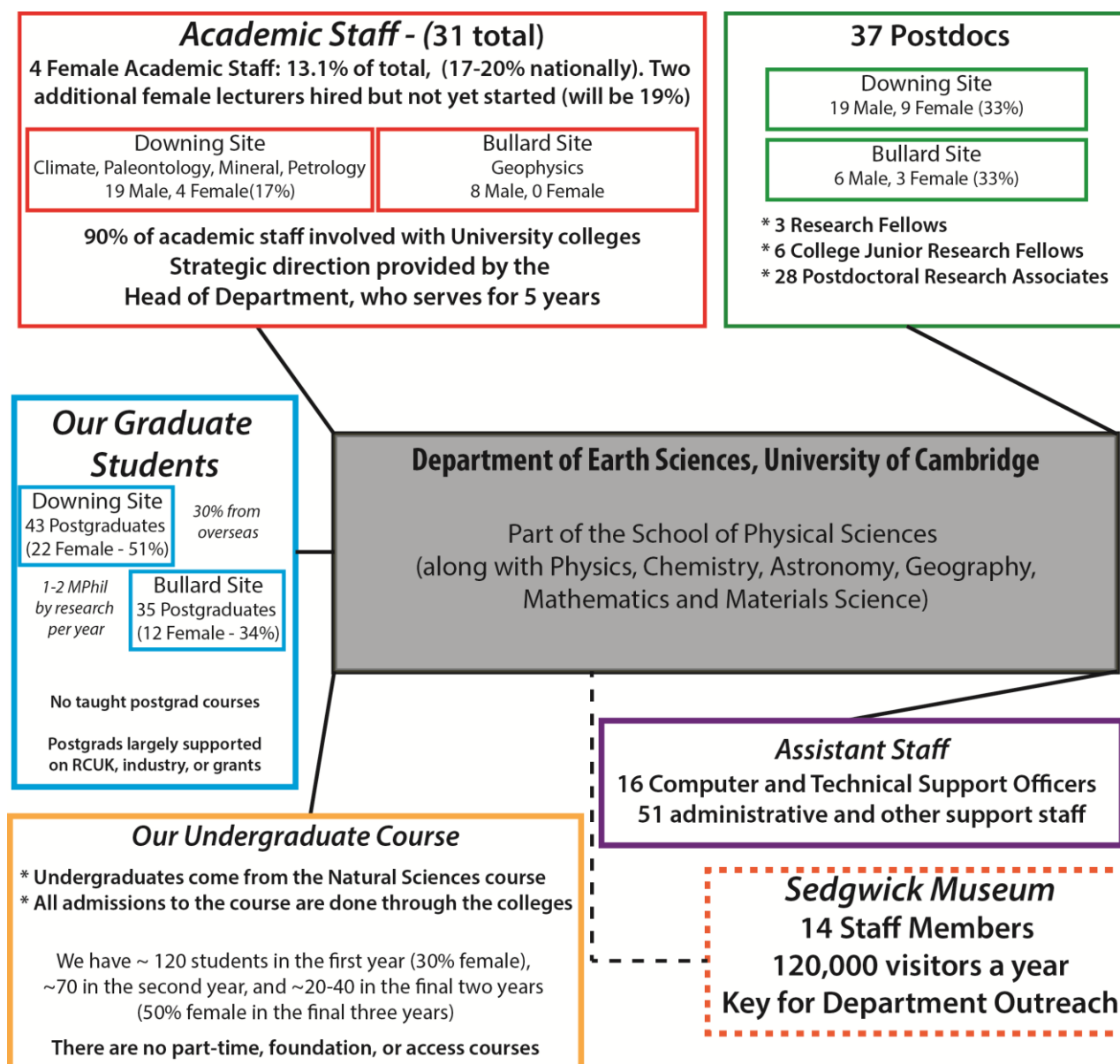


Figure 1. Overview of the Department of Earth Sciences. Data for the national average for academic staff taken from the Higher Education Standards Agency (HESA)

The excellence of the individual academics and strong multi-disciplinary collaboration has made the Department an internationally leading centre for research. The 2008 Research Assessment Exercise placed us first among Earth Science departments in the UK, and we were second equal in the 2014 Research Excellence Framework (REF).

### Section 3-a-(i) Teaching:

#### Undergraduate course

Cambridge does not run access or foundation or part-time undergraduate courses.

Our aim is to provide an undergraduate course suitable for the best students, reflecting the Department's ambition to be a centre of excellence on both the national and international stage.

The undergraduate courses provided by the Department are under the umbrella of the University's Natural Sciences course. We accept all students who choose Earth Sciences from within the Natural Science course but **admission to the Natural Sciences Course is determined by the 31 independent Colleges**. The Department recruits Earth Science specialists throughout the first two years of the undergraduate course and we are able to attract a significant number of students from other disciplines into Earth Sciences.

At Cambridge, all undergraduate students are members of a College (which are separate legal entities and are governed by their own statutes and regulations). One of their responsibilities is to select and admit undergraduates. Therefore, it is the Colleges, and not the university or individual departments, that oversee all undergraduate recruitment. Students apply to a specific College, which then chooses who to bring to interview and whether to follow with an offer. Although department members with college fellowships may be involved in interviewing, individual departments do not select which students get offers. Central University data from College Admissions suggests more males apply to study Natural Sciences than females (see Section 3b).

Natural Science students take four subjects in their first year; a mathematics course plus three elective courses. Over the past 5 years the number of students enrolled from the Natural Sciences Course into our first year Earth Sciences course has varied between 95 and 114. Our academic staff who are College fellows (27/31) encourage uptake of Earth Sciences in the first year by promoting the subject in the Colleges to students arriving to study the Natural Sciences Course **[AP 7.2]**. In the second year, the number of students studying Earth Sciences typically falls to around 50-70 as students begin to specialize within the Natural Science course. We work on recruitment and retention of students in Earth Sciences at this transition. To attract female students to continue in Earth sciences, we:

- (1) arrange that female staff contribute to undergraduate teaching **[AP 7.2A]**;
- (2) ensure that all of our field trips include female staff/demonstrators **[AP 7.2A]**;
- (3) discuss the obstacles facing females in careers in Earth Sciences with undergraduates **[AP 7.2B]**;
- (4) provide female role models by: encouraging female alumni to return to the Department to promote career opportunities for our students **[AP 7.3A]** and featuring profiles of past and present female members of our department **[AP 7.3B]**.

Our third-year class, which is the first time that students can clearly be identified as Earth Scientists within the Natural Sciences course, is generally around 30 students; most of these proceed to the fourth (Masters) year. Across all years, there are around 250 undergraduates passing through our doors on a weekly basis. All teaching that is under control of the Department is flexible, that is lecturers can move lectures and practical times as needed to support flexible working.

We have recently funded a professionally produced promotional video, which is targeted at all incoming students studying Natural Sciences at Cambridge with the objective of attracting more students to select the first-year course in Earth Sciences from within the Natural Science Course. ([https://www.youtube.com/watch?feature=player\\_detailpage&v=sUj4as55658](https://www.youtube.com/watch?feature=player_detailpage&v=sUj4as55658))



*Screen shot of promotional video made to attract students in Earth Sciences.*

### **Section 3-a-(ii) Research students:**

#### **Postgraduate course**

We offer no taught postgraduate degrees. Thus, the only postgraduate degrees we offer are PhD (15-25 students per year) and MPhil by research (1-2 students per year) and currently all our students are full time although we have accommodated part-time students in the past. Most of our postgraduate students are financially supported by: university or college studentships, grants from Research Councils, the European Union, industry and charities.

An integrated educational framework aims to build transferable skills in communications, teamwork and ethics. The Department supports attendance at scientific conferences and other scientific events.

### **Section 3-a-(iii) Staffing strategy**

#### **Staff**

The identification and recruitment of the highest quality, most able and creative researchers internationally, followed by their mentoring, encouragement and support is the cornerstone of the Department's staffing strategy. Our academic staff have backgrounds ranging from solid-state physics to zoology. Over the next four years we anticipate refilling four academic posts that will become vacant due to retirements, and we will be working hard to attract well-qualified female applicants [AP 1]. The Department and the School recognise the importance of start-up packages to attract the best staff from an international pool.

### ***Section 3-a-(iv) Staff development:***

Staff development is described in depth in Section 4 commencing on page 25 but in brief includes:

- Annual career development meetings (appraisals)
- Access to a wide range of University initiatives
- Mentoring of all new academic staff through probation
- Working closely with staff aiming for promotion

***Section 3-b Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.***

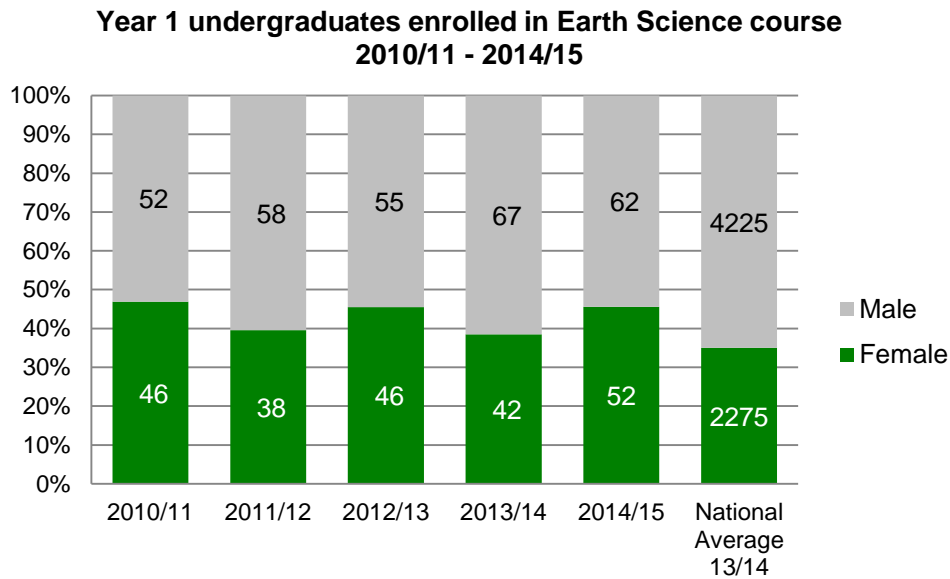
#### ***Student data***

***Section 3-b-(i) Numbers of males and females on access or foundation courses – comment on the data and describe any initiatives taken to attract women to the courses.***

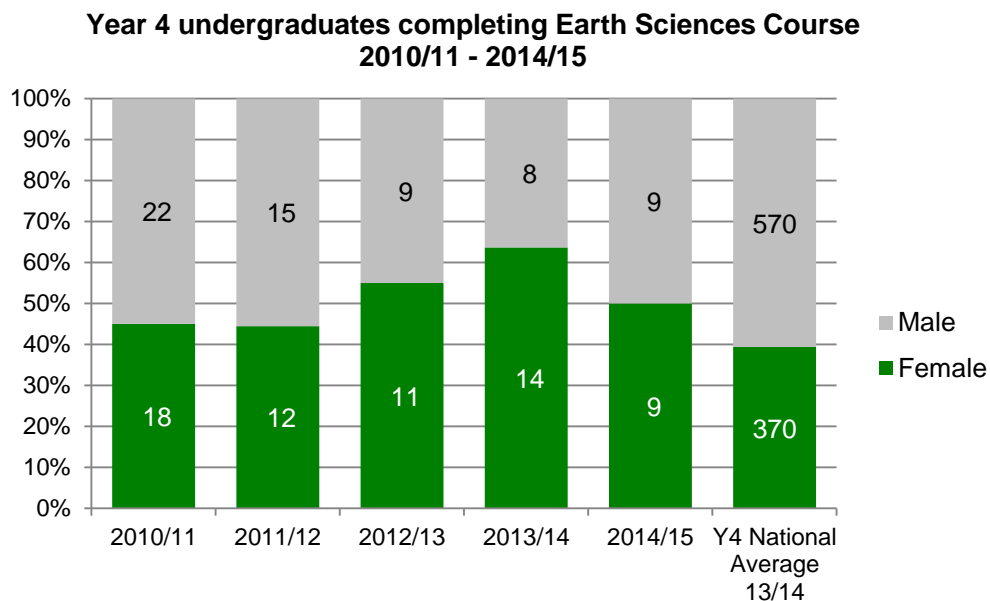
Cambridge does not run access or foundation courses.

