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ANALYSIS OF DATA OBTAINED FROM THE PROCESSING OF LANDSAT AND ASTER SPACE IMAGES (ON THE EXAMPLE OF DERBEZ-KOKPATAS)

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ABSTRACT

The article presents the results of visual and automatic decoding of Landsat and ASTER space images from cosmogeological studies conducted on the example of the Derbez mine area and the western slopes of the Kokpatas deposit. As a result of the processing of space images, tectonic faults, which play a key role in the formation of many ores in the region, have been identified.

KEYWORDS: *Derbez - Kokpatas, Landsat, ASTER, visual and automatic decoding, space photography.*

INTRODUCTION

It should be noted that today there is a lot of work on geological research in the territory of the Republic of Uzbekistan, which requires the creation of basic baseline maps based on geoinformation technologies using space research materials. Such a map is a remote basis - a cosmogeological map, which effectively contributes to a more in-depth study of areas, including closed areas covered by sedimentary-effusive deposits.

Many literary sources have different views on the interpretation of aerospace images.

From the point of view of L.A. Bogomolov, decryption means obtaining information about the objects of the place (or, in a relatively broad sense, objects and events in the geographical view). According to L.A. Bogomolov, decryption is the process of obtaining information about objects (or objects and phenomena of the geographical environment) from their photographic image based on the knowledge of the laws of photographic reproduction of their optical and geometric properties, as well as determining the integral relationship of spatial location of objects. . The above definitions reflect a general interpretation of the term " дешифровка" [1].

Research method. Decoding images in remotely captured space images provide objective, thematic (mostly qualitative) information about the object or process being studied and their relationship to the surrounding object. In visual decoding, photographs are separated based on reading and their interpretation is understood.

Knowing how to visually distinguish images in a picture is based on identifying the signs of image interpretation and image properties. The accuracy of the results of the interpretation of the images depends on the level of training of the specialist. The better the interpreter understands the subject of his research, the more reliably he will be able to extract information from the image [2].

A certain degree of subjectivity of the results of visual interpretation is not always a negative feature, i.e. they are similar to the subjectivity of the map. In the process of interpretation, the expert makes a cartographic generalization based on personal opinion: generalizes boundaries, does not focus on small or insignificant objects [3].

Three main methodological approaches are used in the interpretation of aerospace images: 1) comparison of images with photographs of geological objects; 2) compare objects within a single image; 3) logical interpretation of decoded geological objects.

Their direct and indirect features are used in the interpretation of geological objects and processes using aerial photographs. According to E. Barret and A. Curtis, there are 9 such signs: [4]:

Figure; size; photon; soy; tusmol; texture; location; possibility of detection; stereo effect.

In addition to the important features listed above, in practice, relief, vegetation, surface moisture level, etc. are also very effective in interpreting aerospace images.

Automatic decoding is mainly carried out by processing satellite images (Landsat 7 TM, Landsat 8 OLI, Aster), which are known and reliable to us, using the following methods: SS (color composition), ASR, Mincomp, Hydrocomp, ITS, Kirsh, Sobel, Laplace, Robert and Index IV [5].

In the prediction and prospecting of minerals, tectonic and structural decipherment is carried out in the detection of linear and annular structures on the basis of aerospace images. Many well-known deposits occur at the nodes at the intersection of land faults, in which the structural factor plays a key role in the fold regions, the separation of linear and circular structures is carried out by visual and automatic decoding of digital remote sensing materials (Figure 1).

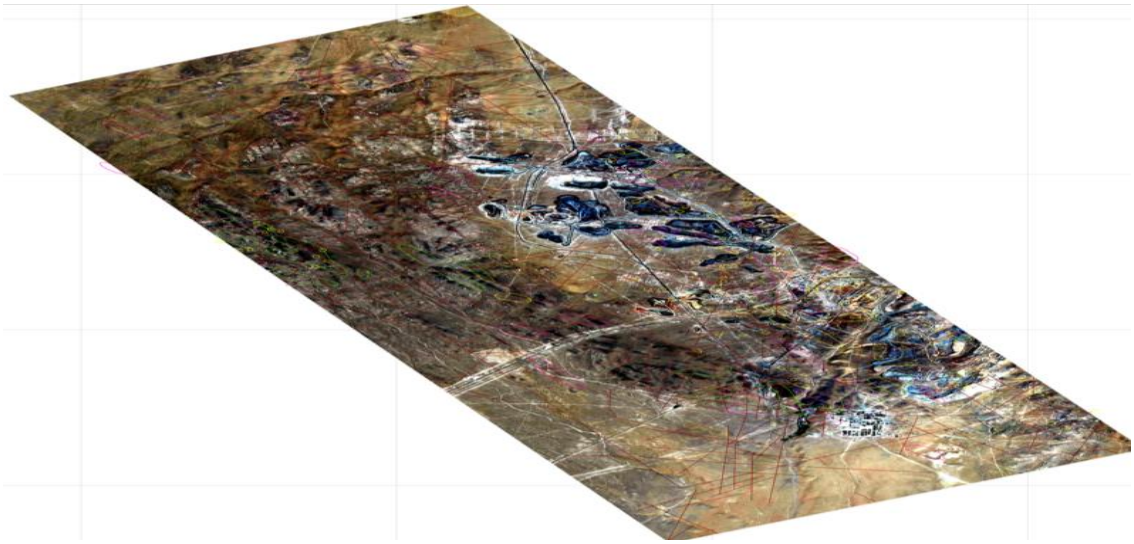

Figure 1. Visually and automatically decoded satellite image of the Derbez mine site and the western slopes of the Kokpatas deposit

There are now many phrases and real data of the reference object of the Earth to understand the decoding of aerospace image materials, and no one can deny the informativeness and reliability of their materials. Well-known modern materials and various spectral channels in the electromagnetic range are innovative methods of processing materials for remote sensing of the earth, as well as the algorithms used in it have been used for a long time and have yielded positive results on geological objects in many parts of the world. As a result of automatic desalination works in the area, a linear analysis was carried out and a more in-depth study using geological, geochemical and geophysical methods was recommended at the intersections of the faults.

CONCLUSION

As a result of visual and automatic processing of space images, a zone of gold-sulfide mineralization was identified in the region. Also, as a result of cosmogeological research and visual and automatic decoding of space images and rock processing, tectonic faults, which play a key role in the formation of ore in the region, were identified.

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