



## Position Description

<b>College/Division:</b>	College of Science
<b>Faculty/School/Centre:</b>	Research School of Earth Sciences
<b>Department/Unit:</b>	Geophysics
<b>Position Title:</b>	Postdoctoral Fellow
<b>Classification:</b>	Academic Level A
<b>Position No:</b>	TBA
<b>Responsible to:</b>	Professor Meghan Miller, Geophysics
<b>Number of positions that report to this role:</b>	Nil
<b>Delegation(s) Assigned:</b>	Nil

### PURPOSE STATEMENT:

The ANU Research School of Earth Sciences (RSES) is Australia's largest academic research institution for Earth Sciences, and a world-class centre for Solid Earth Geophysics research. Researchers have a tradition of excellence in addressing big challenges in Earth Science, including the origins and evolution of planet Earth, to understanding climate change and building a sustainable future.

This position is fully funded by ARC Centre of Excellence in Optical Microcombs for Breakthrough Science, which aims to explore the society wide transformations that will flow from optical frequency combs - thousands of highly pure light signals precisely spaced across the entire optical spectrum - by leveraging and building upon the latest breakthroughs in physics, materials science and nanofabrication.

A new development in seismology over the past few years, Distributed Acoustic Sensing (DAS), transforms telecommunication fibre-optic cables into linear arrays of (large-N) ground motion sensors. The combination of new technology and cutting-edge methodologies is transforming how seismologists acquire data, providing much higher resolution and a broad range of applications. These types of passive source experiments will begin to bridge the existing gap between more traditional passive seismic images of the Earth with the geological and geochemical samples of the Earth's materials.

The Postdoctoral Fellow will be responsible for the deployment, acquisition, analysis and interpretation of large DAS datasets and development of technical advances using optical frequency microcombs. The goal is to expand the capability of our strong field-based seismic imaging research utilising DAS with new technology innovations through the ARC Centre of Excellence COMBS, and therefore understanding of the Earth's structure and evolution.

The Postdoctoral Fellow is expected to undertake work in all three areas of academic activity –research, education and service (including outreach). The allocation of time to each area will be discussed with the position supervisor annually and be reflective of the external funding conditions that support the appointment, the appointees research agenda, school and interdisciplinary teaching requirements and leadership opportunities within the School environment.

### KEY ACCOUNTABILITY AREAS:

#### Position Dimension & Relationships:

The Postdoctoral Fellow will be based at the Research School of Earth Sciences (RSES), and will work under the supervision of Prof Meghan Miller. The successful candidate will also work closely and collaborate with other members of the Geophysics area. The Postdoctoral Fellow will be accountable to the Director of the School. The Postdoctoral Fellow will be expected to work collegially, leading by example to develop and maintain effective, productive and beneficial workplace relationships within all academic and professional School and College staff, students and honorary appointees, as well as with industry stakeholders. This position will also have a mentoring role for students and will engage in collegial and productive collaborations

with local, national and international colleagues.

### **Role Statement:**

In their role as an Academic Level A the Postdoctoral Fellow is expected to:

- Undertake independent research in the area of DAS seismology, with a view to publishing original and innovative results in refereed journals, present research at academic seminars and at national and international conferences and collaborate with other researchers at a national and international level. This includes working as part of a team on an externally funded ARC Centre of Excellence (COMBS) subject to deadlines.
- Collaborate with senior staff to actively seek and secure external funding, assist to prepare and submit research proposals to external funding bodies as appropriate.
- Subject to the requirements of the funding source and where an opportunity exists, the successful applicant may be asked to contribute to the teaching activities of the School at the undergraduate and graduate levels. This includes, but is not limited to, the preparation and delivery of lectures and tutorials, the preparation of online material, marking and assessment, consultations, and with students or acting as subject coordinators.
- Supervise students working on individual or group projects at undergraduate, honours, graduate-coursework levels. Assist with supervision of research students.
- Contribute to the broader academic activities of the school as opportunity arises.
- Develop and maintain collaboration within the ARC Centre of Excellence in Optical Microcombs for Breakthrough Science (COMBS)
- Assist in outreach activities including to prospective students, research institutes, industry, government, the media and the general public.
- Maintain high academic standards in all education, research and administration endeavours.
- Take responsibility for their own workplace health and safety and not wilfully place at risk the health and safety of another person in the workplace.
- A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.
- Other duties as required that are consistent with the classification of the position.
- Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity

