



Sedimentological characteristics of lake sediment of the Lake Jelonek (North Poland)

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Lake Jelonek is located in Northern Poland (53°45'58N, 18°23'30E). The lake is surrounded by forest, covers an area of 19,9 ha and has a maximum depth of 13,8 m. In 2013 and 2014 three overlapping and parallel series of long sediment cores JEL14-A-(1445 cm), JEL14-B-(1430 cm), JEL14-C-(1435 cm) and seven short gravity cores JEL13 (K1-K7) have been recovered from the deepest part of the lake. A continuous composite profile JEL14 covering 1426 cm has been established by correlation based on 28 distinct macroscopic marker layers. The sediment sequence can be divided into 15 (I-XV) lithological units. These units comprise biochemical calcite varves, homogeneous calcite-rich gyttja, homogeneous organic-diatomaceous gyttja, and sandy layers. The chronology established so far is based on 14 AMS ¹⁴C dates from terrestrial plant remains and tephrochronology (Askja AD-1875) and covers the interval from the Younger Dryas to present times. Based on the chronology and sedimentological characteristics the composite profile has been correlated to a previous core from which a detailed pollen diagram had been established (Filbrandt-Czaja 2009). Here we present initial results from thin section analyses for two intervals from the new composite record JEL14, (I) the uppermost 0-256 cm and (II) the interval from 768-1296 cm. Intercalated between these two varved interval is a thick section (512 cm) of homogeneous organic-diatomaceous sediments. We present varve micro-facies data in combination with μ -XRF element scanning for comprehensive reconstruction of the sedimentation processes in Lake Jelonek. Preliminary varve counting reveals that the uppermost 256 cm varved sediments comprise ca 925 years (2008-1083 AD), while the lower floating varve interval covers the time period from 1850 - 10500 cal a BP.

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References:

Filbrandt-Czaja, A. 2009: Studia nad historią szaty roślinnej i krajobrazu Borów Tucholskich. pp. Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika.