Overview

This 0.49 FTE Graduate Research Assistant (GRA) will work on a NASA Land Cover/Land Use Change Program-funded interdisciplinary research effort to map forest cover change patterns across the Middle Hills of Nepal and examine relationships between change patterns, community forestry programs, and socio-political transition over a 25 year period. The GRA will primarily utilize Landsat satellite imagery and geospatial programming to analyze large volumes of satellite data locally in a high performance computing (HPC) environment as well as on the ‘cloud’. In addition, there is potential opportunity for funded summer fieldwork in Nepal.

The GRA will work collaboratively with the research Principal Investigator (PI) and individually to (1) compare the effect of topographic normalization techniques on forest cover mapping accuracy, (2) correlate forest cover change patterns with local community forest user group decision-making histories, (3) examine potential relationships linking migration, conflict, and/or teleconnections and mapped forest cover change patterns, and (4) write content or prepare figures to contribute to publications or grant proposals and to communicate analysis to internal and external collaborators. This GRA position provides a nationally competitive stipend, tuition remission, and health insurance.

Duties

20% Data collection

Work with the PI to collect satellite, conflict, socioeconomic, and demographic data from various sources and merge with relevant social or environmental datasets.

40% Data analysis, reporting, and distribution

Using remote sensing and geospatial programming, work with PI to develop frameworks to analyze the spatial and temporal patterns of forest cover change in Nepal. Work with PI to interpret results and develop tabular, graphical, and cartographic reports suitable for publication. Contribute to the preparation of reports and data analysis for use in peer-reviewed publications. GRA may also lead presentations at scientific symposia or conferences.

20% Explore and develop alternate data processing frameworks

Work with PI and other lab members to develop distributed satellite data processing frameworks in cloud-based environments such as Google Earth Engine.

20% Research proposal and grant preparation

Contribute to development of research proposal ideas and projects. Work with PI and external collaborators to write and submit proposals for external funding.
Graduate Research Assistantship

Qualifications

Minimum Required Qualifications

• A profound interest in and motivation for examining large-scale and long-term environmental patterns.
• Master’s degree in Geography, Environmental Science, Forestry, Development Studies, or related field.
• Two years experience working with Landsat or MODIS satellite imagery or carrying out geospatial analysis.
• Proficiency using ENVI and ArcGIS/QGIS.
• A creative problem-solving nature; ability to learn and integrate new concepts quickly; comfort applying solutions computationally; strong work ethic and ability to work independently; good oral and written communication skills; attention to detail; and demonstrated ability to maintain a positive attitude.

Preferred Qualifications

• Academic or research experience on interdisciplinary socio-environmental topics, climate change, or ecosystem science.
• Experience working in Nepal or other mountainous region.
• Experience studying or researching themes or theories within landscape ecology or socio-ecological systems or, specifically, environmental impacts of socio-political transition.
• Experience using topographic normalization techniques, time series analysis, or spatial modeling.
• Experience managing and analyzing very high resolution commercial satellite imagery.
• Strong programming/scripting background in Python or Java.

Anticipated Start Date

Position funding available as early as Winter (January) 2016. At least four academic quarters of funding currently available with future funding pending.