MAGNETOMETRIC AND GAMMA-RAY SPECTROMETRIC DATA AS POWERFULL TECHNIQUES FOR GOLD EXPLORATION AT PILAR DE GOIÁS AND GUARINOS GREENSTONE BELTS, BRAZIL

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Magnetometric and gamma-ray spectrometric data were very important tools for gold target selection at Pilar de Goiás and Guarinos greenstone belts, northern Goiás State. The integrated use of these data with geological, geochemical and remote sensing data can be an important advantage in mineral exploration. Major and second-order lineaments and structures, some of them hidden at remote sensing images, are easily identified at shadowed magnetic images, specially at residual magnetic field images. Two lineament systems seems to be very important for regional and also local mineralization control. First one strikes N30º-40ºW and controls the actual geometry of the greenstone belt sequences, as well as the distribution of the main syngenetic and epigenetic ores. Second system, named Rio dos Bois, strikes N45º-50ºE and is supposed to be the limit of Paleo and Neoproterozoic terrains to the north. Some of the know gold occurrences in the region are controlled by those structures. Gamma-ray spectrometric images are very important for geological mapping and determination of anomalous concentration of potassium, which is commonly present at hydrothermal minerals of mesothermal ores. The most important technique used was the anomalous potassium, which enhance the hydrothermal potassium. From forty gold occurrences known at both greenstone belts, just four does not show any relation with the anomalous potassium zones defined using this technique.