



**UNIVERSITY OF  
CAMBRIDGE**

Department of Earth  
Sciences



**Sedgwick Museum**  
*of Earth Sciences*

## **Director of the Sedgwick Museum of Earth Sciences**

As one of the oldest geological museums in the world, with its internationally important collections, the Sedgwick Museum requires a Director able to provide outstanding strategic leadership. The Director will be expected to use their significant experience and skills to extend the network of the museum, build up a diverse funding portfolio and to raise the profile and use of the Museum collections for research, teaching and public engagement with science. Reporting to the Head of the Department of Earth Sciences, the Director takes overall responsibility for the staff of the Museum.

The appointee will, ideally, have: a track record of working in national and/or University museums; a thorough understanding of collections management principles and the role of collections in research facilitation, object based learning and public engagement; research interests which will probably involve using the collections, as well as experience in the delivery of public engagement and/or science communication activities. Outstanding leadership skills are essential, as is the ability to network and engage with a diverse range of stakeholders, including researchers, academics, other museum professionals, prospective donors and funding agencies, and to represent the Museum at these levels. Applicants should have a degree and doctorate in Earth Sciences or a related scientific discipline.

The University and the Department are committed to equality and diversity and encourage applications from any potential appointee, especially from under-represented groups. The Department has an action plan to promote inclusivity in both the work and study environment. The University holds an institutional Athena-SWAN silver award and the Department is a bronze award holder. Details of some of the family-friendly policies operated by the University are at: <http://www.hr.admin.cam.ac.uk/pay-benefits/cambens-employeebenefits/family-friendly>.

Further particulars and information may be found at <http://www.jobs.cam.ac.uk/job/18114/>. Please use this link to apply online for this vacancy, from the University's Job Opportunities pages. There you will need to click on the 'Apply online' button and register an account with the University's Web Recruitment System (if you have not already) and log in before completing the online application form.

Related enquires should be directed to Claire Nellany on [cn318@cam.ac.uk](mailto:cn318@cam.ac.uk). Please quote reference LB16116 on your application and in any correspondence about this vacancy.

See also the Department website <http://www.esc.cam.ac.uk>  
Department of Earth Sciences, Downing Street, Cambridge CB2 3EQ, UK.



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silver award.*

## Main duties and responsibilities

<b>1</b>	<p>Provide strategic vision for the Sedgwick Museum including the initiation and prioritisation of new projects and initiatives.</p> <p>Develop a strategy and lead fundraising for the Sedgwick Museum, in conjunction with the university Development and Alumni Relations office, to secure funding to deliver that vision and enable the expansion of activities. To build up a diverse funding portfolio based on a range of public funding, University support and philanthropy, both individual and corporate. This may range from small annual sums for minor projects to less frequent campaigns for capital projects of the order of £2-5M.</p> <p>Develop and win both approval and financial support for new initiatives.</p>
<b>2</b>	<p>Have responsibility for setting, monitoring and extending the standards of service provided by the Museum.</p> <p>Have strategic responsibility for the development of collections and collection care, including the planning and implementation of collections digitisation.</p> <p>The Director is responsible for oversight of the Museum's accreditation and the designated status of the collections, which is also a regional collection centre.</p>
<b>3</b>	<p>Manage Museum staff proactively and establish individual career development pathways. Determining the allocation of project work amongst the Museum staff in a way which balances out their other day-to-day responsibilities and champions a culture of strong teamwork and commitment to the Museum's vision. Chair meetings of Museum staff.</p> <p>The Director advises the Head of Department of Earth Sciences on Museum staffing needs; signs off role profiles and adverts for new positions/vacancies; is responsible for staff selection for the Museum and for temporary Museum posts (e.g. through TES); is responsible for arranging staff reviews in the Museum; has responsibility for discussing and signing off re-grading requests; has direct line management for senior museum staff.</p> <p>The Director is also responsible for ensuring that new members of the Museum's staff, including volunteers, are adequately inducted and that health and safety information is circulated within the Museum to both staff and volunteers in the galleries and the conservation unit/collections store.</p>
<b>4</b>	<p>Provide leadership and extend the network of the Sedgwick Museum, both internally within the University of Cambridge, regionally and in the national/international museum sector. The Director should inform, liaise with, and co-operate with the General Board Museums Committee of the University (and is an ex-officio a member of that body), the University of Cambridge Museums partnership and the Cambridge Museums Steering Group.</p> <p>Has delegated authority from the Head of the Department of Earth Sciences to approve policy documents relating to the activities of the Museum; prepare research grant applications to develop the Museum and its collections; submit an annual report on the activities of the Museum.</p> <p>Advise and assist the HoD, where and when appropriate, in the formulation and revision of departmental strategic planning in relation to the Sedgwick Museum.</p> <p>Liaise with officers in the Unified Administrative Service (the University's central administration) on matters relating to health, safety, fire and insurance, referring promptly to HoD or the Department Administrator any staff management or financial issues which may need to be resolved through the</p>

