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Micrometeorological measurements of mass and energy fluxes over different ecosystems in Western Poland.

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There is the continuing development of micrometeorological measurement techniques at Meteorology Department of Poznan University of Life Sciences since the early eighties. The practice of carbon dioxide fluxes measurements using eddy covariance and chamber methods has been relatively new in Poland. The first Polish Eddy Covariance system for the measurements of mass and energy fluxes was developed at the end of 2001. This system was tested and calibrated at the Campbell River measuring station in Vancouver Island, Canada, and after returning back to Poland it was installed on croplands to measure CO_2 and H_2O fluxes over corn, rape, wheat and bare soil. In 2003 the PULS team took the efforts aiming at the joining to the European research project CarboEurope IP. The first permanent measuring station in Poland, over natural ecosystem, was established at the end of 2003 (Rzecin wetland, Western Poland) and it operates until now. During these years this measurement systems have been developed by introducing also new measurement techniques such as the chambers and the Relaxed Eddy Accumulation (REA). Next to the research on the wetland station, thanks to The State Forests National Forest Holding support, the second ecosystem measuring tower was established in 2008 at the afforestation. This 52 years old pine forest is located in Tuczno. The micrometeorological station at the agricultural area (Brody village) was established at 2010 as a result of regional greenhouse gases balance assessment for Wielkopolska region. The values of the CO_2, CH4 or N2O fluxes obtained over those sites have been related to the meteorological conditions, as well as to the soil water contents during each year of measurements. It is done in order to parameterization of exchange processes between terrestrial ecosystems surfaces and the atmosphere. Presented sites are also planned to be part of European Integrated Carbon Observing System (ICOS) that will monitor greenhouse gases exchanges on the scale of continent.