

Correlation of stratigraphic subdivisions of the Middle Pleistocene in Poland, Belarus and Ukraine with their equivalents in Western Europe is the main aim of the project. Attaining of this achievement will be possible based on determination of diagnostic deposit horizons and selecting leading research sites in western Polesye (Polish-Belarusian-Ukrainian border area). As a sequence of the Quaternary deposits is exceptionally reduced in this area, these diagnostic horizons will be of principal significance to create a reliable stratigraphy. Verification of a number of glaciations and of ice sheet limits and determination of ice sheet dynamics in transformation of a karst landscape in western Polesye will be done. The project will comprise also an impact of the sub-Quaternary bedrock on surface landforms in northern (Belarusian) and southern (Ukrainian) parts of the western Polesye, separated by a sub-latitude valley of the Pripyat River, on thickness and deposition of the Quaternary sedimentary sequence and on ice sheet behavior reflected among others by occurrence of glacial lobes and deglaciation pattern in this area. A geological map of the Polish-Belarusian-Ukrainian border area in scale 1:250 000 will be elaborated to make trans-border correlation of deposits possible and to create a base of a three-dimensional geological model for the northwestern part of the Volhynian Polesye as in this area the most intensive uplifting occurred in the Pleistocene arising an important obstacle in front of the advancing ice sheets.

Realization of the project will be based on collection and compilation of geological, palaeoecological, palaeoclimatic and chronostratigraphic data. Based on reconnaissance fieldworks, publications and archival materials, test areas and most research sites were already selected, and scope of laboratory analyses was determined. Complex fieldworks will comprise mapping, drilling and examination of research sites connected with sampling of deposits. Detailed investigations will be mainly focused in 10 main research sites (exposure sections and drilling cores) considered as the most representative of glacial and interglacial sequences in western Polesye. A sedimentological analysis will be done at every site and the collected samples will be subjected to lithological, palaeobotanical and geochemical analyses and dating.

The aims of the project are within the mainstream of stratigraphical and palaeogeographical investigations of the Quaternary in Europe. Investigations will be carried through in full agreement with international standards in the Earth Sciences' research, absolutely essential to a reliable trans-border stratigraphic correlation, first of all based on determination of regional diagnostic horizons of the Middle Pleistocene deposits and verification of a number of glaciations and ice sheet limits. Estimation of a magnitude of uplifting in western Polesye will enable determination of its impact on the advancing ice sheets, development of glaciotectonic deformations and evolution of the Upper Pripyat valley. Key significance in understanding of the Middle Pleistocene processes in this part of central-eastern Europe will be played by separation of tectonic activity and compensatory glacioisostatic movements raised by loading and unloading by the ice sheet in the successive glaciations. The western Polesye is an exceptional area in Europe, in which impact of ice sheet on transformations of a karst system can be estimated, indicated by total or partial rebuilding of the buried karst features.

The present project is a common and complex initiative of the Quaternary scientists from Poland, Belarus and Ukraine. Its aim is to strengthen a scientific cooperation in Quaternary studies, taking into account not only the national priorities but also integration processes in the European science. Independently on a basic geological recognition of this area, what can act as an excellent starting point to initiate successive scientific projects, results will form a platform to connect the glacial-interglacial stratigraphy in Polesye and the loess-soil stratigraphy in the Volhynian and Lublin uplands in the south what is among the priorities of the European Quaternary stratigraphy. Impact of the project can stimulate efforts to protect natural environment in western Polesye and to induce societies to a rational use of its natural resources. In further perspective, results of the project can be considered as a background in a geological education and in popularization of achievements in Earth sciences, among others by selecting of geosites and proposals of geological itineraries. Results of the project will be presented at scientific international conferences and will be published in scientific journals with high impact factors.