

**MONITORING OF VERTICAL SOIL MOVEMENTS IN LOW DECOMPOSED DEEP PEAT SOIL PROFILE**

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Drying and wetting of peat soils lead to the soil volume changes. In the field conditions these processes result in the subsidence and rise of the soil surface. These dynamic processes of swelling and shrinkage in the soils have large impact on physical and chemical processes in these soils and on their use potential. The aim of this paper is to analyse the soil vertical movements caused by soil water storage changes in low decomposed deep peat soil profile. The results of field measurements performed at Czarnawieś field-site located in the Biebrza Basin in Poland are reported in this paper. The soils in this area are mainly deep fen peats with a low degree of decomposition and are used as a meadow. The considered soil profile contains mainly low decomposed (from H1 to H4 in the Von Post scale) sedge-moss peat layers. The study examines data from May 2003 to September 2004. The following data were measured in the field: changes in the elevation of different soil horizons, soil water pressure head, moisture content and groundwater level. Changes in the elevation of different soil horizons due to moisture changes of the peat were measured with the use of disks. The metal plate of the disks were placed in undisturbed peat soil profile at vertical intervals of 20 cm at depths ranging from the soil surface up to 100 cm below the surface. Elevation of the disks were than measured in order to monitor the vertical movement of several soil layers. The displacement of the disks was measured relative to a reference level, which was the bar of the metal frame anchored in the mineral subsoil. It can be concluded from this work that deep fen peat soils change their volume in response to groundwater (soil moisture) changes. The field study showed that soil elevation changes could be significant. The soil surface of the fen peat soil moves in response to groundwater level with a maximum of 250 mm during the whole period. The differences between soil surface elevation at the some groundwater level elevation during drying and wetting periods are observed. During study period the decreasing of the groundwater level of about 70 cm reduce the thickness of the 1m soil profile about 50 mm.