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Stochastic Modelling and Geological Aspects of a Gold Mineralisation

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Author(s)

T. Ganesh, D. D. Sarma, P. R. S. Reddy

ABSTRACT

Gold mineralisation is the result of physico-chemical and thermal processes of the earth ' s interior. We may view a geological process of gold mineralization as a stochastic process Z(x):x∈D, where D may be considered as a mineral deposit. In the case of gold mineralization, samples drawn at regular intervals may be considered as following a discrete stochastic process. The point of interest is one of realistic estimation of mineral value property as computations based on classical methods leading to erroneous results. Modern methods based on stochastic modelling treating the process as an 1) Auto-regressive (AR), 2) Moving-average (MA) or a combination of these two viz., 3) ARMA of appropriate order *k* may lead to more realistic results. Yet another class of methods which consider the geometry of samples in termed as theory of Regionalised Variables. This paper analyses these classes of methods and illustrates a case study of a gold mineralization related to Strike Reef (Footwall branch) of Hutti gold mines.

KEYWORDS

Estimation; Geometry; Gold Mineralization; Stochastic Process; Regionalized Variables; Strike Reef

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