	University's HR or finance procedures.
<b>5</b>	The Director manages the Museum's spending plans and is responsible for allocating and monitoring budgets to projects, staffing and devolved budgets within the Museum. This includes management of the Forbes fund in conjunction with the other fund managers (a £5M endowment which generates c. £170k income pa for use by the Museum) and annual reporting on the fund for the Faculty Board and the fund managers.
<b>6</b>	Extend the volunteer programme and coordinate with the Friends of the Sedgwick Museum.
<b>7</b>	Raise the profile and use of the collections, and the Museum, for research, teaching and public engagement with science. To nurture the research culture within the Museum and to encourage others, particularly in the Department of Earth Sciences, to make full use of the collections.
<b>8</b>	Take an informed interest in all aspects of the Museum's collections and undertake research on the collections.

## Person Specification

<b>Experience</b>	Track record of working in national and/or university museums.	Essential
	Experience of working in, or in close association with, the higher education sector.	Desirable
	Experience of income generation from trusts, foundations and individual philanthropy.	Desirable
	Ability and experience in developing national and international partnerships.	Desirable
<b>Skills</b>	Outstanding leadership skills with the credibility and profile to lead one of the oldest geological museums in the world with its internationally significant collections.	Essential
	Ability to network and engage with a diverse range of stakeholders, including academics, museum professionals, prospective donors, funding agencies and government, and to represent the Museum at these levels.	Essential
	A clear understanding of the role of a university museum in delivering to a higher education agenda.	Essential
	A thorough understanding of collections management principles and the role of collections in research facilitation, object-based learning and public engagement.	Essential
	Proven organisational skills with excellent managerial skills and leadership qualities, showing a readiness to lead by example matched by consideration for others.	Essential

<b>Qualifications</b>	Commitment, enthusiasm and track record of delivery in public engagement and the communication of science, and an understanding of evaluation (including impact)	Essential
	A track record of publication in sector-leading journals.	Essential
	Undergraduate degree and doctorate in Geology/Earth Sciences or a related scientific discipline	Essential
<b>Additional requirements</b>	<p>Highly developed interpersonal and communication skills with the proven ability to build and lead effective teams and develop effective working relationships.</p> <p>The person should be politically astute, with sufficient gravitas to advocate effectively for the Museum, improving communication with the remainder of the Department, and emphasising the importance of the Museum so that it is seen as an asset rather than a burden for the Department and the University.</p> <p>The new Director will also need to bring the Museum staff together as a team, implementing effective systems of individual career development for staff, and developing relationships both internally and externally.</p>	Essential

Job title	Director of the Sedgwick Museum of Earth Sciences
Grade	11
Staff Group	Academic-Related
Department / Institution	Department of Earth Sciences

