PhD position in Earth Surface Processes and Land Degradation

A PhD position is open at the Department of Earth and Environmental Sciences of KU Leuven (Belgium), in connection with the PAStECA project (Historical aerial Photographs and ArchiveS to assess Environmental Changes in Central Africa) funded by the Belgian Science Policy Office. The successful applicant will join the Division of Geography and Tourism and work under the supervision of Prof. Gerard Govers and Anton Van Rompaey. The expertise of the research group covers a wide range of methodologies including field work on geomorphological processes and land use, remote sensing image interpretation, statistical analysis and process-based spatial model development. Models developed within the division such as WATEM/SEDEM and TTLEM for geomorphological modelling and ASSURE for urban growth have drawn significant attention and are actively used by researchers in other research groups and countries.

Project description

PAStECA is a 4-year interdisciplinary project that aims to evidence the importance and the added value of archive documents in studies addressing present day issues in areas lacking baseline studies. In the present case, aerial photographs and archives from Royal Museum for Central Africa (RMCA) will support present day environmental change studies in target tropical environments in the western branch of the East African Rift. The focus of the environmental topics relies on the spatio-temporal dynamics of LULC changes. The project deals with land occupation and demography, land degradation, slope processes and geohazards issues. The first specific objective is to produce georeferenced digital products of the historical photographs and archives that can be used for LULC studies in general. The second specific objective is to explore the causes, impacts, scales and trends of the LULC and how these changes affect environmental degradation with the help of these digital products. The third specific objective is dedicated to improve accessibility of digital products related to historical photographs, archives and LULC changes available for both the international scientific community and the public at large to foster their exploitation.

Research description

In PAStECA, the PhD candidate will first build long-term multi-temporal inventories of earth surface processes (landslides, gully erosion, river dynamics) and characterize the processes and their environment. This will be based on the combined analysis of historical aerial photographs and very-high resolution satellite data. The second part of the PhD will be to study how the interaction of human activities with natural drivers affects land degradation as key information on earth surface processes under far less disturbed conditions will become available. The controls on land degradation will be studied through data-driven and process-based spatial modelling approaches. This will also include LULC modelling and change scenarios. The PhD thesis will be prepared in English based on a compilation of peer-reviewed scientific publications.

Profile

We are looking for a highly motivated and enthusiastic candidate, interested in issues related to earth surface processes studies, land degradation assessment and sub-Saharan Africa in general. Applicants should have completed a master degree in Geography, Geology, Bioengineering or a related discipline, and have a research-oriented mindset, take initiatives and be able to develop a project independently. Expertise in GIS modelling and geospatial analysis is highly valuable. Coding skills in Python, R or similar computer languages is a strong asset. Additional expertise in the field of remote sensing data processing is a plus. A very good command of English, both spoken and written, is required.

Conditions of employment

Estimated net salary/month: 1850 EUR.
4-year full time PhD, tentatively starting on the 1st of October 2017.
The PhD will be carried out in co-supervision with the Royal Museum for Central Africa and strong interactions with ULB (Université Libre de Bruxelles) are anticipated. Funding for two field trips to Africa is provided and can be complemented by other resources

Application

Applications can be made through this link by July 27, 2017 at the latest: https://icts.kuleuven.be/apps/jobsite/vacatures/54202064?lang=en (scroll down to online application tool)
If you need more information or if this would not work for you can send an email to Prof. Gerard Govers (gerard.govers@kuleuven.be) (e-mail subject: "PASTECA application") with copy to Dr. Olivier Dewitte (olivier.dewitte@africamuseum.be) and Anton Van Rompaey (anton.vanrompay@kuleuven.be). We will then provide a solution.
Interviews will take place on August 08, 2017 (if necessary by Skype) or at an earlier date if convenient.

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