UNIVERSIDAD DE GRANADA

Departamento de Física Aplicada

Clement Lopez

I obtained a bachelor of life and Earth Science at the University of Paris Diderot and a master of ecosystem ecology at the University of Montpellier, shared with the Montpellier SupAgro institute. During my master´s thesis followed by a working contract as a research technician in the Department of Applied Physics at the University of Granada, I have been trained to measure and monitor fluxes of greenhouse gases in the continuum soil-plant-atmosphere, especially in water-limited ecosystems. After that, I kept working in the same field through various working contracts. During this period, I improved my knowledge on the analysis of time series, the use of mixed statistical models, and the use of geochemical techniques, principally applied to the determination of carbonates and oxalates.

In 2017, I started my PhD thesis on the soil-atmosphere CO2 exchange along ecological succession of biological soil crusts in the Tabernas Desert, being employed as a research technician by the Experimental Station of Arid Zones (CSIC). Within the framework of this project, I gained particular experience in (1) the installation and maintenance of field sensors networks to measure continuously environmental variables, using mainly the gradient method to estimate the CO2 flux between soil and atmosphere; (2) the conception of embedded systems for scientific instrumentation, developing a low-cost system to measure the content and reactive surface area of carbonates in soil samples, as well as dissolved inorganic carbon in water samples; (3) the statistical analysis of datasets with spatio-temporal dependency

My current main interest focuses on separating the biotic and abiotic components of soil-atmosphere CO2 fluxes. I am currently working on the use of models based on geochemical processes to estimate the precipitation-dissolution rates of soil carbonates and therefore, evaluate their role in ecosystem carbon balance as well as the effect of climate change on their dynamics. I have also a special interest for the role of microbes in biogeochemical cycling and the biogeochemistry of stables isotopes.

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