



## GOING UNDERGROUND: THE ECOLOGICAL SIGNIFICANCE OF PLANT-SOIL INTERACTIONS IN A CHANGING WORLD?

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**Résumé :** There has been an explosion of interest in the topic of soil carbon cycling in recent years. The source of this interest is the fact that soils absorb and release greenhouse gases, including carbon dioxide and methane, and act as a major global store of carbon. Despite the importance of soils for the carbon cycle, very little is known about the factors that regulate the fluxes of carbon to and from soil, or about the role that interactions between plants, their roots, and soil microbes play in regulating soil carbon sequestration. In this talk, I will discuss recent research on the mechanisms by which plants and their functional traits influence soil microbial communities and processes of carbon cycling that they regulate at different spatial and temporal scales, ranging from the individual plant to the landscape scale. I will also show how this understanding might be harnessed to contribute towards societal goals of enhancing soil carbon sequestration, thereby contributing to climate mitigation. Finally, I will consider how climate change might influence these plant-soil interaction and carbon storage, and identify some research challenges for the future.

