



## Position Description

<b>College/Division:</b>	College of Science
<b>Faculty/School/Centre:</b>	Research School of Earth Sciences
<b>Department/Unit:</b>	Climate and Ocean Geoscience
<b>Position Title:</b>	Research Software Engineer
<b>Classification:</b>	ANU Officer Grade 8 (Specialist)
<b>Position No:</b>	TBC
<b>Responsible to:</b>	Dr Nicola Maher
<b>Number of positions that report to this role:</b>	N/A
<b>Delegation(s) Assigned:</b>	N/A

### PURPOSE STATEMENT:

This position is fully funded by the Australian Research Council (ARC) Centre of Excellence for the Weather of the 21st Century. The Centre is a major seven-year initiative funded by the Australian Research Council. It is a consortium of 24 partners led by Monash University in partnership with The University of Melbourne, The University of New South Wales, The Australian National University, and the University of Tasmania.

The Research Software Engineer will provide the specialist technical expertise to support computational research and model development across the CoE for 21st Century Weather. The successful candidate will be required to develop, optimise, and deploy software and workflows that enable climate and weather research utilising high-performance computing, visualisation and big-data approaches.

### KEY ACCOUNTABILITY AREAS:

#### Position Dimension & Relationships:

This position will be based at the Research School of Earth Sciences (RSES), ANU College of Science. The position works as part of a multi-university team to support researchers across the ARC Centre of Excellence for the Weather of the 21st Century. This position reports to the ANU Lead Chief Investigator of the ARC Centre of Excellence for the Weather of the 21st Century. The successful candidate will work closely with staff at the National Computational Infrastructure (NCI) and the Australian Earth System Simulator (ACCESS-NRI), based at the ANU.

#### Role Statement:

Under broad direction, working with a degree of autonomy, the Research Software Engineer focuses on requirements analysis, design, synthesis and implementation of software while considering the performance, training and support, testing, evaluation, and delivery of quality software that meets the user needs.

The Research Software Engineer will:

- Manage software development projects in climate and weather modelling from concept through to implementation and be responsible for the subsequent evaluation and testing.
- Development and assessment of software system requirements, interfaces, and system/subsystem specifications.
- Manage the design, development and technical processes of open-source code repositories.
- Manage the performance optimisation and evaluation of software.
- Provide advice and technical support through the investigation, resolution and tracking of software issues.
- Contribute to the development of plans and schedules for assigned project tasks, ensuring technical requirements are met and risks are mitigated whilst ensuring that systems are delivered on schedule.
- Contribute to new project proposals, applying software engineering knowledge to develop work plans.

- Train and mentor other members of the centre, research students and staff in numerical and computational techniques.
- Maintain a working knowledge of best-practice procedures in the context of software development, and an awareness of relevant state-of-the-art technologies that might be applied to climate and weather modelling.
- Create and maintain technical documentation and contribute to the preparation of articles for publication.
- Comply with, maintain an awareness of and help promote all ANU policies and procedures and in particular those relating to work health and safety and equal opportunity, including a demonstrated high level of understanding of equal opportunity best practice and a commitment to their application in a university context.
- Perform other duties as requested, consistent with the classification level of the position.

### SELECTION CRITERIA:

- Postgraduate qualifications in Science, Engineering or a related discipline and a minimum of four years relevant experience OR an equivalent combination of relevant experience and/or education/training.
- Demonstrated experience in working with at least two scientific programming languages (e.g. Fortran, C, Python), data formats (netCDF), code optimisation, scripting, advanced visualisation techniques, high performance computing environments, distributed software development (github) and parallel programming (MPI).
- Experience with the physical basis of climate system models and demonstrated ability to solve physical problems using numerical algorithms.
- High level of interpersonal, liaison and negotiation skills with demonstrated effective communication skills and experience with demonstrated experience working with users and, industry partners.
- Proven high level of written communication skills with the ability to develop and contribute to material for publication in technical literature.
- Proven ability to work flexibly, prioritise work to meet conflicting deadlines, and to quickly adapt to new environments including a demonstrated ability to use initiative, apply sound judgement and work with minimum supervision individually and within a team environment.
- A demonstrated high level of understanding of equal opportunity (EO) best practice and a commitment to the application of EO policies 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 Name:</b>	Nicola Maher	<b>Date:</b>	April 2024
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### 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 Software Engineer	Classification	ANU 8
Position No.	TBC	Reference No.	N/A

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 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 type="checkbox"/>	electricity	<input type="checkbox"/>	<input type="checkbox"/>
driving a vehicle	<input type="checkbox"/>	<input 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:</b>		<i>Nicola Maher</i>		<b>Date:</b>	
				<i>April 2024</i>	