# *Deep Earth Imaging* Research Theme Leaders (CSOF6-7)

Role summary for potential applicants

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| Advertised Job Title | *Deep Earth Imaging Science* – Research Theme Leaders  |
| Reference Number | 30981 |
| Classification | CSOF 6-7 |
| Salary Range | CSOF6 - AU$106K to AU$124K plus up to 15.4% superannuationCSOF7 - AU$127K to AU$141K plus up to 15.4% superannuationAppointment will be made at level 6 or 7 depending on skills and experience |
| Location | Kensington, WA |
| Tenure | Fixed three-year term, with the possibility of indefinite appointment for the right candidate |
| Relocation assistance | Provided to successful candidates, if required  |
| Applications open to | * All candidates
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| Functional Area | Research Scientist / Engineering |
| % Client Focus - Internal | 70% |
| % Client Focus - External | 30% |
| Reports to  | Science Leader, *Deep Earth Imaging* Future Science PlatformCSIRO Mineral Resources |
| Number of Direct Reports | TBA |

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| **Role Overview:** |
| Australia’s future mineral, energy and water resources will come from far greater depths and from deep offshore plays. Our ability to find, define and exploit these resources is limited by the deep and complex cover of sediments and weathered material that covers 80% of Australia. **Deep Earth Imaging science** and related technologies will help us better image and understand the subsurface rock properties and processes that in turn will unlock the resource potential of the vast and relatively underexplored areas of our continent.To address this challenge, CSIRO has established the *Deep Earth Imaging* Future Science Platform with 23 new staff, including 18 early career scientists and engineers whose research will be guided and mentored by senior research leaders working in four principal themes that are broadly applicable to the mineral resources, energy and water sectors. The theme activities include, but are not limited to:* Simulation, modelling and inversion of data to build better models that accurately quantify risk;
* Data integration and upscaling *e.g.* linking petrophysics with geochemistry/mineralogy/hydraulic properties (digital rock);
* Uncertainty quantification and prediction *e.g.* Bayesian and other methods of estimating uncertainty;
* Novel computational delivery mechanisms *e.g.* distributed high performance computing, virtual laboratories.

The objective of *Deep Earth Imaging* is creation of new imaging methods that integrate multiple scale measurements and geological concepts, emphasising more accurate subsurface prediction, particularly in the discovery of subtle signals in geophysical and geochemical data obscured by noise and shrouded in uncertainty.We will develop new analytical software tools founded on digital petrophysics and geochemistry/mineralogy, and employ these tools with predictive technology, machine learning, geological uncertainty analysis and multiphysics modelling. These tools will sample real-time data streams and bring together multiple inputs from geophysics, (hydro)geochemistry, mathematics, data science, geology and hydrogeology. Our work draws on expertise from multiple domains: geophysical modelling and simulation, geological/geophysical/geochemical/hydrogeological integration, and geological uncertainty reduction. A fundamental goal is for our science to be applied by industry and government in the Energy, Minerals and/or Groundwater sectors.Scientists and engineers with leadership and mentoring experience are needed from the geosciences sector, including geophysics and geochemistry, but also from mathematics, physics, data science, computation and software engineering. The overarching goal is ultimately to deploy our science outputs and outcomes through industry and governments to build technologies that can be applied to solve the challenges in securing future mineral, energy and water resources for Australia. |

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| **Duties and Key Result Areas** |
| * Lead and mentor a team of early career researchers working in one or more research themes of the *Deep Earth Imaging* Future Science Platform.
* In consultation with the Science Leader and other internal and external stakeholders, develop and continually review theme and Platform research strategies.
* Lead research projects of significant size and provide guidance in the execution of projects undertaken by junior team members, including the negotiation of resource requirements.
* Advise the Science Leader and relevant CSIRO Business Units about the capability required to execute the theme’s strategy and work program.
* Work effectively as a leader of a multi-disciplinary national research team to undertake independent scientific investigations and delegate related tasks.
* Lead, coach and supervise staff to ensure the theme’s work program is established in accordance with research design, within agreed timelines and budget.
* Undertake research aligned with Deep Earth Imaging’s goals and publish high quality scientific and/or engineering papers in quality journals and presentations at national and international conferences.
* Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Adhere to the spirit and practice of CSIRO’s values, health, safety and environment plans and policies, diversity initiatives and Zero Harm goals.
* Other duties as directed.

