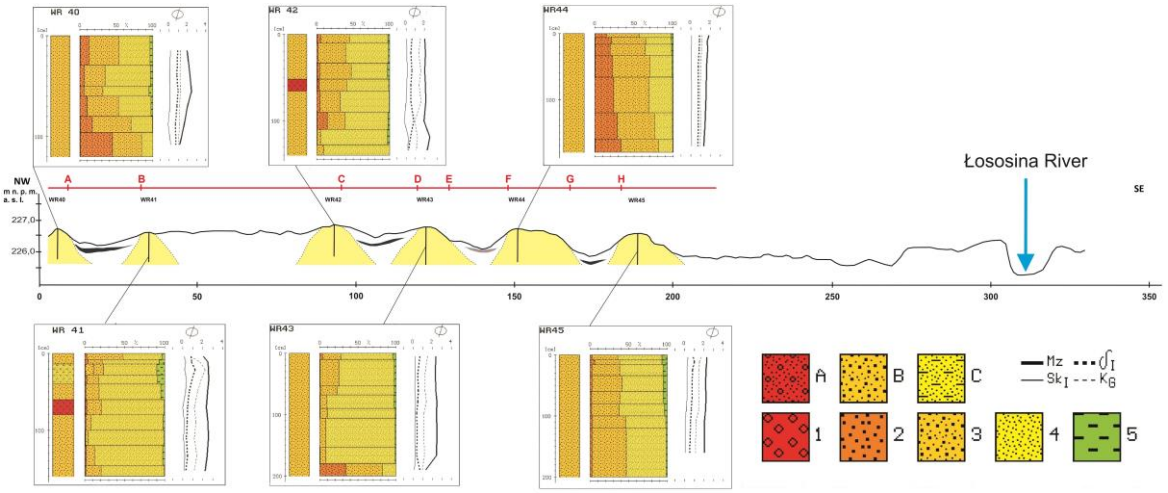

Figure 7 – Schematic geological section across sandy series of point bars and lithological profiles with grain size and Folk-Ward distribution parameters

Lithology: A – sands with gravels, B - medium sands, C – silty sands. Fractions: 1 – gravel (below -1 φ); 2 – coarse sand (-1–1 φ), 3 – medium sand (1–2 φ), 4 – fine sand (2–4 φ), 5 – silt and clay (above 4 φ); Folk-Ward's distribution parameters: Mz – mean size, δ_I – standard deviation, Sk_I – skewness, K_G – kurtosis

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CHANNEL AND SEDIMENTATION TYPE CHANGES IN CZARNA KONECKA RIVER VALLEY – NEW DATA (POLISH UPLANDS)

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Study section of the upper Czarna Konecka river valley is located downstream of Czarniecka Góra in northern Mesozoic margin of Holy Cross Mts. In the upper reaches its subsequent valley runs along erosion depression between Mesozoic hills.

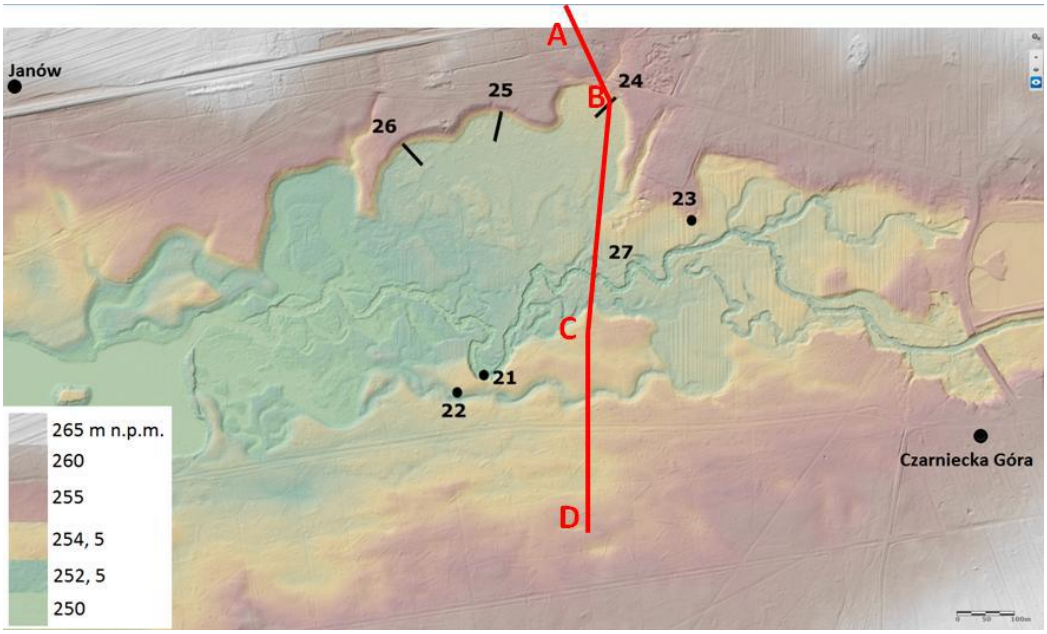

Figure 1 – Location of study profiles and cross section (see Fig. 2)
in Czarna Konecka river valley downstream of Czarniecka Góra on Digital Elevation Model

