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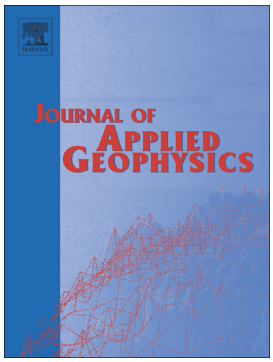

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Variance - correlation analysis in the exploration of hydrothermal (fluidogenous) deposits using surface gamma-ray spectrometry

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ABSTRACT

This paper describes a possibility of using variance-correlation analysis for the detection of hydrothermal alterations by conducting a surface gamma-ray spectrometry survey. Gamma-ray spectrometry data processing includes a low-pass filtration, identification of potassium, uranium and thorium residual components, as well as an analysis of their variance and correlation. The high variance of radioactive elements and the features of their correlation are dependent on the mineral structure of hydrothermally altered rock that forms the secondary dispersion halos. The variance intensity, as well as the strength and the type of correlational anomalies, depends on the fluidogenic systems scale.

Key words: *surface gamma-ray spectrometric survey; radioactive elements; hydrothermal alteration; variance; rank correlation*

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