***Section 3-b-(ii) Undergraduate male and female numbers – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the impact to date. Comment upon any plans for the future.***

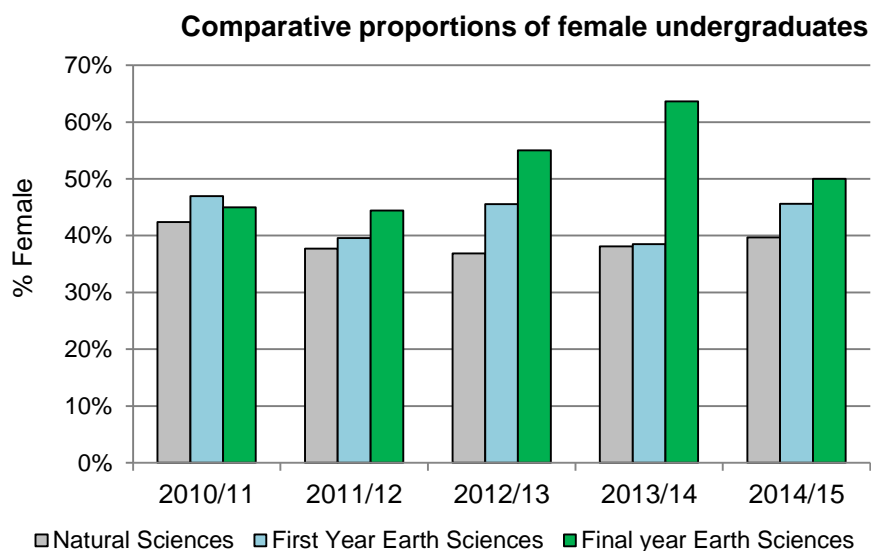
The percentage of female students studying first year Earth Sciences, where the intake is decided by colleges (e.g. 2013/14 - 42% - Fig. 2) is comparable to the percentage of female students in the first year of the Natural Sciences Course (e.g. 2013/14 – 38% - shown in Fig. 4, next page) and generally above the national average (Fig. 2). By the fourth year of our undergraduate course, the percentage of females taking Earth Sciences has increased to ~50% (Fig. 3).



*Figure 2. The gender makeup of students in the Natural Science Course taking the first year course in Earth Sciences. Intake into the Natural Sciences Course is determined by the colleges but the Department actively recruits students from the Natural Sciences Course to take Earth Sciences in Year One. The national average is taken from the Higher Education Statistics Agency (HESA).*



*Figure 3. The gender distribution of undergraduate students for the final year of study. By the fourth year, the gender balance has risen and is well above national norms. The national average is taken from the Higher Education Statistics Agency (HESA).*



*Figure 4. The proportion of female students in the first year intake of Earth Scientists to Cambridge (blue) and the % female students in the equivalent first-year of the Cambridge NST (our recruitment pool; grey) and the proportion of female undergraduate students in the final year of our degree course (green). The grey bar represents the gender breakdown of our possible pool of students from which we can recruit Earth Scientists.*

***Section 3-b-(iii) Postgraduate male and female numbers completing taught courses – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the effect to date. Comment upon any plans for the future.***

The proportion of male to female graduate students in each year's intake fluctuates significantly, the average over the last seven years is around 46% female and 54% male (Fig. 5, 6 below). Reviewing the gender balance across the two sites (Fig. 11b) females are consistently a lower percentage of the postgraduate population in geophysics (Bullard Site) relative to the other Earth Science research areas (Downing Site). This reflects the fact that geophysics often attracts PhD students who completed undergraduate degrees in Physics and Maths, where women are underrepresented.

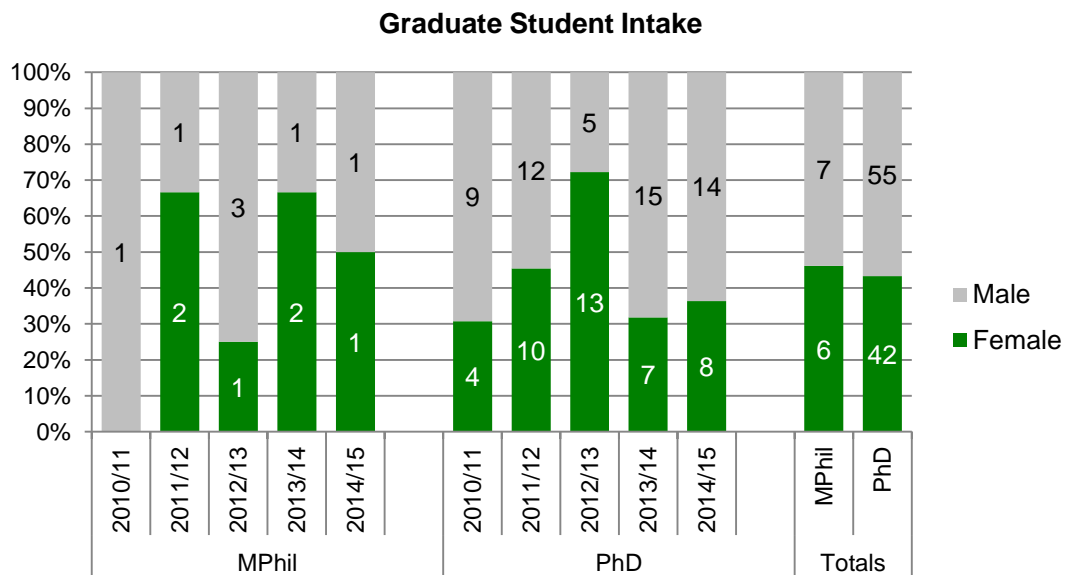


Figure 5. Gender balance of incoming postgraduate students in Earth Sciences by year, including those pursuing a 3.5 or 4 year PhD and those pursuing a 1 year MPhil by research.

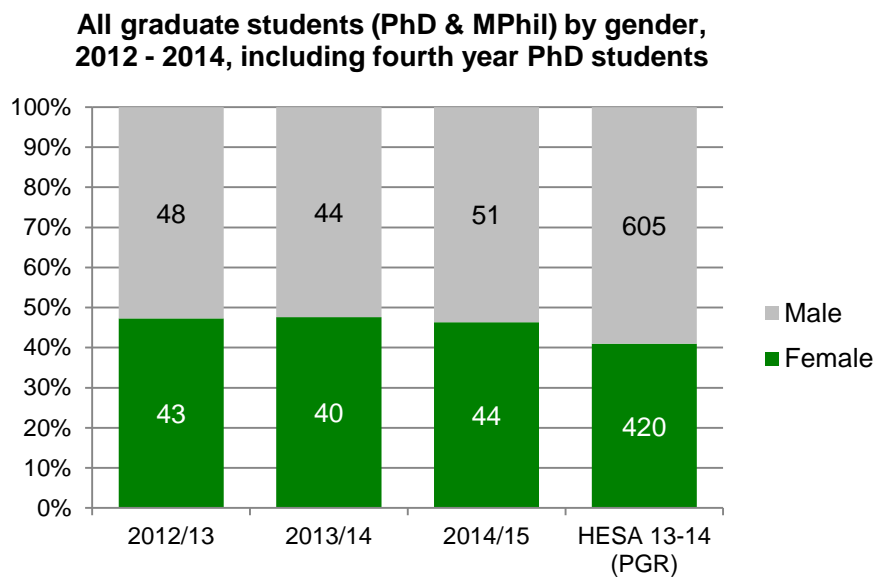
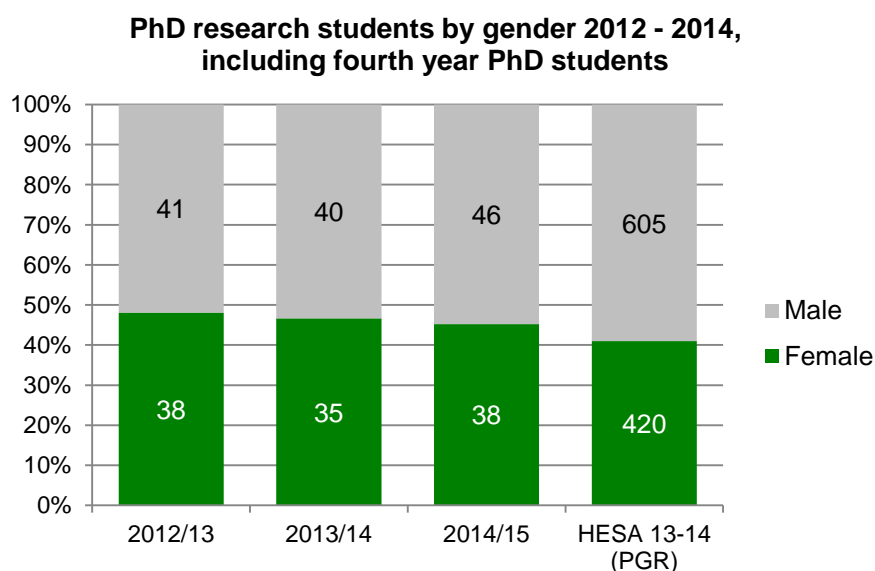


Figure 6a. Total number of all postgraduate students (PhD and MPhil) by year broken down by gender. The gender balance considering the entire postgraduate population at any one time is above the national norm.





*Figure 6b. Total number of PhD students by year broken down by gender. The gender balance considering the entire postgraduate population at any one time is above the national norm. Includes 4<sup>th</sup> year students, so for example, 2014/2015 includes intakes from Oct 2011 to mid-2015.*

***Section 3-b-(iv) Ratio of course applications to offers and acceptances by gender for undergraduate, postgraduate taught and postgraduate research degrees – comment on the differences between male and female application and success rates and describe any initiatives taken to address any imbalance and their effect to date. Comment upon any plans for the future.***

For admissions to the undergraduate course, we accept all students who choose Earth Sciences from within Natural Sciences but **admission to the Natural Sciences Course is determined by the 31 independent Colleges**. The rate of undergraduate applications to admissions is given in Figure 7.

For admissions to the PhD research programme, the gender distribution of our students over a 5-year period closely matches the gender distribution of the applicants (Fig. 8). Graduate students are selected by a gender-representative panel, whose members have undertaken the E&D training module and the selection process is reviewed yearly to make sure there is no gender bias. The Department will continue to monitor the gender balance of postgraduates **[AP 6.4A]**.

