# Position Description

## Research Scientist/Engineer – CSOF5

The following information is for applicants

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| Advertised Job Title**:** | Aquatic Remote Sensing Scientist |
| Job Reference: | 59201 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | All Candidates |
| Percentage of Client Focus - Internal: | 30% |
| Percentage of Client Focus - External: | 70% |
| Reports to the: | Team Leader – Aquatic Remote Sensing, Oceans & Atmosphere |
| Number of Direct Reports: | 0 |
| Name and Contact Details For Applicant Enquiries | Dr. Janet Anstee via email Janet.Anstee@csiro.au |
| Contact Details For Applying | Call 1300 984 220 or email [careers.online@csiro.au](mailto:careers.online@csiro.au). |
| How to Apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number**.** Internal applicants please apply via ‘Jobs Central’ through the ‘People Hub’ icon |

## Role Overview:

The Aquatic Remote Sensing team in the Coasts program in CSIRO Oceans and Atmosphere is seeking to appoint a highly motivated Research Scientist specializing in underwater bio-optics, Ocean Colour Radiometry (OCR) and Synthetic Aperture Radar (SAR) for coastal and marine applications. The position requires a strong background in the development of remote sensing methods in optically complex waters across a range of applications (including oil spills, harmful algal blooms, water quality assessment) and their quasi-operational implementation for application in Australian and international coastal water domains.

The aims of the position are to contribute to research on the optical, radar and biogeochemical relationships in optically complex waters and develop new technologies and tools for satellite detection of marine pollution and water quality assessment in Australian and international coastal water domains. The successful candidate will contribute skills to help deliver reliable detection, monitoring and mapping tools for Australia’s aquatic ecosystems, ultimately leading to improved management of Australia’s aquatic resources focusing on the coastal waters.

## Duties and Key Result Areas:

* Develop innovative tools and techniques related to bio-optics, OCR and SAR processing.
* Harness the growing volume of publicly available data sources such as from the Copernicus Programme, as well as work on establishing proprietary datasets in collaboration with our partners;
* Carry out innovative, impactful research of strategic importance to CSIRO;
* Produce high quality scientific and technical outputs including journal articles, conference papers and presentations, patents and technical reports;
* Represent CSIRO at leading national and international conferences and forums;
* Contribute to the development of innovative concepts and ideas for further research.
* Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* Under limited direction, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Address problems promptly and in a constructive manner, selecting the most profitable lines of attack upon a problem, preparing detailed design proposals and experimental protocols.
* Undertake experimental and/or observational research activities, often requiring the supervision and/or training of others to ensure experiments are established in accordance with research design, or as required.
* Draw on professional expertise, knowledge of other disciplines and research experience, recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of disciplines.
* 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, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

## Competencies:

1. **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.**
2. **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.**
3. **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.**
4. **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
5. **Independence: Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.**
6. **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.

## Selection Criteria:

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

***Pre-Requisites:***

* **Education/Qualifications:** A PhD in remote sensing, physics, oceanography or similar discipline with:
  1. A minimum of 5 years post doctorate research experience in Ocean Colour Radiometry.
  2. Experienced in the processing and analysis of optical remote sensing data from the Sentinel-2 and Sentinel-3 missions related to coastal and marine applications.
  3. Experienced in SAR data processing and analysis for hydro-carbon detection specifically from Sentinel-1.
  4. Experienced with the development of remote sensing products and tools for coastal and marine applications and their validation.
  5. Experienced in underwater bio-optical measurements and data analysis.
  6. Experienced in the handling and analysis of large satellite dataset in a UNIX/Linux environment and profound knowledge of scientifically-oriented coding languages (Shell scripting, Python, R, IDL).
  7. Familiarity with basic concepts of, radiative transfer modelling and remote sensing inversion methods.
* **Communication: High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including at national and international conferences.**
* **Funding: demonstrated ability to write proposals such as competitive grants and attract commercial interest.**
* **Publications: A record of publications in leading, peer reviewed journals and conferences relevant** (please list publication impact in your CV, e.g. number of citations, journal impact factor, conference size, etc.).
* **Behaviours: Good inter-personal skills in support of team work and a** history of professional and respectful behaviours and attitudes in a collaborative environment.

***Essential Criteria:***

1. Demonstrated ability to investigate issues related to optically complex waters and develop innovative tools and techniques related to bio-optics, ocean colour radiometry and SAR technological solutions.
2. Demonstrated experience of *in situ* measurement and instrument expertise to utilize and operate bio-optical instrumentation and experience in participating in bio-optical research surveys.
3. Demonstrable evidence of well-developed written and verbal communication skills, for example, publications in academic environments such as scientific journals/conference proceedings, experience presenting and demonstrating at conferences, industry exhibitions, internal training seminars.
4. Proven ability to work independently and as part of a team to prototype research ideas and develop them into demonstration and/or proof of concept systems.

## *Desirable Criteria:*

1. **Experience in the synergistic use of optical and SAR satellite data and the development of innovative applications and tools.**
2. **Experience in machine learning techniques specifically deep learning model development for feature extraction.**
3. **Hands on experience in radiative transfer modelling in ocean and atmosphere.**
4. **Demonstrated experience in operational (near-real time) data processing.**

## Special Requirements:

The willingness and ability to undergo standard medical examination with audio.

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Find out more about CSIRO [Oceans and Atmosphere](https://www.csiro.au/en/Research/OandA)