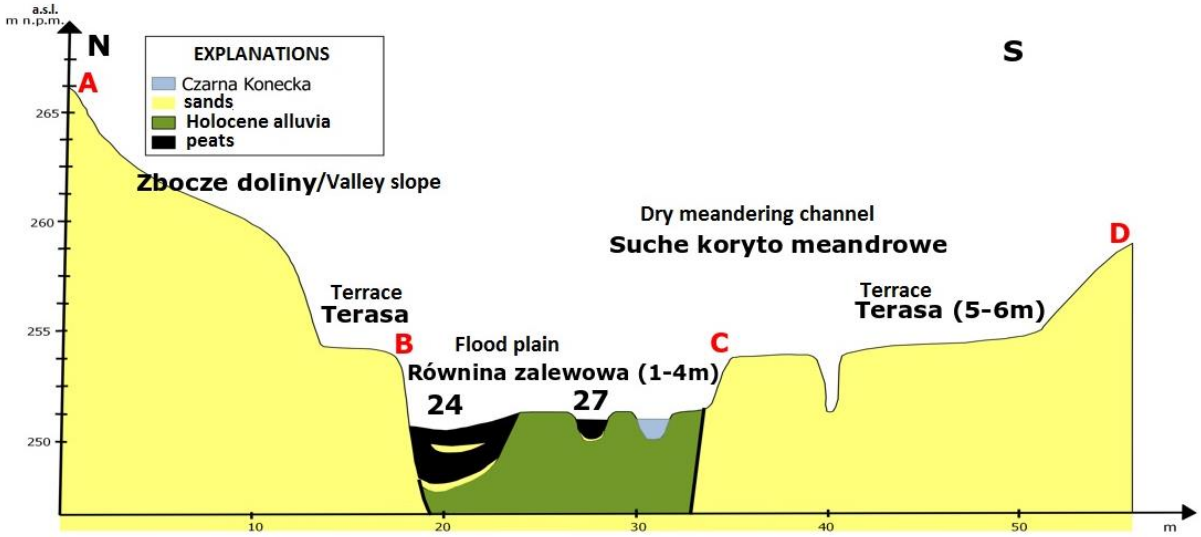

Figure 2 – Schematic section across the Czarna Konecka river valley downstream
of Czarniecka Góra (location and No. of sites see on Fig. 1)

Within the valley can be divided some morphological levels of different age and structure.

The Pleistocene accumulative terraces are composed of sandy-gravel channel alluvia of braided river (Fig. 1, 2). The upper one (approx. 8,0–6,0 m a.r.l.) was OSL dated from depth about 1,0 m at 9,7 ± 1,4 ka (UJK-OSL-79) (profile Czarna 23). The lower one (approx. 3,5 m a.r.l.) was OSL dated from depth 3,0 m at 12,0 ± 1,8 ka (UJK-OSL-76) and from depth about 1,8 m at 15,3 ± 2,3 ka (UJK-OSL-78) (profile Czarna 21) [4]. The inversion of age between these terraces could be connected that on higher terrace was not dated their the alluvia but colluvia or, most probably, blow-wind sand cover. The left-site Pleis-

tocene terrace is cut by meandering abandoned channel filled by sands and peats 30–40 cm thick (profile Czarna 22).

According to the results of previous study [1–4] the floodplain of Czarna Konecka river consists a few cut-and-fill alluvial bodies at different ages. Cut off, changes of sedimentation type and fallen of trees reflected an increase and decrease of river activity. New data also confirm previous conclusions.

Along the river extend floodplain (2,0–1,0 m a.r.l.) with numerous oxbow lakes in the study section (Fig. 1, 2). Alluvia of this level show a clear facial differentiation typical for meandering river sediments. Some cut and fill alluvial bodies in one morphological level occurred. Three large palaeomeanders is visible in the northern part which cut the terrace. They are fill by peats (150–200 cm trick) with sandy layer. The bottom of the organic fill were radiocarbon dated at 8720 ± 60 BP (MKL-4117) cal. 7956-7596 BC (Czarna 26 profile) at 6770 ± 80 BP (MKL-3838) cal. 5815–5538 BC (Czarna 24 profile) and at 3870 ± 80 BP (MKL-3839) cal. 2502–2133 BC (Czarna 25 profile).

