جامعة نيويورك أبوظبي

NYU | ABU DHABI

Atmospheric-driven changes in Antarctic land and sea ice

Position title: Research Assistant

Research project title: Atmospheric-driven changes in Antarctic land and sea ice

Faculty name and title: Professor David M. Holland, Center for Global Sea Level Change (CSLC).

Research project description

Global sea-level rise is one of the most discussed potential consequences of global warming. Large uncertainties remain in the current and future contribution to sea level rise from Antarctica. The most uncertain aspect of such future sea-level change has to do with the marine based ice sheets, and particularly that of Antarctica, which has at least a volume equivalent to 56.6 m of sea level rise (IPCC AR4). Despite its potential importance, current generation of global climate models are unable to simulate sea-level change arising from ice sheet-ocean-atmosphere interactions, mainly because mechanisms governing this process at regional and small scales still poorly understood.

A step towards remediating this situation is to advance our understanding of the multiple-interconnected processes at play in the ice melting in Antarctica, particularly the role of the atmospheric circulation in the changes of the state of the Antarctic cryosphere components. Such advances will lay the groundwork for including the ice sheet-ocean-atmosphere interaction in global scale, IPCC class models.

This project aims at addressing the role of the atmospheric dynamics over Antarctica and their influence on land and sea ice variability. Three main atmospheric phenomena of the atmospheric circulation over Antarctica, namely the katabatic winds, the foehn winds and the synoptic storms, will be investigated by analyzing satellite and reanalysis data, complimented with regional modelling.

Responsibilities of the position

- Work in collaboration and under the supervision of Dr. Diana FRANCIS,
- Write and develop scripts to analyze the data as per the project description and produce meaningful plots,
- Learn how to set up and run a real-case simulation using a 3D atmospheric model,
- Read and summarize research articles relevant to the problematic addressed in the project,
- Co-write a research article detailing the results,

- Present the work at meetings and conferences.

Essential qualifications

- B.SC. in Mathematics, Physics, Meteorology or Computer Science 1st or upper second class degree.

- Proficiency in English, reading, writing, listening and speaking, equivalent to IELTS 6.0.

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Preferred experience and skills

- MA in Computer Science,

- Experience in working with large datasets and netcdf files.

- Programming skills using Python, Matlab, IDL or R.

Applicant to provide

1. Statement of interest in the position

2. Transcript of degree(s)

3. CV

4. Two letters of recommendation