

# APPLICATIONS OF DIGITAL IMAGE PROCESSING FOR DETECTING THE PRESENCE OF MINERALIZATIONS

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**Abstract** : Remote Sensing in mineral exploration acts as a tool, especially in surface geological mapping and geological structure analysis. This research studies the methods of remote sensing used for mapping the geological structure lineament, which later can determine the locations of mineral in the area of Mount Pongkor, West Java.

Data extraction and mapping are done by two methods, visually and digitally. The first approach is completed by digitizing directly from the images. On the other hand, by digital method, mapping data is extracted by building subroutines and formulas. The digital image processing is done by several steps, which are edge detection, linier extractions and edge of image analysis. The results of these procedures are lineaments mapping, rose diagram and fracture density that are used as parameters in mineral exploration.

The correlations between the data of image processing results with the apparent resistivity map show that Area A is definitely potential with the prospects of mineralization. Area B, C and D exhibit a similar pattern with Area A, which is the presence of high density fracture, intrusion -which is an indication of mineralization- and hydrothermal alteration. These regions are possible locations of the outlet from hydrothermal alteration processes.

**Keyword** : Remote sensing methods, geological structure lineament, mineral exploration, visual and digital processing.