hydrothermal solutions has been observed for the first time in Atlantis II Deep sediments. Samples studied are from core 268 which has been collected in the hydrothermally active Atlantis II deep SW basin. Sediments are formed of fine-grained hematite and are partly transformed by the circulation of hot fluids which has also deposited sulfides, sulfates and silicates coating a network of fine fissures. Several zones can be identified: an upper unit where the sediment is still fresh and the sulfide association encountered in the veins is highly reduced (abundant pyrrhotite, magnetite, chalcopyrite, iron-rich sphalerite); and a lower unit where hematite from the sediment is more abundantly recrystallized and the veinlet minerals more oxidized including abundant sulfates (baryte and anhydrite), pyrite and iron-poor sphalerite. Gold (up to 23 ppm) and silver (2000 ppm) concentrate at the transition zone between the upper and lower unit where baryte is abundant.

Microthermometric studies of fluids trapped in sulfates show that baryte and anhydrite are precipitated by brines (19 % eq. NaCl) mainly between 400°C (where boiling occurs) and 250°C. The reduced brines precipitate sulfides in the upper units and sulfates associated with other sulfides in the lower units through oxidation due to local interaction with the oxidized sediment and loss of hydrogen during boiling. Gold probably forms chloride complexes in the high temperature, acid and highly saline solutions. The gold- baryte association suggests that they are present in fluids having a specific chemical composition. Gold precipitation may occur during cooling and may be enhanced by the mechanical effect of the boiling process.

Keywords : precious metals, boiling fluids, hydrothermal sediments, Red Sea.

3/P/G ORE MINERALOGY AND FLUID INCLUSION STUDIES OF THE RODALQUILAR GOLD DEPOSIT, AN ACID-SULFATE TYPE EPITHERMAL GOLD MINERALIZATION IN SPAIN

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Gold mineralization at Rodalquilar occurs in Late Tertiary calc-alcalic volcanic rocks and is related to a caldera collapse. Mineralized structures show a specific alteration zonation ranging from innermost advanced argillic to more regionally developed propylitic alteration. Alunite, pyrophyllite and kaolinite extend to a depth of several hundred meters into sulfide-bearing rocks and are interpreted to be of hypogene origin.

Data from an 860 m deep drilling reveal that high-grade gold mineralization occurs within intensively silicified vein structures and is associated with hematite, jarosite, limonite and silica in a near-surface environment. At a depth of about 120 m the oxidic facies grades into a sulfide mineralization with pyrite and minor chalcopyrite, covellite, bornite, enargite and tennantite.

Overpressured and hypersaline fluids of presumably magmatic origin initiated the hydrothermal system. Subsequent processes were characterized by the inflow of fluids with 3-5 wt.% NaCl equiv. of probably marine origin and by interactions between both solutions. Gold is suggested to have been precipitated from low saline fluids at about 175°C. Gold was presumably transported as $Au(HS)_2^-$, and precipitation resulted from boiling solutions accompanied by a decrease in pressure, temperature and pH and changes in redox conditions. Integration of all data attribute the Rodalquilar gold deposit to the acid-sufate type of epithermal gold mineralization.

Keywords Epithermal gold, Acid-sulfate type, Rodalquilar, Fluid inclusions

3/P/G THE METAMORPHOGENIC PONTAL GOLD DEPOSIT, GOIAS, BRAZIL: FLUID EVOLUTION FROM MINERALOGICAL AND FLUID INCLUSION STUDIES

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The Pontal mine (Brejinho de Nazaré) is located in the NE part of the Goïas state. Presently, 10^4 tons of auriferous quartz (average grade 17.5 ppm gold) have been mined from a lens, 120 m long and 0.5 m thick. This lens, is generally concordant with the metamorphic foliation of the surrounding gneisses and locally cut by pegmatitic dykes. Dominant saccharoïdal quartz is associated to oligoclase, biotite, hornblende, tremolite-actinote less than 2 % sulfides and disseminated native gold.

Primary fluid inclusions contain a dense H_2O-CH_4 rich fluid, often associated to solids (e.g. : biotite, rutile, siderite, "graphite-like" phase, as determined by Raman microprobe). Trapping temperature is higher than 350°C. Different generations of later inclusions contain low salinity aqueous solutions with variable CO_2, CH_4 and N_2 amounts.

Gold deposition is supposed to have occurred in a reducing system at elevated temperature and pressure compatible with mesozonal conditions. Later hydrothermal fluids led, at lower temperature, to limited gold remobilization.