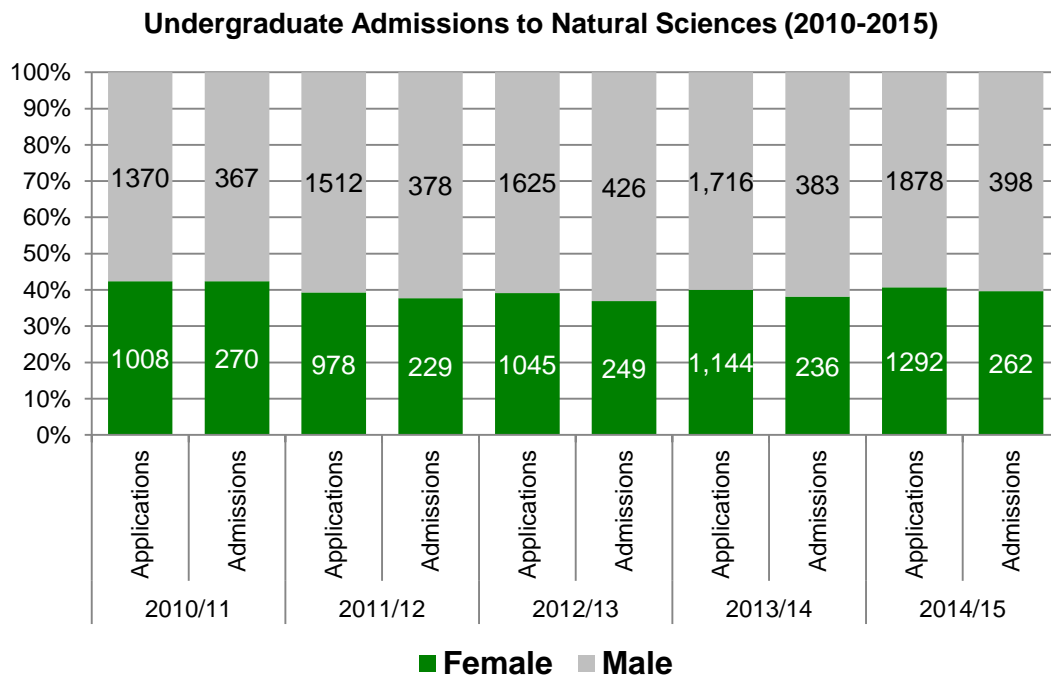


Figure 7. Numbers of applications and admissions by year for students applying to read Natural Sciences at Cambridge broken down by gender. This figure shows the gender distribution of our possible intake into the Earth Sciences course from the Natural Sciences course, therefore is our benchmark for gender balance within our course. **Undergraduate admissions are done by the colleges and the Department has no direct involvement in this process.**

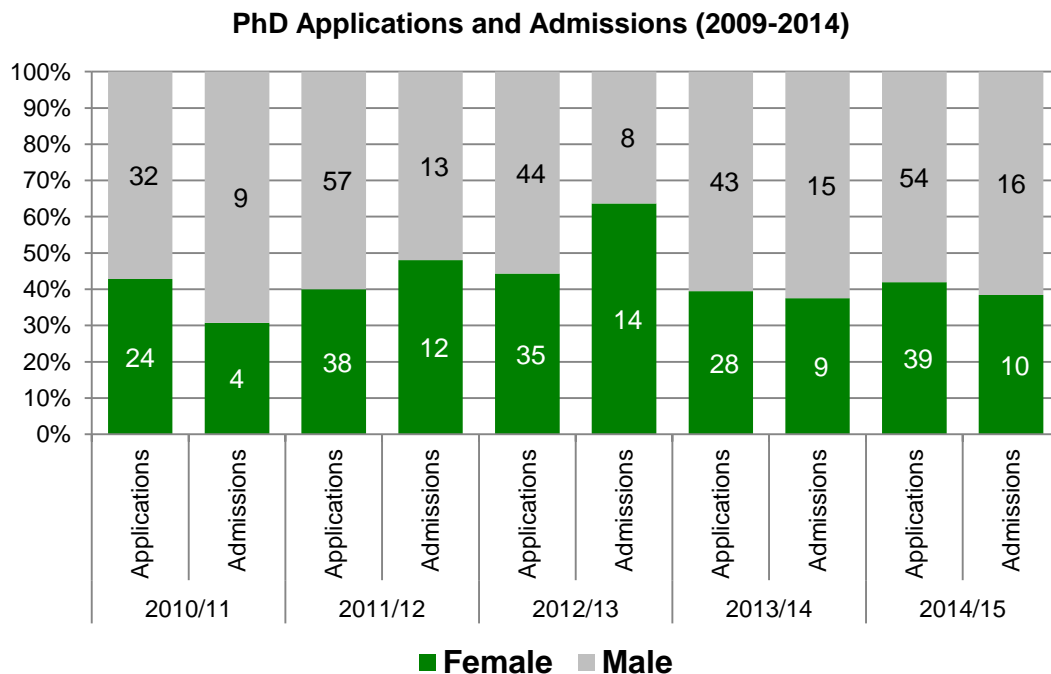
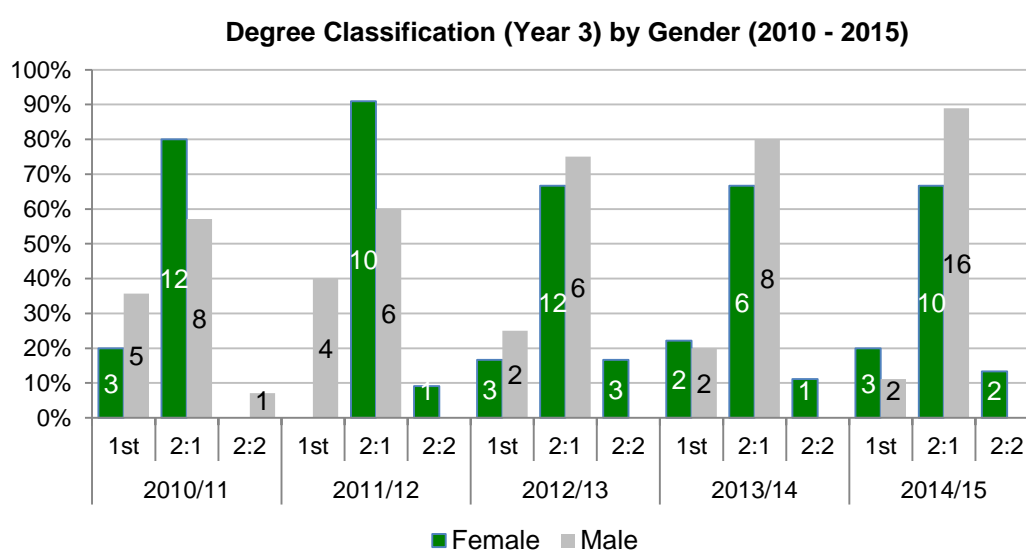


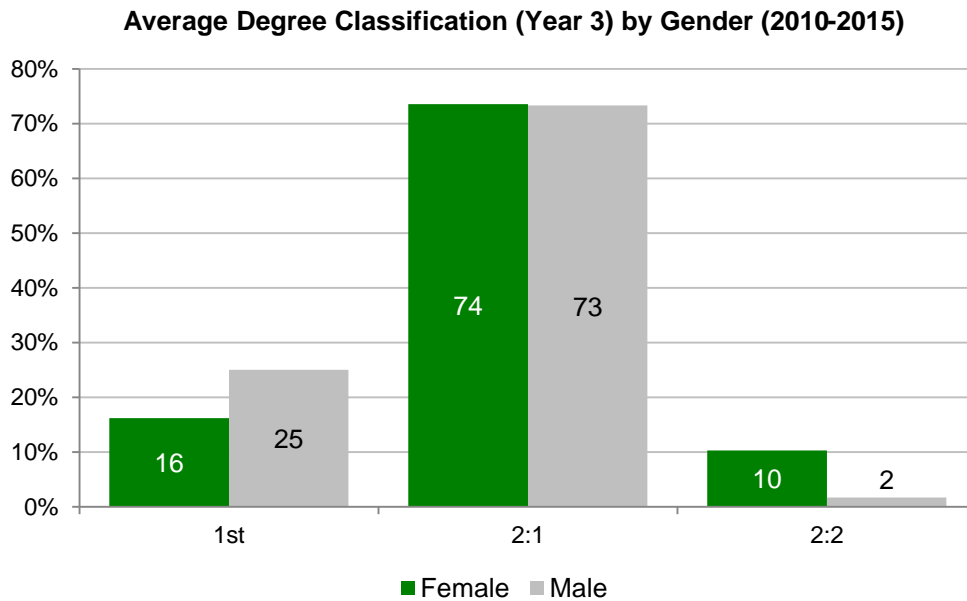
Figure 8. Numbers of applications and admissions by year for students applying for postgraduate places in the Cambridge Department of Earth Sciences broken down by gender. The proportion of women accepted into the graduate programme is proportional to the number of female applicants.

***Section 3-b-(v) - Degree classification by gender – comment on any differences in degree attainment between males and females and describe what actions are being taken to address any imbalance.***

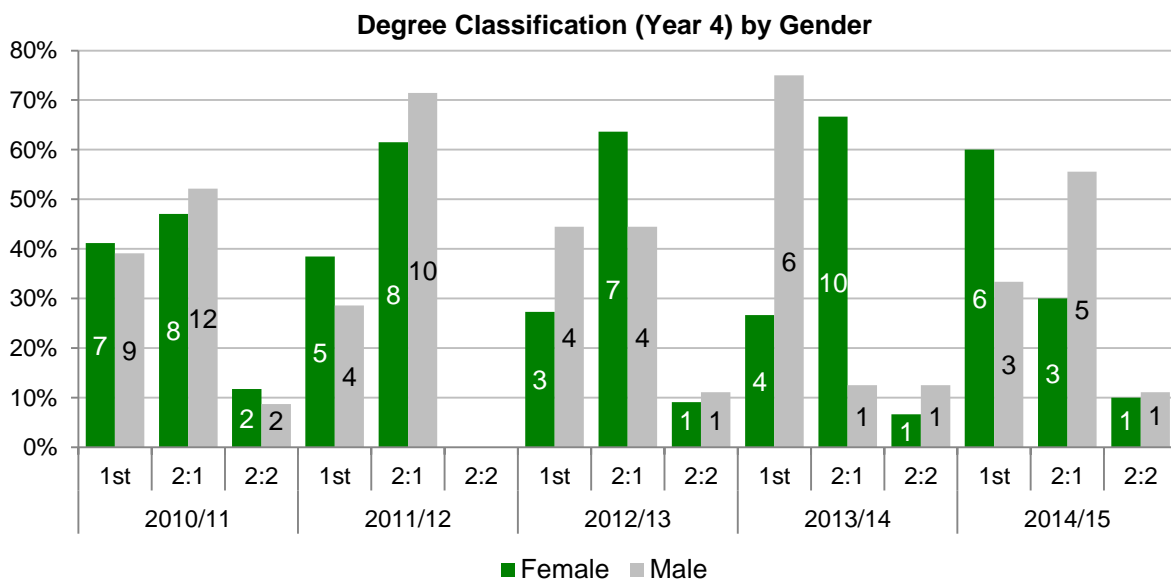
All of our exams are blind marked (i.e. by candidate number). The distribution of degree results by gender are shown in Figures 9a, b (third year) & 10a, b (fourth year). Although the numbers are small and show significant annual fluctuations, the differences between the number of Class 1 and Class 2:1 degrees when pooled together over several years show no gender differences. However, we will actively evaluate these data to identify any future gender attainment gap, including how female students are performing on the practical and theory parts of examinations as well as in the independent research and mapping projects that are integral parts of our degree course [AP 6.7A].



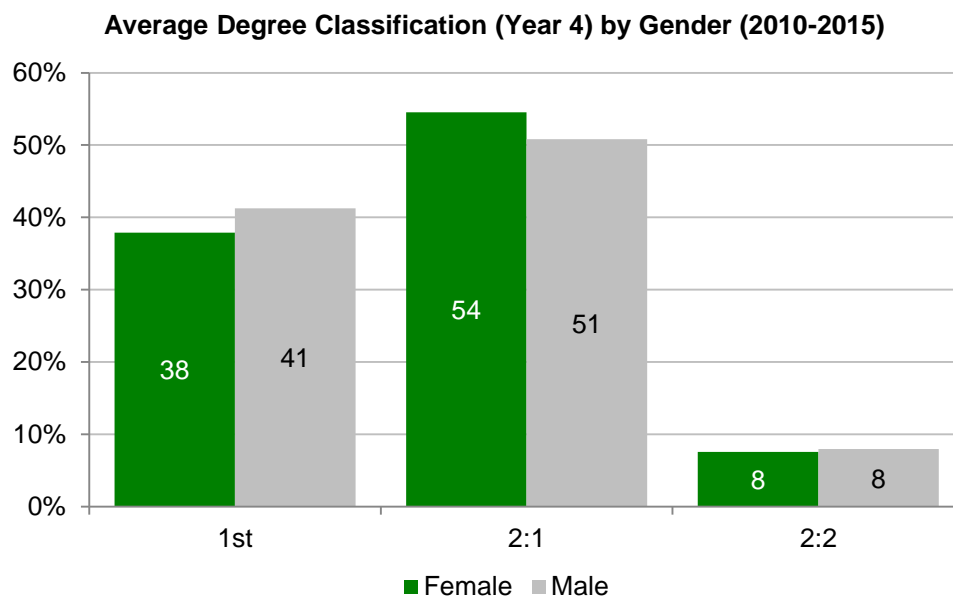
*Figure 9a. Degree classification for third year students by gender and year for all classed degree*



*Figure 9b. Degree classification for third year students by gender averaged over the five years. We have evaluated the data using statistical analysis and there is no difference in the degree classification (1<sup>st</sup>, 2.1, or 2.2) by gender. While it does appear that more women get 2.2's, the numbers are small (8 over 5 years) and our statistical analysis suggests they are not significantly different. Note in Figure 10a, 10b, that any visual disparity disappears in the fourth year of the course. We will continue to monitor these [see AP 6.7A].*



*Figure 10a. Degree classification for fourth year students by gender and year.*



*Figure 10b. Degree classification for fourth year students by gender averaged over the five years. We have evaluated these data using statistical analysis and there is no difference in the degree classification by gender. Note from figure 9a and 9b that there is a visual improvement in the gender balance of degrees. We will continue to monitor this data to see if any gender attainment gap develops.*

### **Section 3-c - Staff data**

***Section 3-c-(i) Female:male ratio of academic staff and research staff – researcher, lecturer, senior lecturer, reader, professor (or equivalent). Comment on any differences in numbers between males and females and say what action is being taken to address any under-representation at particular grades/levels***

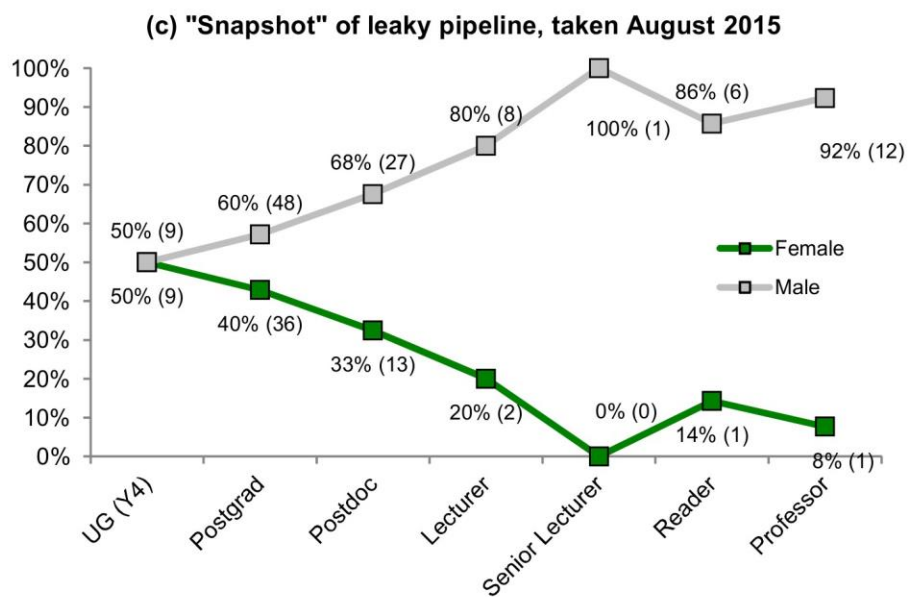
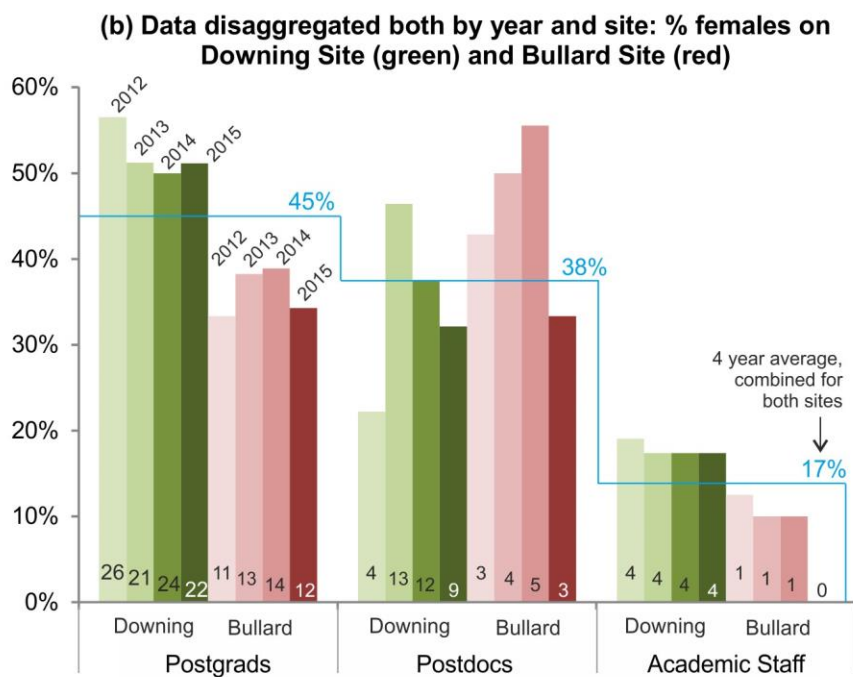
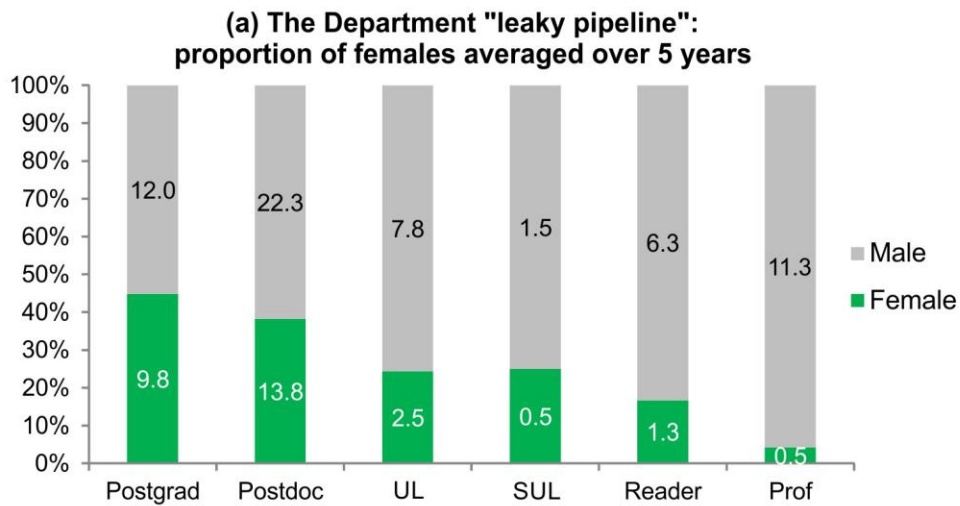
It is clear that there is a leaky pipeline that leads from almost equal numbers of female and male undergraduate students to a striking prevalence of male Academic Staff (Fig. 11a). While the gender balance among the undergraduates and postgraduates (particularly those on the Downing Site who make up the majority of our postgrad community) is roughly equal, and higher than the national average, the proportion of female postdocs is less than 40%, and we have only four female members of academic staff out of 31 in total.

Progress has recently been made due to a more active recruitment process: we have hired two female lecturers, who will take up their posts over the academic year 2015/2016. It is critical that we focus our attention both on the hiring process of Academic Staff and postdocs and on better understanding what motivates the career choices of female postdocs. Our action plan contains specific recommendations for ensuring the recruitment, interview and hiring process for Academic and postdoctoral appointments is fair and gender neutral [AP 1.1, 1.2, 1.3]. We will also focus on collecting data on career choices of female postdocs [AP 2.2].

Analysing the ‘leaky pipeline plot’ by site (Bullard Laboratory or Downing Site) reveals that postgraduate females and postdoctoral females are under-represented in Geophysics, the key research theme at Bullard (Figs. 11b) and currently all academic posts at the Bullard are filled by men. This is of concern and we shall endeavour to understand the underlying issues and address these [AP 1.2, AP 2.2, AP 6.6, 8.2E]. Note that the most recent Geophysics hire is female but will

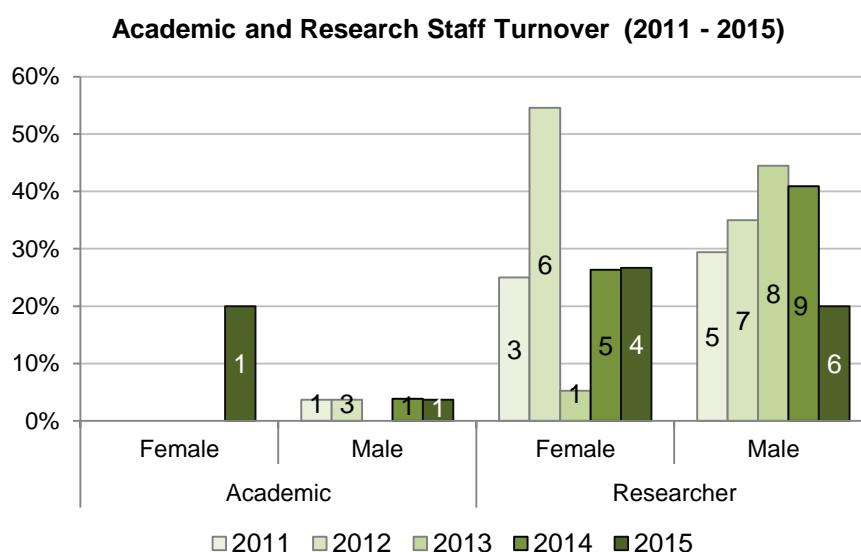
not appear in the department figures until 2016. The “snapshot” of the department in Fig. 11c was taken in Summer 2015; we note that it does not include two recent promotions (2 females to Reader) and hires (2 additional female lecturers) because these are not formalised until the 2015/2016 academic year. This snapshot however represents a baseline from which we can move forward.

*Figure 11 (overleaf): (a). Four-year average of the proportion of males and females in each staff category showing our “leaky pipeline”. The figures shown on the bars refer to the averages of the number of staff in post at September each year with the exception of the postgraduate figures, which show the average graduate student intake for each year (to smooth out the yearly fluctuations). In (b) the data are disaggregated by year, showing typical annual fluctuations and by site, showing under-representation of women in Geophysics at the Bullard site. Numbers on bars refer to number of staff in post. A recent “snapshot” is presented in (c).*



**Section 3-c-(ii) Turnover by grade and gender – comment on any differences between men and women in turnover and say what is being done to address this. Where the number of staff leaving is small, comment on the reasons why particular individuals left.**

One female Reader who was at the Bullard left earlier in 2015 to take up a Professorship in her home country where she could be closer to her family. Simultaneously we employed one female Lecturer in a different field to replace a retiring male Professor, and the female Reader who left was recently replaced by a new female Lecturer. All three of the male academic staff who left the Department in the last five years did so to take up professorships in other departments or at other universities.



*Figure 12. Histogram of the numbers and gender of academic and research staff leaving the Department between 2011-2015. For research staff, we find no significant trend in the turnover of females compared to males.*



#### 4. Supporting and advancing women's careers: maximum 5000 words [5005/5000 words]

##### Section 4A) Key career transition points

**Section 4A-a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.**

**Section 4A-a-(i) Job application and success rates by gender and grade – comment on any differences in recruitment between men and women at any level and say what action is being taken to address this.**

##### Academic Appointments:

**The current situation:** Academic staff are normally appointed at the lecturer level. Job applications and appointments by gender are shown in Table 2. Since 2010, 8 lecturers were appointed: 6 males and 2 females (25% - note that the female lecturers will take up posts in 2015-16). For these eight posts, approximately 30% of applicants were female and of those shortlisted for interview, 30% were female. Interview panels for these posts always had at least one female member.

*Table 2. Job Applicants and Success Rate by Gender for University Lecturer Vacancies (2010-2015)*  
**University Lecturer Vacancies (2010-2015).** All offers made were accepted.