### **Skill Base:**

A Level A academic will work with the support and guidance from more senior academic staff and is expected to develop their expertise in teaching and research with an increasing degree of autonomy.

A Level A academic will normally contribute to teaching at the institution, at a level appropriate to the skills and experience of the staff member, engage in scholarly, research and/or professional activities appropriate to their profession or discipline, and undertake administration primarily relating to their activities at the institution. The contribution to teaching of Level A academics will be primarily at undergraduate and graduate diploma level.

### **SELECTION CRITERIA:**

- A PhD (or awarding of a PhD within six months of appointment) in Earth sciences, seismology, computational geophysics, physics or a related area.
- A track-record of independent research as evidenced by publications in peer-reviewed journals and presentations at conferences.
- Knowledge of and/or expertise in two or more of the following would highly be desirable:
  - common programming language, such as scientific Python, Matlab, or C++
  - DAS processing and computing
  - international standard data formats (e.g. miniSEED HDF5 or TDMS)
  - data visualisation techniques
  - experience in DAS seismology
- An ability and commitment to contribute to bids for competitive external funding to support individual and collaborative research activities.
- Evidence of an ability and willingness to teach at all levels.

- The ability to assist in the supervision of students working on research projects.
- The ability to work as part of a team and to meet deadlines.
- Excellent oral and written English language skills and a demonstrated ability to communicate and interact effectively with a variety of staff and students in a cross-disciplinary academic environment and to foster respectful and productive working relationships with staff, students and colleagues at all levels.
- A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.

*The ANU conducts background checks on potential employees, and employment in this position is conditional on satisfactory results in accordance with the Background Checking Procedure which sets out the types of checks required by each type of position.*

<b>Supervisor/Delegate Signature:</b>	<b>Professor Meghan Miller</b>	<b>Date:</b>	June 2024
Printed Name:		<b>Uni ID:</b>	

### References:

[General Staff Classification Descriptors](#)

[Academic Minimum Standards](#)

	<b>Australian National University</b>	<h1>Pre-Employment Work Environment Report</h1>
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### Position Details

<b>College/Div/Centre</b>	College of Science	<b>Dept/School/Section</b>	RSES
<b>Position Title</b>	Postdoctoral Fellow	<b>Classification</b>	Academic Level A
<b>Position No.</b>	TBC	<b>Reference No.</b>	

In accordance with the Work Health and Safety Act 2011 (Cth) the University has a primary duty of care, so far as reasonably practicable, to ensure the health and safety of all staff while they are at work in the University.

- This form must be completed by the supervisor of the advertised position and appended to the back of the Position Description.
- This form is used to advise potential applicants of work environment and health and safety hazards prior to application.
- Once an applicant has been selected for the position they must familiarise themselves with the University WHS Management System via Handbook guidance <https://services.anu.edu.au/human-resources/health-safety/whs-management-system-handbook>
- The hazards identified below are of generic nature in relation to the position. It is not correlated directly to training required for the specific staff to be engaged. Identification of individual WHS training needs must be in accordance with WHS Local Training Plan and through the WHS induction programs and Performance Development Review Process.
- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see 'Employment Medical Procedures' at [http://info.anu.edu.au/Policies/\\_DHR/Procedures/Employment\\_Medical\\_Procedures.asp](http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp)

### Potential Hazards

- Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a **regular** or **occasional** part of the duties.

