Postdoctoral Research Fellowship 2024

The Department of Oceanography

Value: R300,000.00 for twelve (12) months. The award does not include any benefits and is exempt from taxation.

The University of Cape Town has a strong international reputation in ocean and climate research and teaching. Within the Department of Oceanography, particular areas of interest include the Agulhas and Benguela Current systems, the tropical western Indian Ocean, the Southern Ocean, climate change and variability, marine biogeochemistry, severe weather and mesoscale meteorology, and modelling. The Department seeks to appoint a **Postdoctoral Research Fellow** with an interest in meteorology and convective storms. The Fellow will join the *Climate Research* team within the department.

General Project Background

Convective storms are important phenomena, not only being a key source of rainfall, but also by acting to stabilize the atmosphere through the redistribution of heat and moisture. However, adverse effects occur when the magnitude of the convective storm is severe with high wind speeds, flooding, hail, lightning and even the occurrence of tornadoes. These often lead to damages to property, infrastructure and crops, disruption in travel and in some cases, the loss of life. Observing and analysing convective storms and their environments from the past few decades has been a crucial method in understanding and improving the current knowledge of storm activity (i.e. distribution and frequency). This work is focussed on better understanding convective storms within southern Africa and mechanisms that trigger such events.

About the Postdoctoral Position

Drylines are used to describe boundaries separating regions of very dry air from that with much higher moisture content. Over southern Africa, drylines typically occur in summer and separate the very dry air in the west from moist air over the eastern parts that originally comes from the Indian Ocean. Under the right conditions, drylines can force moist air to rise and cause thunderstorms. The position here is to conduct research around dryline formation mechanisms over the subtropical southern African plateau, making use of surface observations, sounding data and high-resolution model

simulations. These datasets will also be applied to investigate and describe mesoscale processes along the dryline which might lead to increases in wind shear and instability, making them favourable locations for the development of severe thunderstorms. There will be the opportunity for field work to collect data. Additionally, the aspect of drylines in a changing climate will be investigated making use of high-resolution model output.

Key Requirements

- A PhD in atmospheric, oceanic and/or climate sciences, physics, computational sciences or a closely related discipline (within the last 5 years),
- Have not previously held comprehensive professional or permanent academic positions,
- A good working knowledge of drylines over southern Africa and regional meteorology (relevant forecasting experience would be highly desirable),
- Fluent in English and can communicate effectively, both verbal and written. Also being fluent in Afrikaans would be advantageous,
- Lead author in at least 3 papers in international journals,
- Experienced with Unix systems and HPC systems,
- Experienced in working in a higher programming language like Python (preferable) or Matlab.
- Experienced in working with various climate datasets – from field work observations through to climate models,
- Recent field work experience (including working with sondes and lidar) in a dryline and heat low environment.

Funding

The value of the Fellowship award is R300 000 for 12 months with no additional benefits. Postdoctoral Research Fellowships are non-taxable, meaning that Fellowships must be granted without fringe benefits and no services are required of the successful candidate in return for the Fellowship beyond the agreed research activity. The Fellowship is offered for 12 months, renewable, up to a maximum of three years (funding dependent). The place of employment will be **Cape Town, South Africa.**

To apply:

Send an email application to **Professor Chris Reason** (chris.reason@uct.ac.za) with the subject "SEA Climate Research Group Postdoctoral Fellowship" and **attach the following documents**:

1. Cover letter describing research experience, interests, and collaborative experience

2. Academic curriculum vitae with list of publications and conference presentations included
3. Certified transcripts of academic qualifications at the tertiary level
4. Contact details for 2 people willing to write reference letters

Closing date for applications is 05 March 2024.

The University of Cape Town reserves the right to disqualify ineligible, incomplete and/or inappropriate application. The University of Cape Town reserves the right to change the conditions of award or to make no awards at all. The successful incumbent must be prepared to comply with the University's approved policies, procedures and practices for the postdoctoral sector.

Further Information

Please contact **Prof. Chris Reason** (Chris.Reason@uct.ac.za) or **Dr Ross Blamey** (ross.blamey@uct.ac.za) for further information.

APPROVED