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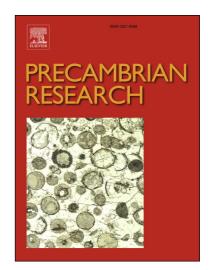
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Primary sulfur isotope signatures preserved in high-grade Archean barite deposits of the Sargur Group, Dharwar Craton, India

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ABSTRACT:

We report *in situ* and bulk S-isotope analyses of the 3.2 Ga old barite deposit of the Sargur Group, Dharwar Craton, India. Compared with the two other coeval barite deposits in Western Australia (Pilbara Craton, Warrawoona and Sulfur Springs Group) and South Africa (Kaapvaal Craton, Onverwacht and Fig Tree Group), the rocks of the Sargur Group have experienced pervasive ductile deformation and equilibrated under high-grade metamorphic conditions, which could have caused partial S-isotope reequilibration. However, *in situ* techniques revealed high spatial heterogeneities in δ^{34} S of up to ~18‰ in barite-bearing pyrites, as well as similar Δ^{33} S anomalies compared to the associated sulfate indicating bacterial sulfate reduction isotope effects and a minor impact of the pervasive ductile deformation and metamorphism on the

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