TASK	regular	occasional	TASK	regular	occasional
key boarding	<input checked="" type="checkbox"/>	<input type="checkbox"/>	laboratory work	<input type="checkbox"/>	<input checked="" type="checkbox"/>
lifting, manual handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	work at heights	<input type="checkbox"/>	<input type="checkbox"/>
repetitive manual tasks	<input type="checkbox"/>	<input type="checkbox"/>	work in confined spaces	<input type="checkbox"/>	<input type="checkbox"/>
Organizing events	<input type="checkbox"/>	<input type="checkbox"/>	noise / vibration	<input type="checkbox"/>	<input type="checkbox"/>
fieldwork & travel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	electricity	<input type="checkbox"/>	<input type="checkbox"/>

driving a vehicle	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>NON-IONIZING RADIATION</b>			<b>IONIZING RADIATION</b>	
solar	<input type="checkbox"/>	<input checked="" type="checkbox"/>	gamma, x-rays	<input type="checkbox"/>
ultraviolet	<input type="checkbox"/>	<input type="checkbox"/>	beta particles	<input type="checkbox"/>
infra red	<input type="checkbox"/>	<input type="checkbox"/>	nuclear particles	<input type="checkbox"/>
laser	<input type="checkbox"/>	<input type="checkbox"/>		
radio frequency	<input type="checkbox"/>	<input type="checkbox"/>		
<b>CHEMICALS</b>			<b>BIOLOGICAL MATERIALS</b>	
hazardous substances	<input type="checkbox"/>	<input type="checkbox"/>	microbiological materials	<input type="checkbox"/>
allergens	<input type="checkbox"/>	<input type="checkbox"/>	potential biological allergens	<input type="checkbox"/>
cytotoxics	<input type="checkbox"/>	<input type="checkbox"/>	laboratory animals or insects	<input type="checkbox"/>
mutagens/teratogens/ carcinogens	<input type="checkbox"/>	<input type="checkbox"/>	clinical specimens, including blood	<input type="checkbox"/>
pesticides / herbicides	<input type="checkbox"/>	<input type="checkbox"/>	genetically-manipulated specimens	<input type="checkbox"/>
			immunisations	<input type="checkbox"/>
<b>OTHER POTENTIAL HAZARDS (please specify):</b>				
<b>Supervisor/Delegate Name:</b>	<i>Professor Meghan Miller</i>		<b>Date:</b>	<i>June 2024</i>



## Position Description

<b>College/Division:</b>	<b>College of Science</b>
<b>Faculty/School/Centre:</b>	<b>Research School of Earth Sciences</b>
<b>Department/Unit:</b>	<b>Geophysics</b>
<b>Position Title:</b>	<b>Research Fellow</b>
<b>Classification:</b>	<b>Academic Level B</b>
<b>Position No:</b>	
<b>Responsible to:</b>	<b>Professor Meghan Miller</b>
<b>Number of positions that report to this role:</b>	<b>Nil</b>
<b>Delegation(s) Assigned:</b>	<b>Nil</b>

### **PURPOSE STATEMENT:**

The ANU Research School of Earth Sciences (RSES) is Australia's largest academic research institution for Earth Sciences, and a world-class centre for Solid Earth Geophysics research. Researchers have a tradition of excellence in addressing big challenges in Earth Science, including the origins and evolution of planet Earth, to understanding climate change and building a sustainable future.

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A new development in seismology over the past few years, Distributed Acoustic Sensing (DAS), transforms telecommunication fibre-optic cables into linear arrays of (large-N) ground motion sensors. The combination of new technology and cutting-edge methodologies is transforming how seismologists acquire data, providing much higher resolution and a broad range of applications. These types of passive source experiments will begin to bridge the existing gap between more traditional passive seismic images of the Earth with the geological and geochemical samples of the Earth's materials

The Research Fellow is expected to undertake work in all three areas of academic activity – research, education and service (including outreach). The allocation of time to each area will be discussed with the position supervisor annually and be reflective of the conditions of the external funding, the appointees research agenda, school and interdisciplinary teaching requirements and leadership opportunities within the School environment. The Research Fellow/Lecturer may also be required to supervise or mentor less senior staff, and undertake leadership roles as applicable. The staff member will contribute cooperatively to the overall intellectual life of the School, College and University.

