

MEASUREMENT OF CARBON DIOXIDE AND HEAT FLUXES USING THE EDDY COVARIANCE TECHNIQUE AT RZECIN WETLAND

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The terrestrial carbon balance of ecosystems seems to be very important since Kyoto protocol was formed in 1997. The CARBOEUROPE network is established for permanent monitoring of carbon dioxide exchange with the atmosphere. The network is consisted of eddy covariance systems installed over ecosystems differing in land use. The data obtained with this network will be a basis for modelling work on European scale. The system was installed over Rzecin wetland (about 140 ha area) as a first CARBOEUROPE measuring site in Poland. The Rzecin village is located approximately 65 km north-west of the city of Poznan. The measurements were started in December 2003. The CO₂ and heat fluxes are measured at a height of 4.5 m using eddy covariance technique. The measuring system is consisted of R3 Gill three axis sonic anemometer and Licor 7500 open-path gas analyzer. The measurements are carried out with 40 Hz sampling rate and data are transmitted to computer. The further calculations and corrections are performed off-line with MatLab based software. The flux data are augmented by measurements of air temperature, relative humidity, rain fall, radiation (both long and shortwave radiation), photosynthetically active radiation (PAR), soil temperature, leaf area index (LAI) etc. The monitoring system described above is very valuable tool for obtaining mass and heat exchange data. The meteorological data can be also used as climatic background for other ecological studies that can be carried out at Rzecin wetland.