At Czarna 24 palaeomeander sandy intercalation in the peats indicate flood accumulation during the Roman period – after 1930 ± 60 BP (MKL-3829) cal. 51 BC–234 AD (Fig. 3). At Czarna 25 palaeomeander peats are locally cover by sandy delluvia in the Middle Age – after 385 ± 50 BP (MKL-3830) cal. 1438–1636 AD (Fig. 4). It indicate soil erosion on the terrace edge caused by anthropogenic deforestation in Old Polish Industrial District.

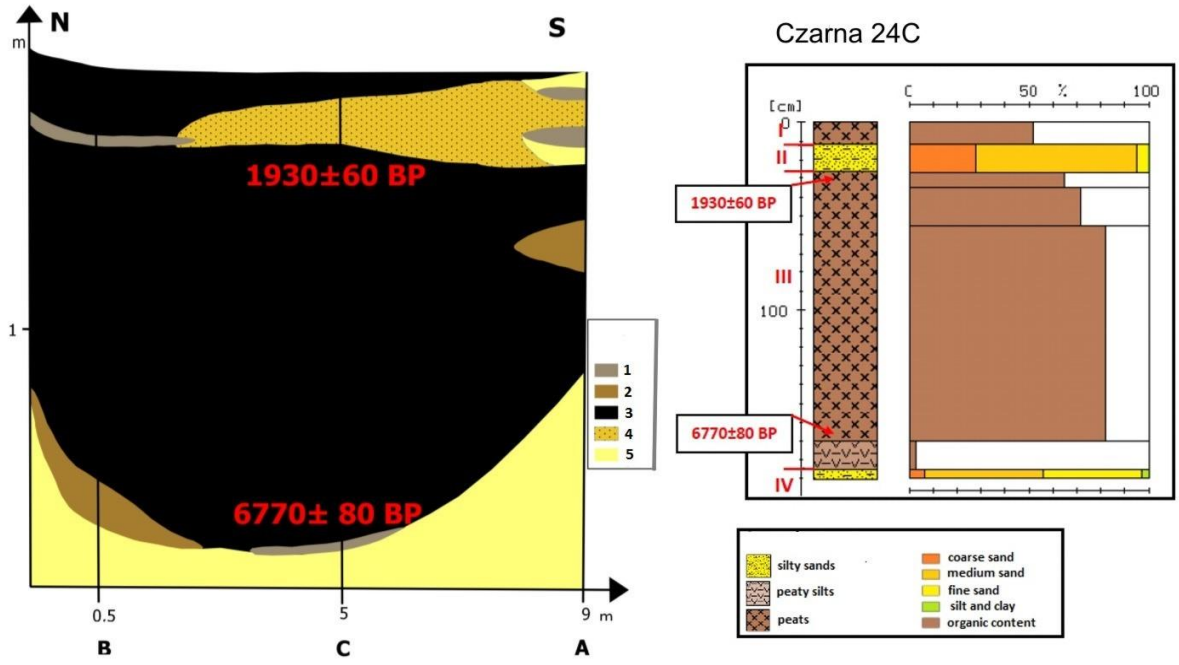

Figure 3 – Czarna 24 site: cross section of palaeomeander and grain size and organic content in profile Czarna 24 C

1 – peaty silts, 2 – clayey peats, 3 – peats, 4 – medium sands, 5 – silty sands

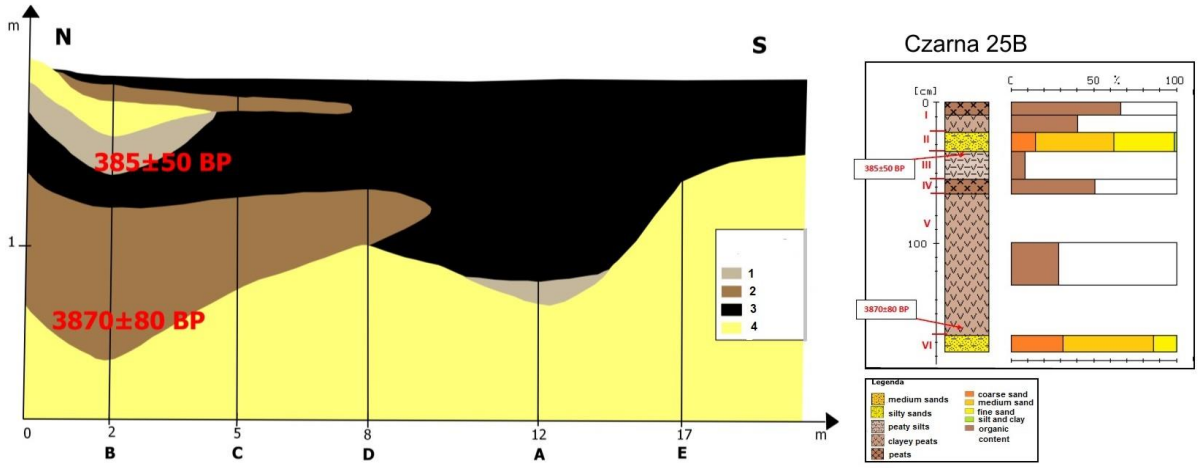

Figure 4 – Czarna 25 site: cross section of palaeomeander and grain size and organic content in profile Czarna 25 B
1 – peaty silts, 2 – clayey peats, 3 – peats, 4 – sands

The youngest alluvial bodies with small palaeomeanders occur along the present-day riverbed. One of the abandoned meander at Czarna 27 profile was cut off at 1170 ± 60 BP (MKL-4118) cal. 691–989 AD (Fig. 1). There is filled with peats about 1,5 m thick.

