Geophysical Research Abstracts
Vol. 12, EGU2010-11185-1, 2010
EGU General Assembly 2010


# Determination of Soil Respiration rates and $\delta^{13}$C *in situ* using a spectroscopic Picarro G1101-i instrument

Alf Ekblad (1,2), Robert Björk (2,3), Frank Hagedorn (4), Thomas Kätterer (5), Lorenzo Menichetti (5), and Sonja Wipf (4)

(1) Department of Ecology, Swedish University of Agricultural Sciences, SLU, Uppsala, Sweden; 2School of Science and Technology, Örebro University, Örebro, Sweden (alf.ekblad@oru.se), (2) School of Science and Technology, Örebro University, Örebro, Sweden, (3) Department of Plant and Environmental Sciences, Göteborg University, Göteborg, Sweden, (4) Swiss Federal Institute of Forest, Snow and Landscape Research (WSL), Birmensdorf, Switzerland, (5) Department of Soil and Environment, Swedish University of Agricultural Sciences, SLU, Uppsala, Sweden

Variation in the $\delta^{13}$C-signature of soil respiration can be used as a tracer in ecological research. Up until now, isotopic determinations have mainly been performed by gas sampling and expensive and complex laboratory IRMS analyses. Recently, user friendly, portable and less expensive spectroscopic instruments have become available on the market. However, if these instruments give reliable data in dynamic systems under highly variable temperatures and air humidity conditions is unknown. In this talk we will present results from the first summer of tests of the use of a Picarro G1101-i cavity ringdown spectroscopy instrument (size 43 x 25 x 59 cm; 26.3 kg) to determine the $\delta^{13}$C of soil respiration in various systems.