



# Internship – Mesoscale Modelling of Wind Power

Vacancy – Ref. 2017\_BEL\_001

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## Company Profile

Established in 1999, 3E is a technology company in sustainable energy. It provides consultancy and software to improve performance of renewable energy systems, to reduce energy consumption and to facilitate grid and market interaction. 3E's expertise covers solar energy, wind energy, sustainable buildings and sites optimisation, power infrastructure and energy markets.

3E's clients include renewable energy project developers and investors, real estate developers, energy utilities, architects, technology manufacturers, maintenance companies and public authorities.

A fast-moving SME, 3E was awarded with the Gazelle trophy for its fast growth in 2011. It also received the Top Employer Award in 2012.

## Background

Wind power development requires accurate modelling of the wind resource at regional level in order to identify the zones with highest potential and to describe the wind resource and dynamics. This can be achieved with a mesoscale meteorological model that describes the dynamics of the earth's atmosphere in order to represent the atmospheric conditions across a certain domain, based on larger scale atmospheric models. 3E has developed its own mesoscale modelling solution in the past years based on the Weather Research and Forecasting (WRF) model and would like to perform a sensitivity analysis of different model inputs and setup. The objective is to improve the overall accuracy of 3E's mesoscale model by finding an optimal setup for wind resource assessment purposes.

## The Internship

3E is collaborating with the Technical University of Denmark (DTU), Forwind in Oldenburg, and several other European partners in the production of a new European Wind Atlas. In that scope, the trainee will be responsible for performing a set of mesoscale simulations over Western Europe, using different earth observation (EO) datasets as boundary conditions. The trainee should also test a range of model setups (vertical levels, parameterizations, etc.).

The trainee should validate the simulations by extracting the mesoscale outputs using in-house Python packages and comparing the simulated wind climate against measurements from a large number of sites across Europe. This task also involves improving the existing Python code to run a WRF simulation, post-process, extract & analyse the outputs.

The trainee will be part of 3E's R&D team and will have full support and guidance from experienced researchers. The tasks require a minimum trainee participation of 6 months.

The work can lead to a Master's Thesis in collaboration with your university.

## Profile

- Bachelor degree (& busy with Master studies or Master graduates looking for first work experience) in physics, atmospheric sciences or renewable energies (orientation wind energy)
- Interest in the sector of renewable energy and modelling

## Skills

- Basic knowledge in mesoscale modelling, and preferably with the Weather Research & Forecasting (WRF) model
- Good programming or scripting skills (Python, NCL, Matlab, or similar)
- Solution-oriented and practical, end-to-end minded
- Curious, eager to learn quickly
- Able to work in team and autonomously
- Fluent in English (oral and written)

## Location

Our offices are located near St Catherine (City Centre) in 1000 Brussels.

## Our Offer

In addition to a stimulating atmosphere in a young and highly motivated group of people, 3E offers:

- A 6 months traineeship in Brussels, starting in January 2017 or later.
- An international environment: projects in over 25 countries worldwide, colleagues of over 20 nationalities

## Interested?

Apply now on <http://jobs.3e.eu/en/index.aspx>