**For appointment at the higher salary level (CSOF7), additional duties are currently being developed along a similar theme to the above. These will be at a more senior level with a greater responsibility.** |

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| **Selection Criteria** |
| *Please note—Under CSIRO policy only those who meet all essential criteria can be appointed.****Pre-Requisites***1. **Education/Qualifications:** A post-graduate qualification in a discipline applicable to and closely related to the goals of the *Deep Earth Imaging* Future Science Platform.
2. **Communication: Excellent written and oral communication skills evidenced by high-level reporting, presentation and negotiation abilities, and the capacity to identify and influence critical stakeholders to gain support for contentious proposals/ideas.**
3. **Publications: Evidence of high quality journal publications and/or conference proceedings.**
4. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.

***Essential Criteria***1. An outstanding record of science innovation and creativity plus the ability to apply well developed research skills to scientific investigations of significant consequence.
2. Confirmed recognition as a leader in the international science and/or technology R&D community.
3. Demonstrated deep knowledge of at least one area of specialisation within the focus areas of the *Deep Earth Imaging* Future Science Platform.
4. Demonstrated skills and experience in successfully initiating and effectively managing a research, development or demonstration project.
5. **The ability to lead a multi-disciplinary, regionally dispersed research team and prosecute independent and individual research to achieve organisational goals.**
6. Demonstrated significant record of science innovation and creativity plus the ability to apply well developed research skills to scientific investigations.

**For appointment at the higher (CSOF7) salary level, it is expected you will meet the above criteria at a higher level. This will include exceptional leadership experience with a proven internal science reputation.** **CSIRO Values:**As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to excellent science, Inclusion, trust & respect, Health, safety & environment and Deliver on commitments.  In your application and at interview you will need to demonstrate alignment with these behaviours. |

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| **Other Information:** |
| **How to Apply**Please apply for this position via <https://jobs.csiro.au/> and search for Position **30981**. As part of your application, please upload one document containing both your CV and a cover letter outlining your suitability for the position and your motivations for applying. At any time throughout the recruitment process, you may be asked to provide additional information (online) relevant to the selection criteria. If so, then responding will enhance your application, so please take the time to provide relevant but succinct answers. Applicants who do not provide information when requested may not be considered further.If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please contact csiro-careers@csiro.au. **Referees**: If you do not already have the names and contact details of two previous supervisors or academic/ professional referees included in your resume/CV please add these before uploading your CV.**Contact:** If after reading the selection documentation you require further information, please contact **Prof Michael McWilliams** at Michael.McWilliams@csiro.au Please do not email your application directly to Prof McWilliams. Applications received via this method may not be considered.We imagine. We collaborate. We innovate.**About CSIRO** At the Commonwealth Scientific and Industrial Research Organisation (CSIRO), we shape the future. We do this by using science to solve real issues. Our research makes a difference to people, industry and to the planet. We do the extraordinary every day. We innovate for tomorrow and help improve today – for our customers, all Australians and the world.**The *Deep Earth Imaging* Future Science Platform** is a joint collaboration between:[**CSIRO Mineral Resources**](https://www.csiro.au/en/Research/MRF)Enhancing the value of Australia’s mineral endowment while reducing the environmental impacts of the extraction and use of those resources.[**CSIRO Energy**](https://www.csiro.au/en/Research/EF)Understanding and unlocking Australia’s onshore and offshore gas and oil resources and enabling the safe, efficient and sustainable development of our resource wealth.[**CSIRO Land and Water**](https://www.csiro.au/en/Research/LWF)Delivering innovative solutions to the complex challenges that arise from the demands and impacts of human activities on the environment.[**Data61**](http://www.data61.csiro.au/) Data is the basic currency of our rapidly changing world. *Data61* is Australia’s leading digital research network, here to help create our data-driven future.Find out more at <http://www.csiro.au> |