

BayCEER Kolloquium

Lectures in Ecology and
Environmental Research

Summer 2017



UNIVERSITÄT
BAYREUTH

Thursday

22.06.2017

12:00 in H6, GEO

Dr. André Revil

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France

On the use of geoelectrical methods in biogeophysics

Biogeophysics is the science of looking at (micro-) biological effects non-intrusively using geophysical techniques. This is a recently developed field with a large number of applications. In this talk, I will introduce the concepts of biogeophysics and show what methods can be used to provide a good sensitivity to biological activity in the subsurface of the Earth. I will especially focus on two methods, one active called induced polarization, and one passive called self-potential. I will discuss how Monod kinetics parameters can be assessed non-intrusively using time-lapse induced polarization and I will introduce the concept of biogeobattery. Bacteria and biofilms can wire the ground and generate electromagnetic disturbances that can be measured remotely. I will also show how time-lapse resistivity monitoring can be applied to water uptake from roots and to monitor sap activity in trees.