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| **Post-doctoral position ‘Modeling the distribution of Polar species under different climatic scenarios’** |

**Context**

Global changes are threatening biodiversity, and warming has already led to poleward, montane, and alpine range shifts across many taxonomic groups. New thermal niches offered by warming make these cold environments more suitable to less stress-adapted non-native species, and intensify the redistribution of biodiversity with unpredictable consequences for ecosystem functioning. To evaluate and predict the responses of organisms and communities to global changes, and forecast the distribution of biodiversity under future climates, the computation of up-to-date SDM approaches incorporating biological and physiological parameters is required.

In this context, we aim at recruiting one post-doc who will develop mechanistic-based models enriched with data on ecophysiological traits of species. Also, we hope that we will be able to improve our distribution models further by accounting for species interactions and their dynamics due to climate change and plasticity.

The successful candidate of this postdoctoral position in **spatial modelling of biodiversity, statistical ecology and functional diversity** will join the research team of the European BiodivERsA project ‘ASICS’ (ASsessing and mitigating the effects of climate change and biological Invasions on the spatial redistribution of biodiversity in Cold environmentS, see <https://www.coldregioninvasives.com/>). The ASICS project is also strongly connected to other funded projects (SCO-CNES ‘CARTOVEGE’ <https://www.spaceclimateobservatory.org/fr/cartovege>) and project IPEV 136 SubAntEco).

**Objectives and qualifications**

The successful candidate will have strong skills in statistical ecology and spatial modeling, with experience in linking spatio-temporal data on the abundance and distribution of species and community composition to data on habitat structure, life history traits, fragmentation, and climate change. Within the framework of the BiodivERsa ASICS project, we are particularly interested in studying the role of environmental changes on biodiversity distribution in a variety of polar habitats. The research questions concern terrestrial ecosystems, and datasets are assimilated since the 90s for some taxa. We are looking for a candidate highly skilled in **species distribution models**, in particular **joint Species Distribution Models** and **hybrid Species Distribution Models**). The models will be used to predict the impact of climate and environmental change on the distribution of organisms, and define biodiversity conservation planning.

- Statistical tools (we are not expecting that the successful candidate has experience with all of them) : Statistical (GWR model) and mechanistic interpolation and prediction of topoclimate, ENFA& Bioclim, GLMs & GLMMs, GAMs & GAMMs, MaxEnt, Mahalanobis distances, Regression Trees, Artificial Neural Networks, Random Forests, Boosted Regression Trees, Structural Equation Modelling, Hybrid Models, Joint Species Distribution Models, Time-Series version of joint Species Distribution Models.

**Place of employment, salary, expected starting date**

The main working place is at the UMR CNRS 6553 EcoBio Department (University of Rennes 1, Rennes, France, <https://ecobio.univ-rennes1.fr/>).

The position is funded for two years by the H2020 BiodivERsA project ASICS, depending on satisfactory annual reports. The gross salary is 2300-2700 euros / month. Applications will be considered until the position is filled, but the desired starting date is February 1st 2022. Applications must include a cover letter with a statement of research experience and interests, curriculum vitae, and have three researchers you collaborated with that send us reference letters.

Please send versions of these files to Pr. David RENAULT at david.renault@univ-rennes1.fr

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