POSITION DESCRIPTION

Senior Post-doctoral Fellow

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<th>Position Level</th>
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<tr>
<td>Faculty/Division</td>
<td>Science</td>
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<td>Position Number</td>
<td>00193270</td>
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<td>Original document creation</td>
<td>20/02/2024</td>
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Position Summary

The Senior Postdoctoral Fellow will join our greenhouse gas measurement and modelling team at UNSW. The role will contribute to our world-leading research activities focused on assessing emissions from coal mining and other sources in the Hunter Coalfield region. The team’s research outputs aim to advance the science of greenhouse gas measurements, demonstrate how to best model the rate of greenhouse gas emissions from sources, inform community discussions on greenhouse gas emissions, inform the development of regional and national greenhouse gas monitoring programs, and provide insights for the development policies and legislation.

The role of Senior Post-Doctoral Fellow reports to Associate Professor Bryce Kelly and has no direct reports.

Accountabilities
Specific accountabilities for this role include:

- Engage in individual and/or collaborative research in a manner consistent with disciplinary practice.
- Create scholarly impact in the discipline that is recognised by peers in the advancement of disciplinary knowledge.
- Conduct research/scholarly activities under limited supervision, either independently or as a member of a team (as per the norms of the discipline).
- Undertake specific research project/s under the guidance of a research leader that will be aimed at quantifying the rate of greenhouse gas emissions from coal mining and other sources in the Hunter Coalfield.
- Maintain and calibrate greenhouse gas analysers and other equipment used for the field campaigns.
- Undertake discipline-aligned research activities, e.g. field campaigns (including limited night-time surveys), literature reviews, data gathering and database management, and record keeping.
• Prepare maps in QGIS and 3D visualisations in Google Earth for outreach activities.
• Model and interpret the greenhouse gas concentration data collected from ground- and aircraft-based measurement campaigns to determine the rates of emissions from facilities and regions.
• Take leadership in writing project-required reports, media items and scientific journal articles.
• Contribute to and/or present at conferences and/or workshops aligned with the outreach requirements of projects.
• Support the dissemination of research outcomes through meetings with government and industry.
• Align with and actively demonstrate the UNSW Values in Action: Our Behaviours and the UNSW Code of Conduct.
• Cooperate with all health and safety policies and procedures of the university and take all reasonable care to ensure that your actions or omissions do not impact on the health and safety of yourself or others.

Skills and Experience

• A PhD in a related discipline, and/or relevant work experience in a relevant discipline, such as: environmental science, atmospheric physics and chemistry, statistics, or modelling atmospheric flow.
• Demonstrated track record in research with outcomes of high quality and high impact with clear evidence of the desire and ability to continually achieve research excellence as well as the capacity for research leadership. This includes a proven capacity to write reports and peer-reviewed journal publications.
• Demonstrated ability to work in a team, collaborate across disciplines and build effective relationships.
• Relevant experience and applied knowledge in measuring greenhouse gas emissions and carbon accounting.
• Strong public communication and a record of presenting at workshops and conferences.
• Experience with field campaigns focused on measuring the atmospheric concentration of greenhouse gases using car- or aircraft-based analysers.
• Strong computational and statistical skills, with extensive experience analysing data using R statistics, Python packages or other programming languages, and knowledge of database systems.
• Familiarity with using satellite greenhouse gas observations datasets.
• Knowledge of greenhouse gas sources, in particular, methane.
• Familiarity with coal production methods and impacts on the environment.
• Familiarity with atmospheric modelling packages such as CALPUFF, AERMOD, FLEXPART, STILT or similar atmospheric modelling environments, and wellness to undertake plume modelling to achieve required project outcomes.
• Experience interpreting measurements of the concentrations of greenhouse gases in the atmosphere for determining the rates of emissions from facilities and regions.
• Experience verifying greenhouse gas inventories determined using IPCC and Australian Government protocols.
• An Australian driver’s license: the position will require undertaking multi-day field campaigns, including night-time surveys.
• An understanding of and commitment to UNSW’s aims, objectives and values in action, together with relevant policies and guidelines.
• Knowledge of health and safety responsibilities and commitment to attending relevant health and safety training.

Pre-employment checks required for this position

• Verification of qualifications
About this document
This Position Description outlines the objectives, desired outcomes, key responsibilities, accountabilities, required skills, experience and desired behaviours required to successfully perform the role.

This template is not intended to limit the scope or accountabilities of the position. Characteristics of the position may be altered in accordance with the changing requirements of the role.