

THE JACOBINA PALEOPROTEROZOIC Au-CONGLOMERATES (BAHIA, BRAZIL): A HYDROTHERMAL SHEAR - RESERVOIR MODEL

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The N-S Jacobina foreland basin (Bahia, Brazil) is developed along a lithospheric flexure of the Transamazonian orogeny, between 2080 and 1900 Ma. Five successive stages in the westward progradation of the basin are identified, indicating a progressive involvement of the basin in the Transamazonian collision. The gold mineralization, hosted mainly conglomerates in which grades reach economic values, has generally been interpreted according to the modified paleoplacer model. The predominant gold mineralization controls within the Jacobina basin conglomerates are structural in relation to the foreland basin context: we suggest that the basin development occurred at the height of mesothermal shear zone activity and that the gold-pyrite-Cr-minerals mineralization (euhedral chromite, Cr-rutile giving a maximum age of 2040 Ma, euhedral pyrite, pentlandite, linneite and gold in a gangue of fuchsite, chlorite and Cr-tourmaline) is associated with hydrothermal processes. The very homogeneous sulphur isotopic composition of the pyrite and pyrrhotite (between -0.5‰ and 1.3‰) and the $\delta^{18}\text{O}$ and D values of the hydrothermal fluid, respectively around $+8\pm 1\text{‰}$ and $-36\pm 3\text{‰}$, support a contribution of magmatic fluids. The lead isotopic compositions of the sulphides and potassium feldspars reveal an Archean inheritance, which is partly preserved in galena inclusions.