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Effects of repetitive droughts on carbon, nutrient and water cycles of heathland ecosystem

Francois Rineau (1), Natalie Beenaerts (1), Ivan Nijs (2), Hans De Boeck (2), and Jaco Vangronsveld (1)

(1) Centre for Environmental Sciences, Hasselt University, Belgium (natalie.beenaerts@uhasselt.be), (2) Department of Biology, Center of Excellence PLECO (Plant and Vegetation Ecology), University of Antwerp, Wilrijk, Belgium

A large body of research is now focusing on the understanding of mechanisms regulating ecosystem functioning, predictions on their activity in the long-term, and the management practices to keep them running. For this purpose, Hasselt University decided to invest in the construction of a high technological research infrastructure: the “Ecotron Hasselt University”, where twelve large ecosystem replicates can be continuously monitored and controlled. The ecotrons will be fed with real-time climatic data from a nearby ICOS tower located on top of a heathland landscape. The research performed there will focus on understanding the response of heathland ecosystem services (ES) to yearly repeated droughts of different intensities. We aim to perform as well an economical valuation of these ES. From a biological point of view, we will measure soil processes that drive the three most valuable ES: water, C and nutrient cycles, and especially how soil organisms affect them, through which mechanisms and at different drought intensities. Species interactions and their influence on C sequestration and organic matter degradation will be also incorporated into a state-of-the art soil C cycling model.