### **KEY ACCOUNTABILITY AREAS:**

#### **Position Dimension & Relationships:**

The Research Fellow will be a member of Research School of Earth Sciences, accountable to Professor Meghan Miller and Director of the School. The Research Fellow will be expected to work collegially, leading by example to develop and maintain effective, productive and beneficial workplace relationships within the all-academic and professional School and College staff, students and honorary appointees, as well as with industry stakeholders. This position will also have a mentoring role for students and will engage in collegial and productive collaborations with local, national and where possible, international colleagues.

#### **Role Statement:**

In their role as an Academic Level B the Research Fellow is expected to:

- Undertake independent research in the area of DAS seismology, with a goal to publishing original and innovative results in refereed journals, present research at academic seminars and at national and international conferences and collaborate with other researchers at a national and international level. This includes working as part of a team on an externally funded ARC Centre of Excellence (COMBS) subject to deadlines.
- Actively seek and secure external funding including the preparation and submission of research proposals to external funding bodies.
- Subject to the requirements of the funding source and where an opportunity exists, the successful applicant may be asked to contribute to the teaching activities of the School at the undergraduate and graduate levels. This includes, but is not limited to, the preparation and delivery of lectures and tutorials, the preparation of online material, marking and assessment, consultations, and with students or acting as subject coordinators.
- Supervise students working on individual or group projects at undergraduate, honours, graduate-coursework levels. Assist with supervision of research students.
- Supervise Postdoctoral Fellow's and research support staff in your research area.
- Develop and maintain collaboration within the ARC Centre of Excellence in Optical Microcombs for Breakthrough Science (COMBS)
- Actively contribute to all aspects of the operation of the School. This may include representation through committee memberships.
- Assist in outreach activities including to prospective students, research institutes, industry, government, the media and the general public.
- Maintain high academic standards in all education, research and administration endeavours.
- Take responsibility for their own workplace health and safety and not wilfully place at risk the health and safety of another person in the workplace.
- A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.
- Other duties as required that are consistent with the classification of the position.
- Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity

### **Skill Base:**

A Level B academic will undertake independent teaching and research in their discipline or related area. In research and/or scholarship and/or teaching a Level B academic will make an independent contribution through professional practice and expertise and coordinate and/or lead the activities of other staff, as appropriate to the discipline.

A Level B academic will normally contribute to teaching at undergraduate, honours and postgraduate level, engage in independent scholarship and/or research and/or professional activities appropriate to their profession or discipline. The academic will normally undertake administration primarily relating to their activities at the institution and may be required to perform the full academic responsibilities of and related administration for the coordination of an award program of the institution.

### **SELECTION CRITERIA:**

- A PhD in observational seismology or an area related to solid earth geophysics, with a track record of independent research as evidenced by publications in peer-reviewed journals and conferences, a record of developing and maintaining collaborations and by other measures such as awards, and invitations to present at conferences.
- Evidence of experience that is relevant to some or all of the following areas with the ability to articulate and prosecute innovative research:
  - common programming language, such as scientific Python, Matlab, or C++
  - DAS processing and computing
  - international standard data formats (e.g. miniSEED HDF5 or TDMS)
  - data visualisation techniques
  - experience in DAS seismology
- A demonstrated ability and commitment to apply for competitive external funding to support individual and collaborative research activities.
- Evidence of an ability and willingness to teach at all levels.
- An ability to supervise and graduate high quality PhD/Masters research students.
- The demonstrated ability to work as part of a team, contributing to team management and meeting deadlines for project elements.

- Excellent oral and written English language skills and a demonstrated ability to communicate and interact effectively with a variety of staff and students in a cross-disciplinary academic environment and to foster respectful and productive working relationships with staff, students and colleagues at all levels.
- A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.

