



## **VACANCY for a PhD position in Statistic (2017-2021)**

The **Institute of Statistics, Biostatistics and Actuarial Sciences (ISBA)** of the Université catholique de Louvain (**UCL**), **Louvain-la-Neuve**, Belgium, has a vacancy for a **PhD position in methodological statistics**, in collaboration with the Royal Observatory of Belgium (ROB), in Bruxelles.

### **Job description**

Financed by BELSPO, the supervision of the PhD student will be assumed by Prof. Rainer von Sachs (ISBA), in collaboration with statisticians of the ROB. Some support for the data analysis part of the project will be given by Prof. Christian Ritter (SMCS). Preference will be given to candidates with knowledge in methodological statistics: nonparametric statistics, multivariate analysis, regression, time series analysis, quality control. The candidate should have a keen interest in stellar and solar physics, quantitative data analysis and/or climate sciences.

### **Project description**

This BELSPO project called VAL-U-SUN is centered on the exploitation of sunspot data from the Royal Observatory of Belgium (ROB). The Sunspot Number is the longest scientific experiment still ongoing and a crucial benchmark to study *solar activity, space weather and climate change*. The ROB plays a central role in the continuation of this experiment, as it hosts the Sunspot Index and Long-term Solar Observations World Data Center (SILSO-WDC, <http://sidc.be/silso/>). This World Data Center aims at collecting solar data related to sunspots, as well as producing and distributing the International Sunspot Number, which is used in about two hundred scientific publications on an annual basis.

SILSO gathers sunspot data and computes the Sunspot Number from a worldwide network every day since 1981, but the statistical treatment applied to the data is still an inheritance from 1850. The purpose of this PhD project is to develop a statistically sound (monitoring) treatment of the international Sunspot Number meeting the standards of the twenty-first century.

### **Job requirements**

Master degree in statistics, mathematics, physics, actuarial sciences or a related discipline, with some experience on (basic) data analysis. The diploma must have been obtained with at least distinction or an equivalent grade. Good knowledge of written and spoken English is required. No proper knowledge of French is required.

### **Terms of employment**

A tax-free monthly grant of up to 4 years. The candidate will be involved on a small scale into some teaching activities of the Institute of Statistics (ISBA).

## Research environment

The PhD would take place mostly at the ISBA and partly at the ROB, more specifically within the World Data Center – SILSO.

The ISBA (<https://uclouvain.be/en/research-institutes/immaq/isba>) is a renowned research centre of high international reputation which offers a very stimulating working environment. At the ISBA there are around 30 pre- and postdoctoral researchers working under the supervision of 10 full-time professors, in a variety of fields of methodological and applied statistics, including biostatistics and actuarial sciences. They are integrated into the Graduate School in Statistics and Actuarial Sciences which offers them an up-to-date training in their field via regular seminar series, short courses and workshops, all in English and often given by international short and long-term visitors. ISBA is also part of a large international research network. It has numerous academic contacts, including those to neighboring fields (medicine, agronomy, social science, economy, finance and engineering) as well as collaborations with industry.

ISBA also hosts the SMCS, a computational statistics and consulting unit, which will be partly incorporated into this project in order to provide some computational support for developing the statistically sound algorithms.

The ROB (<http://www.observatory.be/>) is a Belgian federal institute in the green outskirts of Brussels (Uccle). The ROB solar Physics team is involved in numerous ground-based and space-based projects, as well as several operational services of monitoring and predicting solar activity on the European and international level. The team counts approximately 40 collaborators, mostly scientists from more than eight different nationalities (<http://sidc.be>).

## Information

For further information, please contact Prof. Rainer von Sachs ([rvs@uclouvain.be](mailto:rvs@uclouvain.be)).  
For administrative questions or for more information regarding the application procedure please contact Mrs. N. Guillaume ([nancy.guillaume@uclouvain.be](mailto:nancy.guillaume@uclouvain.be)).

## Application

Please send the following documents to Mrs. N. Guillaume ([nancy.guillaume@uclouvain.be](mailto:nancy.guillaume@uclouvain.be)):

- a letter of motivation
- your curriculum vitae
- a list of passed courses and grades
- copy of diplomas
- at least one reference letter to be sent by email directly to the referee

The closing date for application is June 15, 2017 (applications received after this date will be considered as they arrive, until the position is filled). Only duly completed applications can be taken into account.

## Starting date

September 2017, or at another date to be agreed by all parties.