



University of
St Andrews

Earth & Environmental Science Research Fellow





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Introduction



"Our remarkable students and staff are the lifeblood of St Andrews. It is their energy, vision and momentum [we] aim to support, to free them to use knowledge, ideas, and potential for the benefit of all." The Principal, Professor Sally Mapstone

Founded in 1413, the University of St Andrews is Scotland's first university and one of the oldest in the English-speaking world. With more than 600 years of academic excellence, we are proud of our reputation as a world-class centre for learning, teaching, and research.

St Andrews is a close-knit, international community set in a beautiful historic town on Scotland's east coast. Our students and staff come from over 140 countries, creating a diverse and globally minded environment. We strive to create an inclusive culture in which all can flourish, and the University have attained several diversity awards, including those related to race and gender equality, and support for carers, which demonstrate our commitment to this ambition. The University is consistently ranked among the UK's top institutions for student satisfaction, research quality, and teaching excellence.

We are a research-intensive university where creativity, collaboration, and critical inquiry are at the heart of everything we do. Whether you are joining us in an academic, professional, or support role, you will be part of a team committed to delivering outstanding education and making a meaningful contribution to society.

For those looking to be part of a university with deep-rooted heritage, a global outlook, and a forward-thinking approach, we invite you to consider joining our community at the University of St Andrews.



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School of Earth & Environmental Science

The School of Earth & Environmental Sciences addresses fundamental questions about the past, present, and future of Earth and other planets. We foster an environment for creative, collaborative and world-leading research with real world impact. We have an outstanding record of high impact research, underpinned by high research funding success and an international collaborative footprint.

The post will be based in the Scottish Oceans Institute at the University of St Andrews. This is an interdisciplinary research institute which forms a key focus for research excellence in the marine sciences across the university and beyond. The research fellow will join Dr Nicola Allison's group in researching biomineralisation and carbonate geochemistry. The research fellow will also work closely with Dr Carmel McDougall and Prof Adrian Finch (Schools of Biology and Earth & Environmental Sciences, University of St Andrews) and Prof Fabio Nudelman (School of Chemistry, University of Edinburgh). The research fellow will make visits to the University of Edinburgh for electron microscopy.





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Job Description

Reporting to: Dr Nicola Allison

Location: St Andrews

Job Family: Academic Research

Working Hours: Full time / 36.25 hours per week

Grade/Salary Range: Grade 6, £38,784 - £42,254 per annum

Reference Number: AR3356RS

Start Date: 4 January 2027 or as soon as possible thereafter

Interview Date: w/c 7 December 2026

Duration of post: Until 30 June 2030

Main Purpose of the Role

Applications are sought for a committed Post-doctoral Research Fellow to work on an exciting project to explore the impact of amorphous calcium carbonate (ACC) precursor phases on marine CaCO_3 palaeoproxies. The geochemistry of biogenic marine fossil carbonates encodes invaluable information on past seawater temperature and conditions. Aragonite Sr/Ca (corals and molluscs) and calcite Mg/Ca (foraminifera and molluscs) are influenced by seawater temperatures while the $\delta^{18}\text{O}$ of both materials reflects seawater temperature and seawater $\delta^{18}\text{O}$ (an indicator of global ice volume). Recent biomineralisation research indicates that ACC is a precursor phase in the formation of coral, mollusc and foraminifera CaCO_3 . The proposed research has 2 key aims. First, to identify how ACC forms and converts to aragonite and calcite at the pH and DIC observed at marine organism calcification sites and second, to determine how formation via the ACC precursor influences the geochemistry of key palaeoproxies. The study will focus on key palaeothermometers, i.e. aragonite Sr/Ca, calcite Mg/Ca, and $\delta^{18}\text{O}$ of both minerals, but will also explore a broader range of proxies.

Main Purpose of the Role

The research fellow will undertake innovative interdisciplinary research to characterise the fluid modifications required to form and convert ACC to aragonite and calcite *in vitro* under simulated organism calcification conditions. Marine calcifiers produce biomolecules which regulate CaCO_3 formation and a key objective will be to test the roles of relevant biomolecules in ACC formation and transformation. The research fellow will determine if calcite and aragonite formed via ACC conversion exhibit different palaeoproxy chemistry compared to minerals precipitated directly from seawater. They will use scanning and cryo-transmission electron microscopy to observe ACC formation and conversion and to identify the likely origin of any geochemical offsets between minerals formed with and without a precursor phase. Ultimately the project will resolve how ACC precursors influence the predominant palaeoproxies used to determine past seawater temperatures and will provide innovative calibrations to generate accurate past seawater temperatures from existing palaeoenvironmental compilations.

