

RECORDS OF THE LATE GLACIAL-HOLOCENE  
PALAEOENVIRONMENTAL CHANGES IN LANDSLIDE  
FORMS AND DEPOSITS OF THE BESKID MAKOWSKI  
AND BESKID WYSPOWY MTS. AREA  
(POLISH OUTER CARPATHIANS)

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**Abstract.** In the Beskid Makowski and Beskid Wyspowy Mts., Polish Outer Carpathians, 23 peat-bogs of different ages, situated in landslide depressions (fen mountainous peat-bogs) were studied and dated. Mineral horizons, illuvial horizons and mineral covers were investigated in the sediments of these peat-bogs. Deposition of mineral sediments was connected with the humid climatic phases in the Late Glacial and Holocene, during which delivery of allochthonous material to peat-bog basins took place. Climate changes are recorded in differing ways within the sediments, which were conditioned by the specificity of the depositional environment of particular peat-bog basins, which react differently to climatic changes and human impact. Detailed and complex investigations of peat-bog profiles were conducted including lithological descriptions (loss on ignition, grain size and peat analyses) and numerous radiocarbon datings, using samples mainly from the horizons of the lithological changes (as diagnostic). Complete palynological profiles were made for eight sections. These investigations have documented that the deliveries of mineral material to the peat-bog basins took place mainly during the humid climate phases in the Bølling and Allerød Interstadials, at the beginning of the Holocene (YD/PB) and the boundary of the PB/BO, at the boundary of the BO/AT phases and the beginning of the Atlantic Phase, at the end of the Atlantic Phase and at the beginning of the Subboreal Phase (ca 5.5–4.8 and ca 4.5–4.1 ka BP), in the Subboreal Phase ca 3.5–3.0 ka BP, at the beginning of the Subatlantic Phase (ca 2.4–1.8 ka BP), in the 5–7<sup>th</sup> centuries, in the 10–11<sup>th</sup> centuries, and during the Little Ice Age. The recorded humid phases are correlated with phases of fluvial activity of the Upper Vistula River (STARKEL Ed. 1996) as well as with phases of climate moistening observed in various sediments' facies of Europe. The use of probability density function for statistical analysis of distribution of the radiocarbon dates of the landslides in the Carpathians (66 dates) and mineral horizons in the studied peat-bogs (93 selected, representative datings) makes possible the determination (in the BC/AD age) of the phases of intensification of slope processes, which took place: 14,600–14,400 BC; 11,500–11,100 BC; 10,100–9,700 BC; 9,200–8,600 BC; 7,700–7,200 BC; 6,400–5,600 BC; 5,000–4,400 BC; 3,900–3,400 BC; 2,800–2,600 BC; 2,200–2,000 BC; 1,700–1,300 BC; 800 BC–AD 0; AD 600–1,000; AD 1,200–1,400; and AD 1,600–1,800.

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