Introduction

The formation of the discreet mathematical model as the precondition of the ore homogenization by opal breccia for the cement industry demands is based on the principle of the discretion extant, i.e. the deposit simulation as an axtant phenomenon over the mini blocks system. The whole or the encircled part of the deposit by interpolation together with the working environment is devided over the prismes - mini blocks, so every prism, as a part of the whole is bearing some information about the located part of the extant. By means of that physical represented model, it may be described mathematically by matrix form symbols or figures whichever representing the block. In such away the extant model directly may be represented as a threedimensional matrix or indirectly by twodimensional matrix set in the horizontal or vertical sections.

The model formation course of the deposit is run across the following phases:

1. The collecting and working out of the investigated information by the deposit;
2. The preparations of the investigated informations for computer working out;
3. The memory of the investigated information;
4. The safety valuation of the investigated information by means of the geostatistical ethods;
5. The determination of the mini blocks dimensions;
6. The choice of the working out method - the interpolation;
7. The computer working out;
8. The printing and drawing of the output results;
9. The analysis of the obtained results.

The Application of the Discreet Interpolation

If the purpose is to form the discreet model of both deposit or ore body with the surrounding follower rocks, the deposit extant have to be derived in mini blocks. According to the obtained in formation by the investigated tests have to define mining-geology signs of every block, i.e. the useful component assay, the both assays tailings and injurious components, the digging residence etc. which will contribute for the studying of the possibility of composite material production which will be used in the cement industry. The idea of the extant discreet interpolation is based on the definition from the influence of every point

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bearing the investigated information from the influenced group of the investigated mini block.(Fig. 1.)

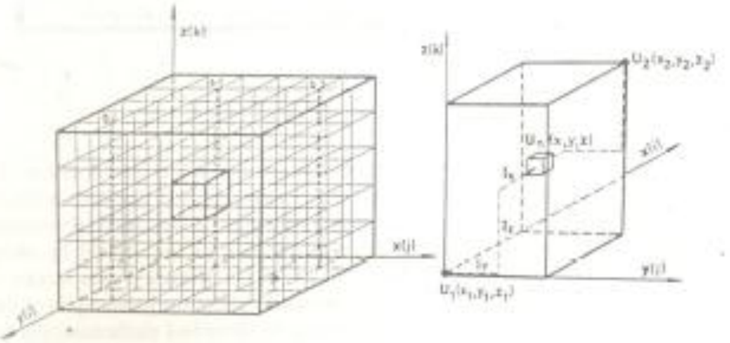


Fig. 1 - Scheme of the mini block

The influence of the all known points - holes from the influenced group, to the observed unknown point - mini block is estimated according to the equation:

$$U_n = \frac{\sum_{p=1}^{p=m} U_p \cdot L_{p,n}^{-l}}{\sum_{p=1}^{p=m} L_{p,n}^{-l}}$$

where are:

U_n - unknown point;

U_p - known point;

$L_{p,n}$ - distance between influenced known and unknown point;

l - degree of influenced activity of the distance.

From the theoretical view point, defining the characteristics of every unknown point - the mini block by means of discreet interpolation, the influenced activity has had all information points as a bearers of the mining-geology information about the unique extant whole - deposit, having:

$$U_{min} < U_n < U_{max}$$

Experimental Investigation of Discreet Interpolation

The practical experiment and reviewing of the discreet interpolation applicable for the deposit model formation, are carried out by means of experimental investigation from the opal breccia deposit "Spancevo"-Cisinovo- R. Macedonia, according to the set theoretical principles across the worked out alghorithm. It was encircled the deposit investigation field represented by blocks matrix with following dimension: Dx = 1m and Dy = 1m with carried in disposition of the investigated holes (the number of 28) with following characteristics (Table 1.):

Table 1. The disposition of the investigated holes, SiO_2 and Al_2O_3 assays

Hole N°	X	Y	SiO_2	Al_2O_3
1	273	78	84.90	2.42
2	282	78	82.60	3.35
3	289	78	90.70	1.68
4	298	78	90.80	1.65
5	268	79	90.60	1.60
6	304	79	87.90	2.75
7	313	81	93.20	2.48
8	318	81	98.30	1.42
9	252	82	84.20	2.30
10	261	82	88.60	2.36
11	269	87	94.30	1.60
12	288	87	85.10	2.92
13	264	88	87.30	2.70
14	282	88	88.40	1.75
15	262	89	94.20	2.48
16	278	89	85.20	0.90
17	285	89	85.30	1.75
18	292	89	89.20	2.54
19	295	90	87.50	2.90
20	298	90	95.70	1.53
21	258	92	95.60	0.95
22	273	92	92.70	1.45
23	302	92	87.20	1.60
24	305	93	96.20	2.30
25	254	94	91.50	2.42
26	308	95	92.50	1.53
27	248	97	99.10	0.32
28	252	97	96.10	2.01

