

عنوان مقاله:

Using the mass-radius method to quantify the disturbed zones in Sidi Chennane mine through geoelectrical images

محل انتشار:

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خلاصه مقاله:

This paper presents a new approach to quantify the rate of the disturbances within the phosphate series in an area of ۵۰ hectares located in Sidi Chennane deposit, Ouled Abdoun, Morocco. The proposed approach consists in applying the mass-radius fractal method on the geo-electrical images to estimate the fractal dimension FD as an index of the rate of the disturbances. The result of this study shows a strong correlation between the measured disturbed surfaces displayed on the studied geo-electrical images and their corresponding fractal dimensions. The calculated FD's values were found in the range of ۲.۰۸۱ to ۲.۷۱۹ and correspond to the range of the disturbances rates of ۴.۱ % to ۱۷.۷ % respectively. Therefore, the highest fractal dimension values reveal a high rate of disturbances and vice-versa. This analysis has confirmed that the fractal dimension may offers significant implications to distinguishing between the phosphate deposit at high disturbances rate and the deposit at low disturbances rate. This may lead to important implications for the mining engineers to obtain an accurate phosphate reserve estimate and make the best exploration and exploitation planning in Sidi Chennane mine.

کلمات کلیدی:

disturbances, Fractal geometry, geo-electrical image, phosphate mine, Ouled Abdoun

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