

## Doctoral and postdoctoral positions in Hydrology, Fluvial hydrodynamics and Hydraulic engineering at the University of Liege, Belgium

The research group *Hydraulics in Environmental & Civil Engineering* (HECE) of the University of Liege is seeking doctoral and postdoctoral candidates for conducting research on scientific projects strongly related to climate change and renewable energy.

Follow this link to discover the group HECE: [www.hece.ulg.ac.be](http://www.hece.ulg.ac.be).

For more than 20 years, the group has lead basic and applied research in the fields of flood risk management, design and operation of hydraulic structures as well as reservoir hydrodynamics and sedimentation. The research builds upon a tight coupling between computational modelling and laboratory experiments.

The group develops the modelling system WOLF, which includes rainfall-runoff models as well as 1D, 2D and 3D flow and transport models. It is based on an in-house developed finite volume numerical scheme and is equipped with a dedicated GIS-type user interface. WOLF is routinely exploited for education, consultancy and research. For more details, follow this [link](#).

The unique hydraulic lab of the group HECE offers a total surface of 1,100 m<sup>2</sup> for building and operating experimental models, with permanent pumping groups (up to 400 l/s) and a storage tank of 400 m<sup>3</sup>. State-of-the-art measurement techniques are available, such as ADV, LS-PIV or laser profilometry.

The group HECE is part of the Research unit *Urban & Environmental Engineering* ([link](#)), with 25 faculty staff and 100+ researchers, as well as Aquapôle ([link](#)).

### Function

We are looking for highly motivated doctoral and postdoctoral candidates to join our group and contribute to several on-going scientific research projects dealing with hydraulic and hydrological challenges linked to climate change and renewable energy. Although the specific topic of each position will be defined based on detailed discussions with the candidates (background, interest ...), the topics will relate to one of the following subjects:

- computational hydrology, including hydrological impacts of climate evolution (coupling between rainfall-runoff models and climate models) and real-time forecasting of **hydrological extremes** (high- and low-flows);



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- laboratory experiments and computational modelling of fluvial **dike breaching** induced by overtopping (hydrological extremes), to enhance process understanding and support flood risk management;
- laboratory experiments and computational modelling to support the design of **sustainable and eco-friendly hydraulic structures** (fish-friendly water intakes for run-of-river hydropower schemes; re-aeration weirs for eutrophic reservoirs or water systems; sediment management structures);
- laboratory experiments and computational modelling for **optimizing energy-efficiency** in waterways (reducing pumping costs, optimal control of pumping operations throughout an entire networks of waterways).

The candidates will also contribute to teaching and project activities, which is an asset for their professional development.

### Profile

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Applicants for doctoral position must have completed a master degree in a field closely related to civil engineering, environmental engineering, mechanical engineering or physics. Postdoctoral candidates must have completed their PhD within the last 6 years.

Excellent written and verbal English communication skills are required. French literacy is an asset. Preference will be given to candidates with a strong interest and some level of proficiency in computer programming.

### We offer

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Candidates will be fully funded (tax-free monthly allowance, approx. 2,100 € at the doctoral level) for up to 4 years (doctoral level) and 3 years (postdoctoral level). They will benefit from a dynamic working environment, with stimulating scientific support, state-of-the-art laboratory facilities and advanced computational modelling tools. They may be requested to apply for extra funding.

The University of Liège offers a comprehensive and innovative training program ([link](#)), which enables early-career scientists to carry out their research in the best possible conditions, in compliance with the European Charter for Researchers ([link](#)).

### How to apply?

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Outstanding candidates should apply by email to [hece@uliege.be](mailto:hece@uliege.be) with a curriculum vitae, full transcripts of Bachelor and Master studies, and two references. Short-listed candidates will have to take part in an oral interview at the University of Liège. The positions will remain open until filled; but the selection will start from April 1<sup>st</sup>, 2019. Starting date is expected in the period from July to September 2019, or earlier.



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