Keywords Gold, Fluid Inclusions, Metamorphogenic deposit, Brazil

3/P/P THE GOLD-BEARING QUARTZ VEINS AND THEIR WALL ROCKS AROUND KUNDRAKOCHA, SINGBHUM DISTRICT, BIHAR, INDIA

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The gold washing activities in the streams and rivers around Kundrakocha (lat. 22°28'N; long 86°15'E; about 285 km SSE from Calcutta) is known since last century. Apart from some sporadic reports, no details on the mineralogy and geochemistry of this gold bearing zone is published till date. To rejuvenate the feasibility of the earlier gold-mines around Kundrakocha, samples were collected both from field and underground mines, which were investigated by means of XRF, EPM and microscopic methods. The results are summarized as follows:

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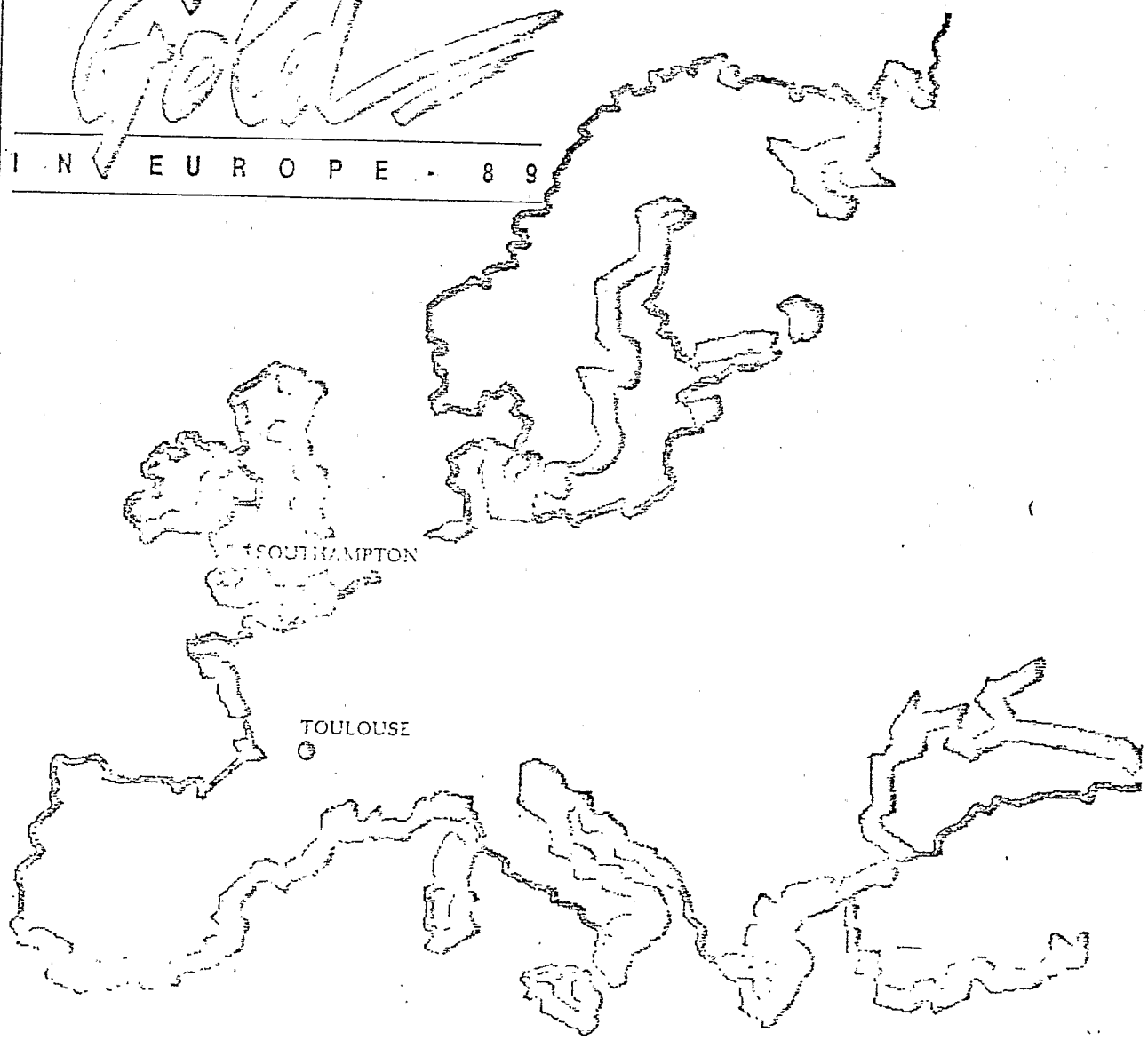

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