

	Australian National University Position Description
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College/Division:	ANU College of Science
Faculty/School/Centre:	Research School of Earth Sciences
Department/Unit:	-
Position Title:	Research Software Engineer
Classification:	ANU Officer Grade 7 (Technical)
Position No:	TBC
Responsible to:	Group Leader, Climate & Fluid Physics
Number of positions that report to this role:	0
Delegation(s) Assigned:	N/A

PURPOSE STATEMENT:

The Research Software Engineer will provide the technical expertise to support computational research and scientific software development at the Research School of Earth Sciences (RSES). The successful candidate will be required to develop, optimise, and deploy software and workflows that enable Earth science research (e.g. Geodynamics, Oceanography) 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 will focus on supporting the endeavors of the Seismology and Mathematical Geophysics and Climate & Fluid Physics research groups. The role will be supervised by the Group Leader of Climate & Fluid Physics (currently Dr. Andy Hogg), and will be responsive to Dr. Rhodri Davies (Seismology and Mathematical Geophysics). The successful candidate will also work closely with staff at the National Computational Infrastructure (NCI), based at the ANU.

Role Statement:

Under broad direction, the Research Software Engineer will:

1. Provide technical support for computationally oriented research;
2. Develop software and workflows to assist staff and students from RSES to efficiently build, validate, run and analyse computational models;
3. Support the development, testing, optimisation and maintenance of computational models for high-performance massively parallel computing platforms;
4. Liaise with the NCI to expedite use of these facilities by RSES staff and students;
5. Assist in training researchers and research students in numerical and computational approaches;
6. Perform other duties as consistent with the classification level;
7. Comply with all ANU policies and procedures, in particular those relating to work health and safety and equal opportunity.

SELECTION CRITERIA:

1. Degree with relevant experience in physics, mathematics, computer science, engineering, Earth sciences or a related area or extensive experience, at least four years, in software development in a scientific environment or an equivalent combination of relevant experience and education/training. Experience with finite element and/or finite volume methods is desirable.

2. Demonstrated experience 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).
3. An understanding of the physical basis of solid Earth, ocean or climate system models and demonstrated ability to solve physical problems using numerical algorithms.
4. Ability to work under broad direction within established deadlines and as part of a team.
5. Strong oral presentation and interpersonal communication skills, which are required to interface with diverse and heterogeneous teams of scientists.
6. A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.

Supervisor / Delegate Signature:		Date:	
Printed Name:		Uni ID:	

References:
General Staff Classification Descriptors



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Position Description

College/Division:	ANU College of Science
Faculty/School/Centre:	Research School of Earth Sciences
Department/Unit:	-
Position Title:	Research Software Engineer
Classification:	ANU Officer Grade 8 (Technical)
Position No:	TBC
Responsible to:	Group Leader, Climate & Fluid Physics
Number of positions that report to this role:	0
Delegation(s) Assigned:	N/A

PURPOSE STATEMENT:

The Research Software Engineer will provide the technical expertise to support computational research and scientific software development at the Research School of Earth Sciences (RSES). The successful candidate will be required to develop, optimise, and deploy software and workflows that enable Earth science research (e.g. Geodynamics, Oceanography) 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 will focus on supporting the endeavors of the Seismology and Mathematical Geophysics and Climate & Fluid Physics research groups. The role will be supervised by the Group Leader of Climate & Fluid Physics (currently Dr. Andy Hogg), and will be responsive to Dr. Rhodri Davies (Seismology and Mathematical Geophysics). The successful candidate will also work closely with staff at the National Computational Infrastructure (NCI), based at the ANU.

Role Statement:

Under broad direction, the Research Software Engineer will:

1. Provide sophisticated technical support to RSES staff and students for computationally oriented research;
2. Lead the design, maintenance and running of computational infrastructure, including job scheduling software.
3. Manage the development of large, complex software projects, involving the testing, optimisation and maintenance of computational models for high-performance massively parallel computing platforms;
4. Liaise with the NCI to expedite use of these facilities by RSES staff and students;
5. Provide mentoring, training and supervision to researchers and research students in numerical and computational approaches;
6. Perform other duties as consistent with the classification level;
7. Comply with all ANU policies and procedures, in particular those relating to work health and safety and equal opportunity;

SELECTION CRITERIA:

1. Postgraduate qualifications or progress towards a postgraduate degree in physics, mathematics, computer science, engineering, Earth sciences or a related area or extensive experience, more than six years, in software development in a scientific environment or an equivalent combination of relevant experience and education/training. Experience with finite element and/or finite volume methods is highly desirable.
2. Extensive experience 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).

3. Experience with the physical basis of solid Earth and ocean or climate system models and demonstrated ability to solve physical problems using numerical algorithms.
4. Proven ability to work under broad direction, with a degree of autonomy, providing advice and support in the management of research programs.
5. Strong oral presentation and interpersonal communication skills, which are required to interface with diverse and heterogeneous teams of scientists.
6. A demonstrated high level understanding of equal opportunity principles and a commitment to the application of EO policies in a university context.

Supervisor / Delegate Signature:		Date:	
Printed Name:		Uni ID:	

References:

[General Staff Classification Descriptors](#)



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Pre-Employment Work Environment Report

Position Details

College / Div / Centre	COS	Dept / School / Section	RSES
Position Title	Research Software Engineer	Classification	ANU O7/O8
Position No.		Reference No.	

In accordance with the Occupational Health and Safety Act 1991 the University has a duty of care to provide a safe workplace for all staff.

- This form must be completed by the supervisor of the advertised position and forwarded with the job requisition to Appointments and Promotions Branch, Human Resources Division. Without this form jobs cannot be advertised.
- This form is used to advise potential applicants of work environment issues prior to application.
- Once an applicant has been selected for the position consideration should be given to their inclusion on the University's Health Surveillance Program where appropriate – see . http://info.anu.edu.au/hr/OHS/_Health_Surveillance_Program/index.asp
Enrolment on relevant OHS training courses should also be arranged – see http://info.anu.edu.au/hr/Training_and_Development/OHS_Training/index.asp
- '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

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	
key boarding	☒	☐	
lifting, manual handling	☐	☐	
repetitive manual tasks	☐	☐	
catering / food preparation	☐	☐	
fieldwork & travel	☐	☒	
driving a vehicle	☐	☐	
NON-IONIZING RADIATION			
solar	☐	☐	
ultraviolet	☐	☐	
infra red	☐	☐	
laser	☐	☐	
radio frequency	☐	☐	
CHEMICALS			
hazardous substances	☐	☐	
allergens	☐	☐	
cytotoxics	☐	☐	
mutagens/teratogens/	☐	☐	
carcinogens	☐	☐	
pesticides / herbicides	☐	☐	
TASK	regular	occasional	
laboratory work	☐	☒	
work at heights	☐	☐	
work in confined spaces	☐	☐	
noise / vibration	☐	☐	
electricity	☐	☐	
IONIZING RADIATION			
gamma, x-rays	☐	☐	
beta particles	☐	☐	
nuclear particles	☐	☐	
BIOLOGICAL MATERIALS			
microbiological materials	☐	☐	
potential biological allergens	☐	☐	
laboratory animals or insects	☐	☐	
clinical specimens, including blood	☐	☐	
genetically-manipulated specimens	☐	☐	
immunisations	☐	☐	
OTHER POTENTIAL HAZARDS (please specify):			
None			

Supervisor's Signature:		Print Name:		Date:	
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