*The ANU conducts background checks on potential employees, and employment in this position is conditional on satisfactory results in accordance with the Background Checking Procedure which sets out the types of checks required by each type of position.*

**Supervisor/Delegate Signature:**

**Professor Meghan Miller**

**Date:**

**June 2024**

**References:**

[General Staff Classification Descriptors](#)

[Academic Minimum Standards](#)



# Pre-Employment Work Environment Report

## Position Details

College/Div/Centre	College of Science	Dept/School/Section	RSES
Position Title	Research Fellow	Classification	Academic Level B
Position No.	TBC	Reference No.	

In accordance with the Work Health and Safety Act 2011 (Cth) the University has a primary duty of care, so far as reasonably practicable, to ensure the health and safety of all staff while they are at work in the University.

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- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see 'Employment Medical Procedures' at [http://info.anu.edu.au/Policies/\\_DHR/Procedures/Employment\\_Medical\\_Procedures.asp](http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp)

## Potential Hazards

<ul style="list-style-type: none"> <li>• Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a <b>regular</b> or <b>occasional</b> part of the duties.</li> </ul>					
<b>TASK</b>	<b>regular</b>	<b>occasional</b>	<b>TASK</b>	<b>regular</b>	<b>occasional</b>
key boarding	<input checked="" type="checkbox"/>	<input type="checkbox"/>	laboratory work	<input type="checkbox"/>	<input type="checkbox"/>
lifting, manual handling	<input type="checkbox"/>	<input type="checkbox"/>	work at heights	<input type="checkbox"/>	<input type="checkbox"/>
repetitive manual tasks	<input type="checkbox"/>	<input type="checkbox"/>	work in confined spaces	<input type="checkbox"/>	<input type="checkbox"/>
Organizing events	<input type="checkbox"/>	<input type="checkbox"/>	noise / vibration	<input type="checkbox"/>	<input type="checkbox"/>
fieldwork & travel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	electricity	<input type="checkbox"/>	<input type="checkbox"/>
driving a vehicle	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
<b>NON-IONIZING RADIATION</b>			<b>IONIZING RADIATION</b>		
solar	<input type="checkbox"/>	<input type="checkbox"/>	gamma, x-rays	<input type="checkbox"/>	<input type="checkbox"/>
ultraviolet	<input type="checkbox"/>	<input type="checkbox"/>	beta particles	<input type="checkbox"/>	<input type="checkbox"/>
infra red	<input type="checkbox"/>	<input type="checkbox"/>	nuclear particles	<input type="checkbox"/>	<input type="checkbox"/>
laser	<input type="checkbox"/>	<input type="checkbox"/>			
radio frequency	<input type="checkbox"/>	<input type="checkbox"/>			
<b>CHEMICALS</b>			<b>BIOLOGICAL MATERIALS</b>		
hazardous substances	<input type="checkbox"/>	<input type="checkbox"/>	microbiological materials	<input type="checkbox"/>	<input type="checkbox"/>
allergens	<input type="checkbox"/>	<input type="checkbox"/>	potential biological allergens	<input type="checkbox"/>	<input type="checkbox"/>
cytotoxics	<input type="checkbox"/>	<input type="checkbox"/>	laboratory animals or insects	<input type="checkbox"/>	<input type="checkbox"/>
mutagens/teratogens/ carcinogens	<input type="checkbox"/>	<input type="checkbox"/>	clinical specimens, including blood	<input type="checkbox"/>	<input type="checkbox"/>
pesticides / herbicides	<input type="checkbox"/>	<input type="checkbox"/>	genetically-manipulated specimens	<input type="checkbox"/>	<input type="checkbox"/>
			immunisations	<input type="checkbox"/>	<input type="checkbox"/>
<b>OTHER POTENTIAL HAZARDS (please specify):</b>					
<b>Supervisor/Delegate Name:</b>		<i>Professor Meghan Miller</i>		<b>Date:</b>	<i>June 2024</i>