Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

iCRAG
SFI RESEARCH CENTRE
IN APPLIED GEOSCIENCES

Grassland carbon dynamics and management in a next generation land surface model

We invite applications for a fully-funded 4-year PhD project within the newly established Plant Ecology Modelling group in the Department of Botany at Trinity College Dublin.

Project background and description

Grasslands cover 37% of the world's land and store 34% of terrestrial carbon, making them a key piece of the terrestrial carbon cycle puzzle. In Ireland, grasslands account for more than half of land cover and the majority of agricultural land, as pastures. Grasslands are often managed for human use, and management practices have the potential to affect ecosystem function and carbon storage. It is therefore important to be able to predict both the effects of future global change in grassland ecosystems and interactions between management and climate. However, land surface models - our main tools for predicting the future of terrestrial ecosystems - are often focused on forests, representing herbaceous species simply as woodless trees.

This project aims to address this challenge by developing a novel model representation of the physiology and ecology of herbaceous plants. The successful candidate will work with the QUINCY model, a cutting-edge land surface model designed for easy hypothesis testing and development. The candidate will join an international modelling team with groups across Europe providing scientific and technical support. As well as model development the project will also include intensive model evaluation and calibration using a variety of data sources from site-level observations and manipulative experiments to global data products.

Candidate profile

The ideal candidate will:

- Hold a Bachelor or Masters degree in ecology, geosciences, environmental science, plant sciences, mathematics or computer science

- Have demonstrable quantitative skills, including ecologically-relevant statistical methods

- Have previous programming experience (e.g. R, Python, Matlab, Fortran) and/or a background in ecology or plant physiology and a willingness to learn programming

Funding

This is a 4-year Phd project funded by the SFI Research Centre in Applied Geosciences (iCRAG) and covers an annual stipend of €18,500, as well as project costs and student fees.

Application

Please send a CV and a 1-page personal statement detailing why you are interested in the project no later than the 10th of August 17:00 GMT by email to Dr. Silvia Caldararu caldaras@tcd.ie.

Project starting date is flexible but no later than 1st of January 2023.

We strive for a bias free recruitment process so we ask you to not send CVs that include a photo or information of a personal nature (e.g. age, marital status, nationality). Statements will be read before CVs. We encourage applications from underrepresented groups in STEM.

Please address all enquiries by email to Dr. Silvia Caldararu caldaras@tcd.ie