



THE UNIVERSITY OF
MELBOURNE

POSITION DESCRIPTION

School of Earth Sciences
Faculty of Science

Research Fellow in Extreme Rainfall

POSITION NO	0043102
CLASSIFICATION	Research Fellow – Level A
SALARY	\$69,148 - \$93,830 per annum or pro-rata for part time (Level A PhD entry level \$87,415 p.a. or pro-rata)
SUPERANNUATION	Employer contribution of 9.5%
WORKING HOURS	Full-time or Part-time
BASIS OF EMPLOYMENT	Fixed-term for 3 years
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers , select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Associate Professor Todd Lane Tel +61 3 8344-6516 Email tplane@unimelb.edu.au <i>Please do not send your application to this contact</i>

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Position Summary

We invite applications for a three-year postdoctoral fellowship focused on high-resolution modelling of extreme rainfall events. We seek a highly qualified and motivated candidate with experience in numerical modelling, cloud processes, and mesoscale atmospheric dynamics. The appointee will use convection-permitting and cloud-resolving simulations to examine rainfall extremes associated with organized convection. They will use an approach that combines high-resolution modelling and radar observations, with the primary goals of evaluating and improving the models and increasing our understanding of the key processes that govern local rainfall extremes.

This position is located within The University of Melbourne's School of Earth Sciences under the supervision of Assoc. Prof. Todd Lane, and sits within the extreme rainfall research program of the ARC Centre of Excellence for Climate Extremes. This program cuts across multiple institutions and the appointee will actively collaborate with the other investigators, research staff and students affiliated with the program and Centre. We anticipate commencement of the appointment late 2017, but earlier or later start dates will be considered on request. Candidates seeking flexible or part-time work arrangements are encouraged to apply.

1. Key Responsibilities

- ▶ Initially under the guidance and support of Assoc. Prof. Todd Lane undertake internationally competitive research on the processes leading to extreme rainfall
- ▶ Conduct state-of-the-art cloud-resolving/convection-permitting simulations of extreme rainfall events with a focus on the dynamics of convective organization, and other mesoscale influences
- ▶ Interrogate model simulations, along with radar and satellite data to evaluate the model simulations, with a goal of improving the models and understanding the key processes governing local rainfall extremes.
- ▶ Assist with, contribute to and publish results in the peer-reviewed scientific literature
- ▶ Contribute to international conferences in the appropriate fields
- ▶ Actively collaborate with other researchers in the Centre of Excellence for Climate Extremes, including Chief Investigators and other research fellows and students on related projects
- ▶ Contribute to and assist in the supervision of research students as appropriate
- ▶ Contribute to the research culture of The School of Earth Sciences and the Centre of Excellence research team by attendance and active participation in meetings and seminars associated with the research work of the project, as well as School/Department meetings and seminars, Centre of Excellence workshops and other educational activities such as lecture series devoted to relevant topics.

2. Selection Criteria

2.1 ESSENTIAL

- ▶ A PhD in atmospheric science or a related discipline
- ▶ Experience in mesoscale atmospheric dynamics and cloud processes

- ▶ A high level of computing skills, including the use of high-performance computing and the analysis of complex data sets
- ▶ Experience using mesoscale, convection-permitting, or cloud-resolving numerical models
- ▶ Demonstrated or potential capacity to publish in high quality peer-reviewed journals
- ▶ Ability to collaborate with others and to work effectively in a research team environment
- ▶ Excellent oral and written communication skills in English
- ▶ Demonstrated ability to meet deadlines and bring projects to a timely completion

2.2 DESIRABLE

- ▶ A record of publication in peer-reviewed international journals
- ▶ Experience with radar or satellite data
- ▶ High level of computer programming skills in Fortran and a high-level graphics language (e.g., Python, MATLAB, IDL, etc.)

3. *Equal Opportunity, Diversity and Inclusion*

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University's People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous desire to service for excellence and reach the targets of Growing Esteem.

4. *Occupational Health and Safety (OHS)*

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

<http://safety.unimelb.edu.au/topics/responsibilities/>

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Other Information

5.1 ORGANISATION UNIT

<http://www.earthsci.unimelb.edu.au>

The School of Earth Sciences is a multi-disciplinary school, involved in teaching and research in various branches of the solid and atmospheric Earth Sciences. The School operates a comprehensive programme of Tertiary Education at both undergraduate and postgraduate levels and undertakes extensive research programs of fundamental and applied significance.

This position will be embedded within the School's Climate and Weather theme, which is an active group focusing on many aspects of meteorology and climate science. Of particular relevance for this position is the School's involvement in the Australian Research Council's Centre of Excellence for Climate Extremes (<http://arc-extremes.weebly.com>). The ARC Centre of Excellence for Climate Extremes is a major 7-year initiative supported by the Australian Research Council. It is a consortium of five Australian universities with a suite of outstanding national and international Partner Organisations as collaborators. The Centre of Excellence research agenda encompasses interconnected research programs focused on Heatwaves, Rainfall, Drought and Variability in the Tropics and Extratropics.

