RESEARCH FELLOW, ATMOSPHERIC SCIENCE

DEPARTMENT/UNIT	School of Earth, Atmosphere and Environment
FACULTY/DIVISION	Science
CLASSIFICATION	Level A
WORK LOCATION	Clayton campus

ORGANISATIONAL CONTEXT

Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at www.monash.edu.

The **School of Earth, Atmosphere and Environment** is located in the Faculty of Science (www.monash.edu/science/) and has close collaborations with other Schools, such as Physics, Chemistry and Biology, and with other Faculties, such as Business and Economics , Arts, and Engineering. The School has strong links with outside institutions such as CSIRO, the Bureau of Meteorology, the Australian Synchrotron, and Geoscience Australia as well as a large number of research institutes and universities globally.

The School is highly multidisciplinary with very active groups in Dynamical Meteorology, Climate Dynamics, Cloud Processes, Turbulence and Atmospheric Convection, Biosphere-Atmosphere Interaction, Climate Impacts and Adaptation, Atmospheric Modelling, Urban Climate, Geodynamics, Tectonics and Structural Geology, Environmental Mineralogy, Synchrotron Geoscience and Geochemistry, Hydrogeology and Hydrochemistry, Economic Geology and Petrology, Soil Science, Environmental Earth Science, Applied Geophysics, Geomorphology, GIS and Remote Sensing. The School is actively involved in several research Centres, such as the Australian Research Council's Centre of Excellence for Climate Extremes, the Corporative Research Centre for Water Sensitive Cities, and the 3D ALIVE (Applied Laboratory for Immersive Visualisation Environment).

The working environment is the **Atmosphere and Climate group** in the School of Earth, Atmosphere and Environment. The particular strengths of the group can be found at https://www.monash.edu/science/schools/earth-atmosphere-environment/research.

This group forms part of the **ARC Centre of Excellence for Climate Extremes** (see https://climateextremes.org.au/). 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.

POSITION PURPOSE

A Level A research-only academic contributes towards the research effort of the University and develops their research expertise through the pursuit of defined projects relevant to the particular field of research.

Under the umbrella of the ARC Centre of Excellence for Climate Extremes the successful applicant will use radar and other meteorological data to better understand the processes involved in extreme rainfall across Australia. There will be a focus on the role convection plays in producing extreme rainfall as well as how the state of convection is related to the larger-scale state of the atmosphere. Based on the findings of the first part, the project will evaluate the ability of weather and climate models, including the ACCESS model, to simulate the processes involved in heavy rainfall. It will then develop and test new approaches to parametrizing convection to improve the model behaviour. The project would be strongly integrated in a model evaluation and improvement theme of the Centre.

Reporting Line: The position reports to Professor, School of Earth, Atmosphere & Environment

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budget Responsibilities: Not applicable

KEY RESPONSIBILITIES

1. Investigate the physical processes underpinning rainfall extremes in the Australian region using radar and satellite observations as well as re-analyses
2. Develop conceptual models of the key processes, in particular atmospheric convection, that are suitable to be used as parametrizations in global climate models
3. Implement and test new parametrizations in the atmospheric model of the Australian Community Climate and Earth System Simulator (ACCESS)
4. Assist in supervising honours and graduate students working on the project
5. Participate in group activities, including small amounts of group-related administration
6. Present research at national and international conferences
7. Prepare research papers for submission to quality refereed journals
8. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
9. Limited administrative functions primarily connected with the area of research of the academic
10. Development of a limited amount of research-related material for teaching or other purposes with appropriate guidance from other staff
11. Occasional contributions to teaching in relation to their research project(s)
12. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees

13. Advice within the field of the staff member's research to postgraduate students

KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:

- A doctoral degree in atmospheric science or a related field

Knowledge and Skills

2. A good understanding of atmospheric physical processes, in particular boundary layer processes and atmospheric convection

3. A proven ability to insightfully analyze large observational and model data sets

4. An ability to develop and modify code for atmospheric models

5. A high-level of computing skills, including programming experience in a major programming language and a mainstream visualization package

6. Proven ability to work within a collaborative team of scientific researchers

7. Excellent communication and writing skills

8. An ability to prepare publications in high-quality journals

OTHER JOB RELATED INFORMATION

- The position is a fixed-term 3-year appointment. The position can be full time or part time and flexible-working arrangements are possible
- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted
- A current satisfactory Working With Children Check is required

LEGAL COMPLIANCE

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.