

EVALUATION OF SPECTRAL CONTENT OF GEOSCAN AMSS MK-II BANDS ACQUIRED IN RIO ITAPICURU GREENSTONE BELT (BAHIA). NOISE FILTERING WITH FOURIER TRANSFORM AND DETECTION OF HYDROTHERMAL ALTERATION ZONES FOR GOLD MINERALIZATIONS

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The Rio Itapicuru Greenstone Belt (GBRI) has been subject to several studies and research for gold exploration. In this case, high spectral resolution remote sensing data generated by the airborne sensor Geoscan AMSS MK-II were used to characterize hydrothermal alterations areas in a region of this greenstone belt, in southwest of Araci town. However, the difficult found was the presence of high amount of noise in some of the Geoscan bands, mainly in bands located in thermal infrared portion of the electromagnetic spectrum. This noise was partially removed and its effects minimized through the use of Fourier Transforms applied to Geoscan data. Due of the complexity of this periodic noise, some subroutines were developed and adapted to Fourier Transforms directed to remove of high amount of noises without damages to spectral information included in these data. After the noise removal from the thermal bands, they were used in conjunction with the remaining bands of this sensor for the evaluation of the potential use of their spectral information for characterizing hydrothermal alteration zones. As a result of this study, new alternatives to process these data were suggested and four areas containing spectral anomalies were identified, indicating the presence of hydrothermal alteration and probably gold mineralized areas associated. In two of these four areas, occurrences of gold mineralization were confirmed and one represents a continuation of Weber Belt. In this important geologic feature, some of the most significant gold occurrences are located, such as the Fazenda Brasileiro Gold Mine.