SUPPLEMENT

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Upper crust structural and morphological ensembles of the Pamir-Tien Shan segment of Central Asia and their reflection in geophysical fields

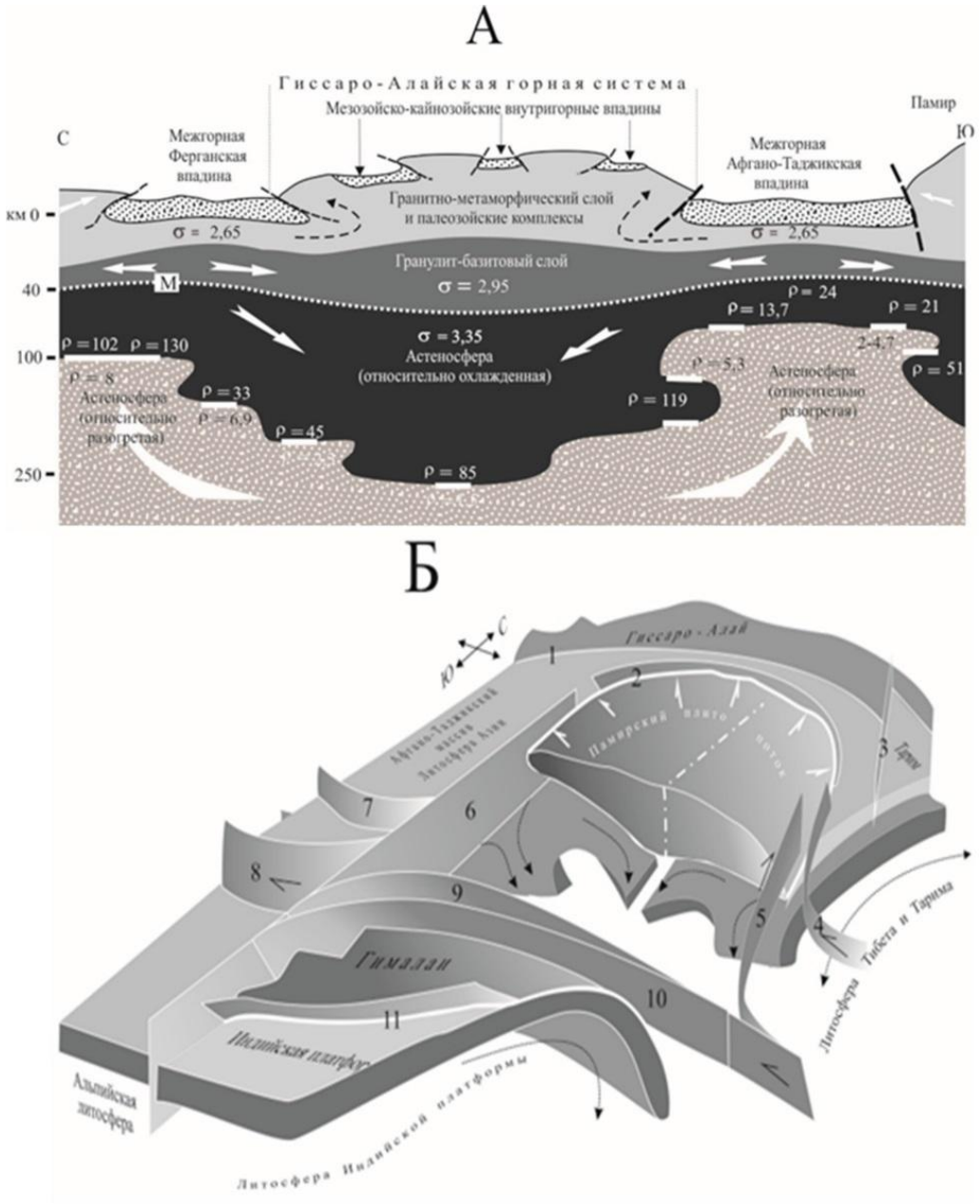

Figure 1 - Schemes of the Alpine geodynamics of the Southern Tien Shan on the example of the Gissar-Alai region - A, and the Pamir-Himalayan segment of Asia's lithosphere - Б. (detailed argumentation of the model schemes and references are given in (Leonov et al., 2017))

https://doi.org/10.21638/spbu07.2018.405

Fig. 2. A map-layout of the profile "TIPAGE": 1 - points of the magnetotelluric profile; 2 - settlements; 3 - state borders.

