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Evidence of local sourcing of sulfur and gold in an Archaean sediment-hosted gold deposit

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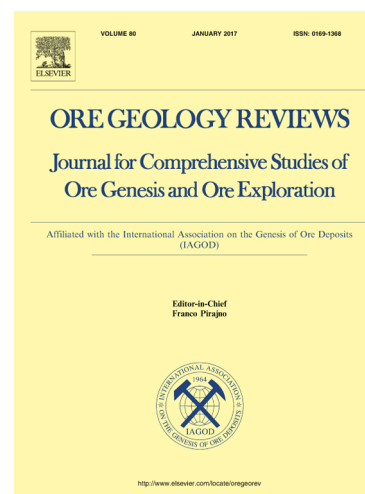
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13 Title

14 Evidence of local sourcing of sulfur and gold in an Archaean sediment-hosted gold deposit

15 Abstract

16 Determining the source of sulfur in an ore deposit is key to understanding the nature of the

17 ore forming processes. The Neoarchaean Paulsens sediment-hosted gold deposit (~1 Moz @

18 7.6 g/t) located in the Pilbara Craton of Western Australia exhibits many of the characteristics

19 of Phanerozoic shale hosted gold deposits (e.g. Huijiabao Trend, Northern Carlin Trend and

20 Sukhoi Log), in that 1) black shales are the dominant host rock, 2) gold is hosted in pyrite as

21 both free gold and dissolved gold in the lattice of the pyrite, and 3) multiple generations of

22 pyrite have formed due to a variety of geological processes. In this contribution we utilised

23 Secondary Ion Mass Spectrometer (SIMS) to measure the in-situ quadrupole (³²S, ³³S, ³⁴S and

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