

Geophysical surveys (e.g. seismic, magnetic, gravimetric) belong to the basic methods used in the studies of the Earth interior. The most precise of seismic methods is so-called reflection seismic, widely used in oil and gas exploration. In March 2016, the “BalTec” cruise took place with the German R/V Maria S. Merian in the Baltic Sea, during which ~3500 km of seismic reflection data were acquired (out of which ~850 km in the Polish waters). Preliminary processed data provide already a gapless image from the seafloor to deeper strata with high-resolution. Thanks to the involvement of the Polish researchers in the “BalTec” project, these data can be used by the Polish scientists involved in this project free of charge. Therefore, Polish earth sciences are standing in front of an unique opportunity to improve our knowledge about the geological structure of the area offshore Poland. The direct objective of this project is the study of the structure and tectonic evolution of the sedimentary cover and its basement in southern Baltic using “BalTec” data supplemented by analysis (modeling) of gravity and magnetic field anomalies, geological data (e.g. from the deep research wells) and other geophysical data (hydroacoustics). The study area is located at the transition from the East European Craton (EEC), which was the part of the Baltica paleocontinent with the age of the crust reaching 1.8-1.9 billion years, to the West-European Platform (a part of the Avalonia paleocontinent), crossing geological features important for European geology, such as the Tornquist Zone or Caledonian Deformation Front. The project will have impact on different specialties in the field of earth sciences (geology, geophysics, oceanology) and the results may provide a starting point for future researches using other methods. Although this project focuses on the basic research and understanding of fundamental geological processes, certain aspects can be used for more practical purposes like understanding of the Paleozoic petroleum system or planning offshore infrastructure.