The research fellow will play a central role in designing and conducting experiments, analysing complex datasets, interpreting findings and disseminating results through high quality publications and presentations at national and international conferences. They will contribute to collaborative activities within the project, support the supervision of postgraduate and undergraduate researchers where appropriate, and help foster an inclusive, collegial and intellectually stimulating research environment.

This position provides an outstanding opportunity to join a vibrant, multidisciplinary research team. The project combines elements of CaCO_3 precipitation and geochemistry, biomineralisation, biomolecular chemistry and electron microscopy and we will consider applicants from all relevant backgrounds. The research fellow will receive full training in all the required techniques but experience of one or more of the following is essential: mineral precipitation expertise, trace element/isotope geochemistry analysis or electron microscopy. The successful applicant will have a demonstrable ability to rapidly acquire additional skills and will be expected to work with a high degree of independence while contributing effectively to the goals of the research programme.



Key Responsibilities

1. Plan, organise and undertake independent research within the NERC-funded project, working closely with the Principal Investigator and project collaborators to deliver the scientific objectives and expand existing areas of research in ACC formation, transformation and geochemistry.
2. Undertake precise experiments to form CaCO_3 , characterise seawater dissolved inorganic chemistry, identify CaCO_3 polymorph via XRD and/or Raman spectroscopy, and work under trace element clean conditions to produce and analyse CaCO_3 for relevant trace elements and isotopes.
3. Use transmission and scanning electron microscopy to image CaCO_3 formation and transformation at up to the nm scale in collaboration with expert staff at the University of Edinburgh.
4. Contribute to the planning and development of project activities, including experimental design, data interpretation, troubleshooting and coordination with collaborators across multiple institutions and disciplines. Plan and conduct own research activities within the project to meet deadlines and deliverables.
5. Maintain clear, transparent and accurate records of scientific research and archive data and samples.
6. Maintain a thorough and up-to-date understanding of the relevant scientific literature and emerging developments in the fields of CaCO_3 formation and geochemistry.
7. Provide regular updates on research progress, including preparation of reports, presentations and data summaries for project meetings, funders and collaborators, and participate in collaborative visits where appropriate.
8. Analyse, interpret and present complex experimental data, contributing to project decision-making and the development of future research directions.
9. Contribute to the dissemination of research findings through authorship of peer reviewed publications, presentation at national and international scientific conferences, and engagement with public-facing communication and outreach activities.
10. Participate in relevant research, School and University activities, including project meetings, seminars, training opportunities and other events that support the wider academic community.
11. Provide guidance and support to postgraduate and undergraduate researchers, including Masters and PhD students, contributing to a positive and collaborative research environment.



Key Responsibilities

12. Support the day-to-day operation of the research laboratory, management of research materials, adherence to health and safety requirements, and proactive identification and resolution of technical challenges.
13. Undertake any other duties appropriate to the grade of the post as required by the Principal Investigator or the University.

This position may involve some international travel to attend meetings/work with collaborators.

Some evening or weekend work may be required in order to run/monitor time sensitive experiments. You will be required to make collaborative visits to the University of Edinburgh.



Person Specification

Attributes	Essential	Desirable	Means of Assessment (i.e. application form, interview, test, presentation etc.)
Education & Qualifications <i>(technical, professional, academic qualifications and training required)</i>	Good first degree in relevant subject Hold or be close to submission of PhD in Earth, Environmental, Physical, Chemical or Biological Sciences		Application/certificates Application/certificates or institutional letter of support
Experience & Knowledge <i>(examples of specific experience and knowledge sought)</i>	Experience of at least one of the following: trace element/isotope geochemistry analysis, electron microscopy or mineral precipitation expertise Developing research track record commensurate with stage in career	Knowledge of biomineralisation	Application/Interview Application/Interview
Competencies & Skills <i>(e.g. effective communication skills, initiative, flexibility, leadership etc)</i>	Excellent written and oral communication skills, good knowledge of literature and literature research skills, organised. Ability to work autonomously and to be proactive in identifying and resolving issues	Evidence of disseminating research to constituencies beyond the academic community Ability to rapidly acquire additional skills	Application/Interview Application/Interview/ references



Person Specification

Attributes	Essential	Desirable	Means of Assessment (i.e. application form, interview, test, presentation etc.)
Competencies & Skills (e.g. <i>effective communication skills, initiative, flexibility, leadership etc</i>)	Administrative and IT skills appropriate for the efficient and effective delivery of research. Well-developed time management skills with the ability to meet deadlines	Ability to rapidly acquire additional skills	Application/Interview Application/Interview/ references
Other Attributes/Abilities (if applicable)	Evidence of keeping up to date with new developments in relevant knowledge and techniques.	Evidence of participation in relevant academic and professional associations/bodies and external research networks.	Application/Interview

Essential Criteria – requirements without which a candidate would not be able to undertake the full remit of the role. Applicants who have not clearly demonstrated in their application that they possess the essential requirements will normally be rejected at the short-listing stage.

