Vacancy: a four-year full-time PhD position

Flexible statistical models for compound climate events

Many high-impact weather and climate events arise from a combination of multiple environmental hazards such as high temperatures, heavy precipitation, or strong winds. Characterizing these so-called *compound extreme events* is essential to assess climate-induced risks, especially since their probability of occurrence is expected to increase in view of global warming. Describing the behavior of multiple environmental variables is commonly achieved by focusing either on the center of their underlying distributions, or on their extremes. The latter is especially challenging, since the number of data points in the tail region of the sample is scarce by definition. Moreover, when interest lies simultaneously in both the center and the tail of the environmental variables, a flexible model is needed to characterize the dataset over the whole range of its support. Such an approach is especially relevant for compound events, where individual variables need not be in an extreme state, but their combination is.

The Namur Institute for Complex Systems (naXys) of the Université de Namur is seeking a talented PhD candidate to join us in the effort to propose flexible statistical models that are capable of a realistic representation of both center and tail(s) of a random vector, and to use these models to give projections for probabilities of compound extreme events. The PhD grant is sponsored by the Belgian Fund for Scientific Research (F.R.S.–FNRS).

Practical information and expected profile

The offer:

- a full-time four-year PhD grant, starting from October 1st, 2024, or later
- a net salary of around 2400 euros/month (including social insurance and transportation to / from work)
- an international and multidisciplinary working environment
- travel opportunities for attending scientific conferences and doing research visits
- access to a high-performance scientific computing environment
- opportunities to gather experience in teaching and consultancy

Expected profile: you are holding a master degree (120 ECTS) in statistics, mathematics, engineering, or a similar domain. Your skills and interests include

- statistical modelling
- programming skills in, for instance, R and/or Python
- fluency in English, spoken and written
- experience with extreme-value theory and/or copula modelling is a plus

How to apply: please mail your CV, motivation letter, names and contact details of at least two reference persons, and a list of your master courses and grades to Anna Kiriliouk (anna.kiriliouk@unamur.be) with subject "PhD application Namur" at your earliest convenience.