UCLouvain *in partnership with* GHENT UNIVERSITY

In support to the European Space Agency and in the framework of the BELSAR Science project supported by the Belgian Science Policy Office, **the Research Laboratory in Environmetrics and Geomatics of the Earth and Life Institute** in Université catholique de Louvain, is opening one PhD fellowship in

Development of bi-static Synthetic Aperture Radar (SAR) remote sensing applications for agriculture

(32 months fellowship)

Job description

The successful applicant will join a motivated team of young researchers in charge of research, production and analysis of various crop monitoring products using the new optical and radar Copernicus Sentinels data (http://esa-sen4cap.org/, http://www.esa-sen2agri.org/,).

More specifically, the successful candidate will work in close collaboration with an interdisciplinary team of 3 Belgian partners in the framework of BELSAR Science project. This project is the scientific exploitation of the BELSAR airborne and satellite campaigns, which collected in 2018 a unique time series of bi-static SAR images acquired by two airplanes flying in formation over a Hesbaye (Belgium) test site while ground measurements were taken synchronously. The PhD candidate will be in charge of the exploitation of this very innovative dataset to develop new agricultural applications in support to the development of future SAR satellites by the European Copernicus program. The activities of this PhD research include:

- the development of appropriate image processing methods and interpretation scheme to produce crop maps and landscape features (hedges, etc.) from the bi-static high resolution airborne time series;
- the inversion of the semi-empirical radiative transfer model to estimate crop variables such as biomass and leaf area index;
- the assessment of the added-value of the bi-static mode versus the normal SAR mode for agriculture and the recommendation to the European Space Agency for bi-static observation.

This PhD research will be also closely linked to the on-going ESA research projects related to the exploitation of the current Sentinel satellites for agriculture monitoring.

Qualifications

The applicant will be:

- graduated in bioengineering, agricultural engineer or equivalent;
- trained in remote sensing and geomatics and eligible for a PhD;
- fluent in french and english;
- motivated for remote sensing research on a PhD track;
- able to actively contribute to an international collaborative work;

Additional experiences in cropping systems, field measurement, crop monitoring using remote sensing, advanced image processing, SAR physics and Python and/or R programming are most welcomed.

Application

The interested candidates are invited to send a curriculum vitae and a motivation letter by email to Pascale Thiran (Pascale.Thiran@uclouvain.be, cc: Pierre.Defourny@uclouvain.be) **as soon as possible and not later than the 28 April 2019** to

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