

INTEGRATED ANALYSIS OF GEOLOGICAL DATA, AIRBONE GEOPHYSICS AND LANDSAT TM DATA, ON LAVRAS DA MANGABEIRA REGION, CEARÁ, LOOKING FOR GOLD MINERALIZATION POTENTIAL AREAS.

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Gold mineralization occur associated with shear zones cutting Early Proterozoic rocks in Ceará State, Northern Brazil. The regional geologic setting of these occurrences is not well established. This project focus on Lavras da Mangabeira region, where gold occurrences are known, at places named Fortuna and Outeiros, both in milonitic zones. The Fortuna occurrence is associated with quartz veins with pyrite, hosted by sericite-quartz schists. The Outeiros occurrence is associated with quartz veins in paragneiss, along a strike-slip fault. Available regional geological data, include geologic and metallogenetic maps produced by CPRM, airborne geophysics of the Iguatu Project, including gammaspectrometry and magnetometry, and Landsat Thematic Mapper multispectral remote sensing data (path/row 216/65 and 217/65). The objective of this project was to carry out an integrated analysis of these data for gold exploration, looking for evidences of potential areas. To pursue this objective, textural and lithologic information was extracted from Landsat/TM, as well as spectral information related to the occurrence of hydrothermal alteration affecting the rocks. Gamma-ray data provided information on the compositional variation of the rocks, thus defining the main lithological and tectonic units. Magnetic data was used to define the main structural features of the region, through the analysis of magnetic lineaments. The information obtained from this dataset was then integrated using digital methods, allowing an assessment of their combined use and characterizing areas of greater potential in the Lavras da Mangabeira region, presented as an integrated digital map.