Geochronology of granitoids, mafic intrusions and mineralizations of the Tapajós Gold Province - Amazonian Craton - Brazil

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The Tapajós Gold Province, central portion of the Amazonian Craton, has a Proterozoic geological and metallogenetic evolution. The orogenic domain of this province is composed by supracrustal sequences, gneisses, rare migmatites and syn- to late-orogenic granitoids. The bimodal volcanic and plutonic associations as well as sedimentary covers are included in the post-orogenic to anorogenic domain.

During the Tapajós Province mapping program carried out by the Geological Survey of Brazil, some igneous bodies have been dated by single zircon evaporation. Other researchers have also obtained U-Pb in zircon (SHRIMP), Rb-Sr isochronic and sulphide Pb models ages.

The U-Pb datings of syn-orogenic granitoids yielded Paleoproterozoic ages (2,033±7 and 2,005±7Ma) for the crystallization of these granitoids. Zircon evaporation datings of late-orogenic granitoids point out to crystallization ages between 1,997±3 and 1,968±19Ma. The isochronic Rb-Sr age of 1,965±16Ma in these granitoids seems to be the age of the gold bearing NW-SE transcurrent shear zones. The post-orogenic to anorogenic felsic magmatism has ages ranging from 1,882±4 to 1,893±2Ma, while a mafic body has an age of 1,887±3Ma, all obtained by zircon evaporation. Sulphides from Au-quartz vein hosted by a gabbroic intrusion yielded Pb model ages of 1,859±77 and 1,830±33Ma. The geochronological data indicate two mineralization events, at aproximately 1.96Ga and another a little younger than 1.88Ga.