## Terms and Conditions

<b>Location</b>	The Sedgwick Museum, Downing Site
<b>Working pattern</b>	Full Time
<b>Hours of work</b>	There are no formal conditions relating to hours and times of work but you are expected to work such hours and days as are reasonably necessary for the proper performance of your duties. Your times of work should be agreed between you and your head of institution.
<b>Length of appointment</b>	Permanent
<b>Probation period</b>	12 months
<b>Annual leave</b>	Full time employees are entitled to annual paid leave of 6.6 weeks (or 33 days), plus public holidays.
<b>Pension eligibility</b>	<p>Universities Superannuation Scheme (USS)</p> <p>Pension scheme details, including information about the legal requirement for the University to automatically enrol its eligible jobholders into a qualifying workplace pension scheme from 1 March 2013, is available at:  <a href="http://www.pensions.admin.cam.ac.uk/">http://www.pensions.admin.cam.ac.uk/</a>.</p>

# The Sedgwick Museum of Earth Sciences

The Sedgwick Museum of Earth Sciences is part of the University of Cambridge's Department of Earth Sciences. Its role is to support the teaching and research of the Department, to provide a service to researchers nationally and internationally who wish to work with the collections and to provide a public face for the University of Cambridge with a particular focus on the Department of Earth Sciences and the active areas of the Department's research. Reporting to the Head of the Department of Earth Sciences, the Director takes overall responsibility for the staff of the Museum (15 individuals) including those who work at the museum conservation unit and collections store. The Director is also responsible for actively engaging with the University of Cambridge Museums group.

The Sedgwick Museum is probably the oldest geological museum in the world and was founded on the 17th century collection of Dr John Woodward: 9,400 rocks, fossils, minerals and archaeological artefacts were bequeathed to the University in 1728. Today, the Museum houses a globally important collection of over 2 million fossils, minerals and rocks with a substantial associated archive. The collections include Darwin's rocks from the *HMS Beagle* expedition but it is also one of the most important international repositories of 'type' specimens of described fossil species, with more than 10,000 documented to date and over 21,000 specimens that have been figured in the scientific literature. The world-renowned Harker petrology collection contains about 250,000 thin sections of igneous and metamorphic rock and about 160,000 hand specimens (c. 25% of which have been referenced in the international scientific literature). There are also about 100,000 sedimentary rocks in the Black collection. The mineral collection comprises about 40,000-50,000 specimens including about 500 meteorites. There is also an important building stones collection and a large archive.

All of the Museum's collections are designated as being "of national and international importance" under Arts Council England's Designation Scheme. They are used by researchers and students from a wide range of national and international HE institutions. A large proportion of these researchers, both academic and postgraduate, are from HE institutions external to the University of Cambridge. The collections are spread across three sites: the Sedgwick Museum, A.G. Brighton Building and High Cross Rock Store. They provide the raw materials for research ranging from the palaeobiology of dinosaurs to the melt generation processes in the Earth's crust and mantle.

The Museum is open to the general public Mon- Sat. It receives up to 130,000 visitors per year; this includes many school and adult groups who, upon request, are provided with guided tours. Visit England has rated the Sedgwick Museum as the 3rd most popular free attraction in the east of England. Longstanding and high profile popular annual events include Night at the Museum and participation in the University of Cambridge Science Festival.

<http://www.sedgwickmuseum.org/>

## The Department of Earth Sciences

The Department has 34 academic staff, including 7 Fellows of the Royal Society, around 40 research fellows and postdocs, 10 Computer and Technical Officers and a range of support staff. There are over 80 graduate students. We have excellent computational and experimental facilities. Research grant expenditure by the Department for 2016/17 was £5.9M. The Department was listed 6th in the QS world rankings for Earth & Marine Science which were published in June 2018 and was the top listed Department in the Complete University Guide rankings for UK Geology which were published in May 2018.

**Strategy:** Our goal is to carry out fundamental innovative research to make major advances in the Earth Sciences. Our strategy is to promote a broad-ranging interdisciplinary approach, with research extending from geophysics to palaeontology to mineral physics. We have an exceptional research environment with state-of-the-art experimental facilities. The research transcends traditional scientific boundaries by the combination of staff with backgrounds from quantum physics to zoology, and by strong collaboration within Cambridge, nationally and internationally. We attract a large group of research fellows and post-graduate students who make vital contributions to our vibrant research culture. Our position within the uniquely integrated Natural Science Tripos teaching structure in Cambridge enables us to attract a significant number of biologists, physicists, chemists and mathematicians into Earth Sciences as undergraduates and as PhD students. We also attract excellent research students from other UK departments and institutions worldwide. We have strong collaborative links with industry, which exploits our fundamental research advances and employs many of our students and young research workers. This collaboration provides us with access to important data and has facilitated the design and

construction of novel instrumentation. We have been highly innovative in developing new initiatives through our flexible structure with a high degree of intra- and inter-departmental collaboration, and absence of rigid group boundaries.

