Intensity of Structure Development in the Perm Pri-Kama Region

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Intensity of structural development is the ratio of maximum amplitude of uplift (in meters) to the area for the same horizon (in sq km). This parameter was determined for the Devonian, Carboniferous, and Permian in the Perm Pri-Kama region.

Intensity of development of structures on the lowest closed contours ranges from 0.1 to 2.24 m/sq km, and in 40 of the 47 structures studied the value was less than 1.5 m/sq km. See Fig. 1. The highest values are characteristic of anticlinal folds of the southwest, central, west, and south parts of the region.

Intensity of development on the Carboniferous marker of the structures studied has a wide range from 0.1 to 15.36 m/sq km. The highest values are found for sedimentational and tectonic-sedimentational uplifts, in the formation of which Upper Devonian and Tournaisian reefs played a substantial or even decisive role. Uplifts of this type occur as a rule in the border zone of the Kamsko-Kinel system of downwarps. Intensity of development of anticlinal folds of tectonic and sedimentational-tectonic genesis exceeds 1.5 m/sq km in only 8 out of 66 structures examined.

Intensity of development of uplifts on Permian markers ranges from 0.09 to 6.0 m/sq km. More intensive structures are located in the border zones of the Kamsko-Kinel system of depressions. It is characteristic that intensity of development of folds of tectonic and sedimentational-tectonic origin rarely exceeds 1.5 m/sq km (8 out of 76), whereas tectonic-sedimentational and sedimentational structures in almost even numbers have intensity more and less than 1.5 m/sq km.

Graphs were constructed showing variation in intensity of development of structures with time. See Fig. 2.

For sedimentational-tectonic uplifts there is a characteristic increase in intensity of structures of the Carboniferous marker. On the graphs they show up by a broken line convex to the right. Tectonic uplifts are described by straight lines or broken lines convex to the left. Sedimentational-tectonic uplifts include the Aspin, Stepanov, and Byrkin; the tectonic include the Dmitriyev, Kochev, Dubovogor, and Chernov. See Fig. 2.

Low intensity of development of uplifts on the upper marker horizons thus seems to be a good indicator for anticlinal folds down deeper on the Devonian horizons.

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