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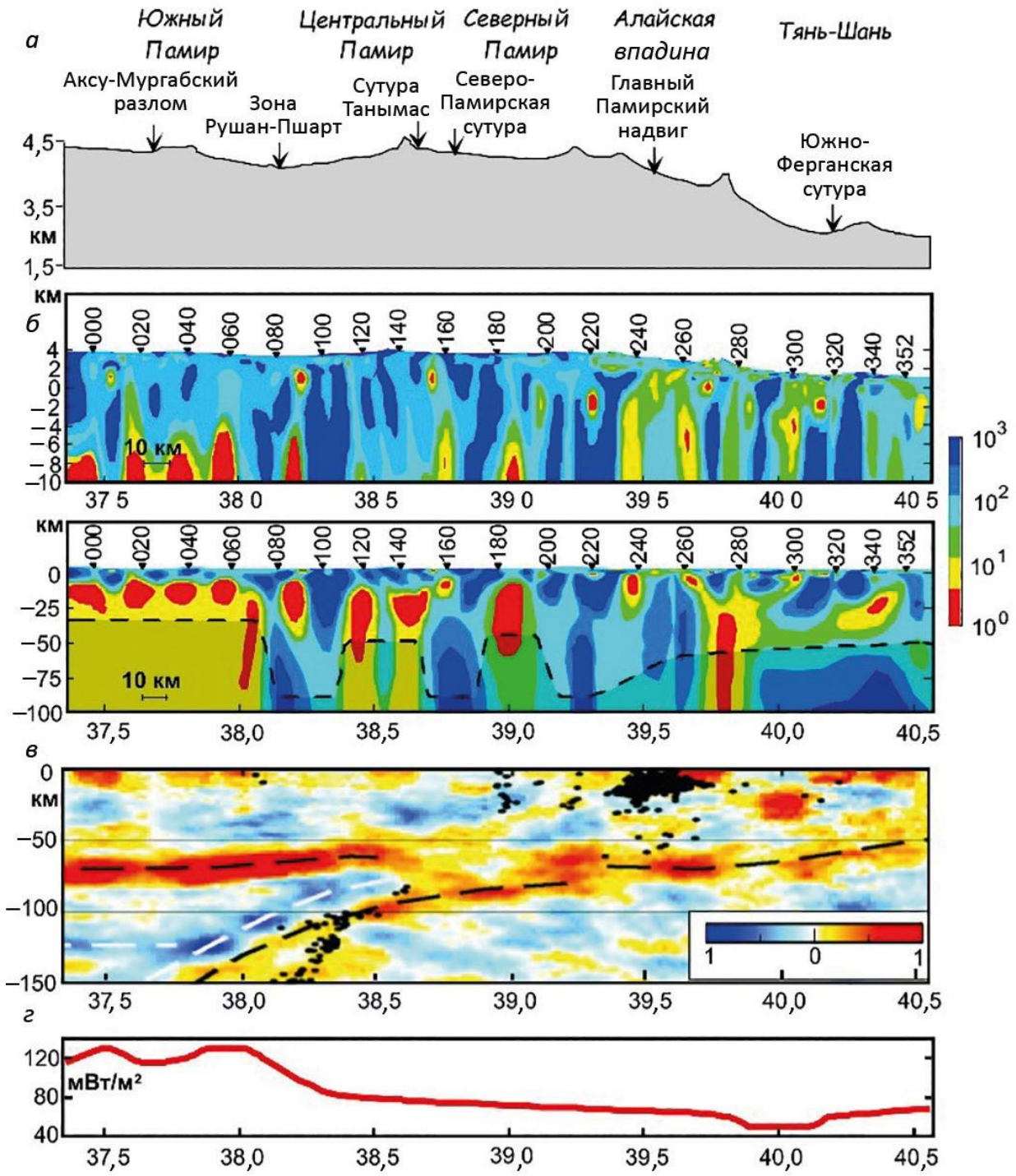

Fig. 3 The deep structure of the Southern Tien Shan and Pamir along the "TIPAGE" profile: A is the relief along the profile line indicating suture seams and fault zones; B - geoelectrical section, the top shows the numbers of points for magnetotelluric observations, the gray dotted line indicates the boundary of the MTZ method for depth (taking into account the shielding effect of the overlying conductive structures of the section) (Matyukov, 2013; Sass et al., 2014), on the right is the logarithmic scale with color gradation of electrical resistivity in Ohm; B - seismic section (Schneider et al., 2013) and earthquake hypocenters in the 45 km strip relative to the profile line (Sippl et al., 2013); G is the distribution of heat flux along the profile line (Duchkov et. Al., 2001).

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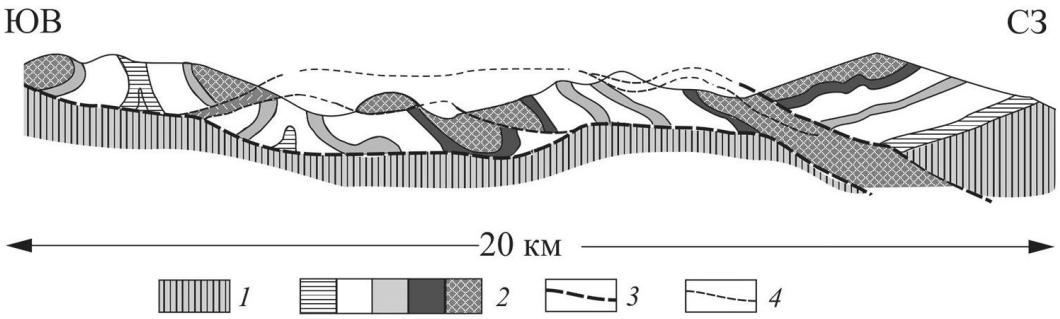

Fig. 4. Subhorizontal allochton plates (tectonic covers and recumbent folds) of the southeastern Pamir [by: (Ruzhentsev, 1971), schematized].
1 - paraautochton (Permian and Triassic deposits); 2 - Allochton (various horizons of the Jurassic section); 3 - the surface of the main disharmonious breakdown (sharyazh); 4 - minor thrusts and covers.

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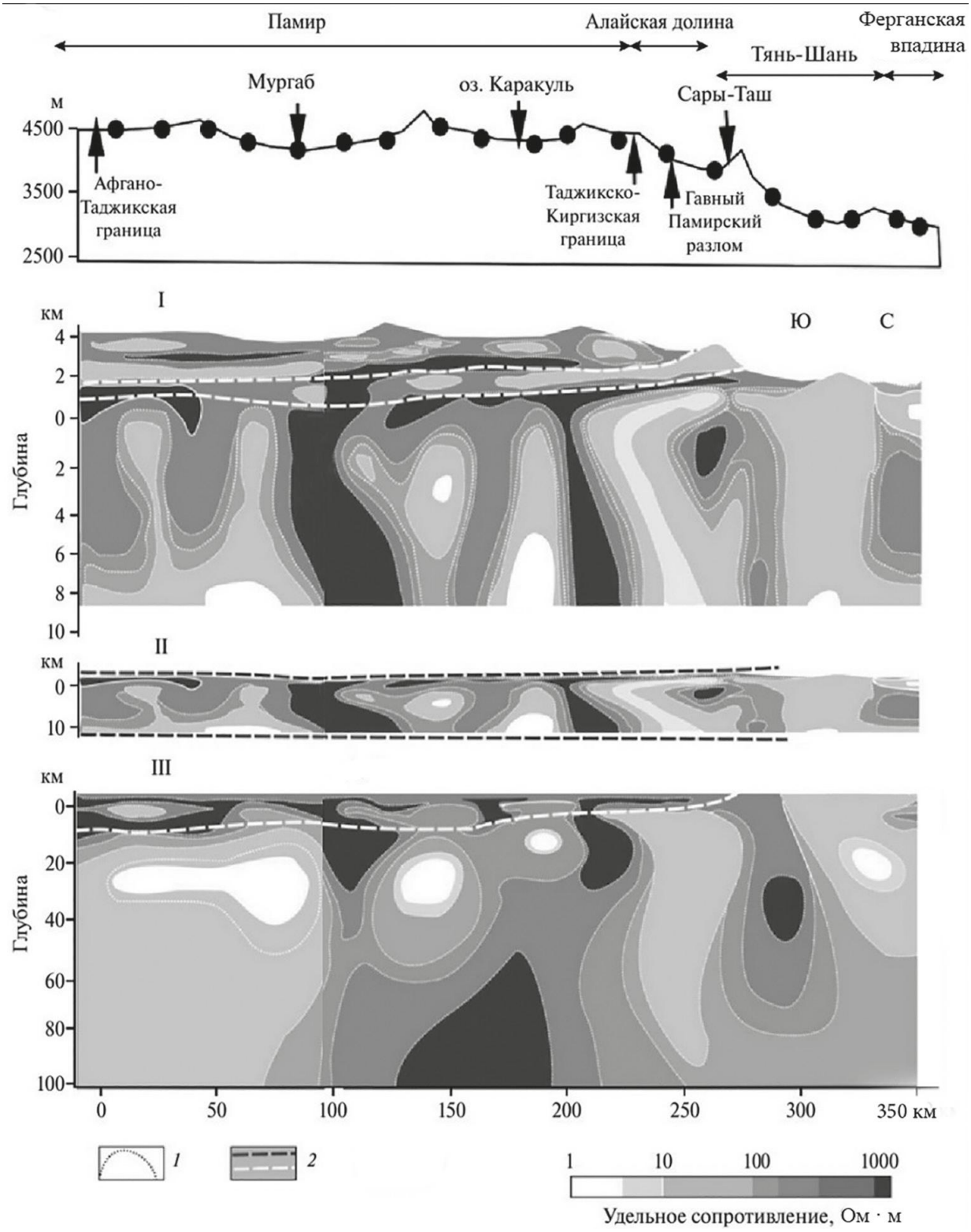

Fig. 5. Geoelectrical section [by (Matyukov, 2013; Saas et. Al., 2014)] with elements of the interpretation of the authors of the article.

1 - conditional isolines of equal electrical resistivity; 2 - conditional borders of zones with different patterns of distribution; 3 - zones with different patterns of the distribution of electrical properties (explanation in the text). I - shallow profile (high-frequency spectrum of the MT-field); II - shallow profile at a scale close to the depth scale; III - deep profile (low-frequency spectrum of the MT-field).

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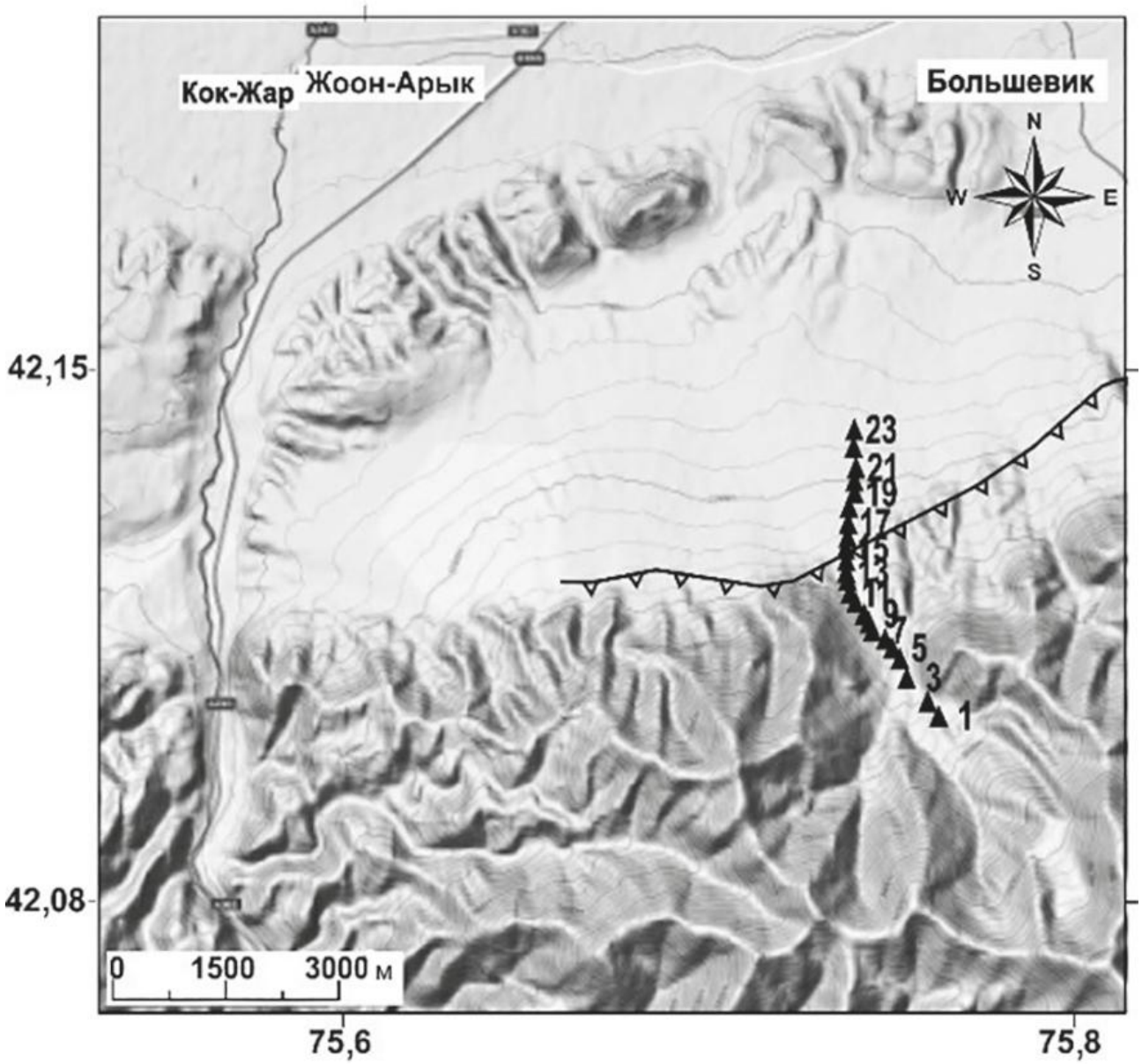

Fig. 6. Map layout of the Ukok profile.

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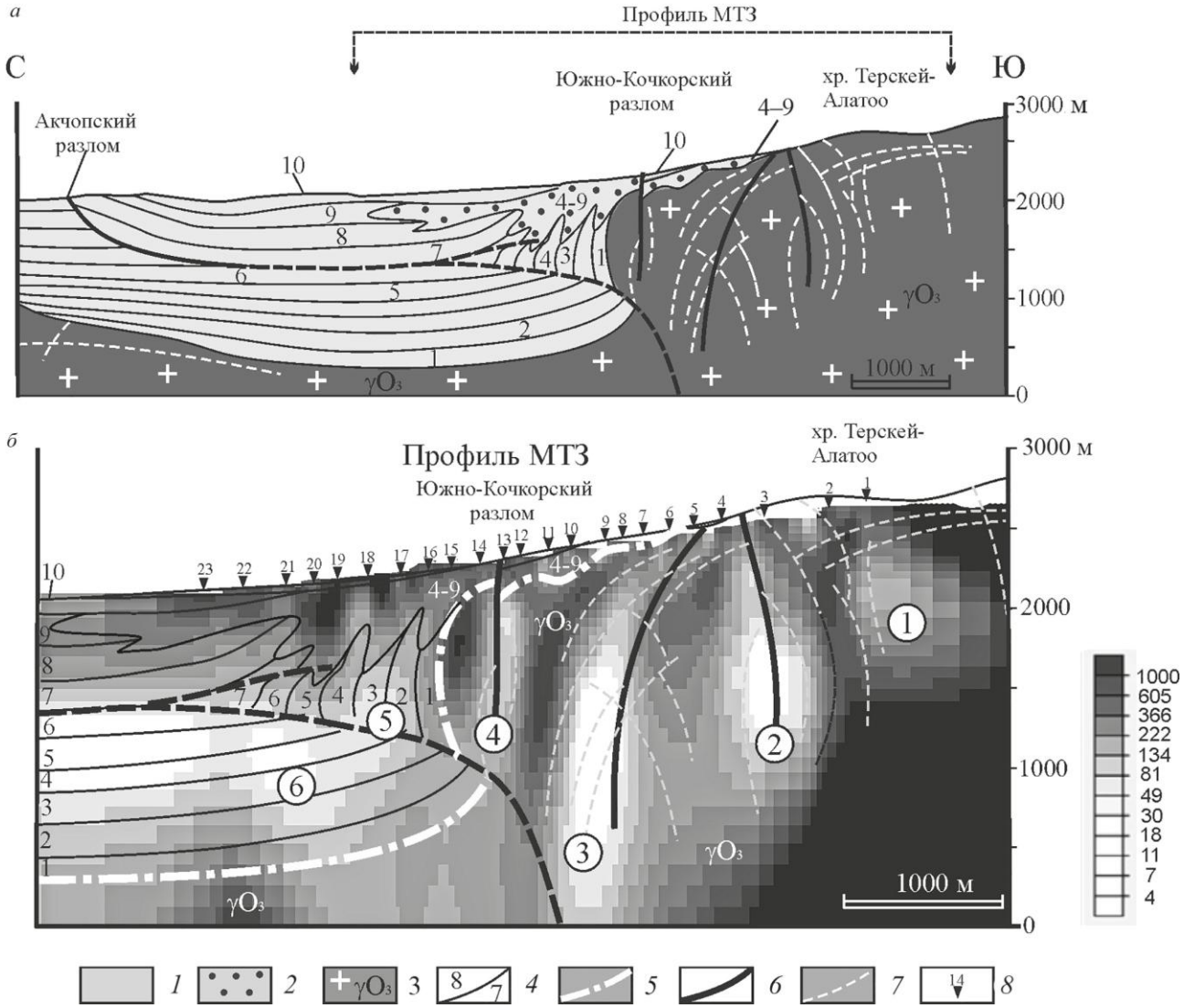

Fig. 7. The relationship of the surface structure and deep structure of the southern side of the Kochkor Depression (Northern Tien Shan). Top panel - morphostructure of the southern side of the Kochkor depression (Przhiyalgovskii et. Al., 2018); the bottom panel is a geo-electric section according to high-resolution MTZ (Bataleva et al., 2017), the color gradation of specific electrical resistances is on the right scale, numbers from 1 to 10 denote pack numbers (description in the text), numbers in circles (from 1 to 6) marked electrically conductive structures (1 - the roof of the packs, 2 - the bottom of the red-colored deposits of the Kirghiz series, 3 - faults, 4 - fracture zones, 5 - points of MTS).

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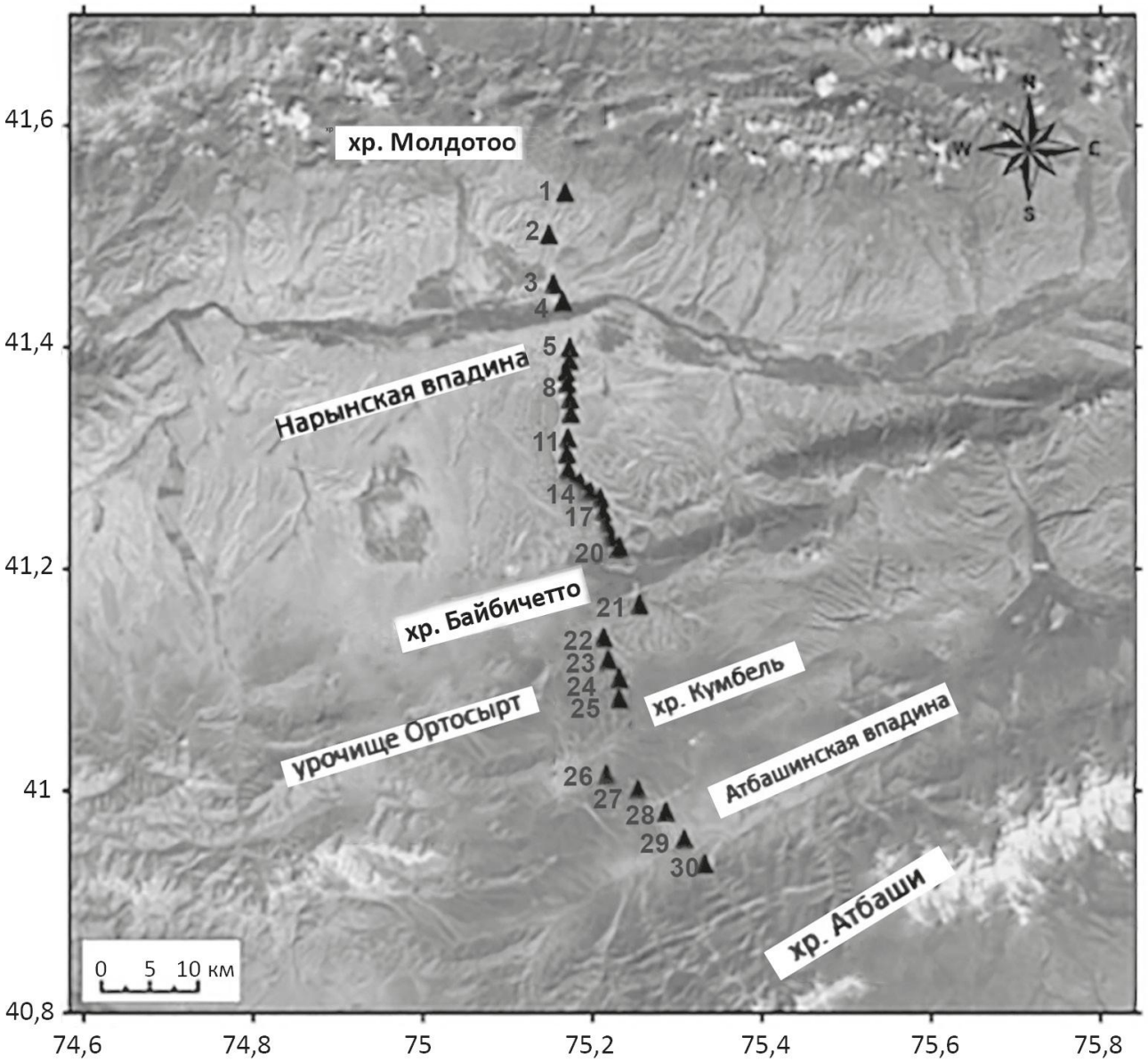

Fig. 8. Karabuk profile map layout.

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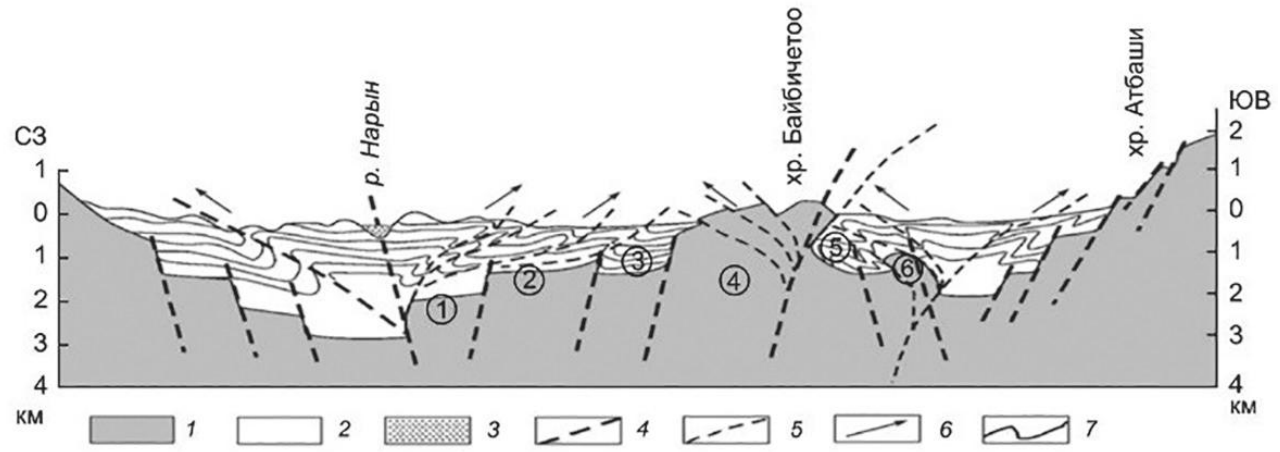

Fig. 9. A simplified geological cross-section of the Naryn depression system - the Baibichetoo-Atbashinskaya depression along the (Morozov et al., 2014): 1 - Paleozoic basement; 2 - Cenozoic cover; 3 - alluvium r. Naryn; 4 - faults, cutting the basement rocks; 5 - faults in the canopy complex; 6 - the direction of movement along the faults; 7 - folds in the covering complex.

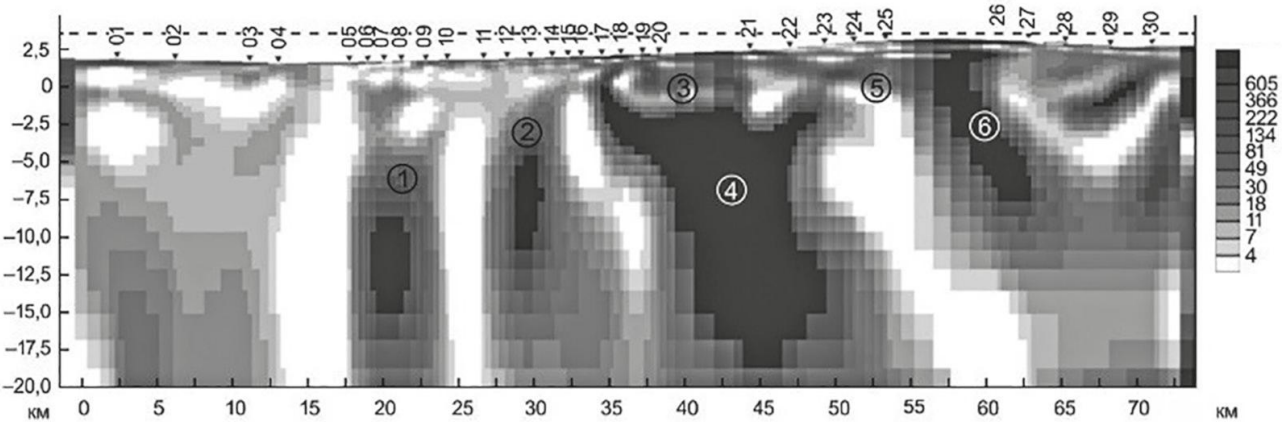

Fig. 10. A two-dimensional geoelectric model along the Karabuk MT-profile; the values of electrical resistance in the model are shown by shades of color, the corresponding geoelectric objects are marked with circles in the circles.

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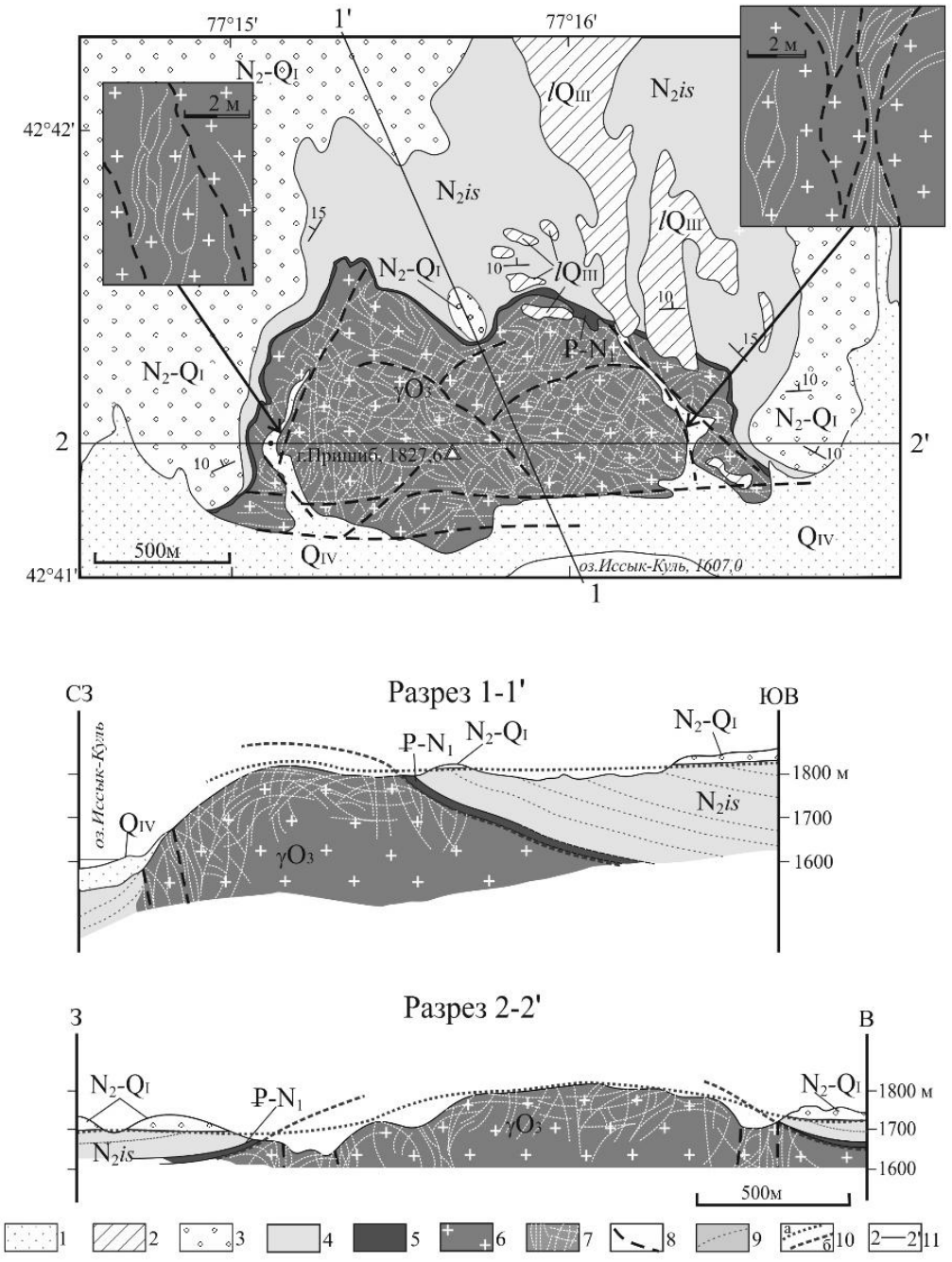

Figure 11 - Geological map and sections of the granite massif of Prishib.
1 - modern colluvium and proluvium; 2 - loess (Upper Pleistocene); 3 - Sharpyldak Formation; 4 - Issykkul series; 5 - Kokurpak series; 6 - medium-coarse-grained potassium feldspar granites; 7 - fracturing in granites; 8 - faults; 9 - stratification in sedimentary cover; 10 - position of the pre-Miocene (a) and pre-Paleocene (b) denudation surfaces; 11 - cuts lines; 12 - stereograms of pole densities of cracks in granites (lower hemisphere). On the sidebars - the nature of the structural divisibility of granites.