Our future strategy will exploit our ability to bring intellectual breadth and flexibility to a wide range of problems in Earth Sciences, particularly in the areas of geodynamics, climate change and palaeobiology.

**Strong interdisciplinary collaboration:** The Department sits within the School of the Physical Sciences (SPS) which encompasses the physical and mathematical sciences; the Institute of Astronomy, which has interests in exoplanets, is part of this grouping. We have strong multidisciplinary collaboration in research particularly through the interdisciplinary research centres which we were instrumental in setting up, notably the BP Institute with the partner Departments of Applied Mathematics and Theoretical Physics (DAMTP), Chemistry, Engineering, and Chemical Engineering, and the Institute of Theoretical Geophysics (ITG) within DAMTP.

## RESEARCH

We recognize that many of the major advances in which we have been involved occurred at the boundaries between disciplines, such as marine geophysics and seismology (plate tectonics); earthquakes and stratigraphy (extensional basins); petrology, fluid mechanics and geochemistry (physical volcanology and melting); marine sedimentology and isotope geochemistry (climatic cycles); and solid-state physics, petrology and mineralogy (encapsulation of hazardous materials).

The following sections outline ongoing research in the Department in broad subject areas. We do not have research groups as such; many staff are involved in more than one subject area.

### Palaeobiology and Palaeoecology

**Academic Staff: Professor Nicholas Butterfield, Dr Daniel Field, Dr Liz Harper, Dr Alex Liu, Professor Simon Conway Morris, Dr David Norman**

A focus of our research is the Cambrian "explosion," arguably the greatest transition in the history of life, a better appreciation of which will improve our understanding of the broader aspects of the evolutionary process. Our approach involves novel interrogation of the early fossil record combined with leading-edge phylogenetic and morphometric techniques, and recognition of the powerful interplay between biological and planetary evolution. We are also a major centre for vertebrate palaeontology, again integrating biology (e.g. functional biology) and geology (e.g. plate tectonics and palaeobiogeography).

There are also strong intra-departmental links, particularly with palaeoceanography (David Hodell), low temperature geochemistry (Sasha Turchyn) and sedimentology (Neil Davies). There are also long-standing connections with both vertebrate palaeontologists and evolutionary and developmental biologists in the Department of Zoology.

The Department hosts the Sedgwick Museum, a major national and international research and training facility with a prominent role in communication with the public.

Current research includes:

- Community Structure, Evolution and Organismal Interaction
- The early evolution of eukaryotes, multicellularity and heterotrophy, particularly as they relate to ecological expansion through the Proterozoic and early Cambrian
- 'Ecosystem engineering' feedback effects of biological evolution
- Ediacaran and Cambrian (especially Burgess Shale-type) faunas
- The evolution and palaeobiology of archosaurian reptiles
- Predator-prey interactions in marine communities
- Systematics and phylogeny of early arthropods and ecdysozoans
- Recent and fossil bivalves with an eye to reconstructing their evolutionary history
- The mechanisms and palaeobiological implications of exceptional fossil preservation

- The development of combined phylogenetic and palaeobiogeographic techniques.
- Convergence and contingency in biological evolution.

