# Position Details

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

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| The following information is for applicants |
| Advertised Job Title  | CSIRO SMX Geodatabase Postdoctoral Fellowship  |
| Job Reference | 99102 |
| Tenure | Specified Term of 3 years Full-time |
| Salary Range | AU$99,990 to AU$109,527 pa (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) | Perth, Western Australia or Sydney, New South Wales |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | All Candidates |
| Position reports to the | Science Leader in Sustainability in Mineral Resources |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Dr. Vinicius Louro via email at Vinicius.Abudlouro@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 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.
* 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.**

The exploration, extraction, and processing of minerals interact with the environment and affect nearby communities in distinct ways, depending on the commodity involved. From initial geophysical surveys and drillings to strategies for managing mineral waste and mine closure, each phase has significant implications for society and the environment. This reality underscores the growing importance of Sustainability and ESG (Environmental, Social, and Governance) practices in the global context.

Australia possesses one of the most comprehensive geoscientific data collections globally; however, this data is often underutilized when addressing ESG challenges. This underutilization is particularly pronounced in the context of Critical Minerals, which are essential for Energy Transition and Climate Change mitigation.

Given the complex interdependence of social and environmental factors related to the mining industry, conducting a thorough risk assessment prior to investment in any area is essential. The risks associated with ESG considerations—encompassing social and environmental factors, as well as geoscientific data—must be carefully evaluated. By integrating mineral resource data, environmental exposure, and social aspects with mining processes, this proposal aims to connect regions with identified prospectivity potential to the associated ESG risks.

**The CERC Fellow will research and develop a structured database to access and integrate public geoscientific and ESG, being open for insertion unstructured data and automatically structure it to the platform needs.**

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.

### Duties and Key Result Areas

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

* Research and development of a database structure to access and obtain external data sources of georeferenced information on-the-fly (e.g. Geoscience Australia Portal, AuScope, CSIRO Exploration Toolkit).
* The database structure should host structured and non-structured information, with the possibility of direct access and update from authorized users.
* Incorporate geoscientific, social, environmental and economy-related maps (vectorized and raster) information to the database.
* Development of a strategy to standardize and correlate the data, producing a text-based output.
* Implement this structure into an online interactive GIS-based platform.
	+ System optimization and publishing results.
* Representing CSIRO externally, including in conferences, public forums, with industry or the research sector or with Government.
	+ 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.

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## **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 Physics, Geosciences, Data Science, or Computer 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 by the applications’ closure date.

1. Demonstrated expertise with large-datasets development and management.
2. Demonstrated expertise in implementation algorithms to correlate structured and unstructured data, producing automatized responses.
3. Demonstrated expertise in high-level programming language(s) such as Python or similar.
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 peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
6. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable**

1. Reasonable understanding of image processing.
2. Reasonable understanding of GIS (Geographic Information System).
3. Reasonable understanding of Artificial Intelligence and Big Data applied to geosciences.
4. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
5. **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 ($96,811 per year). 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.
* The successful candidate may be required to undertake a pre-employment medical examination prior to commencement.
* 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/postdoctoral-fellowships).

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Mineral Resources](https://www.csiro.au/en/about/people/business-units/mineral-resources) 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