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Aeolian Processes and Landforms in River Valleys of Central Russian Plain in MIS 2

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Late Pleistocene terraces in river valleys of Central Russian Plain were subject to aeolian reworking after the alluvial sedimentation had finished. Severe natural conditions of LGM (cold and dry climate, scarce vegetation) contributed activation of aeolian processes. Ground water lowering because of deep pre-LGM incision of rivers made deep aeolian reworking possible at low hypsometric levels of valley bottom.
We studied lithological structure of terraces in river valleys of Central Russian Plain. The key sites were located in Seim (the middle Dnieper catchment) and Khoper (the middle Don catchment) river valleys. Field data was combined with quartz grains morphoscopy technique (study of texture of sediment particles using scanning electron microscope). Wide participation of aeolian sediments in terrace deposits was detected.
During this study a new technique of the distinguishing of short-term aeolian reworking of alluvial deposits using quartz grains morphoscopy technique was developed. The main problem of interpretation the results of quartz grains morphoscopy is that aeolian signals are sometimes not clear due to short duration of wind action over alluvial sands. However, detailed studies of the quartz grains surfaces under scanning electron microscope helped to solve this problem. We used scanning electron microscope JEOL JSM-661 LV and worked with magnification from $\times$160 to $\times$400 for whole grains and up to $\times$1800 for some parts of grains.
Deep aeolian reworking of Late Pleistocene terrace alluvium in river valleys of Central Russian Plain during LGM led to the formation of aeolian covers on the terrace surfaces. Also there are many relict dunes on Late Pleistocene river terrace surfaces. Sometimes the development of aeolian processes could led to more significant changes in the shape of the valley and formation of aeolian aprons. The thickness of aeolian covers can reach 3-5 m or more. Due to this reason morphology and topography of river terraces could have been changed considerably during LGM.