Geophysical Research Abstracts,
Vol. 11, EGU2009-8233, 2009
EGU General Assembly 2009

Effects of land use change on carbon and energy fluxes in Slovenia Karst

M. Ferlan (1,2), K. Eler (1), G. Alberti (3), D. Vodnik (1), A. Peressotti (3), F. Miglietta (4), and P. Simoncic (2)

(1) University of Ljubljana, Biotechnical faculty, Ljubljana, Slovenia (mitja.ferlan@gozdis.si), (2) Slovenian Forestry Institute, Ljubljana, Slovenia, (3) University of Udine, DISA, Udine, Italy (alberti@uniud.it), (4) CNR-IBIMET – Firenze, Italy

Land use changes represent one of the most important components of global environmental change. In most European countries, the transformed economies and social conditions of previous decades have had consequences in terms of agriculture intensification, industrialization and migration of people from the rural areas. As a consequence, marginal agricultural areas were abandoned leading to secondary successions. Land use changes play an important role in CO2 exchange between the terrestrial biosphere and the atmosphere. Globally, Ĩ56 Pg C was emitted as CO2 into the atmosphere by land use change (deforestation) from 1850 to 2000, which represent roughly one third of antropogenically emitted CO2. However, during the last two decades, terrestrial ecosystems also represent net sinks of carbon as a result of different activities: land use practices (i.e. afforestation, reforestation); stands derived from secondary successions in middle and high latitudes; N deposition and climate change. The complex nature of the interactions among land use changes, anthropogenic activities and the environment on the carbon cycle is just beginning to be explained and critical gaps remain in our knowledge (i.e. in [U+FB02]uence of past land use; long-term equilibrium between C input and C output). An experimental site has been set-up in the Slovenian Karst (Submediterranean climate region) with the aim to investigate the effects of secondary succession on ecosystem carbon cycling.. Two close plots (a grassland and a nearby secondary forest) with similar climate and soil have been selected. Net Ecosystem Exchange (NEE) and Latent Heat fluxes between canopy and atmosphere have been measured at ecosystem scale using eddy covariance technique at each site; in addition, periodic measurements of soil respiration have been done. In this work we present preliminary results of this experiment with particular reference also to short term effect such as influence of rain pulses on NEE.