



## **Relationships between the depth of cover sand transition to till and the intensity of albeluvisc tonguing (case study from S-W Poland)**

Cezary Kabala, Elzbieta Muszyfaga, Bartłomiej Głina, and Jarosław Waroszewski

Wrocław University of Environmental and Life Sciences, Institute of Soil Science, Wrocław, Poland  
(cezary.kabala@up.wroc.pl)

Lithological discontinuous sediments, e.g. periglacial cover sand (late glacial) over till (Odra/Riss 1/Saale-Drenthe glaciation), are common parent material of soils in the southern Poland. The soils have specific water regime – upper part is properly drained, sometimes even excessively, whereas the loamy subsoil is imperfectly drained. Agricultural suitability of these soils depends mainly on the thickness of sandy layer.

Clay skins are easily recognizable on the ped surfaces in the top section of loamy layer that, in combination with higher content of clay fraction (illite-smectite mineralogy), allows recognition of diagnostic horizon argic. Commonly, the top section of argic horizon is dissected with albeluvisc tongues having sandy infilling. It was found, that the abundance, thickness and depth of tongues are correlated with the texture and thickness of sandy layer rather than with the geographical localization. “Intensity” of tonguing is higher where the overlying layer has a texture of sand, and significantly lower under loamy sand or (coarse) sandy loam. The highest abundance (density) of tongues net was observed where the sand/loam contact was between 40-70 cm below surface. If the loam layer started below the depth of 100 cm, tongues were in general absent. Periglacial origin of the tonguing is believed (sand wedges or sand veins).

Based on an actual WRB classification (2006) these soils belong mainly to (Stagnic) Cutanic Albeluvisols; however, many soils may fulfill requirements of Planosols (abrupt textural change) or, less often, Stagnosols (stagnic color mosaic both in albic and argic layers) if less abundant tongues are omitted.

Albeluvisols and Planosols have never been delineated on the soil maps in Poland. Thus the “lithological” model for distinguishing Albeluvisols (and eventually Planosols) among existing Luvisols would be advantageous at early stage on new map production or for correlation with WRB system.

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