



**Scenario**  
DOCTORAL TRAINING PARTNERSHIP

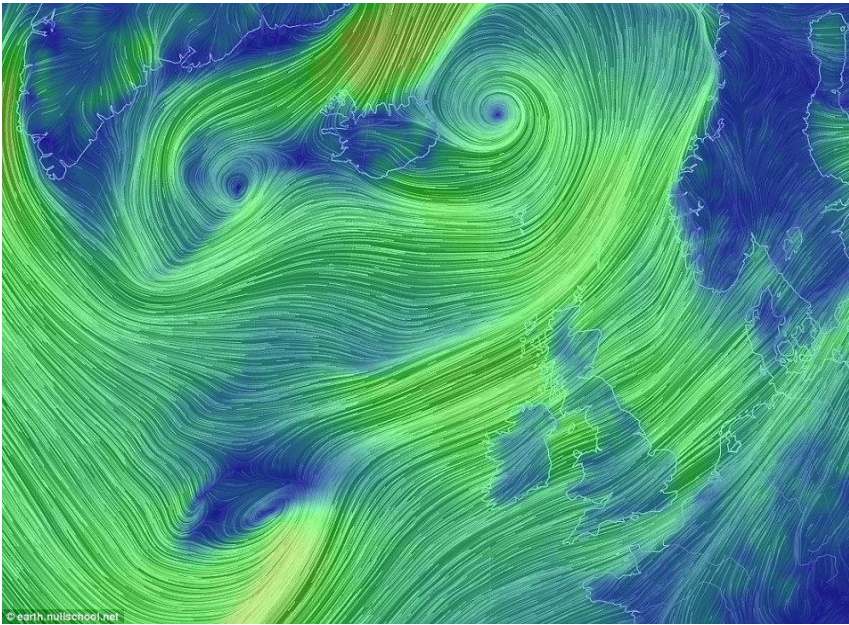
**NERC**  
SCIENCE OF THE  
ENVIRONMENT

## High resolution air-sea coupling for downstream storm prediction

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Low level winds are due to nonlinearly developing weather systems in the storm track

The Atlantic storm track is the main atmospheric feature that determines the properties of the weather in W. Europe. Its structure is determined by a complex nonlinear balance between broad radiative forcing of the atmosphere, dissipative processes at the surface, complex heat and moisture exchanges with the surface and turbulent fluxes due to evolving weather systems. It is no wonder that the storm tracks present one of the key uncertainties in our understanding of the future climate, and especially regional climate.

In this project we propose to use data from state-of-the-art high resolution weather prediction models to assess the degree to which the heat and moisture exchanges between the surface and the atmosphere determine the resulting structure of the storm track. We will be employing novel analysis tools which describe the variability of the storm track in terms of simplified dynamical system. The main aim is to figure out how and to what extent high-resolution coupling between the surface and the atmosphere improves our description of the storm track.

### **Training opportunities:**

**Beyond the more standard training**, the student will spend substantial periods of time working at and with the Met Office to help them develop the science around their Environmental Prediction Development programme.

### **Student profile:**

This project would be suitable for students with a degree in physics, applied mathematics or a closely related environmental or physical science.

### **Funding particulars:**

**This project has agreed CASE funding from the MetOffice.**