

Call For Applications

PostDoc Position with fellowship from FAPESP

This PostDoc opportunity is open to applicants of any nationality. The opportunity is linked to a FAPESP sponsored project that is part of a larger transnational project, “Integrated risk mapping and targeted snail control to support schistosomiasis elimination in Brazil and Cote d'Ivoire under future climate change”, promoted by Belmont Forum and with participating teams from United States, United Kingdom, Africa and Brazil. The postdoc fellow will be supervised by Dr. Antonio Miguel Vieira Monteiro, at National Institute for Space Research, INPE at São José dos Campos, São Paulo, in interaction with researchers and labs of the four countries.

Research Topic Description

We aim to use satellite images obtained mainly by the Earth Observation Satellites Programas (Landsat-USA/NASA , CBERS-China/Brazil and Sentinel-EU/ESA) and obtained by drones with *Multispectral* and *Laser Scanner* embedded sensors, and other multisource data bases in order to map areas suitable for the occurrence of schistosomiasis resulting from *patterns of interdependence* associated with the natural and social landscapes shared with the organisms involved in the schistosomiasis transmission cycles in the micro-region of Ourinhos, São Paulo, Brazil. The micro-region of Ourinhos, on the middle sector of the Paranapanema River, has a combination of environmental and social factors (hydrology, vegetation, soil characteristics, land cover and land use, dams, an agrarian dynamics, the health system services) that has kept schistosomiasis transmission active in the region. This scenario has been favouring the colonization of the Ourinhos' freshwater collections by *Biomphalaria glabrata*, a snail species highly susceptible to *Schistosoma mansoni*, which is associated with the transmission of schistosomiasis in Brazilian regions of high disease endemicity.

Outside the Minas Gerais-Bahia axis, Ourinhos in São Paulo, is the only area that has extensive focal points of the species. Therefore, it is an area with potential for maintaining the disease at the local level and which has the potential its expansion to disease-free areas in the regional space. In addition to *B. glabrata*, the Ourinhos' freshwater collections are colonized by two other schistosomiasis-transmitting snails, *B. tenagophila* and *B. straminea*, in addition to species that are refractory to the parasite, and therefore it is an ideal site for the application of landscape classification methods with the

characterization of *habitats* favorable to the occurrence/non-occurrence of the *Biomphalaria* species.

The regional development dynamics points to the environmental and social complexity shaping the landscape of Ourinhos and its micro-region. The coupled interactions amongst the the climate-environmental system and the land use and land cover changes associated to the economic development pathways present in the region are, in fact, the underlying driving forces for the expansion of the diversity of *habitats* favorable to the species of snails related to schistosomiasis therefore being inseparable from the risk of transmission of human schistosomiasis. This complexity encourages thinking about the use of technological resources that enable innovative methodologies for integrating information from heterogeneous data sources and at different scales enabling an expanding the tools for capturing and describing the local occurrence of schistosomiasis and its association with the landscape's socio-environmental regional changes. The outcome of this project should provide new cartographies for the mapping of an integrated view of the schistosomiasis' landscape (*patterns* and its *interdependence* associated with the natural and social landscapes shared by the organisms involved in the schistosomiasis transmission cycles) in the region as an complementary tool for the local health surveillance and control programs.

Qualifications

Ph.D. in Remote Sensing, Landscape Ecology, Geography, Geoinformation Science, Data Science, Spatial Econometrics, Spatial Epidemiology, Biology, Environmental Engineer or related fields (completed no more than seven years ago)

The candidate must be able to work independently, as well as with an interdisciplinary team. Experience with techniques associated with remote sensing images; Experience with census databases and health databases; Experience with statistical analysis techniques and knowledge of spatial statistics; Experience with Geographic Information Systems and open computational statistics environments. A good command of the written and spoken English language is required.

Fellowship

The selected candidate will be awarded with a FAPESP Post-Doctoral fellowship. It includes a monthly stipend of R\$ 7,373.10 (Brazilian Real) plus a research contingency

fund of 15% of the annual value of the fellowship, each year. For more details, please see [https://fapesp.br/en/postdoc, modality \(a\)](https://fapesp.br/en/postdoc,modality(a))

The FAPESP process to which this fellowship is linked is 2019/23593-3.

The doctorate degree must have been earned no longer than seven years before the beginning of the postdoc fellowship

The fellowship is yearly renewable, for up to two Years

Application instructions

The position is available immediately, with application subject to approval by FAPESP. Interested candidates should send an email to miguel.monteiro@inpe.br, with subject "*Belmont FAPESP Postdoc application*", containing the following information:

- Short CV.
- A brief cover letter explaining research experiences, how research interests fit the goals of the project.
- The names and contact information of two to three references familiar with the applicant's research and academic work

Further information

For additional information, please contact Miguel Monteiro - INPE at miguel.monteiro@inpe.br and Roseli Tuan – SUCEN at roselituan@gmail.com.