

COMPLEX METHODS OF MAPPING OF MORPHOSTRUCTURES
THE ZONES OF INTERPLATE CONTIGUITY OF THE EAST-
TERN CAUCASUS ON THE BASIS OF INTERPRETATION
OF SPACE PHOTOS

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ABSTRACT

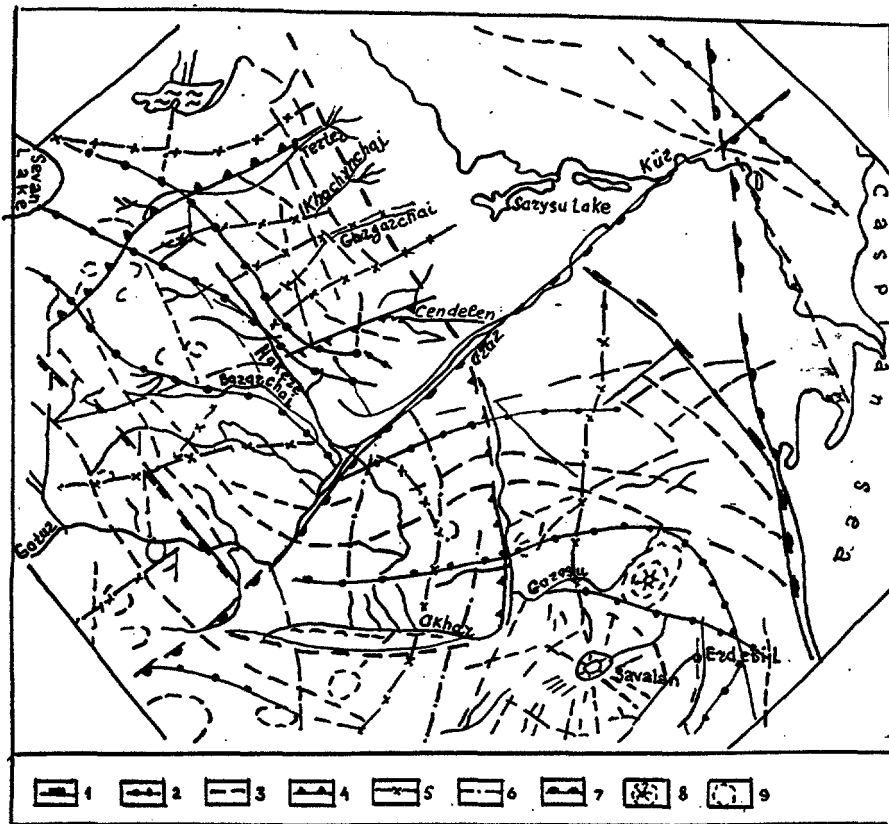
A complex method for morphostructural analysis of the relief of mountain countries with wide use of materials of decoding the cosmic photos has been developed. The carcass of morphostructures of the Eastern Caucasus has been revealed and mapped on the basis of given methods.

A complex methods of morphostructural analysis and mapping of relief of young mountainous countries with Alpine type of orogenesis with the wide use of materials of morphotectonic interpretation of space photos have been worked out by us for revealing and mapping of recent framework of morphostructures the zones of contiguity of Anatolian-Iranian plates with Scythian-Eastern Transcaucasus. It includes in itself a number of consecutive stages, substages and operations, which allow to carry out the structural-geomorphological mapping in large-, middle- and small scale levels. The morphographic, morphometric analysis of toporelief, interpretation of block morphostructures and line anomalies of relief, as well the morphostructural analysis proper have been carried out for this which were the basis for compiling of concluded maps of morphostructures. The given methods of investigation of morphostructures proposed for revealing the block structure of relief of the young mountain constructions mainly bases on morphographic and morphomet-

ric analysis; strict pose of structural forms of relief, based on distinguishing net of line anomalies of relief is characteristic for them. For this, basing on cartographic and aerocosmic materials the carcass schemes of geoblocks, lineaments-faults and ring structures are compiled. The intensity and direction of exogenic processes were the theoretic basis for revealing and mapping of morphostructures which is conditioned the tectonic activity of studied region. Therefore, block morphostructures characterizing the difference of speeds of latest movements must vary by different intensity of display within their exogenic processes. Subsequently, each block morphostructure must be characterized by definite degree of dissectedness and steepness, forming correspondingly "field of dissectedness" and "fields of slopes". From here, solving the inverse problem, one can by the help of these fields reveal the block morphostructures, lack of coincidence, obtained between blocks and tectonic borders of the same blocks distinguished by such way, shows the lack of correspondence of relief of block surface with their tectonic basement conditioned in this case by exogenic factors.

The large- and middle scale morphostructural maps of the eastern parts of the Major and Minor Caucasus and adjoining territories have been compiled at the result of applying of this methods. The longitudinal and transversal folded-block, block, line, volcanogenic, ophiolitic and cover morphostructures have found their reflections in them which have individual morphological and morphotectonic features, history of development and mechanism of formation. The fault deformations and nodes of crossing of morphostructures have been distinguished separately in the maps which are the potentially seismodangerous

Fragment of the map-scheme of morphostructure of the eastern segment of the central part of the Alpine-Himalaya joint belt



LEGEND

Lineaments, corresponding to fractures of transverse (commoncaucasian) direction: 1. Regional deep fracture (overfaults reversed faults), limiting the large folded-block morphostructures; 2. Local fractures, corresponding to the borders of folded-block morphostructures; 3. Fractures, determining the inside differentiation of morpho-

structures. Lineaments-fractures of transverse (antimiorcaucasian) direction: 4. Regional deep fractures of fault - shear-fault type, limiting the large blocks-segments; 5. Local fractures, corresponding to borders of transverse blocks-segments; 6. Fault deformations; 7. Large interregional disjunct zones; 8. Large centres of volcanic eruption; 9. Ring structures (tectonic- and volcanogenic).

and orebearing.

As a whole analysing the results of mapping of morphostructures of the Eastern Caucasus with applying of worked out complex methods it is needed to note that within the limits of given territory the Western-Caspian, Siyazan, Zangi-Heradil, Zangezur-Gegan, Shahdag-Garabag, Garadag-Talysh, Mishidag-Savalan, Bogrovdag-Elbrus and oth. zones are the most strained where the fractureness, breakness and milonization of basement are the most intensive and they are expressed on surface in the form of numerous systems of lineaments-faults.

The mapping of morphostructures of the eastern segment of central part of the Alpine-Himalaya joint zone allowed to note the large block morphostructures of the highest order, which are characterized only their own distinctive collection of fold-block, overfault, joint, volcanic, covering morphostructures. The recent carcass of these macroblocks (Major Caucasus, Minor Caucasus, Garadag-Bogrovdag-Elbrus) have been mainly formed as a result of increase of flattenings, beginning from the late eocene-early oligocene from the side of overfaulting Eastern-European and Arabian plates. Proceeding from above mentioned one can conclude that the mapped net of morphotectonic blocks reflects mainly the lattice of surface, deep, mantle faults of various order expressed in relief which are very complicated and many storied.

They have been complicated by numerous changes of direction, intensity and differentiatedness of horizontal and vertical motions, which make difficulties for mapping of these morphostructures. Different scale aero- and cosmic photoes are distinguished on their great informativity for this purpose. The comparision of maps of morphostruc-
tures with the geologo-geophysical maps has shown the efficiency and perspectiveness of worked out complex methods of mapping of morphostructures with the utilization of materials of remote sensing of the earth surface.