

REGIONAL GEOSTATISTICAL ANALYSIS OF FRACTURES IN PRECAMBRIAN TERRAIN AND THEIR GENETICAL IMPLICATIONS, SERIDO SCHIST BELT, PARAIBA

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The Seridó schist belt is a complex Precambrian terrain composed of meta-sedimentary and meta-igneous rocks, which have gone through a series of deformations resulting in the presence of fractures and lineaments of different ages. Photogeological techniques were used to analyze Landsat-TM images of the region, which resulted in the identification of the lineaments and fractures of the regional extent, short en echelon lineaments, intricate ramification of the wrench systems and infrastructures among major lineaments and circular or ring structures. Variographic analysis of the fracture system was undertaken to investigate the presence of continuity, correlation and range of influence. A total of 1174 fractures were localized with geographic coordinates for variographic analysis. The variogram of these fractures showed the presence of a mixture of three structures coming from fracture sets of three distinct azimuths. The fractures were grouped into three classes based on strike directions and they are 80° - 120°, 120° - 160°, and 160° - 200°. The individual variogram models of each class resulted in reasonably good structures with varying range values and nugget effect. The fractures of 160° - 200° azimuths are more homogeneous and uniform with minimum random variance and with relatively high range of influence. On the other hand the fractures of 80° - 120° have minimum range of influence and has higher random variance. The variograms of the fracture classes show influence of lithology, fracture regimes and fracture types.