

On Lateral Displacement of Basement Blocks in the Process of it's Surface Structure Formation (the South-East of the Russian Platform)

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The south-eastern slope of the Voronezhskian anticline has been studied in the present investigation. The surface of the basement is submerging in the east direction (0,3 to 6-8 km) and has a block structure. Blocks are separated by graben-like troughs. Dono-Medveditsky graben is the largest one (300 km long and 25-30 km wide). This graben is formed by a system of sub-parallel faults of north-west and north-east orientation.

Computer modeling of geological processes allowed to prove the leading role of lateral displacements of crystalline basement blocks in the process of graben genesis on the south-eastern slope of the Voronezhskian anticline.

The aforementioned statements are confirmed by the following:

- strict coincidence of blocks outlines divided by graben;
- displacement of equally oriented basement fault systems in the eastern(displaced) blocks;
- turning of displaced blocks (up to 10°);
- expansion of basic and ultrabasic rocks in grabens and granite basement blocks conjugating with grabens.

Grabens genesis was connected with the development of the PreCaspian depression in the Late Proterozoic, Cambrian and Ordovician. The increase of the inclination in the south-eastern direction led to the disintegration of the Voronezhskian anticline slope and displacement of blocks in the direction of the PreCaspian depression submersion. This process was accompanied by active paleovolcanic processes. Lateral displacement terminated at the end of the Ordovician-Silurian with differential vertical movements prevailing later on.