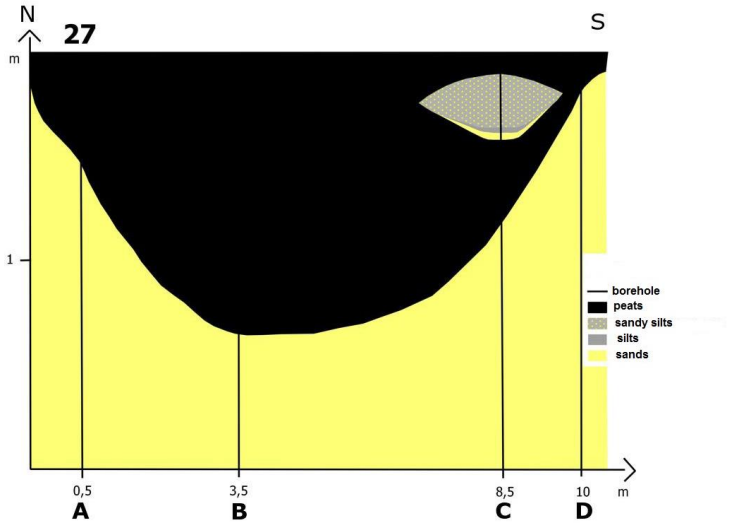

Figure 5 – Czarna 27 site: cross section of palaeomeander

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RELIEF AND STRUCTURE OF CZARNA STASZOWSKA RIVER VALLEY DOWNSTREAM OF STASZÓW (POLISH UPLANDS)

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Czarna Staszowska, the biggest river of Połaniec Basin (part of the Nida Basin), is the left tributary of Vistula river. Spring of the river is located in the Białe Ługi peat bog in Kielce Upland.

The river valley downstream of Staszów is about 4 km wide. On the Miocene clays occur here thick and genetically and lithologically diverse the Quaternary sediments. Fluvioglacial terrace of the Oder glaciations and fluvial terraces of the Vistulian are preserved in the relief. Sandy-gravelly alluvia of these last terraces are cross bedding and have been accumulated by braided river (Rzym, Pod Napięciem and MiM profiles).

The flat valley bottom is separated from older forms by distinct and steep erosional edge. Erosional remnants of higher, older forms occurred within valley floor (Rytwiany, Kłoda). Some alluvial bodies of different structure and age could be distinguished in the cross section of flood plain between Tuklęcz and Kłoda.

Świńska Krzywda site is located near the valley slope about 1,1 km from the present-day Czarna river bed. Macromeander is probably preserved here in the flood plain relief. Preliminary results of borings across this area confirm this interpretation. Large palaeomeander was filled by clastic and organic sediments. On sandy-gravely channel deposits (depth 2,5–2,2 m) occurs silty-sandy member (2,2–1,63 m), probably Late Glacial age (pollen analyses made by L. Petr in progress). This clastic member was covered with peats (contents of organic matter 60–90 %) with layer of peaty silts (organic content 40%) at depth 1,2-1,1 m. Change of sedimentation type from clastic to organic one was dated at 8210 ± 80 BP (MKL-3028) cal.7460–7059 BC (depth 1,30–1,35 m). The uppermost part of profile (depth 0,3–0,0 m) consist peaty silts (organic matter about 40 %). There were accumulated after 690 ± 60 BP (MKL-3027) cal. 1224–1400 AD (depth 0,40–0,45 m).

Kłoda site is located in the river bank near present-day landslide developed on the Miocene clays on the edge of Kłoda erosional remnant. Alluvia were accumulated during last millennium because there were TL dated at 1,3 ± 0,2 ka BP (KIE-866)(depth 1,5 m) and 1,2 ± 0,2 ka BP (KIE-865)(depth 0,53 m) and OSL dated at 1,6 ± 0,2 ka)(depth 1,5 m) and 1,3 ± 0,2 ka)(depth 1,0 m). Silty alluvia (40–10 % silt) have coarsening upward sequence.

Due to study results last incision of Czarna Staszowska downstream of Staszów could be dated on the end of Younger Pleniglacial because flood plain developed since