## **Climate Change and Earth-Ocean-Atmosphere Systems**

**Academic Staff : Professor Mike Bickle, Dr Neil Davies, Professor David Hodell, Dr Alex Piotrowski, Dr Luke Skinner, Dr Ed Tipper, Dr Alexandra Turchyn, Professor Eric Wolff**

The climate group uses a range of archives and proxies to document past climate change. The aim is to elucidate the processes governing climate change, providing empirical evidence to test theories and models, including those used to predict future climate change. Our evidence comes from archives including marine and lake sediments and ice cores. We have developed a range of chemical, isotopic and sedimentary proxies of the critical parameters needed to describe past climatic states and the processes that force change. Among other topics we use these tools to look at climate change, ocean circulation, biogeochemical cycles and ice sheet changes, with a strong emphasis on glacial cycles and rapid climate change within the last glacial cycle. However, we also study earlier periods of Earth History, and more recent climate change and its impact on societies. We have increased the links between workers on marine, ice-core and terrestrial records and promoted collaboration with the climate modelling community. Our isotope-geochemistry laboratories, known collectively as the Godwin Laboratory ([link](#)), and facilities are state of the art.

Current research includes:

- Understanding astronomical forcing of climate change records as recorded in oceanic sediments.
- Multi-proxy studies of abrupt climate change in the oceans, and its impacts recorded in ice.
- Sedimentological and geochemical tracers of past deep-sea circulation vigour and its role for changing atmospheric CO<sub>2</sub>:
- Use of foraminiferal metal chemistry and the stable isotopic composition of biogenic sediments in palaeochemical studies of ocean temperature and nutrient variations.
- The stability of the Greenland and West Antarctic ice sheets, particularly during past warm periods
- Processes and geochemical fluxes associated with earth-atmosphere interaction in chemical weathering.
- Interactions between geochemistry and microbiology and how these related to biogeochemical cycling.
- Biogeochemical cycling of stable isotopes and elements in marine and terrestrial systems, with particular focus on the carbon and sulphur cycle.
- The co-evolution of alluvial systems and land plants during the Palaeozoic.
- The sedimentary record of the terrestrialization process.
- Applying geochemical methods for conducting societally relevant research, such as effects of climate change on ancient civilizations and carbon sequestration.

We are also interested in supervising research students in the general fields of seawater, ice core and sediment geochemistry, for example using isotope geochemistry to understand water and chemical budgets of the oceans, and in linking understanding of the chemistry of the modern rivers and oceans to weathering history and palaeoceanography. Studies of modern sedimentation also provide a link to understanding past ocean dynamics.

We have well equipped laboratories with two multi-collector ICP mass-spectrometers, two solid-source and eight gas-source mass spectrometers, atomic-emission spectrometer, high-resolution ICP-MS, C-H-N analyzer, atomic absorption, Sedigraph, a coulter counter, magnetic susceptibility, X-radiography, cathodoluminescence. Our ice core studies are collaborative with the British Antarctic Survey, also in Cambridge. Thus, we offer topics which incorporate training in geochemical and sedimentological techniques, into research on major current problems in global change and global biogeochemical cycles.

## **Mineral Sciences**

**Academic Staff: Professor Michael Carpenter, Dr Ian Farnan, Professor Richard Harrison, Professor Simon Redfern, Dr Emilie Ringe**

Mineral Sciences research seeks to understand the fundamental properties and behaviour of minerals in the natural environment, and apply this knowledge to answer important questions about the Earth and beyond. Our research focusses on the structure, dynamics and properties of crystalline solids from the Earth's core to the

biosphere, and how these properties impact upon broader Earth and environmental processes. The Mineral Sciences group collaborates closely with colleagues from Geophysics, Paleobiology, Petrology, Geochemistry and Climate on a diverse range of topics, from the use of magnetic proxies to trace biogeochemical processes in modern and ancient sedimentary environments to the use of meteorites to understand the thermal evolution of small planetary bodies in the early Solar System.

We have a wide range of in-house experimental facilities for the study of minerals and their properties, including world-leading laboratories for microscopy, diffraction and spectroscopy. We use national and international facilities for neutron scattering, synchrotron X-ray diffraction and supercomputing, and collaborate extensively with the Departments of Physics, Materials Science, Chemistry and Mathematics in Cambridge. The group houses the NanoPaleoMagnetism and Elasticity laboratories for the study of magnetic and elastic properties over a wide range of temperatures, frequencies and applied magnetic/electric fields, the NMR laboratory for the study of nuclear materials, and extensive facilities for the study of minerals and high temperatures and pressures.

