BASIC INFORMATION ON SUB-PROJECT

NAME OF PROGRAMME/FUND	Scholarship Fund - Sciex NMS^{ch}
RESEARCH FIELD AND OTHER RESEARCH FIELDS INVOLVED (if applicable)	Environmental Sciences
TITLE OF THE SUB-PROJECT	Enzymatic activity in upper peat layer and mineral layer of fens: responses to climate change (ENZYFEN)
REGION OF THE CZECH REPUBLIC (according to the location of the home institution)	South Moravian Region
GRANT AMOUNT SPENT	47 925,70 CHF
INTERMEDIATE BODY	Swissuniversities
HOME INSTITUTION	Masaryk University, Department of Botany and Zoology
HOST INSTITUTION	Ecole Polytechnique Fédérale Lausanne – EPFL, Institut of Environmental Engineering - IIE
NAME OF THE FELLOW	Lucie Sekulová

ABSTRACT OF THE SUB-PROJECT	Peatland ecosystems play an important role as sinks of atmospheric carbon (C). The enhanced microbial decomposition of organic matter in peatlands due to continued increase in temperature could accelerate climate change through the carbon-cycle feedback. The extracellular enzymes are the proximate agents of organic matter decomposition, so a better knowledge about enzymatic processes is crucial for understanding the climate change effects on organic matter decomposition. The main aim of this project is to broaden the knowledge about the enzymatic activities along a gradient of increasing peat soil temperature. Increasing peat soil temperature will be obtained by situating the study sites along an altitudinal gradient. The enzymatic activities of five enzymes (phenol oxidase, β-glucosidase, phosphatase, chitinase and leucine aminopeptidase) will be studied in fens at two different depths along the soil profile. We will particularly focus on: (i) the variation in the enzymatic activity during the plant growing season; (ii) the rate of enzymatic activity in relation to microbial biomass and diversity; (iii) the vertical differences in soil enzymatic activity between the upper aerated organic layer and the lower anoxic and more humified layer. These results will be interpreted in a broader context of information gained in the previous Sciex project NUTRIF so as to assess the structural and functional response of microbial soil community to climate change in fens.
DATE OF REALISATION OF THE FELLOWSHIP	1.10.2012 - 31.3.2013
MORE INFORMATION ON THE PROGRAMME	**www.sciex.ch**