

ZEMĚPIS A GEOLOGIE

REGIONÁLNÍ ORGANIZACE SPOLEČNOSTI

Akpambetova K.M.

The Karaganda State University named after E.A.Buketov, Kazakhstan

GEOLOGICAL STRUCTURES AND RELIEF OF THE CENTRAL KAZAKHSTAN

Various forms of a relief of the Central Kazakhstan have a close connection with a geological structure of territory. In modern morphology of hummocky topography relief the general regularity of geomorphological expression of geological structures, especially their direct conformity to relief forms is accurately retraced. According to G.Z.Popova's [5] observation, inverted relief is mostly typical for territories of local structures distribution. In this case exogenous factors take on relief significance, among which the most active are processes of linear and plane denudation. Presence of inversion relief does not break the general regularity of direct conformity of geostructural and geomorphological elements of surface and is not typical for geomorphology of hummocky topography relief in whole. Within the modern orographical structure of hummocky topography mountains of southern outskirts of the Karaganda coal field, the small upland of latitudinal strike – a hill of Zhalair (671m) stands apart. Northern slope of upland is applied to southwest outskirts of Karaganda synclinorium, southern – to area of immersion of Tekturmassk anticlinorium northwest branches. The basic morphological structure of Zhalair hill has tectonic type. The lithology of bedrock has a profound effect on development of micro- and mesorelief. As a result of interaction of substratum combined by palaeozoic with erode force of external factors of relief processes, four types of a relief within the Zhalair – hummocky topography, hilly, gravelly and flat have accurately stood apart. The central hummocky topography of upland applies to area of differential emergence of block of Tekturmassk anticlinorium northern wing. The bedrocks of lower and middle devonian, which are steadiest to weathering, take part in relief structure. Its morphological structure is characterized by high degree of a horizontal and vertical partition. Natural consequences of partition of the Zhalair upland are the imposed forms of an erosive relief, presented by a difficult treelike system of valley falls and hummocky topography ridges of enterstream area. To the north of central hummocky topography massif, the latitudinal tectonic malfunction is stretched, expressed by ledge in the relief.

The tectonic ledge is intensively divided by ravines which morphologically are transitional forms from deep valley falls of hummocky topography

massif to frontal part of hill. Within hill the gravelly relief is well presented. Location of erosive relief negative forms in gravelly relief is in accordance with tectonic structure of flank part of the Zhalair. The morphology of the valleys, which are developed on spread of bedrocks, sharply differs from the valleys developed transversely of bedrocks spread. The longitudinal valleys are characterized by soft outlines of slopes and small inclination of a bottom. They are the basic places of accumulative material concentration. As a result of regressive erosion on separate sites of upland, longitudinal valleys pass into transversal ravines. The hilly relief of the Zhalair upland is transitional type from hummocky topography relief to flat. The broad band of inclined plain in some areas joins with vast areas of ridge plain of the Karaganda basin, in some areas joins to terraced plains of river Sherubainura. Thereby, heterogeneity of tectonics and lithology of the Zhalair hill has caused strongly pronounced difference in hypsometric levels and has led to isolation of various types of relief on the small area.

On interfluve of rivers Ashitsu and Matak, geological structures also find geomorphological expression. On northwest outskirts of mountains of Karaganda absolute heights of a relief do not exceed 800 m, relative excess is 200 m. The basic characteristics of relief are predetermined by features of folded structure of the Paleozoic base. The leading factor of relief formation is structural and lithologic heterogeneity of substratum. Heterogeneity of geological structure of the ancient base and the inherited orientation of the newest movements essentially have affected on hypsometric mountains. Maximum levels of mountains relate to immersion area of one of branches of northwest outskirts of the Chingiz anticlinal zone, combined by stationed stratum lower paleozoi – marble limestones, porphyrites, albitophyres and tuff. The most elevated ledges of the folded base are combined by steady bedrocks of lower paleozoi. The basic types of relief of mountains of Karaganda are obliged not only by features of displacement of the Paleozoic substratum.

The modern morphological structure of these mountains, as well as structure of all Kazakh hummocky topography, is caused by reformatory factors of differential movement plicate- horst blocks of the Paleozoic base on lines of regional and local fractures. Separate elements of structures are accurately displayed and in a modern sculpture of relief of mountains of Karaganda. For example, sharply expressed line ledges, developed on border of transitional geomorphological elements, are caused in these areas by

local tectonic infringements of various character. Presence of these infringements predetermines an orientation of a flow of the basic waterways. On the southwest outskirts of mountains, valleys of the basic water currents are put in the most pliable to a denudation processes zone of tectonic dissociation. A consequence of differential movements is much-tier of erosive- denudational relief. Within the Central Kazakhstan intensity of the newest differential movements on the major part of territory is characterized by insignificant amplitudes. Therefore the layers of erosive-denudational surfaces are formed here in conditions of relatively small hypsometric fluctuations.

The characterized structural features of relief of the Zhalaïr upland and mountains of Karaganda are typical for relief of hummocky topography of the Central Kazakhstan in whole.

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