# Position Details

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

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in in Microbially Assisted Enhanced Rock Weathering |
| Job Reference | 93722 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$92,624 to AU$101,459 pa (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location(s) | Black Mountain (ACT), Brisbane (QLD) or Perth (WA) |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Team Leader, Agriculture and Food |
| Client Focus – Internal | 80% |
| Client Focus – External | 20% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Anton Wasson via email at anton.wasson@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. |

**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.**

Future Science Platforms (FSPs) represent an investment in science that underpins innovation and can help reinvent and create new industries for Australia.

Nationally and internationally, reaching net-zero emissions and beyond will require new methods of permanently removing significant amounts of carbon from the atmosphere that are fast, scalable, and responsible. CarbonLock, CSIRO’s Permanent Carbon Locking Future Science Platform (FSP), aims to address this challenge by driving radical innovation at the nexus of biology, chemistry and engineering in negative emissions technology and their integration to permanently remove atmospheric carbon dioxide in novel and unconventional ways.

The project will involve the development of agricultural soil amendments based on mineral/rock materials which provide both improved carbon dioxide sequestration and soil fertility. The CERC Fellow will undertake research to help address some of the challenges in the emerging field of enhanced rock weathering for CO2 sequestration and improved soil health/plant performance. It will advance existing knowledge by increasing our understanding of the role of chemical and microbial processes in controlling the rate of enhanced rock weathering in agricultural soils. This project is a cross business unit collaboration, and the CERC Fellow will be working with researchers from the Mineral Resources, and Agriculture & Food business units.

### Duties and Key Result Areas

Under the direction of senior research scientists and engineers, this CERC Fellow will:

* + Scope and analyse currently available information about enhanced rock weathering and/or agronomic rock dust products to understand their viability and potential to improve upon them through microbial enhancement.
  + Identify suitable mine waste materials, that meet criteria to function as agricultural nutrient supplements while meeting the goal to enhance carbon sequestration through laboratory trials.
  + Identify potential microbial communities and conduct laboratory experiments to accelerate these carbon sequestration processes with the potential to upscale to pilot plant scale.
  + Undertake regular reviews of relevant literature and patents.
  + Perform biogeochemical and microbiological analysis of materials.
  + Communicate results to both academic and industry audiences through presentations and scientific publications.
  + 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.
  + Utilise design thinking methodology to plan and prepare research proposals and apply non-academic impact methodology to research projects.
  + 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.
  + Other duties as 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 biogeochemistry, geo or soil microbiology, crop nutrition, environmental soil science, environmental or biosystems engineering.

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. An understanding, knowledge, and experience in at least one of biogeochemistry, geo-biology, soil biology, carbon sequestration, and crop nutrition.
2. 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.
3. A sound history of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
4. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.
5. A current Australian driver’s licence or the ability to obtain one.

## **Desirable**

1. Knowledge of (at least one of) nutrient cycling and soil biological processes, geology and minerology, microbiology, carbon sequestration measurement and modelling.
2. Experience planning, coordinating, and running glasshouse or field experiments or fieldwork.
3. Laboratory experience in at least one of the following: microbiology (culturing, DNA sequencing), analytical chemistry or mineralogy, and the willingness to develop cross-disciplinary skillsets under the guidance of the greater project team.
4. Experience conducting nutrient analyses in soil and plant material, sample collection and processing, data processing and interpretation.
5. Experience conducting mathematical modelling of biogeochemical processes (e.g. PhreeqC) would be viewed positively but is not a requirement.
6. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
7. **The ability to work effectively as part of a multi-disciplinary, potentially regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.**

## **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.

* 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.   
To find out more about the CarbonLock FSP, please visit [our website](https://research.csiro.au/carbonlock/).   
To learn more about CSIRO, visit [CSIRO Online](http://www.csiro.au/) 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