Post	Applicants			Interviewed			Appointed		Panel	
	M	F	%F	M	F	%F	M	F	M	F
Seismology - 2015	14	11	44	3	3	50	0	1	7	2
Earth Sciences - 2015	31	20	39	3	3	50	0	1	7	1
Earth Sciences - 2013	8	5	38	3	2	40	1	0	7	2
Earth Sciences - 2012	35	8	19	4	2	33	1	0	7	2
Tectonics/Geophysics x 2 posts – 2012	23*	9*	29*	7	1	13	2	0	7	1
Palaeoclimatology/Palaeoceanography - 2011	23	9	29	5	1	17	1	0	6	1
Geophysics - 2010	36	5	12	5	2	29	1	0	8	1
TOTALS	159	68	30	30	13	30	6	2	50	9

\*In addition there were eight candidates of undeclared gender

**Issues arising:** Historically, we have been appointing females at a lower rate than they are applying. Influenced by our change in hiring policy over the last two years, we are now appointing females at the same rate at which they are applying when averaged over the last 5

years (Table 1). Our leaky pipeline shows that the largest drop-off is from postdoc to lecturer and, therefore, we must encourage excellent women to apply and ensure the interview process is unbiased.

#### **What we are doing about it:**

- Hiring panels evaluate female and male applicants separately and produce two gender-specific short lists from which candidates are selected to interview by merit [AP 1.2C]. The last two hires had 50% females shortlisted using this practice.
- The interview process will be assessed to review whether candidates perceive bias in specific aspects, via anonymous post-interview surveys. Although completed for both recent lecturer searches, nothing of note was revealed. The E&D committee will reformat to ensure appropriate information is collected [AP 1.2D].
- All members of each appointment panel will be required to have completed E&D and unconscious bias training [AP 1.2A,B].

#### **Postdoctoral Research Associates Appointments:**

**The current situation:** Table 3 and Fig. 13 show that 31% of the applicants for postdoctoral positions in the department were female, 30% of the appointees were female. Similarly, in recruitment led by ten male principal investigators (who hired 14 Postdocs), 30% of the applicants were female (72 of 242) and 29% of the successful applicants were female (4 of 14).

Research fellows appointed by Cambridge Colleges, called ‘Junior Research Fellows’, also form part of our postdoctoral community but the Department plays no part in the selection process and only agrees to host the person selected. Over the past four years, 9 JRFs have joined the Department: 4 female and 5 male, bringing the percentage of female postdocs to 37%.

#### **Issues arising and what we will do about it:**

- Only 30% of postdoc applicants are female, despite over 40% of postgraduates nationally being female; therefore, we will ask students completing their PhD their future intentions to identify if females are self-selecting to leave academia and, if so, why [AP 2.2].
- We will continue to monitor the future careers of all our postdocs, and will discuss this issue with the School’s E&D Champions [AP 2.2, 8.1D].

*Table 3. Job Applicants and Success Rate by Gender for Postdoctoral Research Associate appointments (2011-2015). Each year is the aggregate of between 2 and 11 postdoctoral appointments. Less than 10% of the offers made were declined over this period [AP 1.3b]*

Year of Appointment	Applicants			Interviewed			Appointed			Total appointments in each year
	Male	Female	%Female	Male	Female	%Female	Male	Female	%Female	
2015	4	2	33	1	1	50	1	1		2
2014	91	35	28	23	7	23	11	1		12
2013	46	28	38	9	7	44	3	3		6
2012	111	35	24	16	6	27	4	3		7
2011	36	24	40	7	3	30	2	1		3
<b>TOTALS</b>	<b>288</b>	<b>124</b>	<b>30</b>	<b>56</b>	<b>24</b>	<b>30</b>	<b>21</b>	<b>9</b>	<b>30</b>	

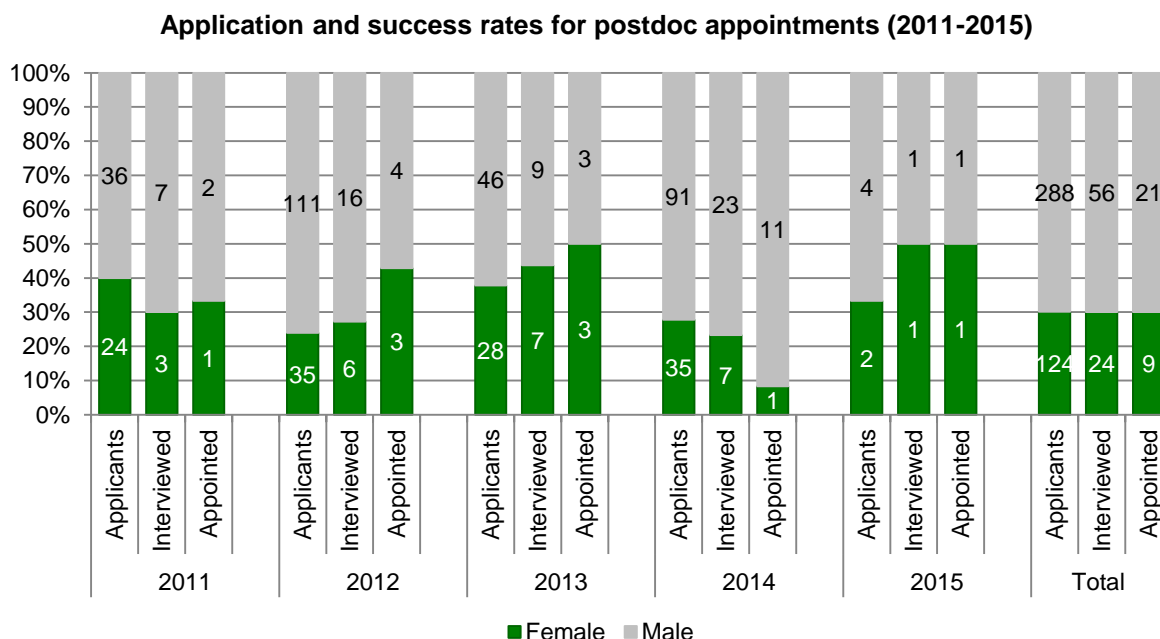


Figure 13. Relative success in recruitment to postdoctoral research positions, by gender, over the period 2011-2015. Women account for a third of the applications, and are interviewed and appointed at the same rate to department postdoc positions. “Junior Research Fellows” are appointed by Colleges; the department is not involved in their recruitment. We do not have the figures to include JRF applications, which are held in the colleges. Less than 10% of postdoctoral offers made were not accepted.

**Section 4A-a-(ii) Applications for promotion and success rates by gender and grade – comment on whether these differ for men and women and if they do explain what action may be taken. Where the number of women is small applicants may comment on specific examples of where women have been through the promotion process. Explain how potential candidates are identified**

Section **4A-a-(ii)-1-(ii)** on Senior Academic Promotions fully describes the numbers and process. In summary, over the last five years (2010-2015) thirteen applications for promotion were submitted, 5 females and 8 males: all were successful.

**Section 4A-a-(ii)-1 For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.**

**Section 4A-a-(ii)-1-(i) - Recruitment of staff – comment on how the department’s recruitment processes ensure that female candidates are attracted to apply, and how the department ensures its short listing, selection processes and criteria comply with the university’s equal opportunities policies**

**The current situation:** All academic vacancies are advertised on jobs.ac.uk, the University Jobs website, the Departmental website, and widely circulated by email to departments throughout the UK and globally. We further advertise in EoS (the main news journal of the American

Geophysical Union), Earth Science Jobs Net and the Earth Science Women's Network (eswn.org) which is a portal for reaching female Earth scientists from a range of backgrounds [AP 1.1B].

The selection panel for academic staff includes an external member and *at least* one female. The panel meets to review applications with the target of producing a gender-balanced shortlist [AP 1.2C]. Principal investigators (PIs) lead the recruitment for postdocs, which is usually linked to a specific project on a fixed-term basis.

**Issues arising:** Although the same proportion of women apply for PhD studentships as in our undergraduate course (around 50%), there is a drop off in women applying for postdocs (30%) and lectureships (30%).

**What we will do about it:**

- All principal investigators hiring anyone and members of appointment panels are required to have completed the University E&D Training and Unconscious Bias training [AP 1.2A,B].
- PIs who are appointing postdocs must have a second academic review the applicant pool [AP 1.2E].
- All advertisements will emphasise our commitment to equality and diversity and the Athena SWAN Charter [AP 1.1A].
- We will continue to actively and personally seek out qualified women and encourage them to apply. [AP 1.1].

***Section 4A-a-(ii)-1-(ii) - Support for staff at key career transition points (1-4) – having identified key areas of attrition of female staff in the department, comment on any interventions, programmes and activities that support women at the crucial stages, such as personal development training, opportunities for networking, mentoring programmes and leadership training. Identify which have been found to work best at the different career stages.***

**Section 4A-a-(ii)-1-(ii1) Key Career Transition Point 1 : End of PhD to Postdoc**

**The current situation:** Every postgraduate is assigned two mentors from the academic staff, called 'academic friends'; they provide external support independent of the student's main supervisor. One important role of academic mentors is to identify students who are struggling. Academic mentors are not assigned based on gender as this would overstretch our female academic staff. However, all female students can have a woman as an academic friend if requested [AP 3.2C].

**Issues Arising:** The strength of the relationships between PhD student and academic mentor varies dramatically. Feedback is varied with some reporting very positive experiences and others less so. One comment from the survey was: "I'm not at all convinced the academic friends system works. Some of the 'friends' have a complete disinterest in a PhD student's project. The principle is a good one but in reality some people have other priorities".

Furthermore, while the majority of postgraduate students think they can discuss their developmental needs regularly (63%), over one-third did not. However, the majority of postgraduates – equal between females and males - found it relatively easy to adjust their working hours to suit personal life (86%).

### **What we will do about it:**

We will strengthen the mentoring relationship and encourage the support of postgraduate students as they approach the end of their PhD and prepare for the next step of their career [AP 3.2].

- We will implement a new feedback form so students can comment on the academic support system [AP 3.2D].
- The Department will provide written guidelines and expectations of the 'academic mentor program' [AP 3.2A].
- The Doctoral Training Programme (DTP) will organize a system of review and career advice for the final year of the PhD to support students' career choices.
- Final year postgraduates will have a mandatory career development meeting and appraisal with their supervisor and academic mentors; academic mentors already provide reports at the end of the first and second years and will extend this to the final year [AP 2.3D].
- Where appropriate, senior postdocs may serve as academic mentors for postgraduate students to alleviate the burden on our overstretched female academic staff [AP 3.2C].
- The Department will cover the cost for staff to take their mentees for coffee or lunch to encourage conversation and help flag problems [AP 3.2B].

### **Section 4A-a-(ii)-1-(ii2) Key Career Transition Point 2: end of Postdoc to Permanent position**

**The current situation:** The support of postdocs is guided by the University's Concordat to Support the Career Development of Researchers. Postdocs play a key role in the Department. As well as sitting on Department committees, there are opportunities to gain teaching experience - by giving research seminars to our final year students, participating in undergraduate field trips and demonstrating and leading practical classes. Depending on their expertise, postdocs also have the opportunity to act as supervisors for final year projects or graduate studentships.

Each of the Department's major research groups operates an informal seminar series. These provide a forum to present research and obtain feedback in a supportive environment before the work is show-cased at international conferences. Participation in our Industrial Associates events and the annual BP Institute Energy Masterclass helps to develop an understanding of the relationships between science, economics and policy.

At the University level, the HR division's ***Personal and Professional Development courses*** are open to all postdocs. ***The Careers Service*** also provides support and 1:1 guidance, which is particularly valuable for those considering careers outside academia. Survey results suggest that women use the career service more than men (of the postgraduates and postdocs who have used the service, 64% were female and 36% were male).

The mentoring of female postdocs as they finish their contracts and transition to the next stage is mainly conducted by their PI. Some PIs have discretionary funding which can be used to support postdocs for short periods when a contract ends, others help write job applications, distribute job announcements, make phone calls; others are more hands-off.

