

The impacts of climate change on biodiversity are already visible in the Andes, at least aboveground, and particularly in forest ecosystems. However, a large part of the biodiversity is represented by soil microorganisms, which are often overlooked and often understudied, but which have important implications for ecosystem functioning and response through their role in biogeochemical cycling, and interact intimately with aboveground diversity. The recent development of environmental DNA sequencing (eDNA) allows us to investigate the response of multiple organisms and functions from soil eDNA, including below and above ground diversity. While soil diversity response to climate change is not yet studied at the scale of the Andes, the few available studies indicate a strong response of microorganisms to elevational gradients in Argentina, Peru and Chile. Our project aims at bringing together experts in soil, soil biology, eDNA sequencing and climate, to initiate a large-scale observatory of biodiversity and functional changes in the Andes, and integrate the different responses thanks to the use of common methods. Moreover, our project will initiate a long-term study in the Andes, targeting ecosystems threatened by climate change such as arid and high-elevation ecosystems.