Desirable Criteria – requirements which would be useful for the candidate to hold. When short listing, these criteria will be considered when more than one applicant meets the essential requirements.



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Benefits

St Andrews offers more than just a place to work—it is a place to belong. We value collegiality, inclusion, and wellbeing, and we are committed to creating a workplace where staff can thrive and perform at their best.

In addition to the salary on offer for this position, there are a wide range of benefits for staff working at the University of St Andrews. The package for the Research Fellow includes:

- Financial contribution to relocation (subject to eligibility)
- Membership of the USS Pension Scheme with a generous employer contribution of 14.5%
- A hybrid working environment, including partial homeworking where appropriate and a range of family friendly policies, supporting work-life balance
- Staff discount scheme for local and national goods and services
- Free staff parking, employee Carshare and Cycle to Work Schemes and subsidised local bus travel
- Subsidised sports membership, reduced tuition fees on degree programmes for staff, access to training and development opportunities including LinkedIn Learning, access to library facilities, salary sacrifice scheme
- 34 Days Annual Leave plus 5 Public Holidays.



How to Apply



We are committed to creating an accessible, fair and inclusive recruitment process for all candidates. If you require reasonable adjustments or accommodations during the application or interview process then please let us know and we will be happy to discuss support with you.

We encourage applicants to apply online at www.vacancies.st-andrews.ac.uk/welcome.aspx

If you have difficulties in completing the online application form, then please call +44 (0)1334 461990 or contact vacancies@st-andrews.ac.uk to discuss available support.

Applications should consist of:

- Letter of application (to include motivation for applying for the post).
- CV
- Names and contacts of two referees

For all applications, please quote ref: **AR3356RS**

The University of St Andrews is a charity registered in Scotland (No SC013532).



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Equality, Diversity & Inclusion

At St Andrews, we see diversity as a strength and value the rich variety of backgrounds, identities and experiences of our staff, students and alumni. We are committed to making the University a beacon of inclusivity and creating an environment in where everyone can flourish and realise their potential.

We will achieve this through an approach that empowers our whole community and involves a determined shift in culture. Inclusivity will inform all of our policies and practices. The Principal, Professor Sally Mapstone

Diverse is a core theme of the University Strategy, and alongside our People Strategy, outlines a number of actions we are taking to create an inclusive culture. Our objectives include raising awareness of diversity events, initiatives and support, strengthening support for staff networks, creating more opportunities for employees to engage in consultations and discussions, offering a diverse range of rewarding career pathways and ensuring a working environment which supports positive working practices and behaviours.

We commit to providing a high-quality staff experience which enables all our staff to contribute, thrive, and perform at their best. By joining us at the University of St Andrews, you are joining a community which values difference, being your authentic self, and where you can play an active role in ensuring an inclusive environment for all.



St Andrews

A modern location surrounded with ancient history, St Andrews is a dynamic and friendly town found on the east coast of Scotland. Situated in the Kingdom of Fife, St Andrews has easy links to nearby commuter towns and transport links (including airports) to the nearby cities of Dundee (13 miles) and Edinburgh (c. 1 hour by train).

Beyond the lecture halls and labs, St Andrews is home to stunning, unspoilt beaches and fresh sea air. Take a peaceful stroll or an energising walk with friends along the iconic two-mile stretch of the West Sands. If you prefer the water, ride the waves at the East Sands or try sailing, sea kayaking and windsurfing. For breathtaking views, a walk to the end of the stone pier is an experience not to be missed.

St Andrews and the surrounding area is home to a wide range of restaurants and shops, while boasting an array of beautiful beaches. St Andrews is also the home of golf and there are seven local courses including the famous Old Course.

Fife is an area filled history and culture. There are nearly 5,000 listed buildings and 50 conservation areas across the Kingdom, with some historic structures dating all the way back to the 12th century. St Andrews enjoys a microclimate and is typically much drier than western parts of the country.





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Further Information

This post will be primarily based at the Scottish Oceans Institute at the University of St Andrews.

Interviews will be held on **w/c 7 December 2026**

The University encourages all interested candidates to apply, and all applications received are assessed against the essential and desirable criteria listed in the further particulars. The successful candidate will have to demonstrate their right to work in the UK prior to commencing employment and where required, the University can support with visa sponsorship.

You are expected to uphold a duty of care towards colleagues, students, and communities, and to actively contribute to a safe, respectful, and inclusive environment. This includes responding appropriately to disclosures or reports of sexual misconduct, gender-based violence, bullying, harassment, or other concerns, in line with organisational policies, and signposting individuals to the appropriate departments





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