The metallogenic map of Pará State, Brazilian Amazon, integrated to Radar image and airborne geophysical survey

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The integration of the geological, geophysical and metallogenic data on Pará State to the radar JERS-1 image provided simultaneous analysis of several parameters. That state is located in the SE portion of the Amazonian Craton, containing areas of ancient nucleus, shear belts, platform covers and plutonic suites. Three metallogenic units are characterized: Carajás-SE of the Pará Province, Gurupi Gold Province, and Tapajós Gold Province, each one with their respective districts. The mineralization in the first two are genetically related to the Archaean to Paleoproterozoic metavolcano-sedimentary-like greenstone belt sequences and their associated granitoids, occurring both in the preserved terrane and in the shear belts.

In the Carajás-SE of the Pará, gold, copper-gold, copper-zinc, manganese and iron districts are associated to greenstones. In the Gurupi Province gold mineralization is related to metavolcano-sedimentary sheared rocks. In the Tapajós Province gold mineralization is hosted by Paleoproterozoic medium grade metamorphic rocks, associated to intrusive granitoids (1.98Ga and 1.88Ga) as well as to Proterozoic basic plutonics. Radiometric anomalies are preferentially distributed over Paleoproterozoic (Parauari) and Mezoproterozoic (Maloquinha) granitic suites and also in the contact of them and Cuiú-Cuiú Metamorphic Suite. The volcanic and pyroclastic rocks contain radiometric and magnetic anomalies, while Cuiú-Cuiú and Parauari Suites only show magnetic ones. The Pará state contains also bauxitic, calcareous and kaolinic districts related to the Phanerozoic sedimentary rocks of the Amazon Basin, as well as areas mineralized in gold, titanium, tin, nickel, diamond, quartz crystal, and industry minerals.