Session work №1

CURRENT RESEARCH IN THE FIELD OF ENGINEERING SCIENCES

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CALCULATING QUALITY LOSSES CAUSED BY MINERAL COMPOSITION IN MdiSTONES

There are many different methods of forecasting the quality of the deposit, the main criterion in which is the output of blocks. At the same time, the technological properties of the array were taken into account only in Yu. Karasov's graphical and analytical method.

An important indicator that determines the quality of the deposit may be the energy intensity of its further processing.

A number of scientific publications indicate that there is a close correlation between the content of individual minerals and the effectiveness of sawing this rock into blocks. For gabbroid rocks, plagioclase content is such an indicator. The study shows that with increasing plagioclase content the effectiveness of both cleaving and sawing increases.

Therefore, it is suggested that the plagioclase content should be considered in the paper to evaluate the energy intensity of the cleavage. The method of the surface image analysis is used to estimate the content of this mineral. The method is developed and tested by O. Remezova, A. Kryvoruchko and other researchers.

The research methodology is as follows:

1. The bench-floor surface was cleaned at intervals of 5 m on the plot of 10 * 10 cm in size, followed by photographing the area with a digital camera.

2. The location of the photograph was tied to the area on the basis of tacheometric photography.

3. The images obtained were analyzed in MdiStones by masking plagioclase mineral, followed by determination of the relative area.

4. The spatial distribution of plagioclase content was evaluated using the Surfer program

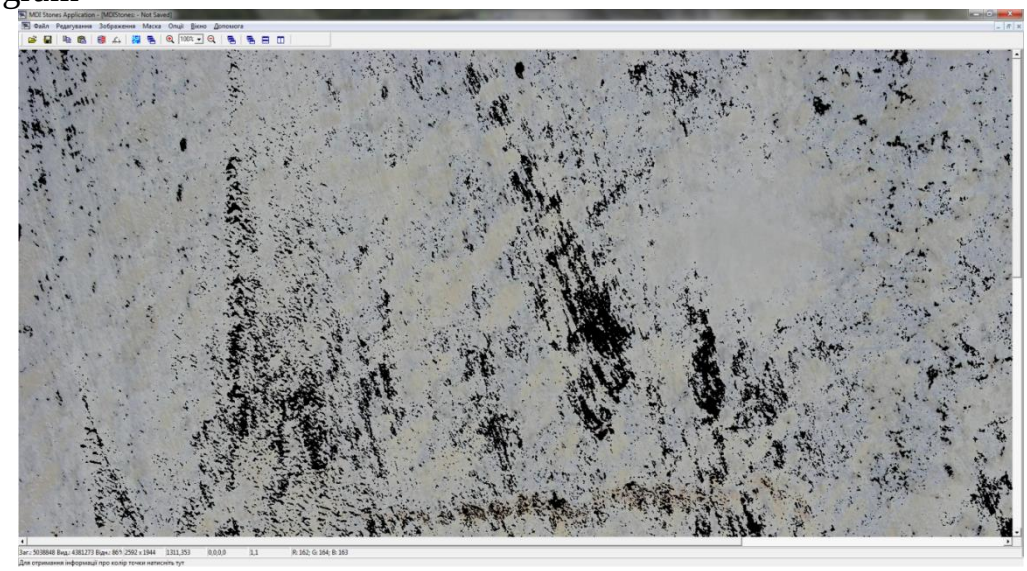


Figure 2.16. Image processing in MdiStones by plagioclase mineral mask

The analysis of samples by horizons is performed in the work.

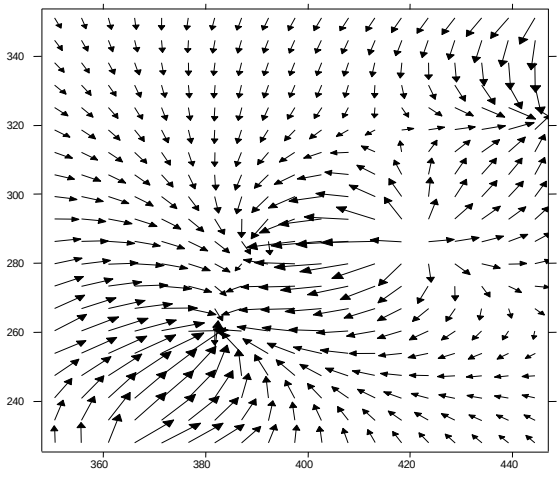
Thus, the results were obtained for horizon 178. They are given in table. 1. and Figure 1 and 2.

Table 1

Research results for energy intensity of deposits destruction for horizon 178

Number	X	У	The area of plagioclase relative,%
18	446.998	353.746	81
29	446.998	323.902	75
38	393.580	286.212	74
37	418.616	286.212	80
46	347.966	257.296	79
45	380.885	257.296	73
53	362.269	225.324	82
54	386.812	225.324	78

Fig. 1. Vector diagram of plagioclase content change for horizon 178



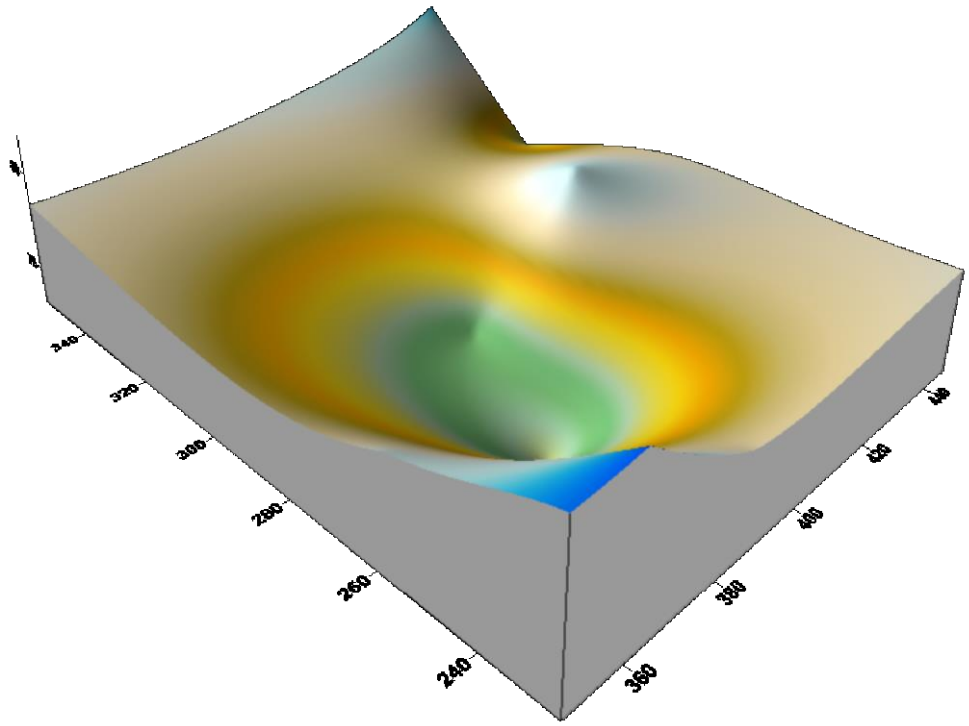


Fig.2. Three-dimensional model of plagioclase content change for horizon 178

The analysis of the obtained results allows performing on-site planning of mining operations on separate sections of the field, taking into account the energy intensity of the rock destruction when extracting and further processing. A characteristic feature of most horizons is the maximum content of plagioclase within the azimuths of 0-45°.