



## **Dynamics of microbial communities in palaeosoils from Southern Russia steppes as controlled by climatic change during the 3 millennium B.C.**

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The Russian steppe belt is covered by a huge number of burial mounds (kurgans) concentrated in watersheds, on river terraces, and in plains, etc. The palaeosoils beneath these monuments are unique sediment archives, and they may shed light on climate condition at the time the Kurgan was constructed. When excluded from subsequent soil-forming process soils may “freeze” climate information. Climatic factors like temperature and precipitation are influencing soil-forming processes, which as a result are indirectly registered through the microbial communities preserved in palaeosoils. Microorganisms are maintained in soils for yet unknown time spans and they may be good indicators for environmental dynamics at historical time scales. We studied the density and assemblage of microbial communities in palaeosoils buried under kurgans from different time-windows of the 3rd millennium B.C at different sites in S Russian steppes. We estimated total and active (stimulated by glucose) microbial biomass. With the relative abundance of micro-organisms of different trophic groups and the amount of microorganisms utilizing nutrients from dispersed state to those utilizing readily available organic matter- like plant residues we determined the index of oligotrophicity of microbial communities in 5 palaeosoil profiles and a modern reference soil profile. For dating the pedochronosequences we use archaeological finds and AMS C-14 dating of organic remains. The dynamics of microbial communities together with other physicochemical properties of palaeosoils document a progressive aridization of the climate in Southern Russian steppes during the 3 mil. B.C.

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