# Position Details

## Research Projects- CSOF4

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| The following information is for applicants | |
| Advertised Job Title | Environmental Spatio-Temporal Analyst |
| Job Reference | 87755 |
| Tenure | Indefinite |
| Salary Range | AU$87k - AU$98.5k per annum (pro-rata for part-time)  plus up to 15.4% superannuation |
| Location(s) | Canberra, ACT is strongly preferred, other sites (Brisbane, Perth, Melbourne, Sydney, Adelaide, Darwin, Hobart, or Townsville) subject to negotiation. |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian/New Zealand Citizens and Australian Permanent Residents |
| Position reports to | Dr Tim McVicar, Team Leader, Biophysical Dynamics, CSIRO Land and Water |
| Client Focus – Internal | 80% |
| Client Focus – External | 20% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact  Dr Tim McVicar at [tim.mcvicar@csiro.au](mailto:tim.mcvicar@csiro.au) or +61 2 6246 5741 (until Sept 21)  Mr Matt Stenson at [matthew.stenson@csiro.au](mailto:matthew.stenson@csiro.au) or +61 7 3833 5590 (from Sept 22 onwards) |
| 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).

### Role Overview

The role of Research Projects staff in CSIRO is to collaborate in scientific and technological activities with other research staff usually by assisting with detailed planning, implementing analytical frameworks, and in carrying out the more technical aspects of the work.

As part of the Biophysical Dynamics Team, within the Living Landscapes Program of CSIRO Land and Water, you will be responsible for performing cutting-edge spatial, temporal and spatio-temporal analysis on time series remote sensing and meteorological datasets at the paddock, regional, national and global scales. We anticipate that the successful candidate will have strong analytical skills using Python, R or similar programming languages and have worked in several HPC and Cloud computing environments. The successful candidate is expected to: (i) apply their technical and scientific understanding to perform ‘big data’ analysis of key environment issues; (ii) devise novel solutions in spatio-temporal analysis; (iii) contribute to the science of the team by generating high quality figures and quantitative analysis; (iv) carefully manage workflows and metadata; and (v) effectively communicate to team members, internal stakeholders and external funders. The Biophysical Dynamics Team are world-leaders in remote sensing of ecohydrological processes (ecohydrology is the scientific discipline that straddles hydrology and the vegetation dynamics component of functional ecology). The Biophysical Dynamics Team uses a wide range of reflective and thermal remote sensing data, such as MODIS, Landsat, Sentinel-2, AVHRR and Himawari, which are often coupled to time-series meteorological grids in spatio-temporal analysis frameworks. The team analyses dynamics and trends of remote sensing response variables and develops parsimonious analytical models to inform future conditions. The position will be part of project teams researching a range of environmental topics such as tracking the impact of climate variability / climate change of ecohydrological functioning, assessing impacts of fire recovery on catchment water yields, and calculating water requirements of ground-water dependent ecosystems, among others.

### Duties and Key Result Areas

* Perform spatio-temporal analysis of time series remote sensing and gridded meteorological datasets, often linking with other data to aid interpretation of results.
* Generate figures and tables to visualize the spatio-temporal analysis and its findings enabling it to be effectively communicated to external funders, external stakeholders and internal managers / leaders.
* Under general direction, contribute to research and/or technology through the development of original and adapted analysis frameworks and software.
* Show initiative to seek new approaches to meet technological needs when encountering new problems where methods are not defined.
* Participate in the identification and definition of research and/or technological problems with colleagues.
* Address problems promptly and in a constructive manner.
* Participate in planning projects and accept responsibility for scheduling and completion of major parts of the project, including evaluation of options, experimental design, data analysis, user experience and/or software design, implementation and delivery.
* Make significant contributions to the interpretation and communication of research results and collaborate on drafting presentations to, and/or detailed written reports for, clients and the scientific and/or technology community.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively as part of a multi-disciplinary, regionally dispersed research teams to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Values, Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

## **Selection Criteria**

#### Essential

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

1. Relevant bachelor’s degree and/or post-graduate degree and/or equivalent relevant work experience in spatio-temporal analytics.
2. Demonstrated ability to work with time-series raster datasets using Python (or similar) high-end programming language to summarise key spatial and temporal dynamics.
3. Demonstrated knowledge and ability to work within high performance computing environments such as Google Earth Engine (GEE), CSIRO’s EASI (Earth Analytics and Science Innovation), Digital Earth Australia’s Open Data Cube, Amazon Web Services, Open Web Services and/or other relevant platforms.
4. Willingness to work in a team environment, communicate effectively, and carefully manage workflows and metadata to solve project deliverables and scientific objectives.

## **Desirable**

1. Knowledge of Australia’s native ecosystems, climate, and agricultural landscapes.
2. Demonstrated knowledge and ability of working with time-series remote sensing datasets, preferably collected by several instruments.
3. Experience working with Python graphical and visualisation libraries such as Pandas, NumPy, Scikit-Learn, SciPy, rasterio/GDAL, Matplotlib and Dask.
4. Understanding of ‘next generation’ modelling approaches and technologies such as Machine Learning methods, and containerisation such as Kubernetes and Docker.
5. Demonstrated experience with vector datasets in Python and/or Geographical Information System (GIS) software.
6. Ability to develop and support web-based software applications and services to support environmental information management.
7. A current driver’s licence.

## **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.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

The successful candidate will be asked to obtain and provide evidence of a National Police Clearance or equivalent. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.

## **About CSIRO**

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