

Dr. Pontus Olofsson of Boston University and Dr. Rachael Garrett of ETH Zurich invite applications for a **1-year Postdoctoral Fellow position** focused on understanding land use and land cover change and associated carbon cycle impacts in the Caucasus, with a primary focus on Georgia. The work is funded by the NASA LCLUC program. The position is available immediately (**deadline of September 27** for applying), but the start date is flexible. The position may be renewed for additional years depending on the candidate's performance and interests. The candidate will be based primarily in Boston, Massachusetts. Applications should be sent to olofsson@bu.edu and rgarrett@ethz.ch.

Job description: The Postdoctoral Fellow will be expected to co-develop research with Dr. Olofsson and Dr. Garrett that examines the drivers and outcomes of land use and land cover change and develops scenarios for future land use and land cover trajectories under different optimization strategies. The candidate is expected to leverage newly developed datasets on land use and land cover change, including agricultural expansion or contraction, reforestation, and forest and pasture degradation in the Caucasus. The candidate is also expected to assimilate or develop additional data on socio-economic characteristics, biophysical conditions, and climate change in the region of interest.

Expectations: The selected individual will be based at Boston University in Boston, MA, USA, but expected to travel to Switzerland at least once a year to meet with collaborators. The fellow is expected to engage in frequent (e.g., twice a month) team meetings with the project mentors. The postdoctoral associate will present research findings at regional and international scientific meetings. The successful candidate will lead analysis and writing on one or more selected research papers, and will have the opportunity to help mentor two graduate students working on the project.

Qualifications: Applicants must have completed (and defended) their PhD by the position start date. Successful applicants will have a background in natural resource management, agricultural economics or land change science. Geo-spatial and statistical expertise, some programming abilities (e.g., R and/or Python), experience doing independent research, and excellent communication, writing, and organizational skills are required. Applicants must have a clear track record of successful completion of independent work, with at least one accepted first author publication at the time of application.

Overview of the project: Georgia, a former Soviet Union Republic, has experienced more political, economic and social change in the last 30 years than most countries. But the environmental implications of these extreme events remain largely unknown - the region is understudied, no national forest inventory has been completed in 15 years. This work provides a comprehensive analysis of Georgia's land change patterns and terrestrial carbon dynamics during its dramatic modern history. We analyze the impacts of shifting policies, globalization, and economic and political turmoil by mining the rich archives of satellite observations from NASA and other space agencies, as well as national census data and local inventories. An investigation based on time series analysis of satellite observations of surface reflectance that allows us to track the pixel-level land dynamics over the last 30 years will provide a comprehensive understanding of how Georgia's dramatic modern history has impacted land use. Based on the history of land use, we will model the associated carbon dynamics using a spatiotemporal carbon bookkeeping model. Panel regression models will explore how local and global socioeconomic change has influenced land change. These analyses, together with estimates of potentially available cropland, will inform projections of future forest and cropland dynamics under different socioeconomic and climate scenarios. Using these data, local collaboration and implementation will aim at informing policy for more sustainable land use.