Ocean-eddy atmosphere interaction (ZHAI_UENV17EE)

University of East Anglia - School of Environmental Sciences

Qualification type: PhD
Location: Norwich
Funding for: UK Students, EU Students
Funding amount: £14,296
Hours: Full Time, Part Time

Placed on: 20th October 2016
Closes: 8th January 2017
Reference: ZHAI_UENV17EE
Start Date: October 2017
No. of positions available: 1
Supervisor: Dr Xiaoming Zhai

Project description:
Scientific background
Eddies are ubiquitous in the ocean and dominate the ocean's kinetic energy. They play a vital role in shaping the large-scale ocean circulation and in transporting mass, heat and other climatically important tracers in the ocean. Although progress has been made over the last decade, our understanding of physical processes governing ocean eddy energy remains rather limited.
A number of recent studies suggest that direct interaction between ocean eddies and the overlying atmosphere via air-sea momentum and heat exchanges is systematic and significant, but the impact on ocean eddies is yet to be determined. The overall aim of this project is to improve our understanding of ocean-eddy atmosphere interaction and quantify its effect on ocean eddies. This is an exciting new research area with many important climatic implications including, for example, future ocean eddy parameterizations in global climate models.

Research Methodology
You will join a productive research team of physical oceanographers and atmospheric scientists. The first part of the project will involve analysing the latest oceanographic and meteorological data products (e.g. satellite altimeter data, scatterometer winds and remotely-sensed surface turbulent heat fluxes) to determine air-sea momentum and heat exchanges over ocean eddies.
You will then learn to set up both idealised and realistic high-resolution MIT ocean circulation model experiments to investigate the impact of these air-sea exchanges on ocean eddy properties and energetics. You will also be encouraged to pursue you own particular interests under the general aim of the project.

Training
This project will provide you with a thorough training in ocean dynamics, air-sea interactions, numerical modelling and data analysis. Researchers in the School and at the British Antarctic Survey regularly lead and take part in field campaigns and there will very likely be an opportunity for fieldwork as you wish.
Person specification: We seek an enthusiastic candidate with strong scientific interests and self-motivation. He or she will have at least a 2.1 honours degree in physics, mathematics, oceanography, meteorology, or climate science with good numerical skills.
Funding notes: This project has been shortlisted for funding by the EnvEast NERC Doctoral Training Partnership, comprising the Universities of East Anglia, Essex and Kent, with twenty other research partners.
Shortlisted applicants will be interviewed on 14/15 February 2017.

Successful candidates who meet RCUK's eligibility criteria will be awarded a NERC studentship. In most cases, UK and EU nationals who have been resident in the UK for 3 years are eligible for a full award. In 2016/17, the stipend was £14,296.

For further information, please visit www.enveast.ac.uk/apply