**Issues Arising:** In our staff survey 72.4% of our postdocs (57% of the men and 85% of the women) were **very satisfied** with the training and development opportunities they receive. Feedback

from the staff survey suggests that the largest barrier to uptake onto development courses is knowledge (comment: "More training and development opportunities should be available on the job. More information should be provided by academic staff").

### **What we will do about it:**

We recognize that this is a critical transition and will strengthen support of postdocs with a series of dedicated actions:

- Better dissemination of training and development opportunities [AP 2.3F]
- Supporting postdoc career opportunities [AP 2.3]
- Including postdocs more in the life of the Department [AP 6.3]
- Increasing PIs awareness of career management [AP 2.3C]
- Developing an appraisal system to identify postdoc needs and aspirations [AP 3.1B]
- Annual meeting with the PI to discuss career development [AP 3.1B]
- Development of a postdoc group for networking and support, including termly group meetings with the Head of Department [AP 2.3B].

### **Section 4A-a-(ii)-1-(ii3) Key Career Transition Point 3: transitioning into the Permanent position**

**The current situation:** All academic staff below pensionable age are on permanent contracts. All new academics participate in the University's Professional Development Programme. The University has recently introduced a scheme allowing newly appointed staff to submit applications for additional start up funds within the first three years of their appointment to perform pilot projects, strengthening the applications they subsequently submit to funding agencies. Within the Department all new academic staff are protected from administrative responsibilities and start with light teaching loads.

Newly appointed Academic Staff undergo a five-year probation during which they meet regularly with the Head of Department and senior colleagues in their research areas to discuss career development (see also Section **4-B-a-(i)** below). All newly appointed academic staff are required to attend the Pathways in Higher Education Practice (PHEP) training addressing the three main focal points of academic probation: teaching, research and administration. Towards the end of probation, academic staff submit an updated CV, research statement, outline of teaching goals and three referees, at least one of whom should be external. The decision whether or not to confirm the appointment is made by a faculty committee, which includes some members of the Department, who consider the submitted documents, references and Head of Department recommendation [AP 2.1].

### **Issues Arising and what we will do about it:**

As discussed in Section 4-B-a-(i), more support for career development of new faculty is needed. We will:

- Make early career and newly arrived staff aware of additional funding opportunities [AP 4.1, 4.3]
- Provide internal review and mentoring of proposals for early career schemes
- Implement formal career discussion meetings and appraisals to help new faculty members progress their careers [AP 3.1]

#### **Section 4A-a-(ii)-1-(ii4) Key career transition points 4: Applying for Senior Academic Promotion**

**The current situation:** An annual exercise is conducted by the University to consider applications for Senior Academic Promotion to the offices of Senior Lecturer, Reader or Professor. All academic staff have the right to apply. The Head of Department, in consultation with senior academic staff, provides individual advice and encouragement to staff applying for promotion. Three eligibility criteria must be met: research, teaching, and general contribution. The promotion process also allows for leave for caring purposes (e.g. maternity or paternity leave) and emphasizes quality of work over quantity.

Over the last five years (2010-2015) thirteen applications for promotion have been submitted by staff of the Department of Earth Sciences -- **all were successful**. One promotion was for senior lecturer (male), eight were for a readership (four females and four males), and four were for professorships (one female and three male).

#### **Issues arising and what we will do about it:**

- Establish a Promotions Committee, consisting of the Head of Department and appropriate senior colleagues, to review the position of all eligible academic staff and encourage those with a strong promotion case **[AP 2.1A]**.
- This committee will support and advise the candidate on preparing the best possible promotion case, tailored to the requirements of the University's promotion process.
- Strengthen the link between annual appraisal and promotion. In particular, we will assess if any differences exist in the duration in post prior to promotion between men and women **[AP 2.1B]**.

### **Section 4-B) Career development**

***Section 4-B-a) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.***

***Section 4-B-a-(i) Promotion and career development – comment on the appraisal and career development process, and promotion criteria and whether these take into consideration responsibilities for teaching, research, administration, pastoral work and outreach work; is quality of work emphasised over quantity of work?***

## Flow chart of review process (action 3.1)

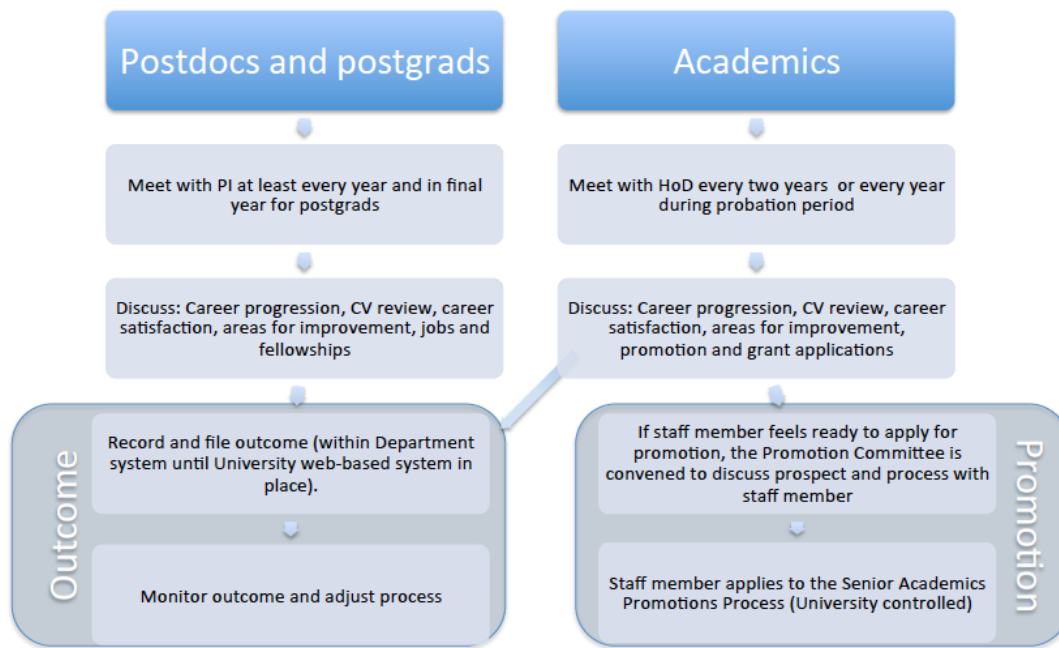


Figure 14. Flowchart outlining the new appraisal system that has recently been developed and is currently being implemented

**The current situation:** Appraisals and discussions of career development for academic staff, academic-related staff, and postdocs, until now, have been largely conducted informally. **Postdocs** undergo a probation period that is managed by their PI/supervisor, and involves monthly progress reviews and then a final review before confirmation. All research staff can submit a case for consideration for a contribution increment after they have been in post for a year; supervisors can also submit a case on their behalf. Applications are examined by the University Human Resources division and the final decision on the award rests with them.

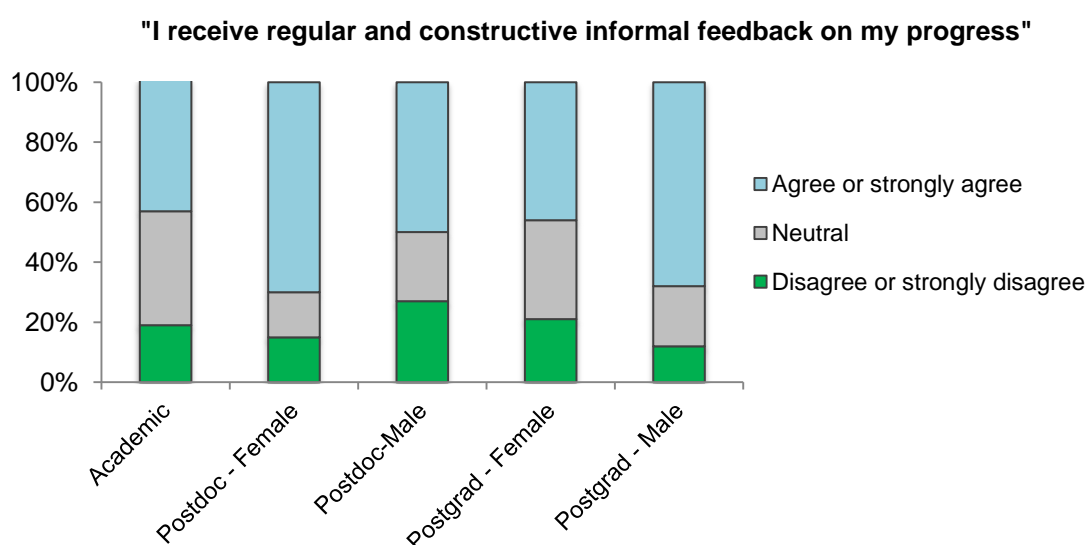
**Issues Arising:** From the survey, only 15.6% of all staff had a formal appraisal in the last two years; however, 46% agreed or strongly agreed that they receive regular and constructive informal feedback on their progress (Fig. 15). Only 35% of academic staff felt they have the opportunity to discuss their developmental needs regularly. Comments included: “The opportunities to discuss my development needs and performance are all informal, taking place over coffee. There is no formal procedure that I am aware of, and I would feel uncomfortable asking for one.”

**What we will do about it:** The implementation of formal appraisals for academic staff and postdocs is one of the primary goals of our Action Plan [AP 3.1 A-D].

- We have developed a revised appraisal system, currently being piloted, so that all Academic Staff, Postdocs, and final year Postgraduates, have regular, appropriate, career development discussions (Fig. 14).
- The CVs, career profiles and promotion plans of eligible **Academic Staff** will be discussed during these appraisals, which will feed into the Promotions committee [AP 2.1A]



- The CVs and plans of **Postdocs and final year postgraduates** will be discussed with them annually by their PI or another suitable senior academic (in the case of a College JRF). These meetings comprise
  - face-to-face discussion of progress
  - discussion of training and development needs
  - plans for the next review period
  - creation of a written action plan
- The University is piloting a web-based system for appraisals. The Department will harness this system for tracking the uptake and completion of the new appraisal process **[AP 3.1]**.
- The written action plan will be archived with the Departmental Administrator, who can then document the completion rate **[AP 3.1]**.



*Figure 15. From our survey - 66% of postdocs and 55% of postgraduates feel they receive regular and constructive feedback on their performance, the gender breakdown is given here. In general Postgraduates and Postdocs are more positive about feedback than Academic Staff. Note our survey did not breakdown the Academic staff among Lecturers, Senior Lecturers, Readers or Professors to protect anonymity.*

***Section 4-B-a-(ii) - Induction and training – describe the support provided to new staff at all levels, as well as details of any gender equality training. To what extent are good employment practices in the institution, such as opportunities for networking, the flexible working policy, and professional and personal development opportunities promoted to staff from the outset?***

## **Induction**

**The current situation:** All newly appointed staff, including **academic staff** and **postdocs**, should receive an induction from the Departmental Administrator and Safety Officer. This induction covers safety issues and general working practices. Newly appointed staff are also introduced to

the key Department support staff who provide guidance on grant management, financial regulations, purchasing, technical help and library resources. Most **postgraduate students** start in October when a welcome party is held.

All staff, postgraduate students, postdocs and Academic Staff are encouraged to attend Department coffee time, which is a daily occurrence at both sites and a long-standing tradition involving people in all roles. The popularity of coffee time was noted in many positive comments in the staff survey, including “Great sense of community; very sociable department – as evidence by enjoyably noisy coffee times!”.

**Issues Arising:** Staff survey results indicate the majority of people either did not receive a central university induction or thought it was not particularly useful. However, most people were satisfied with induction at the departmental level. The uptake rate is variable: 34% of respondents in our survey said they had not had a Departmental induction and 41% had not had a University Induction. It is likely that many of the respondents began their career with the University many years ago, before any formal induction process was introduced.

#### **What we will do about it:**

We have identified specific actions to improve our department induction procedures **[AP 4.3A-D]**:

- Meet with Department Administrator and PI during week 1 of employment
- One-sheet induction checklist to be completed for all new employees
- Questionnaire has been developed to assess new probation review process.

