Global river and floodplain dynamics related to the global carbon cycle and climate change.

2-year postdoctoral researcher position at Los Alamos National Laboratory (LANL), Earth and Environmental Science Division, with possibility of extension for a 3rd year depending on available funding and performance. Research is focused on quantifying the role of river and floodplain exchanges on the terrestrial carbon cycle and export of carbon, nutrients and sediments to the ocean. Potential projects include developing and automatizing work flows and algorithms for extraction of temporal changes in river morphometrics based on remote sensing and field data, as well as identifying predictive relations between these dynamic morphometrics and environmental and topographic parameters. Additional project objectives include the modeling of floodplain hydrological and sediment dynamics. The research may include a field-work component. Candidates with experience and interest in combining field geomorphology, morphodynamic modeling, computational landscape analysis, programing (mainly C++, python, Matlab), remote sensing, and automated pattern detection are highly encouraged to apply. The successful candidate would work as part of a larger interdisciplinary research group focused on the interactions between climate change, river dynamics, vegetation, and environmental processes.

What you will do:

Overview: The Earth and Environmental Sciences Division at Los Alamos National Laboratory is focused on interdisciplinary study of environmental and climate change processes across multiple scales. The successful candidate will be encouraged to broaden his/her skill-set through interaction with researchers from various groups across the Laboratory (e.g., computational geo-science, remote sensing, ocean dynamics, plant physiology).

Detailed Description: Postdoc to work on a project focused on the role of floodplains in the terrestrial carbon cycle and how the dynamics of floodplain and river exchanges control sediment fluxes and biogeochemistry in rivers. Potential modeling related task range from developing floodplain parameterizations for Earth System models to high-resolution reach-scale simulations of floodplain dynamics and exchanges. The possible modeling tools for the reach-scale simulations may include: hydro and morpho-dynamic models and/or high performance computing-based to model the interaction between surface and subsurface water flows and biogeochemical reactions.
An ongoing component of the project includes the global analysis of river planform change using remotely sensed data and the delineation of floodplain using a combination of topographic and multi-spectral datasets. Candidates with experience and interest in the improvement in automated feature extraction techniques and the development of automated workflow for the processing and analysis of large datasets are encouraged to apply.

Minimum Job Requirements: Project requires a candidate with strong computational skills. Programing skills in C++, python, and/or Matlab and IDL. Candidate should have education and research experience in fluvial geomorphology and/or hydrological science or related fields. Requirements also include demonstrated ability to work in a team setting with strong written and verbal communication skills.
Desired Skills: The successful candidate will have demonstrated the following: scientific excellence as evidenced by submission and publication of authored publications in refereed journals; prior research experiences in fluvial geomorphology and sediment transport. Candidates with remote sensing analysis and GIS experience strongly encouraged. Experience processing and analyzing large global datasets is advantageous.

Education: A Ph.D. in geomorphology, hydrology, civil engineering, computational physics, computational geosciences or closely related skills.

Notes to Applicant: In addition to applying on-line (http://www.lanl.gov/careers/career-options/jobs/index.php , Vacancy Name:IRC39076) please send a curriculum vitae, digitized copies of transcripts, names of three references, and a cover letter detailing qualifications and research interests to Joel Rowland at jrowland@lanl.gov. Please include "Floodplain Postdoc" in the email subject line. Applications will be reviewed as received with up to July 30, 2015 we the goal of filling the position by Fall of 2015.

Where You Will Work

Located in northern New Mexico, Los Alamos National Laboratory (LANL) is a multidisciplinary research institution engaged in strategic science on behalf of national security. LANL enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health, and global security concerns.

Additional Details

Pre-Employment Drug Test: The Laboratory requires successful applicants to complete a pre-employment drug test and maintains a substance abuse policy that includes random drug testing. Candidates may be considered for a Director's Fellowship and outstanding candidatesmay be considered for the prestigious Marie Curie, Richard P. Feynman, J. Robert Oppenheimer, or Frederick Reines Fellowships. For general information to the Postdoc Program go to http://www.lanl.gov/careers/career-options/postdoctoral-research/index.php.

Equal Opportunity: Los Alamos National Laboratory is an equal opportunity employer and supports a diverse and inclusive workforce. We welcome and encourage applications from the broadest possible range of qualified candidates. The Laboratory is also committed to making our workplace accessible to individuals with disabilities and will provide reasonable accommodations, upon request, for individuals to participate in the application and hiring process. To request such an accommodation, please send an email to applyhelp@lanl.gov or call 1-505-665-5627.

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