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Subaquatic soils in the Volga, Don and Kuban Rivers deltas.

Anna Tkachenko, Maria Gerasimova, and Mikhail Lychagin
Faculty of Geography, Lomonosov Moscow State University, Moscow, Russia (zlayia@mail.ru)

River deltas occupy a special interface position in the environment and are characterized by contrasting hydrological and landscape-geochemical regimes. Small depth of water and weak currents contribute to suspended matter deposition. Significant spread of aquatic plants provides the enrichment of subaquatic soils in organic matter. All these factors contribute to the formation of different subaquatic soils. Possibility of including them in the classification systems is discussed by many authors (Demas and Rabenhorst, 2001; Stolt et al., 2011); there is also a special subaquatic qualifier for submerged soils in WRB; however, they are still absent in many national classification systems, as well as in the recent Russian one (2008). The purpose of this research is to reveal the properties of the subaquatic soils in the Volga, Don and Kuban Rivers deltaic areas and to propose pedogenetic approaches to categorize AQUAZEMS. Investigations of deltaic areas were performed in 2010-2012 in deltaic lagoons, fresh-water bays, small channels, oxbow lakes, and also in the part of deltaic near-shore zone. Morphological descriptions of distinguishable layers (colour, texture, thickness, boundaries, consistence, plant residues and shell debris) were made in columns obtained by augering as it is done by other researchers (Stolt et al., 2011), and supplemented with analytical data (pH, Eh, TDS, particle-size composition, and Corg). It is suggested to name the horizons in aquazems in the same way as in terrestrial soils in the recent Russian soil classification system, and apply symbols starting with the combination of caps – AQ. Most typical for aquazems is their aquagley AQG horizon that has features similar to terrestrial gleys – homogeneity in color and consistence, permeation by clay, predominance of dove grey colour. The AQG horizon gradually merges into parent material – stratified bottom sediments. The “topsoil” is usually enriched in organic matter and may be different in accordance with plant communities. The highest Corg content (4-6%) was recorded under lotus (Nelumbo sp.) and reed (Phragmites australis); reed is hard to decompose and its residues preserve recognizable plant tissues. Hence, two variants of upper horizons may be identified: aquahumus horizon – AQA and aquapeat horizon – AQT. Floating plants do not create any stable horizon under active hydrodynamic processes, whereas if they are weak, a discontinuous greyish-bluish horizon, 2-3 cm thick, is formed with org content not exceeding 1-2%. In active channels, mixing of the upper part of aquazem profiles by currents results in the formation of a thin yellowish-grey oxidized layer (AQOX) with a very low content of Corg: less than 1%. Following the rules of the new system of soil classification of Russia (2004, 2008) aquazems may be tentatively classified in the following way. All aquazems may be referred to the trunk of synlithogenic soils as a special aquazem order; aquazem types may be specified by the combinations of horizons, hence, typical (AQA-AQG-AQC-C), organogenic (AQT-AQG-AQC-C), and oxidized (AQA-AQOX-AQG-AQC-C). The extension of studies is sure to find new types.