Geophysical Research Abstracts
Vol. 14, EGU2012-2760-1, 2012
EGU General Assembly 2012

Net primary productivity (NPP) of a biological soil crust (BSC) in northwestern Queensland, Australia.

B. Büdel (1), H. Reichenberger (1), and W. Williams (2)

(1) Department of Plant Ecology and Systematics, Institute of Biology, University of Kaiserslautern, P.O. Box 3049, D-67653 Kaiserlautern, Germany, (buedel@rhrk.uni-kl.de), (2) Arid Soil Ecosystems, School of Agriculture & Food Sciences, The University of Queensland, Gatton Campus, Gatton Qld 4343 Australia

In the tropical savanna of northwestern Queensland, BSCs are mainly composed of cyanobacteria, liverworts and more rarely, lichens. These BSCs cover up to 30% of the soil, thus stabilizing the soil surface against erosion. One of the major BSC types there is almost completely formed by the filamentous cyanobacterium Symplocastrum sp., with scattered occurrence of different species of the liverwort genus Riccia. Because of the local dominance of these crust type, we selected it for the determination of its NPP over a period of 18 months by setting up a semi-continuous and semi-automatic CO_2 - gas exchange measuring device in the natural environment at Boodjamulla National Park. We found astonishingly high CO_2-fixation rates of the Sympolcastrum sp. dominated crust type and also could show the crust was adapted to extremely high temperatures (47°C), at which time considerable positive net photosynthetic rates were still gained.