The ARC Centre of Excellence for Climate Extremes will provide a supportive and enriching workplace for Early Career Researchers. In particular, the Centre has a strong commitment to equity, diversity and inclusion. In order to boost opportunities for researchers from under-represented groups, we will offer a competitive fellowship scheme to resource leadership training, career development and other programs in addition to the extensive opportunities already offered in the Centre.

5.2 BUDGET DIVISION

<http://www.science.unimelb.edu.au>

Science at the University of Melbourne is the most highly ranked Faculty of Science in Australia.* Science is defined by its research excellence in the physical and life sciences and is at the forefront of research addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

We have over 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research, which empowers our STEM students and graduates to understand and address complexities that impact real world issues and the challenges of tomorrow.

We aspire to engage the broader community with the impact that Science has on our everyday lives. Through the strength of our internships and research project offerings, our students are provided opportunities to engage with industry partners to solve real-world issues.

The Faculty of Science has over 50,000 alumni and is one of the largest faculties in the University comprising seven schools: BioSciences, Chemistry, Earth Sciences, Ecosystem and Forest Sciences, Geography, Mathematics and Statistics, and Physics.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, Office for Environmental Programs and home to numerous Centres.

Science manages more than \$290 million of income per annum, with a staff base in the order of 270 professional staff, and more than 580 academic staff.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling over 8,600 undergraduate and 2,440 graduate students. The Faculty of Science is the custodial Faculty for the BSc (Bachelor of Science). The Faculty of Science is a leader in research, contributing approximately \$70 million in HERDC income per annum. The

Faculty of Science is highly research focused, performing strongly in the ARC competitive grants schemes, often out-performing the national average. The Faculty of Science is currently growing its competitiveness and standing in the NHMRC space.

The Faculty of Science provides community services and industry partnerships based on a solid foundation of research in the pure and applied sciences. The Faculty has an endowment of approximately \$56 million. The annual income from the endowment supports more than 120 prizes, scholarships and research awards.

5.3 THE UNIVERSITY OF MELBOURNE

*Figures from the latest available data for 2015, including published international rankings data.

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at <http://about.unimelb.edu.au/careers>.

5.4 GROWING ESTEEM, THE MELBOURNE CURRICULUM AND RESEARCH AT MELBOURNE: ENSURING EXCELLENCE AND IMPACT TO 2025

Growing Esteem describes Melbourne's strategy to achieve its aspiration to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and engagement. <http://about.unimelb.edu.au/strategy-and-leadership>

The University is at the forefront of Australia's changing higher education system and offers a distinctive model of education known collectively as the Melbourne Curriculum. The new educational model, designed for an outstanding experience for all students, is based on six broad undergraduate programs followed by a graduate professional degree, research higher degree or entry directly into employment. The emphasis on academic breadth as well as disciplinary depth in the new degrees ensures that graduates will have the capacity to succeed in a world where knowledge boundaries are shifting and reforming to create new frontiers and challenges. In moving to the new model, the University is also aligning itself with the best of emerging European and Asian practice and well-established North American traditions.

The University's global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University's research strategy *Research at Melbourne: Ensuring Excellence and Impact to 2025* aspires to a significant advancement in the excellence and impact of its research outputs.

<http://research.unimelb.edu.au/our-research/research-at-melbourne>

The strategy recognises that as a public-spirited, research-intensive institution of the future, the University must strive to make a tangible impact in Australia and the world, working across disciplinary and sectoral boundaries and building deeper and more substantive engagement with industry, collaborators and partners. While cultivating the fundamental enabling disciplines through investigator-driven research, the University has adopted three grand challenges aspiring to solve some of the most difficult problems facing our world in the next century. These Grand Challenges include:

- ▶ Understanding our place and purpose – The place and purpose grand challenge centres on understanding all aspects of our national identity, with a focus on Australia's 'place' in the Asia-Pacific region and the world, and on our 'purpose' or mission to improve all dimensions of the human condition through our research.
- ▶ Fostering health and wellbeing – The health and wellbeing grand challenge focuses on building the scale and breadth of our capabilities in population and global health; on harnessing our contribution to the 'convergence revolution' of biomedical and health research, bringing together the life sciences, engineering and the physical sciences; and on addressing the physical, mental and social aspects of wellbeing by looking beyond the traditional boundaries of biomedicine.
- ▶ Supporting sustainability and resilience – The sustainability and resilience grand challenge addresses the critical issues of climate change, water and food security, sustainable energy and designing resilient cities and regions. In addition to the technical aspects, this grand challenge considers the physical and social functioning of cities, connecting physical phenomena with lessons from our past, and the implications of the technical solutions for economies, living patterns and behaviours.

Essential to tackling these challenges, an outstanding faculty, high performing students, wide collaboration including internationally and deep partnerships with external parties form central components of Research at Melbourne: Ensuring Excellence and Impact to 2025.

5.5 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at <http://www.unimelb.edu.au/governance>