#### **Training**

##### **The current situation:**

*Gender Equality Training* is provided in several ways. The Department hosted a presentation by members of the University’s E&D team in 2012 which provided training on *Equality, Diversity and Dignity at Work*; all staff were invited, 20 department members attended, of whom 12 were women. The University runs an online E&D training course; all staff on appointment committees or appointing postdocs are required to have completed this. Other training, including that provided during induction and during probation, is discussed elsewhere.

**Issues Arising:** From our survey, most academic staff, postdocs and postgraduate students think they know where to find information on training and development opportunities (>95%), and a large percentage are satisfied with the opportunities provided (>72% for all three categories, where 76% of the female postgraduates and postdocs are satisfied while 74% of the male postgraduates and postdocs are satisfied, and 76% of all academic staff (not disaggregated by gender due to small numbers)).

#### **What we will do about it:**

- 100% completion of E&D training module by all Academic Staff: currently 81% of Academic staff and 15% of postdocs have completed **[AP 1.2A]**.

- The University's E&D office is developing a training programme in unconscious bias; all staff involved in recruitment will undertake this training [AP 1.2B].
- Members of the Department E&D committee will make themselves available to speak to any individual with concerns relating to equality and diversity [AP 4.2].
- An anonymous post box (physical and electronic) will be established to make suggestions and complaints on E&D issues [AP4.2D]

***Section 4-B-a-(iii) - Support for female students – describe the support (formal and informal) provided for female students to enable them to make the transition to a sustainable academic career, particularly from postgraduate to researcher, such as mentoring, seminars and pastoral support and the right to request a female personal tutor. Comment on whether these activities are run by female staff and how this work is formally recognised by the department.***

The current situation is also discussed in ***Section 4A-a-(ii)-1-(ii1)*** on page 28.

We will strengthen all mentoring relationships, and encourage the support of postgraduate students and postdocs as they prepare for the next step of their career. We recognize that these are critical transitions and have developed a series of dedicated actions:

- Improved dissemination of training and development opportunities [AP 2.3F].
- Increasing PIs awareness of career management [AP 2.3C]
- Developing an appraisal system to identify postdoc needs and aspirations [AP 3.1B].
- Annual meeting with the PI to discuss career opportunities and development [AP 3.1B]
- Development of a postdoc group for networking and support including termly meetings with the Head of Department as a group [AP 2.3B].
- Institute a system of review and career advice for the final year of the PhD to support students considering the next career step or first job [AP 2.3].
- Final year postgraduates and annual meetings for postdocs to discuss career development and appraisal with their supervisor and academic friends [AP 2.3D].

## **Section 4-C - Organisation and culture**

***Section 4-C-a -Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.***

***Section 4-C-a-(i)-Male and female representation on committees – provide a breakdown by committee and explain any differences between male and female representation. Explain how potential members are identified.***

### **Committee membership**

**The current situation:** The gender makeup of the principal Department committees is indicated in Fig. 16. Established staff are expected to serve on administrative committees with responsibility for running departmental affairs. The most important committees include the Departmental Advisory Committee and the *ad hoc* committees, which are set up to make

appointments when a vacancy arises. These are filled by the Advisory Committee, with the requirement that the balance of membership should reflect the subject area of the post. Every *ad hoc* committee has one external representative appointed by the General Board of the University.

Membership of other administrative committees is currently by rotation in discussion between the Head of Department and chairs of the relevant committees. The make-up of each committee is reviewed annually by the Advisory Committee to ensure that, overall, they reflect the balance of the department by discipline and gender. Serving on too many committees is not generally regarded as being good for any individual's career and the objective is always to be fair in the distribution by seniority and gender.

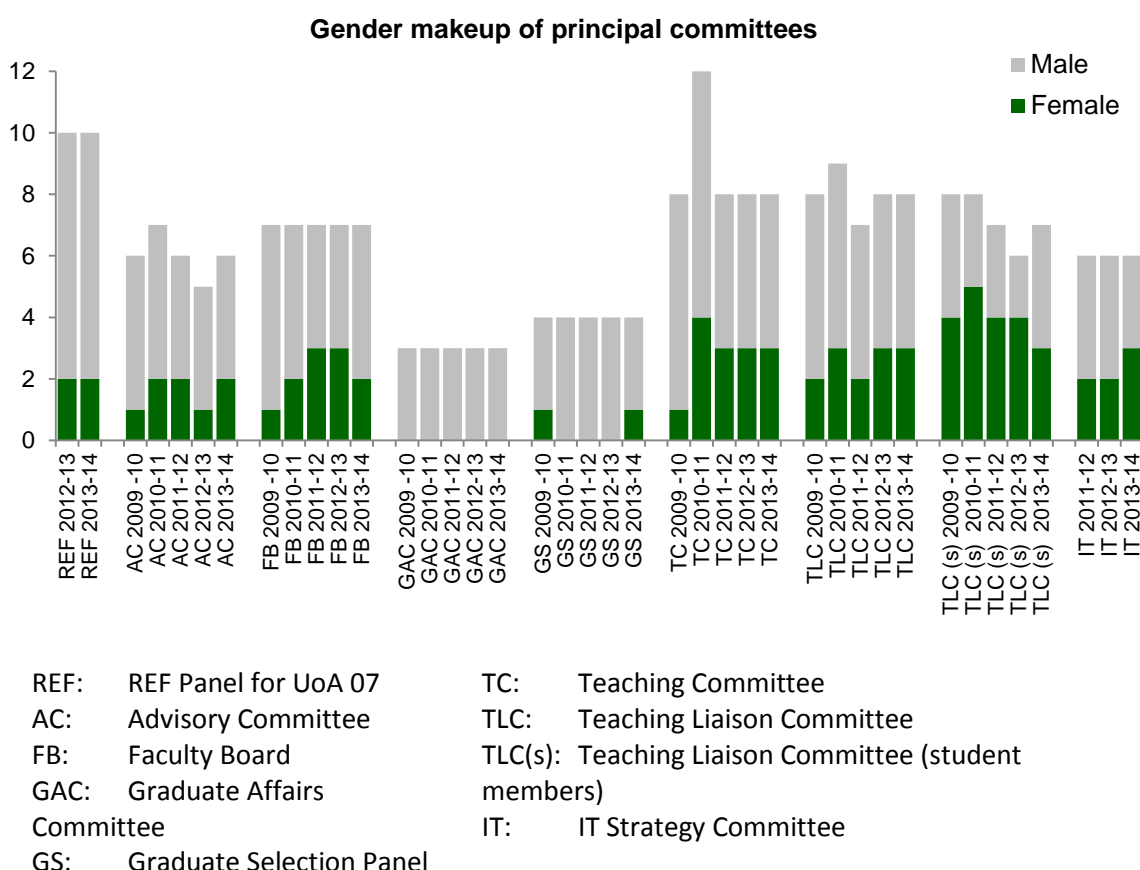


Figure 16. Composition of department committees by gender over the last three years. Other than the IT Committee and the Teaching Liaison Committee, the pool of people who can serve on these committees is the academic faculty with 29 males and 4 women.

**Section 4-C-a-(ii) Female:male ratio of academic and research staff on fixed-term contracts and open-ended (permanent) contracts – comment on any differences between male and female staff representation on fixed-term contracts and say what is being done to address them**

All of our academic staff have permanent appointments. Only one postdoc (F) holds an open-ended contract, all others have fixed-term contracts. Our actions to date (all listed under **AP 2.3**) to support postdocs who are all on fixed term contracts are:

- Annual Careers Event
- Yearly seminars giving insight in employment in industry

- Industry-led CV one-to-one clinics
- Jobs for postdocs advertised on the weekly Department Bulletin
- Fellowships advertised on Research Grant newsletter
- PIs aware of contribution increments for staff on fixed term contracts
- Personal and Professional Development courses for staff on fixed term contracts

Our new actions to support those on fixed term contracts are:

- Introduce a Postdoc Networking Group to discuss issues including career development **[AP 2.3B]**
- Provide flyer and contact details of Department Career Support Advisor **[AP 2.3E]**
- Disseminate info on career development on our web site **[AP 2.3F]**
- Annual staff review for postdocs **[AP 3.1B]**
- New induction and probation process **[AP 4.3A, B]**
- Inform postdocs about policies on flexible working **[AP 5.2A,B]**
- Disseminate information and provide support to staff on maternity/paternity leave (we are already doing this but we will also provide a maternity/paternity mentor now) **[AP 5.4A-D]**
- Help arrange extensions for postdocs on short term contract when they go on maternity/paternity leave **[AP 5.5A]**
- Encourage postdoc participation in the Department **[AP 6.3A,B]**

***Section 4-C-b For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.***

***Section 4-C-b-(i) Representation on decision-making committees – comment on evidence of gender equality in the mechanism for selecting representatives. What evidence is there that women are encouraged to sit on a range of influential committees inside and outside the department? How is the issue of ‘committee overload’ addressed where there are small numbers of female staff?***

Committee membership is discussed above in ***Section 4-C-a-(i) and detailed in Figure 16***. We note that female representation is absent from the Graduate Affairs Committee and low for the Graduate Selection Panel. This imbalance of the Graduate Affairs Committee will be remedied whilst remaining vigilant not to overburden our small number of female academic staff with a disproportionate amount of committee work **[AP 6.1]**. The Graduate Selection Panel (GS) has been transformed by the award of a NERC Doctoral Training Partnership in Earth System Science to Cambridge University (<http://essdtp.esc.cam.ac.uk/>). Women comprise 30-50% of the panel interviewing potential postgraduates. We will continue to monitor the gender composition of all committees and identify any committees where input from female staff is currently under-represented. We will also consider appointing female postdocs to appropriate committees to reduce the burden on our female academic staff.

***Section 4-C-b-(ii) Workload model – describe the systems in place to ensure that workload allocations, including pastoral and administrative responsibilities (including the responsibility for work on women and science) are taken into account at appraisal and in promotion criteria. Comment on the rotation of responsibilities e.g. responsibilities with a heavy workload and those that are seen as good for an individual's career.***

### **Workload Model**

**The current situation:** The Cambridge workload involves college and departmental responsibilities: with teaching and administration involved in both. College teaching and committee responsibilities vary widely among the colleges in terms of the number of hours required each week. At a departmental level all academic staff are involved in teaching and examining duties, allocated by the Head of Department in consultation with the Teaching Committee and reviewed by all teaching staff at the Department Meetings.

**Issues Arising:** The Department does not currently have an established system for tracking teaching, committee, administrative, and college hours.

**What we will do about it:** To formalise this process we will pilot a workload model based on one used in the Department of Physics (Athena SWAN Gold award) for assessing the hours of college and department teaching, administrative duties (including committees), and field-teaching [AP 6.1].

***Section 4-C-b-(iii) Timing of departmental meetings and social gatherings – provide evidence of consideration for those with family responsibilities, for example what the department considers to be core hours and whether there is a more flexible system in place***

**The current situation:** Currently the main weekly Departmental seminars at both sites start at 4pm. Meeting times for all committees are nearly always determined by circulation and arranged within core working hours (9.30am-3:30pm). Bi-annual departmental meetings are scheduled at 2pm. Coffee time happens both at the Bullard and Downing Sites every morning.

**Issues Arising and What we will do about it:** We recognize the need to move the main, weekly Departmental seminars to core working hours to allow those with caring responsibilities to attend. This decision is supported by the majority of staff (80%) and will be implemented in the next academic. [AP 5.1].

***Section 4-C-b-(iv) - Culture –demonstrate how the department is female-friendly and inclusive. ‘Culture’ refers to the language, behaviours and other informal interactions that characterise the atmosphere of the department, and includes all staff and students.***

**The current situation:** Our Department takes pride in being informal and friendly. The staff survey suggests that 77% of all staff find the culture in the department to be supportive, and 85% of postgraduates and postdocs (this number is evenly split by gender). This view of a supportive department was echoed by the informal survey of female academics by Dr. Turchyn.

