# Position Details

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Winanga-y Postdoctoral Fellowship in Soil Carbon Turnover |
| Job Reference | 94845 |
| Tenure | Specified Term of 3 years  Full-time or full-time equivalent |
| Salary Range | AU$92,624 to AU$101,459 pa (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location | Adelaide, South Australia |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader, Biogeochemistry |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact **Chiara Pasut** via email at **chiara.pasut@csiro.au** |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |
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**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### Role Overview

**CSIRO Early Research Career (CERC) Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant research experience. These Fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system;
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Fellows **are appointed for three years or full-time equivalent.**

We are thrilled to be able to deliver on the commitment we made in our strategy to invest in frontier science with the new CSIRO Agriculture & Food Winanga-y Postdoctoral Fellowship scheme. The word Winanga-y (pronounced win-na-gnay) is a cultural asset gifted by the Gomeroi Nation in Myall Vale to CSIRO's Agriculture and Food Business Unit to name the Postdoctoral Fellowship Scheme. Winanga-y means to understand, know, remember, and think.

Recent advancements in our understanding of the pathways through which soil organic carbon (SOC) is stabilized post-date many soil carbon models. Accurate mechanistic understanding of SOC stabilization and its integration into models is essential to ensure reliable and cost-effective predictions. This is especially important in supporting Australia's goal of achieving net-zero emissions by 2050, selecting best practices in agricultural systems, and facilitating fair trade in the market for carbon credits.

The CERC Fellow will design and conduct laboratory experiments using stable isotope and biomarker techniques to trace carbon and other elements through soil pools. The CERC Fellow will then integrate these findings into a carbon modelling framework. Overall, the project's objective is to comprehend the drivers, permanence within the system, and CO2 emissions associated with microbial- versus plant-derived carbon stabilisation in soil using analytical and numerical experiments.

The CERC Fellow will have access in-house and via established collaboration to novel techniques (isotopically-resolved biomarker analysis), facilities, and datasets, and will formulate hypotheses and experiments to leverage this unique combination of resources. These will be integrated via cutting-edge modelling frameworks for a more comprehensive approach.

This position is embedded in the CSIRO Agriculture and Food Sustainability Program with national and international collaborations. In addition, the CERC Fellow will have the opportunity to partner with other CSIRO initiatives such as the Towards Net Zero Emissions Mission and the Valuing Sustainability Future Science Platform.

### Duties and Key Result Areas

Under the direction of main supervisor and supervisory, this CERC Fellow will:

* + Examine existing and novel approaches to measure different soil organic carbon stabilisation pathways.
  + Integrate the new knowledge into process-based models, including numerical calibration and model testing.
  + Estimate the overall impacts of different soil organic carbon stabilization on GHG emissions, carbon sequestration rate, and its permanency in the environment.
  + Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
  + Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research.
  + Carry out research investigations requiring originality, creativity, and innovation.
  + Record, manage, and analyse data/information using relevant domain data science techniques.
  + Proactively undertake development to grow effective researcher capabilities to support career goals.
  + Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy and diversity initiatives.
  + Work effectively as a member of a multi-disciplinary, international, and regionally dispersed research team, to undertake independent scientific investigations and carry out associated tasks under broad guidance from other Research Scientists.
  + Undertake regular reviews of relevant journal and patent literature.
  + Produce high quality scientific and technical outputs including journal articles, conference papers and presentations and technical reports.
  + Represent CSIRO at leading national and international conferences and forums as agreed with your supervisor.
  + Other duties as reasonably directed.

The CERC Fellow learning, development and training programis developed between the CERC Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellow’s capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:

* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A doctorate (or will shortly satisfy the requirements of a PhD). The doctorate must be in a relevant discipline area, such as Agricultural/Environmental Science, Environmental Engineering or Soil Science.

Please note: To be eligible for this role you must have **no more than 3 years** (or full-time equivalent) of relevant research experience.

1. Demonstrated hands-on experience in the development, use and trouble-shooting / maintenance of isotope ratio mass spectrometry and gas chromatography instrumentation.
2. Demonstrated programming skills in one or more scientific coding languages including (but not limited to) Python, R, and MATLAB, and sound knowledge of modern data management practices to ensure reproducibility and traceability of research such as the deposition of data in publicly available repositories and the use of version control systems.
3. Knowledge of, or clear evidence of a willingness to develop, a skillset in the modelling of terrestrial carbon and nutrient flows, including adapting existing models such as RothC, Century or APSIM.
4. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
5. A sound history of publication in **quality, peer reviewed journals.**
6. Demonstrated experience in the design, implementation, analysis, and interpretation of experiments to trace stable isotopes of carbon and/or nitrogen in the environment.
7. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable**

1. Experience with model calibration and validation.
2. Experience with designing experiments to quantify the flow of isotopically-labelled carbon into diagnostic biomarkers.
3. Experience with analytical and numerical research methodologies, and the ability to integrate findings from experiments into process-based models.

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

To be appointed as a CERC Fellow within CSIRO, candidates are required to have **submitted** their doctoral thesis at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 ($89,680). Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to other security/medical/character clearance requirements.

Include if relevant:

* The successful candidate will undertake a pre-employment background check. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/

**Our value proposition**

We want CERC Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

Find out more about our CSIRO Early Research Career (CERC) Fellow Experience Employee Value Proposition (EVP) [here](https://www.csiro.au/en/careers/postdoctoral-fellowships).

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Agriculture and Food - CSIRO](https://www.csiro.au/en/work-with-us/industries/agriculture/Ag-and-Food#:~:text=CSIRO%20is%20home%20to%20global%20expertise%20in%20agriculture,value-adding%20and%20resilient%20Australian%20food%20and%20agribusiness%20industry.) if relevant for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted