



Modern Technique Of Composition of A Geochemical Maps of Scale 1:1 000 000 Set Of the Tian-Shan Orogenous Belt of the Territory of the Republic Of Uzbekistan

Movlanov JJ*, Abdullaev LA

State Enterprise "Institute of Mineral Resources" of the State Committee for Geology of the Republic of Uzbekistan, Tashkent, Uzbekistan

*Corresponding author: Movlanov JJ, State Enterprise "Institute of Mineral Resources" of the State Committee for Geology of the Republic of Uzbekistan, Tashkent, Uzbekistan; E-Mail: jahongir79@mail.ru

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Introduction

In accordance with the geological assignment for 2017, field, camera and laboratory work was carried out in the territories of the Eastern, Southern and Western Uzbekistan (Chatkal, Hissar ranges, Malguzar, Southern Nuratau, Gobjuntau, etc.), and also case studies based on previously conducted geochemical works and the creation of local database for earlier work.

Work on the project started with the collection, compilation and analysis of exploration and thematic materials, reflecting the main results of earlier small-scale research and specialized thematic biochemical studies on the territory of the Republic of Uzbekistan. The corresponding information on the metallogenic specialization and biochemical behavior of chemical elements in the major hierarchical units of the republic - in ore regions, nodes, zones and belts, up to the levels of folded areas (component parts of the Tien Shan mountain structure) and metallogenic province (conditionally the territory of the Republic of Uzbekistan). Preliminary determined patterns of location of ore minerals in the territory and in adjacent areas. Attention is also drawn to the manifestation of various ore-formation and geochemical types of mineralization, to the study of new theoretical generalizations and predictive constructions. Information was collected from three sources: from stock reports, published monographs and articles published in the open press, and Internet surveys on the topic under consideration.

At the same time, the analysis of materials shows that the potential application of geochemical methods in Uzbekistan is not yet fully understood, due to the very uneven study of the territory. In most of the territory of the republic, geochemical knowledge corresponds to a scale of 1: 500 000-1: 200 000. Considering foreign experience, it should be noted that the greatest success in terms of searches, using geochemical methods. They began, for the first time in the 1990s, systematic regional geochemical works of scale 1:1 000 000 - 1:200 000 followed by more detailed studies, revealed many deposits of precious, non-ferrous, rare and ferrous metals. Small-scale

geochemical studies were preliminary carried out, the main purpose of which was to study the geochemical characteristics and metallogenic features of the region, by performing a systematic testing of the area under study on the scattering fluxes. Such studies included surveys with selection from 1 sample per 200-300 km² to 2-3 samples per 1 km².

In this regard, in 2016, the Institute of Mineral Resources, in order to ensure the uniformity of the methodological foundations of geochemical prospecting for dispersion flows, planned to compile a set of geochemical maps of the basement, mountain and foothill areas of the Tien Shan organic belt of the Republic of Uzbekistan at a scale of 1:1 000 000. The urgency of the research was based on the Decrees of the President and the Cabinet of Ministers of the Republic of Uzbekistan, where the State Committee on Geology was tasked with increasing the objectivity and reliability of information on the basis of the implementation of comprehensive research on regional geological study of territories and the conduct on a systematic basis of state geological surveys with a wide application of modern technologies and advanced forecasting methods. In general, the areas of research are characterized by a complex geological structure and wide manifestations of folded structures and faults, the development of various magmatic formations with a wide age range of sedimentary, volcanogenic-sedimentary and metamorphic complexes and age-varying and various-ore formations.

The main tasks of the research were

Development of scientifically grounded methods of selection of geochemical samples representative for small-scale constructions in various landscape-geochemical conditions of the republic identification and comprehensive interpretation of geochemical anomalies of hidden mineralization with the definition of its primary ore-formation specialization Identification of geochemical parameters (background, anomalous and other content), coefficients of correspondence of the contents of chemical elements based on the results of testing primary and secondary halos of dispersion, including alluvial-bed sediments.

The urgent need for the work of this plan in Uzbekistan is explained by the high rates of introduction of modern methods of strengthening geochemical halos and highly sensitive analytical methods, especially ISP-MS mass spectrometer, that allow on the near-clerk level of contents to quantify practically the entire spectrum of chemical elements participating in the geochemical research process of ore formation.

The work on the project began with an analysis of the material collected earlier, in conjunction with materials on the current state of geological, prospecting and geochemical exploration of the territory. The achieved detailed study of reference ore deposits, and previously allocated promising areas, made it possible to outline the main methods and types of work that ensure effective implementation of the tasks assigned to the project.

Collected materials are sufficient to specify the ore-controlling factors in the development of ore-forming systems and anomalous geochemical fields of various hierarchical levels: the metallogenic province (the territory of the republic) – the metallogenic area-the ore zone (node, belt), are processed using the rank method of investigation.

Purpose: to get acquainted with typical deposits and methods of geochemical testing of scale 1:1 000 000; Observation of Tectonic elements of the Tien Shan in Uzbekistan.

A plan for further research in the field of regional geology, geochemistry, stratigraphy and geochronology, as well as linking geochemical testing with temporary and permanent watercourses in the territory of Uzbekistan, was discussed and compiled. In the study program: Chatkal-Kurama and Malguzar mounts; Zarafshan-Hissar and Nurata mountain ranges; The Central Kyzylkums; Zirabulak-Ziaetdin and Sultan-Uvais mountain uplands.

Geochemical survey was carried out after training of local geologists-geochemists. The works were organized according to the territorial principle, coordinated with the field expeditions and the State Committee for Geology of the Republic of Uzbekistan.

The area of geochemical testing in the framework of this subject is shown, the specialists of the Institute of Mineral Resources carried out cooperation with the specialists of the subordinated enterprises of the State Committee on Geology, carried out a geochemical testing of the Tien Shan organic belt in the territory of the Republic of Uzbekistan at a scale of 1:1 000 000.

Results of joint research projects were published and used in the implementation of the current projects of the Institute of Mineral Resources, as well as in the compilation of a set of geochemical maps, a serial legend in geological survey work.

In the course of joint geochemical work, sampling techniques in different landscapes were discussed and tested when compiling a set of geochemical maps on the territory of the Tien-Shan organic belt at a scale of 1:1 000 000.

A total of more than 1000 geochemical samples and results obtained in the laboratory for conducting multi-purpose analyzes were taken throughout the territory of the Republic during 2016-2017: mass spectrometer ISP-MS, semi quantitative spectral and gold-

petrochemical. As a result of this, completely new geological and geochemical information was obtained, which has no analogues, in comparison with previous studies, carried out in a single key on a unified basis and suitable for further regional forecasting constructs. Interpretation of the obtained data was carried out using modern geoinformation technologies.

It was planned that this would be most revealing in the part of identification in various parts of the area of the complex of ore-controlling features (geochemical, etc.), previously established as the most informative in geological close conditions and spatially adjacent to it reference ore deposits and ore occurrences, as well as in one or another to the extent of significant or points.

According to the analysis, it is still impossible to make serious predictive conclusions, but only preliminary hints of identifying promising positions.

Such were the positions for silver, gold etc. In total, prospective positions for 14 types of minerals were identified.

But once again it should be noted that very preliminary hints have been made, according to which the scale of mineralization can't be estimated.

CONCLUSION

The conducted studies allowed to obtain a new geochemical information unified for the territory of the republic on a single scale (1:1 000 000) on the basis of which already more local areas were promis for specific types of mineral raw materials.

It is necessary to set the next stage of work on a scale of 1:200 000 on selected promising areas, which will allow us to identify already specific objects for setting up exploration work and already for specific types of useful fossil fuels.