

PhD Meta-modelling of Sustainable City Systems (1.0 fte)

Job description

The PhD position is funded by and will be part of the Dutch Climate-KIC programme. The PhD research will be conducted at the Department of Physical Geography, Faculty of Geosciences, Utrecht University, in collaboration with the PCRaster software development team at the Department and Dutch partner institutes including TNO and Deltares. The intended starting date is 1 July 2013 and the project will last for four years.

Project description:

The project aims to set up an integrated modelling approach for providing insights that enable a more sustainable (re-)utilization and management of energy, water and resource flows in sustainable cities. In particular, the proposal focuses on developing methodology and software to aggregate separate models of sub-systems (energy, climate, water, resources/waste) into one, integrated meta-model. The result will be a software framework with coupled models, which can cope with the complexity of aggregating information of sub-systems. It will assist in more efficient utilization and re-use of energy, water and resources in the urban environment, providing models to quantify and visualize spatio-temporal patterns of impacts on the urban system for various scenarios of spatial planning, climate change, and technological innovation. Building upon existing technology, a methodology will be developed that uses formal descriptions of model components, which provides a means to couple models even when they are built following different modelling paradigms (e.g. field based, agent-based). This results in flexible coupling between component models and the possibility of future addition of new models or data.

You will design, develop and evaluate software approaches to couple various existing spatial and temporal models of urban systems, and possibly new models. You will do this by extending existing software frameworks for integrated modelling, including software developed by the PCRaster software development team (<http://www.pcraster.eu>). The software and models developed will be tested in one or more benchmark case studies, which will include a Dutch city (e.g., Utrecht). You will write a number of articles for international peer reviewed journals reporting on the results of the research. The PhD thesis will be based on these articles.

PhD Climate-KIC EIT Label

You will work on a Climate-KIC innovation project. This project is supplemented with the following activities and funding to achieve the PhD Climate-KIC EIT label:

- theJourney, a one month excursion including visits to European research institutes (including 1 month's additional pay)
- SPARK! seminars and discussions (a total of 5 per year)
- Transferable skills courses (a total of 2 Climate-KIC residential courses)

In addition the students will have access to

- Business coaching
- Greenhouse funding
- Climate-KIC Festival
- Climate-KIC community and its activities

Qualifications

We seek a highly motivated candidate with:

- MSc degree in Earth Science or Computer Science (or related disciplines);
- Strong motivation for research;
- Keen interest in practical applications of geoinformatics;
- Knowledge of spatio-temporal modelling;
- Experience with software development;
- Knowledge of sustainable management of urban water, waste and energy is a pro.

You should be proficient in English, have excellent scientific writing and planning skills, and be an enthusiastic team player. An open and communicative attitude and a cooperative spirit are requirements for success in this multidisciplinary and applied project. Candidates with a strong background in software development willing to learn principles of spatio-temporal modelling are invited to apply. You should be prepared to develop in-depth knowledge on gaps in your scientific experience e.g. on urban energy, water and waste cycles and/or integrated modelling.

Offer

You are offered a 12-month fulltime position with - at good performance - the prospect of a phased extension with a maximum of 37 months (in total 4 years fulltime + 1 month). The salary starts with € 2,062.- gross per month in the first year and increases to € 2,638.- gross per month in the fourth year of employment at fulltime appointment.

The extent of these positions officially is 38 hours per week (1.0 fte). The salary is supplemented with a holiday bonus of 8% and an end-of-year bonus of 8.3% per year. In addition we offer a pension scheme, a collective health insurance and flexible employment conditions. Conditions are based on the Collective Labour Agreement of the Dutch Universities.

More information: [terms of employment](#).

About the organisation

Utrecht University has great ambitions for its teaching quality and study success rates. This also applies to its clear research profiles which are centred around four themes: Sustainability, Life Sciences, Youth & Identity, and Institutions. Utrecht University plays a prominent role in our society and contributes to finding the answers to topical and future societal issues.

The Faculty of Geosciences offers education and research concerning the geosphere, biosphere, atmosphere and anthroposphere. With a population of 2,200 students (BSc and MSc) and 600 staff, the Faculty is a strong and challenging organisation. The Faculty is organised in four Departments: Innovation and Environmental Sciences, Earth Sciences, Physical Geography, and Human Geography and Urban and Regional Planning. Further information concerning the faculty is available at the website www.uu.nl/geo. General information about Utrecht University can be found at www.uu.nl. Information concerning our coastal research activities can be found at www.coastalresearch.nl.

Additional information

Additional information can be obtained from Dr. Derek Karssenbergh (d.karssenbergh@uu.nl), or Prof. Dr. Steven de Jong (s.m.dejong@uu.nl).

Apply

Applications, including a letter of motivation, a curriculum vitae and contact information of three referees, should be submitted via the application button below.

Deadline for submission is April 29, 2013. Interviews are scheduled for Wednesday May 8, 2013.

Apply until

29/04/2013

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