Climate, the factors steering of its variability, the range of this variability as well as its reasons belongs to one of the hottest topics in modern science. Many measurements prove increasing temperature in recent years, both in global scale and in many regions. This warming is usually attributed to the changes in atmospheric component, particularly to increase of the concentration of greenhouse gases (GHG). Even the water vapor (H_2O) is the main greenhouse gas, the increase of carbon dioxide (CO_2) and methane (CH_4) is commonly blamed for amplification of the greenhouse effect. The alteration of the natural carbon cycle due to burning of large amounts of fossil fuels is one of main reason of increase of GHG in the atmosphere. One of the most important information in calculation of the carbon balance is a knowledge on GHG exchange processes between Earth's surface and the atmosphere. At land the naturally released carbon dioxide is when accumulated during the photosynthetic process. The net flux of CO_2 being a result of the different intensity of both process is called net ecosystem exchange (NNE). By the convention upward flux (release of CO_2 to the atmosphere) has a positive sign, the downward flux (uptake of CO_2 from atmosphere) has a negative sign. The measurements of NNE allow to quantitatively estimate the role of ecosystem in the net carbon cycle (is it sink or source of CO_2), so its place in the climatic system. Similarly we analyze other gases (e.g. CH_4 or H_2O). However, the measurements of such fluxes are not easy. The eddy covariance (EC) method is considered as the most proper one. In this method we measure vertical wind speed and gas concentration with a high frequency (at least 10Hz). The fluctuation of these parameters are related to atmospheric turbulence and the covariance of both gives turbulent flux of analyzed gas. Typically it is calculated for fixed time period from 15min to 1 h. In spite of the simplicity of the main idea, their applicability faced with many practical problem related to site requirement, data collection, data processing and quality validation. In result the EC measurements for long time period are relatively rare (in Poland there are only a few sites representing different ecosystems). In consequence our knowledge about annual balance of GHG and its inter-annual variability is very limited (particularly there is lack of information on CH_4 exchange). The GHG balance for the country scale can be estimated only on the base on, unverified in Polish climate conditions, proxy methods or numerical models. The proposed project is aimed to quantitative determine of the annual, seasonal and monthly totals of GHG fluxes at wetlands of Biebrza National Park and to recognize variability of these processes together with their steering factors. We are going to collect CO_2, CH_4 and H_2O flux data for the period 5-6 years for the site located near the village Kopytkowo. It will allow to estimate surface-atmosphere exchange of GHG representative for wetlands of Central Europe. The preliminary results, based on two years measurements, suggest that the CO_2 uptake can be extraordinary intensive at Polish wetlands, much more intensive than boreal wetlands. The estimation of methane emission will be an important result of the project. Wetlands are responsible for 20-50% of natural emission of this gas. The preliminary results show that, in spite to relatively high emission of CH_4, the Biebrza wetlands are generally sink of carbon. The project will also provide the parametrization methods of GHG exchange. It will allow to evaluate if the present models well represent GHG exchange at wetlands of Central Europe. The new parametrizations could contribute to the models improvement. The measurement of H_2O flux can also improve our understanding of climate change. They will allow to evaluate and improve regional climate models, including evaporation schemes. The estimation of evaporation is crucial in many environmental studies, particularly dealing with adaptation of Biebrza wetlands to changing climate conditions. Thus, beside cognitive goals, the results of the project could be important for national institutions responsible for monitoring of GHG emission in country scale as well as for investigators involved in various environmental studies at the area of Biebrza National Park.