

The metallogenic map of Amapá State, Amazon Region Brazil, integrated to JERS-1 radar image

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Geological, geophysical and metallogenic data are integrated to JERS-1 radar image, in order to compose image - magnetometric, image-radiometric and image-metallogenic maps. The area is formed by gneisses and granitoids of 2.94Ga (Rb/Sr) and 3.10 - 3.06Ga (Sm/Nd), by mafic-ultramafic metaplutonic bodies, and by greenstone belts (2.26Ga - Sm/Nd). These rocks are bordered by a granulitic belt at the southeastern side, and by a sheared high grade belt (2.67Ga - Rb/Sr) at the western side. Plutonic granitic suites (2.25Ga - Rb/Sr) are intrusive in the metamorphic rocks. They are cut by granitoids (1.86Ga, 1.74Ga - Rb/Sr), alkaline plutonic rocks (1.53 - 1.33Ga - Rb/Sr), gabbros (1.76Ga - K/Ar) and diabases (0.84 - 0.54Ga - Rb/Sr). The main structural trend is NW-SE, along which the major crustal accretion in the region occurred, defined mainly by the Vila Nova greenstone belts and associated granitoids, considered the most important metallogenic belt of the Amapá/NW Pará Province. The gneisses show moderate to high radiometric values. The metavolcanic rocks contain magnetic anomalies, and the metasediments display high radiometric values. The high-grade belts have magnetic and radiometric anomalies.

The province contains several districts, five gold, one manganese, and one chromium, all of them related to the Paleoproterozoic Vila Nova Suite. A chromite-mineralized area is related to a mafic-ultramafic layered complex older than the Vila Nova Suite. Titanium and phosphate occurrences are related to mafic-ultramafic alkaline complexes. Occurrences and evidence of niobium, tantalum, tin, and diamond and amethyst occurrences are also recorded.