



## **Net ecosystem exchange, gross primary production, ecosystem respiration and net biome production of full crop rotations in Europe**

W. L. Kutsch (1), E. Ceschia (2), M. Aubinet (3), C. Bernhofer (4), W. Eugster (5), V. Magliulo (6), and A. Carrara (7)

(1) Max-Planck-Society, MPI Biogeochemistry, Jena, Germany (wkutsch@bgc-jena.mpg.de), (2) CESBIO, Toulouse Cedex 9, France, (3) Faculté Universitaire des Sciences Agronomiques de Gembloux, Gembloux, Belgium, (4) Technische Universität Dresden, Dresden, Germany, (5) Institute of Plant Science, ETH Zurich, Zurich, Switzerland, (6) CNR ISAFoM, San Sebastiano, Italy, (7) Fundacion CEAM, Paterna, Spain

Crop rotations are important elements of agricultural management in many regions of Europe. Since the different crops result in different carbon input into the soils, a realistic carbon balance for agricultural ecosystems under crop rotation can only be derived when a full rotation is considered. For the first time, the CarboEurope cropland focus can provide ecosystem flux data from several cropland sites in different climatic regions of Europe covering full crop rotations and compare them to sites with continuous monoculture. Full crop rotation balances of carbon exchange between the considered field sites and the atmosphere were derived and supplemented with yield data in order to calculate net biome production. From these data, we derived mean annual values of net ecosystem exchange, gross primary production, ecosystem respiration and net biome production. The results show that most agricultural ecosystems in Europe still loose carbon.