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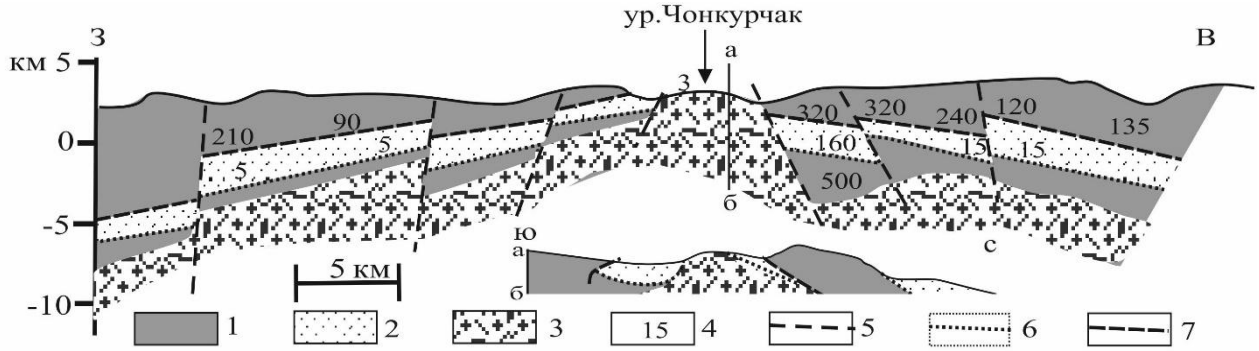

Figure 12 - Geoelectric latitudinal section with elements of geological interpretation and transverse geological profile along the a – b plane (junction zone of the Chuy depression and the Kyrgyz Range). 1 - high resistance heterogeneous foundation; 2 - the upper layer of rocks of increased electrical conductivity (Paleogene – Neogene); 3 - middle layer of high electrical conductivity (granite foundation); 4 - resistivity; 5 - estimated faults; 6 - base of the upper low-resistance horizon (stratigraphic contact); 7 - the roof of the upper low-resistance horizon (tectonic contact).

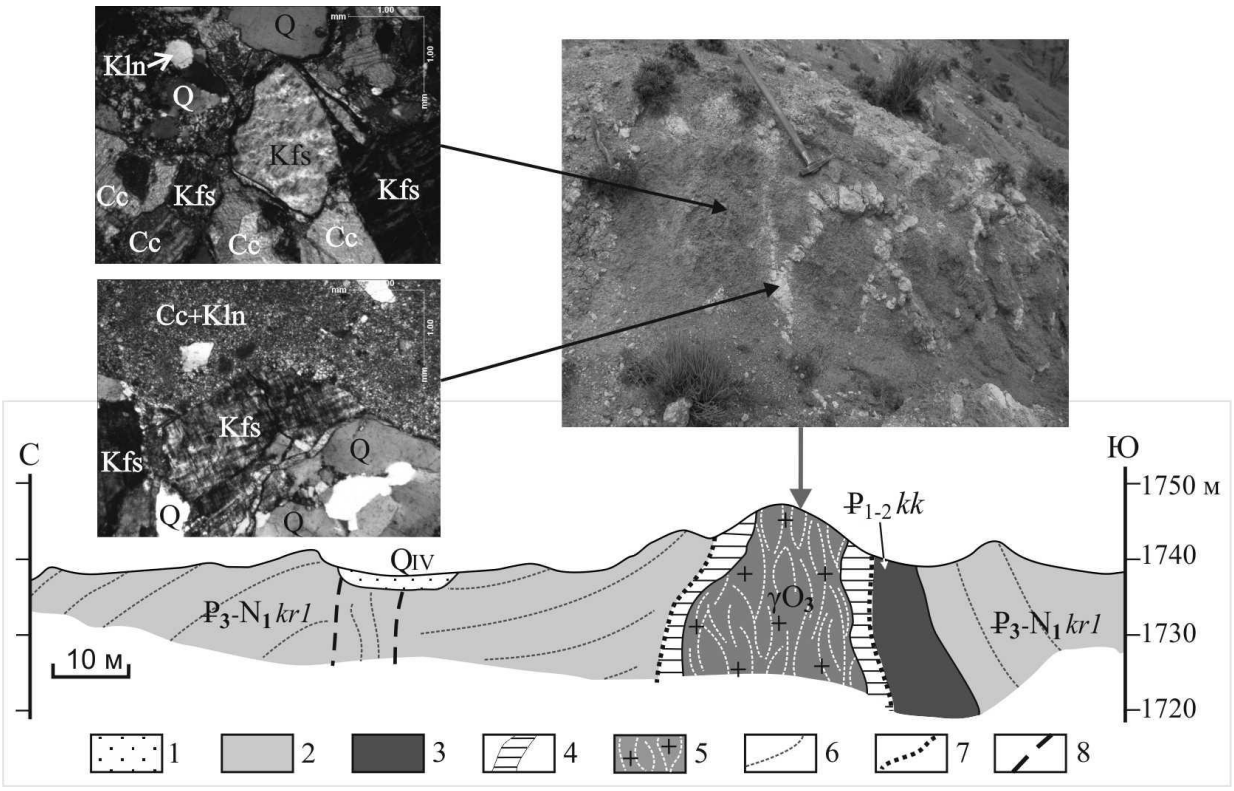

Figure 13 - Geological section through the protrusion of the Kyzyl-Bulak in the southern side of the Issyk-Kul depression (west of the village of Kadji-Sai). 1 - alluvium; 2 - Nizhnekirgizskaya suite; 3 - Kokoturpakskaya series; 4 - zone of structureless carbonate-sandy-argillaceous rocks (tectonites); 5 - tectonically disintegrated weathering crust; 6 - lamination; 7 - protrusive contact; 8 - faults. Inset - deformation structures in weathered granites in outcrops and in thin sections.

https://doi.org/10.21638/spbu07.2018.405