



Results of geophysical and archaeological research of modern and Holocene landforms in the coastal zone of the eastern Gulf of Finland

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The abstract presents new results of geophysical, geological and geoarcheological studies of the Quaternary sediments developed in the coastal zone of the eastern Gulf of Finland (Baltic Sea). Within the area of the Narva-Luga Klint Bay (southern coast of the Gulf of Finland) and in the vicinity of Vysokinskoe Lake (north coast of the Gulf of Finland) ground penetrating radar (GPR) profiling was carried out. GPR systems SIR-2000 and SIR-4000 (GSSI) equipped with antennas of different frequencies (400, 200 and 70 MHz) were used. Different combinations of GPR tools provide different resolution and depth of penetration. Profiling was accompanied by geodetic survey. Total length of GPR profiles was about 80 kilometers. For the first time, a significant amount of high-quality data was obtained on land within the area of coastal marine and glacial deposits distribution. This became possible due to the use of vehicle for profiling. All data were processed by computer center of VSEGEI using RADAN software. As a result of observed data analysis several GPR units were defined. Separation of GPR units was based upon sediment composition and structural differences. This method performs great possibilities for identifying predominantly sandy sediments of different genetic types such as glacial, fluvio-glacial, marine and aeolian. Some of detected sediments form relict landforms. In addition, some of revealed borders were identified as erosion horizons. As a result preserved relict landforms and absolute heights of detected units and horizons were determined. These studies allowed to divide deposits accumulated during different stages of the Baltic Sea development in the Late Pleistocene and Holocene and to determine possible paleo-sea levels. Obtained data are well correlated with the Neolithic sites discovered by archaeological research in this area. Studies were carried out in the frame of project № 17-77-20041 of Russian Science Foundation.