The Department has dedicated common rooms for coffee, lunch and full kitchen facilities, and caters lunches annually, as well as an open-door policy, which encourages all staff to discuss

matters informally. However, while we found ample evidence that the department is family friendly, we found mixed results for whether the department was specifically female-friendly. For example in the staff survey we heard “Excellent opportunity to work flexibly when needed e.g. around school holidays” and “Friendly Atmosphere” but also “This department continues to feel like it has been run by and for old men since the beginning of time, although women increasingly contribute into its success”.

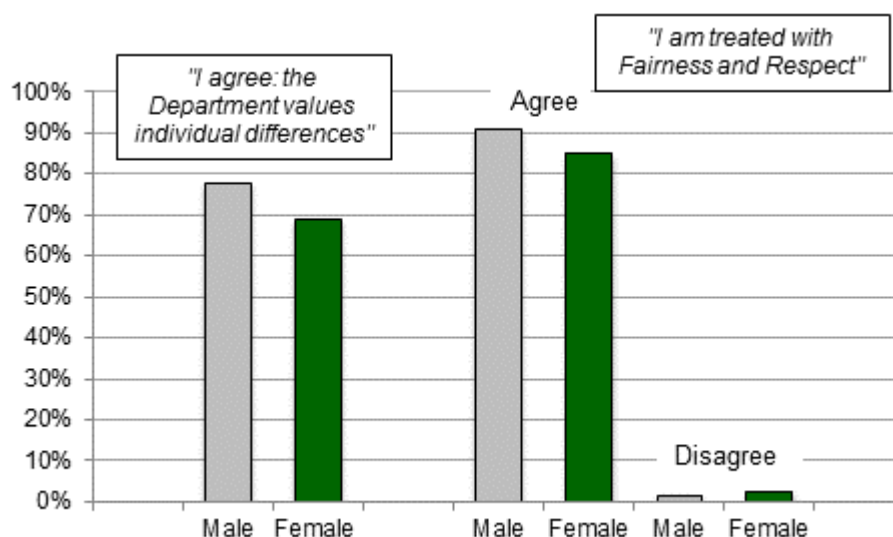


Figure 17 – Answers to the survey questions “The Department values individual differences, do you agree or disagree”, and “I am treated with Fairness and Respect, do you agree or disagree”. The survey indicated a somewhat greater percentage of males than females agreed they were valued and treated fairly.

**What we will do about it:** To ensure that the informal, friendly, and welcoming atmosphere experienced by so many members of the Department is felt by ALL members of the Department at both sites, we will:

- Organise focus group meetings at the Bullard and at the Downing sites once per year to assess the culture in relation to gender issues at each site **[AP 6.6B]**
- Assess differences in culture between the Bullard and the Downing sites with dedicated questions in the next department survey **[AP 8.2C]**

**Section 4-C-b-(v) Outreach activities – comment on the level of participation by female and male staff in outreach activities with schools and colleges and other centres. Describe who the programmes are aimed at, and how this activity is formally recognised as part of the workload model and in appraisal and promotion processes.**

**The current situation:** The Department is engaged in a broad range of outreach activities to disseminate our research, promote public understanding of Earth Sciences and encourage children into science (Table 4).

The Sedgwick Museum:	>120,000 visitors per year; popular with schools and community groups, including booked school visits
Cambridge Open Days:	Year 12 pupils tour the department and attend demonstrations
“Time Truck”:	Students take a truck of interactive hands-on demonstrations to local primary schools to show basic principles with enthusiasm.
Visits to Secondary Schools:	Staff visit local secondary schools on request; typically female staff volunteer for this
Cambridge Science Festival:	Museum & Time Truck open with >200,000 visitors to the University. High profile event
Bullard / BPI Labs Yr 3 trip for local primary school:	All 60 children age 7/8 do real research for a day to learn that everyone can do fun science regardless of gender or background. Run by two female staff.

*Table 4: A summary of our current outreach activities. Note that the Colleges participate vigorously in Outreach because they are responsible for all undergraduate recruitment.*

**What we will do further:** Actions [AP 7.1, 7.2, 7.3] to improve the Department’s outreach to specifically encourage young women to pursue a career in the Earth Sciences include:

- 1st year teaching always involves at least one female academic staff member;
- Each undergraduate field-trip will include at least one female member within the team leading the field-trip.
- A discussion session with undergraduates to find out what they think the obstacles are that face women in academia and other careers.
- Invite back a group of successful alumni, mainly but not exclusively women, to discuss what problems they have faced and how they tackled them.
- Develop a page on our web site that provides profiles of a number of examples of past and present female members of our Department and their current roles.
- Increase interest in Earth Science amongst female secondary school students

## **Section 4-D - Flexibility and managing career breaks**

***Section 4-D-a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.***

***Section 4-D-a-(i) Maternity return rate – comment on whether maternity return rate in the department has improved or deteriorated and any plans for further improvement. If the department is unable to provide a maternity return rate, please explain why.***

**The current situation:** All staff who have taken maternity leave have returned to work in the Department. Over the past six years, three female academic staff have taken a total of five maternity breaks, and have returned to work between 18 and 26 weeks after giving birth (a



matter of personal choice - the university allows a total of one year's maternity leave). All three have taken advantage of the Department's support for flexible working to manage their childcare responsibilities. The support the department provides to members who are taking maternity leave was mentioned in several comments in the staff survey, including: "The department was very supportive of my maternity leave (which occurred during my PhD). The university were inflexible regarding the dates of my maternity leave. Again, the department were very aware of this and made allowances for it."

Returning academic staff and postdocs can apply for additional University funds through the Returning Carer Scheme towards research costs, travel or technical support, to help them quickly re-establish their research profiles. The department strongly supports and encourages such applications with two female academic staff and one postdoc receiving funds from this scheme, thus far.

**Issues Arising:** One pressing issue is the current state of nursery provision within Cambridge. The University has two nurseries (current waiting list > 300) and a few colleges operate small nurseries. Some categories of staff are ineligible (e.g., Junior Research Fellows). The private nurseries within the city are heavily oversubscribed. For many staff, their return date depends entirely on when a nursery place becomes available and it has become common for women to have to work flexibly not through choice but because sufficient nursery provision is unavailable.

**What we will do about it:**

- Appoint a maternity/paternity mentor for any member of the department who will be taking a maternity leave; this person will provide advice and support for the female in question [AP 5.4A-E].
- Include plans for an onsite nursery when the department is unified in North-west Cambridge [AP 5.3B]
- Help negotiate the funding for postdocs if their grant or fellowship funding does not allow a delay for maternity leave [AP 5.5A].
- Promote the University's enhanced shared parental leave policy, introduced in 2015 [AP 5.4E].

***Section 4-D-a-(ii) Paternity, adoption and parental leave uptake – comment on the uptake of paternity leave by grade and parental and adoption leave by gender and grade. Has this improved or deteriorated and what plans are there to improve further.***

Sixty-nine people in the Department have taken some form of Parental Leave whilst working at the University; this is 96% of those who have children born/adopted whilst they were employed by the University. Five male academic staff over the past six years have taken a total of six two-week periods of paternity leave. These men have also availed themselves of the Department's support for flexible working hours to manage their childcare responsibilities.

***Section 4-D-a-(iii) Numbers of applications and success rates for flexible working by gender and grade – comment on any disparities. Where the number of women in the department is small applicants may wish to comment on specific examples.***

Some support staff (e.g. receptionist, building manager) are expected to keep regular hours but many staff make informal arrangements for flexible working to meet their needs. Eighteen people have made a formal application for flexible work over the past ten years (no academic staff have applied) -- no application has ever been turned down.

***Section 4-D-b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.***

***Section 4-D-b-(i) Flexible working – comment on the numbers of staff working flexibly and their grades and gender, whether there is a formal or informal system, the support and training provided for managers in promoting and managing flexible working arrangements, and how the department raises awareness of the options available.***

Our staff survey results show that most postdocs (92%), postgrads (86%) and academics (79%) think it is easy to work flexibly; of the postgraduate students and postdocs, 48% of those who said it was easy to work flexibly were women while 52% were men. Overall 82% of male employees (n=93) feel that it is easy to work flexibly, 77% of female employees (n=80) take the same view. Only 3% of those surveyed felt it was difficult or very difficult to work flexibly, (n=6, of which half were support staff). The Department's HR officer provides advice and application forms to staff wishing to apply to work flexibly. PIs are actively encouraged to support members in their research groups to work flexibly.

**What we will do about it:**

- Inform all academics and postdocs about relevant HR web pages by e-mail and at the Department Meetings [AP 5.2 A].
- Communicate that we support flexible working wherever possible by, for example, including this information in job advertisements where appropriate [AP 5.2 B].
- Inform all PIs/supervisors about the University Policy on flexible working hours (e-mail, Department Meeting, and HR seminar) [AP 5.2C].
- Explore the possibility to extend the exemption to take part in taught undergraduate field courses for parents with children between 3 and 5 years old [AP 5.2D].

***Section 4-D-b-(ii) Cover for maternity and adoption leave and support on return – explain what the department does, beyond the university maternity policy package, to support female staff before they go on maternity leave, arrangements for covering work during absence, and to help them achieve a suitable work-life balance on their return.***

The Department has a culture of flexible working hours with an emphasis on completing the work to a high specification rather than specifying when it is accomplished. Members of staff routinely

cover leave responsibilities for one another and even retired staff pitch in to meet teaching responsibilities for people on leave.

## 5. Any other comments: maximum 500 words

*Please comment here on any other elements which are relevant to the application, e.g. other SET-specific initiatives of special interest that have not been covered in the previous sections. Include any other relevant data (e.g. results from staff surveys), provide a commentary on it and indicate how it is planned to address any gender disparities identified.*

[488/500 words]

The Department and E&D committee were greatly disappointed by our previous application's rejection. We have carefully revised the previous application and implemented point-by-point the suggestions for improvement in the current resubmission. Because of word limitations in this section, we highlight below the response to the main criticisms only (i.e., those detailed under the evaluation heading: 'If unsuccessful at the level applied for, please explain why it failed to meet the criteria').

**The self-assessment panel.** We have recruited five new E&D Committee members including the current and future Heads of Department.

**Survey results frequently not disaggregated by gender.** The survey responses were analysed by our external consultant statistician. Gender was a significant factor in only four questions. We were initially constrained by our anonymity policy; "no data will be used to identify any group of fewer than 5 respondents". However, we have relaxed this policy allowing us to review questions with >5 respondents. Where numbers were sufficient, we have further disaggregated the responses for gender differences by staff group. We convened a focus group for the academic staff groups, which were too small to be disaggregated.

**Further reflection on the issue that the department is spread over two sites** We recognize that our split site poses additional challenges for gender equality and that we did not adequately explain this issue in the previous submission. We have established a Bullard sub-committee to ensure that our action plan is appropriate for - and implemented at - both sites. We have also included specific actions for the Bullard Laboratories. We note that the Department's longer term strategic plan includes uniting the two sites.

**Appraisal** - A new appraisal system is currently being piloted, to give academic staff and postdocs regular and appropriate discussion about career development. Mandatory reviews will consist of: self-assessment; assessment by the line manager; face-to-face discussion of progress, training and development needs, promotion, plans for the next review period, and creation of a written action plan. All third-year postgraduates now have meetings to discuss career development.

**Promotion** - We have revised our promotions' policy and strengthened the link between the appraisal and promotion processes. A promotions' committee (the HoD and appropriate senior colleagues) will review all eligible academic staff annually, encouraging those with good prospects of success to apply, in particular sufficiently experienced female academics. For each promotion candidate, a small group (the HoD and two senior academics in the candidate's field) will be formed to help the candidate prepare the best possible case.

**Progress** – Our action plan has progressed since the last submission. The last two academic hires have been females following the implementation of new shortlisting practices. We have instituted a post-interview survey for all candidates. Two female Lecturers have been promoted to Readerships. We have also met with the School of Physical Sciences Gender Champions and established an ongoing relationship. These exemplify the positive outcomes resulting from the Athena SWAN process and we look forward to further progress.