**Construction of the age-depth model of Pcim-Sucha** (Beskid Makowski Mts) landslide peat-bog basing on AMS radiocarbon datings - preliminary results

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Deskid Makowski Mountains are located in southern Poland, Polish Outer Carpathians (see map on the right). Decim-Sucha peat-bog is one of a lot of landslide peat-bogs, which occur in this area. It is located at an altitude ca 480 a.s.l. in the basin ca 90 x 30 m in size farmed by colluvial rampart and filled with a peat reaches about 3.5 m depth in the central point. Except for the bottom and upper parts peat-bog is build from woody osier peat. At the bottom part significantly decomposed peat occurs, whereas the upper part (ca 25 cm) is composed of silty-clayed sand.

In 2005 the first peat core was collected from the central part of the peat-bog and used for palynological study. In May this year additional



core (Log W40) was taken from the location near the place where the first core was recovered from. From this log 17 peat samples were collected for AMS radiocarbon dating. The main methodological problem we had to solve was a choice of material for dating. We decided to use macrofossils, but some samples did not contain enough amount of this material. Till now 8 macrofossil samples from different depths were dated. The results are presented in figure below (on the left). The figure shows also a graph of a loss of ignition and the most distinct climatic boundaries identified by the palynological study (green bars on the left part of the figure). The dates of the level 195-196 cm (5056 ± 36 BP) and the level 314-315 cm (8137 ± 43 BP) correspond very well with the result of palynological analysis which pointed these levels as boundaries Atlantic/Boreal (AT/BO) and SubBoreal/Atlantic (SB/AT) respectively.

Apart from AMS samples 8 wood samples were taken and dated used conventional radiocarbon dating technique (GPC and LSC). These dates together with AMS dates allow to construct preliminary age-depth model for the peat-bog. We assumed three boundary levels between the top and the bottom of the core AT/BO boundary at 305 cm, SB/AT boundary at 180 cm and peat accumulation boundary at about 25-30 cm. Calculation were done using OxCal 4.0 and *P\_Sequence* model. Results are shown in the figure on the right below.

There are still some problems to solve:

- The palynological study, suggest that the boundary at 110 115 cm may be recognized as SubAtlantic/SubBoreal, but AMS radiocarbon dating gives dates distinctly older.

- The AMS dates from the upper part of core are very young (209 ± 28 BP and 34 ± 26 BP) and differ from the result of the conventional GPC radiocarbon date of wood from the almost the same level, which give an age 1850 ± 80 BP. One of the possible explanations is fact, that samples for AMS datings were taken from the depth above peat levels.

- We want also to improve the age-depth model assumptions (e.g. estimation of k value of P\_Sequence model)

- And the last, but probably the most important methodological problem - a choice of material for dating. We are going to date samples taken from another depths, but a lack of macrofossils cause that we have to use total bulk organic matter. We want to compare the results from macrofossil with the results from bulk organic matter in order to see if they are reliable.



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