

PhD Opportunity in Dublin, Ireland



Development of single tree volume models and stem profile models

The University College Dublin, the forest management and research company Purser Tarleton Russell Ltd. and the semi-state forestry company Coillte Teoranta, have together started a research project called: TREEMODEL – Development of single tree volume models and stem profile models. The project is funded by COFORD, the National Council for Forest Research and Development in Ireland.

The **main objective of the project** is to produce single tree volume models and stem profile models.

The specific research objectives of the project are:

1. Produce stem profile models for Sitka spruce, Norway spruce, Douglas fir, Lodgepole pine, Japanese larch, Scots pine and ash.
2. Validate these models with newly collected stem data.
3. Describe the different inventory tools available for collecting necessary data for stem profile models.
4. Develop recommendations for the integration of stem profile models into everyday private sector inventory and management practice.

The project is directed by the Project Coordinator and managed by the Project Management Group consisting of the Project Coordinator and representatives of the participating companies.

The TREEMODEL Project is seeking a PhD Student for 3 years.

The research will consist of the following tasks:

Data Compilation

Available research data will be sourced for the development of stem profile models for different species. Data exists for all the main conifer species and models are complete for these with the exception of Japanese larch. New data is required for Ash which is currently being collected under the separate Dynamic Yield Model Development project (STANDMODEL) under this research programme.

Parameterisation of Models

Two-step parameterisation of stem profile models will be used. In the first step, for every sample tree the 3-parameter exponential stem profile model will be parameterised using non-linear regression methods. In the second step, the parameters of individual stem profile models will be generalised for every species. The remaining species that require model development are Japanese larch and Ash.

Mandatory requirements for this position are:

- An Honours Degree in forestry with a strong modelling component, or an Honours Degree in statistics/mathematics with a strong modelling component, or an equivalent qualification.
- An understanding of and interest in modelling of forest trees or similar
- Capable of combining field work with office based activities.
- An interest in the development of applications and computer software for tree volume models
- Good writing and communication skills.

Desirable skills are:

- A full, clean driver's licence.
- A post-graduate qualification in a statistics/mathematics course with a strong modelling component
- Experience of working with tree volume models and forest mensuration equipment
- An understanding of forestry in Ireland

The project started in 2007 and funding for the PhD is secure until end of December 2012. The starting date of the PhD research position is flexible, but preferably close to 1 November, 2009. The PhD scholarship will have a value of circa €18,000 per year. In addition, tuition fees will be paid by the project.

If you are interested in this PhD position, you can apply by sending a CV (including the names and addresses of two people willing to provide references) and a letter explaining why you feel qualified for the PhD position and scholarship. There is no application form.

In the letter of application ensure the following is clearly stated:

- Your interest in forestry
- Your skills and experience of developing statistical models in forestry or a related subject
- Your knowledge of the use of yield models in forestry
- Your skills in computer programming and software development

Please send your application to the Project Coordinator, Professor Maarten Nieuwenhuis (maarten.nieuwenhuis@ucd.ie), Agriculture and Food Science Centre, University College Dublin, Belfield, Dublin 4. For inquiries contact Professor Nieuwenhuis at 01 716 7004 or maarten.nieuwenhuis@ucd.ie.

http://www.ucd.ie/bioenvsci/staff/academic/maarten_nieuwenhuis.html