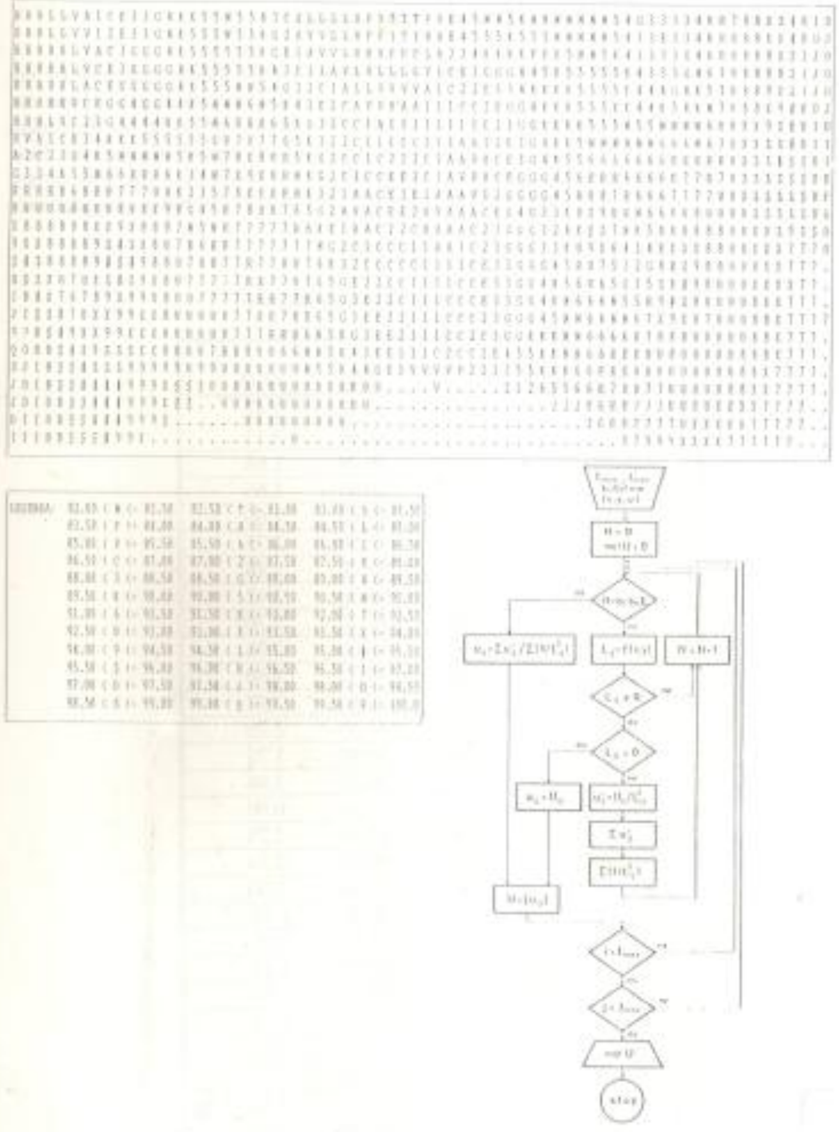
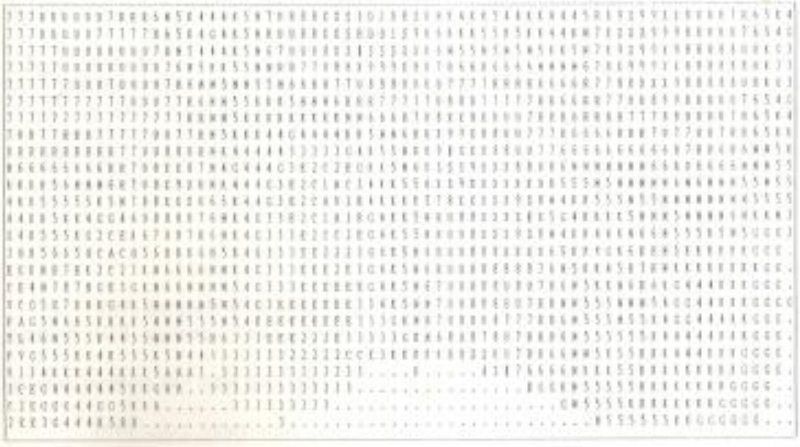


Fig. 2.



LEGENDA:	0.20 < [illegible] <= 0.30	0.30 < [illegible] <= 0.40	0.40 < [illegible] <= 0.50
	0.50 < [illegible] <= 0.60	0.60 < [illegible] <= 0.70	0.70 < [illegible] <= 0.80
	0.80 < [illegible] <= 0.90	0.90 < A <= 1.00	1.00 < [illegible] <= 1.10
	1.10 < C <= 1.20	1.20 < 2 <= 1.30	1.30 < [illegible] <= 1.40
	1.40 < 3 <= 1.50	1.50 < [illegible] <= 1.60	1.60 < 4 <= 1.70
	1.70 < [illegible] <= 1.80	1.80 < [illegible] <= 1.90	1.90 < [illegible] <= 2.00
	2.00 < 6 <= 2.10	2.10 < [illegible] <= 2.20	2.20 < 7 <= 2.30
	2.30 < [illegible] <= 2.40	2.40 < [illegible] <= 2.50	2.50 < [illegible] <= 2.60
	2.60 < 9 <= 2.70	2.70 < [illegible] <= 2.80	2.80 < [illegible] <= 2.90
	2.90 < [illegible] <= 3.00	3.00 < [illegible] <= 3.10	3.10 < [illegible] <= 3.20
	3.20 < [illegible] <= 3.30	3.30 < [illegible] <= 3.40	3.40 < [illegible] <= 3.50
	3.50 < [illegible] <= 3.60	3.60 < [illegible] <= 3.70	3.70 < [illegible] <= 3.80

Fig. 3.

Conclusion

On the basis of the obtained results and other reference data related to the application of descreet interpolation in modelling of deposits may be seen the fact that this method is fairly useful which is first of all seen in its simplicity, flexibility and accurancy. The method isn't appropriate in deposits which posses an abrupt change in the modelled trait, for example deposits with explicit effect of native occurance, the stockwork deposits etc.

The only issue that remains unsolved is the defining of the zone of influence. The selection of its shape and size is made experimentally or by intuition which may cause mistakes. Therefore, a scientific objective procedure for the defining of the zone of influence has not been developed. The degree of influental action of the distance is essential important component in the model which exerts a dumping action. The importance of this one becomes greater if the zone of influence has been defined with less accurancy. Concerning our experience a satisfactory results can be achieved for both: l=2 or l=3.

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