

### **3D STRUCTURE OF MIDDLE RUSSIAN RIFT USING ORIGINAL METHOD OF SEISMIC REFRACTION INVERSION**

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Original technique of interpretation of seismic refraction data allowed receiving of significant volume of new information from data of past years. Nonindustrial shows of oil and gas from Riphean layers at some wells of the Middle Russian aulacogen in the centre of the East Russian Platform attract the great interest of geologists. «Spetzgeofisica» in the 1970s carried out seismic refraction and gravity survey in the region for mapping the top of the basement. The seismic data have been treated by wavefront method, only first arrivals have been used. A boundary has been marked at a depth 3-3.5 km. It was believed to the top of the basement. Nowadays old interpretation is in doubt. For reinterpretation of previous data modern technique developed in Moscow State University was used. Fourteen profiles have been reinterpreted. The technique is based on the 2D inhomogeneous model of media and uses homogeneous function for approximating of velocity distributions. Control over the results is provided with the ray tracing method and well data. The gravity modelling was used. As result, 3-D geological structure of the region was received. Cross sections with velocity contours, seismic boundaries and faults, a map of basement relief and velocity contour maps-slices for the different depths from 3 to 7 km were created. Four grabens, which are the branches of the Middle Russian aulacogen, were localised. In the new cross sections the basement top is located deeper and the greatest its depths are about 6-7 km in the centre of the rift.