Topics of current research include:

- Rock magnetism, paleomagnetism and environmental magnetism.
- Elasticity and anelasticity of minerals in Earth's crust, mantle and core.
- Advanced materials for nuclear waste encapsulation.
- Mineral-water interactions at extreme conditions.
- Synchrotron-based spectroscopy and magnetic imaging of minerals at the nanoscale.
- Multi-scale, multi-dimensional and multi-modal imaging of minerals using X-ray and electron tomography.
- Biomineralisation and paleoclimate proxies.
- Nonlinear mechanical properties of mixed-phase systems.
- Phase transitions in multiferroic materials, metal organic framework structures and unconventional superconductors.
- Properties and dynamics of transformation microstructures for potential device materials.
- Neutron, infrared and Raman spectroscopy of molecular processes in minerals.

## **Geophysics, Geodynamics and Tectonics**

**Academic Staff: Dr David Al-Attar, Professor Mike Bickle, Dr Alex Copley, Dr Sanne Cottaar, Professor James Jackson, Dr Jerome Neufeld, Professor Keith Priestley, Professor Nick Rawlinson, Dr John Rudge, Professor Nicky White, Professor Robert White, Professor Andrew Woods**

The distinctive feature of this grouping is the investigation of a very broad spectrum of structural, tectonic and geodynamical processes using quantitative physical models based on land-, marine- and space-based observations. Theoretical and geophysical analyses interface with advances in petrology, geochemistry and mineral sciences. Work at the BP institute and the Institute of Theoretical Geophysics is an integral part of this research and connects the Department closely with the Departments of Applied Mathematics and Theoretical Physics, Chemistry, Engineering, and Chemical Engineering. The COMET project on modelling and observation of earthquakes and tectonics has developed further our strong national and international collaboration in aspects of space-based observation combined with fieldwork. We have expanded our activities in marine seismology through collaboration with Schlumberger. We are developing research in normal-mode and body-wave earthquake seismology. An extensive array of seismometers and new computational facilities has strategically enhanced our research in all areas of seismology and geodynamic modelling.

This is a vibrant training environment, for a career either in industry or academia, backed up by excellent research facilities.

Research is ongoing in:

- Melt generation, and especially the relationship between composition, isotopic ratios and mantle stirring. The distribution of alkali basalts and kimberlites, and their relationship to lithospheric thickness.
- The relationship between shear-wave velocity and temperature, and hence to lithospheric thickness of the continents. Control of continental tectonics, especially the geometry of fold-mountain belts and variations in elastic thickness, by the structure of the lithosphere.
- Short-wavelength variations of the gravity field of the Earth, Moon and Mars using Doppler frequency shifts, principally to map variations in elastic thickness. The rheology of planetary interiors.

- Investigations of active faulting in earthquakes, through combined use of seismology, GPS, InSAR, geomorphology and Quaternary geology, from details of individual earthquakes to regional investigations of large continental areas. This effort is coordinated within the COMET group (<http://comet.nerc.ac.uk>).
- The extent to which vertical motions of the continents are controlled by lithospheric stretching and/or by mantle circulation. This interest is pursued in close collaboration with the hydrocarbon industry who often fund projects and provide datasets.
- Field deployments of networks of seismometers to study tectonics and lithosphere structure, as well as magma chambers in active volcanic regions. Areas of current work include Iceland, Iran, India, New Zealand, Chile, Indonesia and the Himalaya-Tibet region.
- State-of-the-art marine seabed and conventional controlled-source seismic acquisition, data modelling and inversion to study large-scale crustal processes that occur when continents break apart, where plates collide, and in sedimentary basins.
- Use of innovative controlled-source seismic techniques to map and monitor fluid flow and cracking in the subsurface, including application to water movement, CO<sub>2</sub> sequestration and hydrocarbon reservoirs.
- The use of earthquake seismology, in association with mineral physics, to investigate the structure and composition of the Earth's deep interior.
- The development of innovative theoretical and computational methods for solid Earth geophysics, including work on geophysical inverse problems and seismic tomography.
- Understanding the relationship between mantle upwelling, lithospheric structure and plate motion, with a particular focus on plume melting, edge-driven convection and shear driven upwelling, and their implications for intra-plate volcanism.
- Continental growth and evolution, and the relationship between the crust and lithospheric mantle over time. The use of multiple geophysical datasets, which can jointly constrain crust and upper mantle structure, forms a crucial part of this work.
- The BP Institute is focusing on multiphase fluid flow through porous media and is located at the Bullard Laboratories.

### **Petrology: Igneous, Metamorphic and Volcanic Studies**

**Academic Staff: Professor Mike Bickle, Dr Marie Edmonds, Dr Sally Gibson, Professor Tim Holland, Professor Marian Holness, Dr John MacLennan, Dr Jerome Neufeld, Dr John Rudge, Dr Oli Shorttle Dr Ed Tipper, Dr Owen Weller, Dr Helen Williams, Professor Andy Woods**

This grouping combines research into igneous, metamorphic and volcanic processes to enhance understanding of global tectonics as well as their more immediate impacts on our surficial environment. Our strategy is to integrate geological observational studies (field work, petrology, geochemical and isotopic analyses) with interdisciplinary work on multiphase flow in deformable media and the properties of the materials involved.

Current research includes:

- **Mantle heterogeneity and melt transport:** Isotope geochemistry, microanalysis and thermodynamics are used to characterise compositional heterogeneity in the convecting mantle. These observations constrain our statistical and computational models of the long-term evolution of Earth's geochemical structure and now highlight the relationship between heterogeneity and melt transport.
- **Mantle convection and lithospheric structure:** The study of mafic and ultramafic rocks from ocean islands, mid-ocean ridges, large igneous provinces and the continental interiors is used to probe mantle thermal structure and flow field and test models of mantle convection and lithospheric stability.
- **Magma chambers:** Observations of rock textures and compositional microanalyses are coupled with theoretical models and the results of laboratory experiments to understand magma chamber processes, including evolution of crystal mushes at chamber margins and mixing in the chamber interior.
- **Volcanic processes:** The establishment of remote, high-resolution measurements of volcanic gases in conjunction with analyses of melt inclusions to model the physical processes occurring during volcanic eruptions.
- **Thermodynamics, Mountain Building and Crustal Evolution:** Quantitative estimates of changes in pressure and temperature are being made using mineral compositional zonation and thermodynamic databases. The complexity of zoning can be linked to tectonic movements in the Earth's crust.

We have well-equipped geochemical laboratories for the preparation and geochemical analysis of minerals and rocks. As well extensive mass-spectrometric capabilities (Neptune, Element, Triton) our micro-analytical facilities include EPMA, FEI-Qemscan, micro-Raman and laser-ablation ICPMS.

The Department has laboratories for high pressure and temperature experiments and also for fluid dynamical investigations.

Further information about the Department is available at our website <http://www.esc.cam.ac.uk>.

## **TEACHING**

Teaching in the Department of Earth Sciences is an integral part of the Natural Sciences Tripos (NST). The Department teaches undergraduate courses in Earth Sciences (years 1-4) and Physics (year 4). Our students are scientifically skilled and numerate, which enables us to teach courses that explore fundamental, quantitative, interdisciplinary areas of the subject. It is in the latter context that we are unusual, even in terms of the NST, in having expertise ranging across physics, chemistry and biology. We are thus well equipped to introduce our students to current research frontiers. Our teaching staff enable students to acquire a broad scientific and geological training as well as specializing in areas ranging from hydrocarbon exploration to climate science and palaeobiology.

We aim to motivate our students' curiosity about the Earth Sciences and bring them to the intellectual level at which they can understand the controversies and apparent contradictions inherent in research. In the first and second year courses we also aim to give those NST students who ultimately specialise outside the Earth Sciences a rounded view of major topics and a lasting interest in the subject. This is of direct benefit to the Earth Sciences community, as some of these students return to the subject at postgraduate level, providing an essential transfer of science skills.

The quality of our courses is reflected in the numbers we attract to graduate with us; 80% originally intended to pursue other subjects. Our students are valued by postgraduate schools, industry and government for their numeracy and command of fundamental scientific principles.

Further information about the The Natural Sciences Tripos is available at: <http://www.cam.ac.uk/about/natscitripos/>

## **The Colleges**

The University, the Faculties and Departments, and the Colleges are linked in a complicated historical relationship that is mutually beneficial but not simple. Students (both graduate and undergraduate) are admitted by one of the 31 Colleges, although in the case of graduate students the Faculties and Departments determine admissions before the Colleges are involved. Almost all undergraduates, and many graduate students, live in a College. The teaching of undergraduate students is shared between the Colleges and the Faculties and Departments, with the Colleges arranging small group teaching ("supervision") and the Departments providing lecturing, laboratory classes, and advanced supervisions. Most academic staff will also be invited to join a College as a teaching or professorial fellow. College teaching is remunerated separately from the University teaching, and appointment to a College is a separate matter from a University appointment. Membership of a College adds an important social and intellectual dimension for many of the academic staff. The Chair of the Faculty/Head of Department or senior colleagues can give more advice.

## **GENERAL INFORMATION**

All appointments to University Offices are subject to the Statutes and Ordinances of the University.

### **Removal Expenses**

If the person appointed is not resident in Cambridge, a contribution from University funds towards expenditure incurred in removal to Cambridge to take up a University office will be made.

### **Consultancy Work**

The University's policy on consultancy work is that consultancy arrangements must be entered into privately between the employee and the organisation concerned. The consultancy work must not interfere with the duties required of the officer under the officer's contract of employment with the University. Consultancy work is not covered by the University's insurances, even when the University has knowledge that such work is being done. The University must not be regarded as being directly or indirectly involved in any consultancy arrangement through the use of University letterheads, advice given or work done in the individual's capacity as an employee of the University. Individuals undertaking private or consultancy work are advised to take out personal insurance.

Alternatively, professional indemnity cover may be obtained by channelling private work through the University company Cambridge Enterprise Ltd. Anyone wishing to do so should, in the first instance, contact Cambridge Enterprise at [www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk).

### **Family friendly policies and benefits**

The University has a range of family friendly policies to aid employee's work-life balance including maternity, paternity and parental leave, flexible working and career break schemes. In addition, childcare vouchers, access to two nurseries and a holiday play scheme are available through the Childcare Office to help support University employees with childcare responsibilities. Further information can be found at: <http://www.admin.cam.ac.uk/offices/hr/staff/benefits/family.html>

### **Eligibility to work and reside in the UK**

UK immigration procedures stipulate that an employer may not consider the appointment of any person unless they have seen evidence of their immigration status. Accordingly, shortlisted candidates, whatever their nationality, will be asked to provide such evidence at an appropriate stage in the recruitment procedure.

### **Equal Opportunities Information**

The University of Cambridge appoints solely on merit. No applicant for an appointment in the University, or member of staff once appointed, will be treated less favourably than another on the grounds of sex (including gender reassignment), marital or parental status, race, ethnic or national origin, colour, disability (including HIV status), sexual orientation, religion, age or socio-economic factors.

### **Information if you have a Disability**

The University welcomes applications from individuals with disabilities. Our recruitment and selection procedures follow best practice and comply with disability legislation.

The University is committed to ensuring that applicants with disabilities receive fair treatment throughout the recruitment process. Adjustments will be made, wherever reasonable to do so, to enable applicants to compete to the best of their ability and, if successful, to assist them during their employment. We encourage applicants to declare their disabilities in order that any special arrangements, particularly for the selection process, can be accommodated. Applicants or employees can declare a disability at any time.

Applicants wishing to discuss with or inform the University of any special arrangements connected with their disability can, at any point in the recruitment process, contact, Claire Nellany, who is responsible for the administration of the recruitment process, by email on [cn318@cam.ac.uk](mailto:cn318@cam.ac.uk).

Further information about the University can be found by visiting the University of Cambridge website:

<http://www.cam.ac.uk>