

## Archean Gold Mineralization And Oxidized Hydrothermal Fluids

### Archean Gold Mineralization And Oxidized

Several Archean Au deposits, however, contain one or more of these features indicative of oxidized hydrothermal fluids. They include Hemlo, McIntyre-Hollinger, Macassa, Lake Shore, and Ross which are all in Ontario, Canada, and Kalgoorlie in Australia. Examples of lesser deposits are in Hislop Township and in the Matachewan area, Ontario, Canada. With the exception of Hemlo, these are quartz-carbonate vein deposits spatially and temporally associated with felsic plutonism.

### Archean gold mineralization and oxidized hydrothermal ...

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### archean gold mineralization and oxidized hydrothermal ...

The structural controls on gold mineralization at Kukuluma and Matandani conform with models for Archaean gold mineralization more broadly, as summarized by [8,9], in the sense that mineralization is late-tectonic, appears to occur as a single event during a shift in the far field stress, precedes cratonic stabilization, and is associated with a range of structural traps created earlier in the deformation and intrusive history of the belt.

### Minerals | Free Full-Text | Archaean Gold Mineralization ...

With a current resource of 13.4 Moz Au, plus past production of 5.1 Moz Au, the Canadian Malartic deposit represents the first bulk tonnage (measured and indicated resources of 372.9 Mt at 1.02 g/t Au) mine in the Superior province. Canadian Malartic is thus an important example of a large-tonnage, low-grade Archean gold deposit in which the mineralization is disseminated (or in fine veinlets ...

### Constraints on the Genesis of the Archean Oxidized ...

Introduction. Archean orogenic (or so-called mesothermal) gold deposits share similar structural complexities that extend deep along crustal-scale faults and are widely considered to form from similar hydrothermal fluids; notably  $H_2O-CO_2 \pm CH_4 \pm N_2-NaCl$  fluids of relatively low to moderate salinities that were tapped from deep magmatic/mantle- or metamorphic-related processes (Groves et ...

### Nature of ore-forming fluid and formation conditions of ...

Introduction. The Archean Eon was the most important period for the genesis of gold deposits with approximately 60% of the world's gold deposits forming before 2500 Ma, and the Superior Province of Canada is one of the largest and most important gold producing Archean cratons in the world (Roberts, 1987, Robert et al., 2005).

### Sources of fluids in Archean hydrothermal stockwork ...

Hydrothermal sulphide-gold assemblages in the Archean gold deposits could be pyrrhotite-pyrite (reduced), magnetite/hematite-pyrite (oxidized) type (Neumayr et al., 2008). Results of a study of St. Ives gold camp (past production of 265 ton Au) in the southern part of Norseman-Wiluna

### Understanding Archean greenstone-hosted lode gold ...

Oxygen and hydrogen isotopes, miaroles filling, and mineralized zone paragenesis confirm that oxidized hydrothermal fluids were exsolved from the magma. The planar geometry of the metasomatized ore zones indicates that hydrothermal fluid circulation and metasomatism reactions occurred preferentially in high permeability pathways, such as preexisting faults in the host rock.

### Archean Sanukitoid Gold Porphyry Deposits: A New ...

The association of gold with telluride minerals in hydrothermal gold deposits is generally interpreted as derivation from an oxidized fluid source of magmatic-hydrothermal origin (e.g. Bucci et al., 2002; Grundler et al., 2013; Jowett et al. 2014; Xue and Campbell, 2015; Zhao et al., 2018; Spence-Jones et al., 2018). Several hydrothermal gold deposits have been genetically linked to ...

### Syenitic Group intrusions of the Archean Kurnalpi Terrane ...

The Archean Eon was the most important period for the genesis of gold deposits with approximately 60% of the world's gold depositing before 2500 Ma, and orogenic gold is the most common type of Archean gold deposit, accounting for 18% of the global gold production. However, genetic models for these deposits have remained controversial.

### Silver-rich sulfide mineralization in the northwestern ...

mineralization will be moderately to weakly conductive, Hydrothermal sulphide-gold assemblages in the Archean gold deposits could be pyrrhotite-pyrite (reduced), magnetite/hematite-pyrite...

### Understanding Archean greenstone-hosted lode gold ...

The Archean Superior Province of Canada contains the Abitibi greenstone belt, which contains some of the world's largest gold and copper-zinc deposits with significant amounts of nickel-copper-platinum group element (PGE) mineralization too.

### Old Gold: An Introduction to Archean Greenstone Belts ...

Archean Sanukitoid Gold Porphyry Deposits: A New ... A genetic model is proposed, wherein alkaline-oxidized magma, which favors sulfur and gold solubility and transport, migrates through the crust via major and subsidiary faults. The presence of miaroles, transolvus, and ... The mineralization is concentrated along hematized

### Archean Sanukitoid Gold Porphyry Deposits: A New ...

Model mineralization ages based on whole earth lead isotope growth curves are used to date sulfides (mainly galena with minor Fe sulfides and Pb tellurides) related on one hand to stratiform base metal and Ni-Cu mineralization and on the other to predominantly lode-type gold mineralization in greenstone belts of the Archean Yilgarn block, Western Australia.

### Lead isotope constraints on the age and source of gold ...

Sir: In their paper, entitled "Constraints on the Genesis of the Archean Oxidized, Intrusion-Related Canadian Malartic Gold Deposit, Quebec, Canada," Helt et al. (2014) present oxygen and hydrogen isotope data, and

discuss the origin of the hydrothermal fluids that formed the Canadian Malartic gold deposit. On the basis of the calculated hydrogen ( $-53$  to  $-46\text{‰}$ ) and oxygen ( $5.2$ – $8.5\text{‰}$ ) isotope compositions, Helt et al. (2014, p. 731) argued that the hydrothermal fluid that formed ...

### **CONSTRAINTS ON THE GENESIS OF THE ARCHEAN OXIDIZED ...**

Many Archean mesothermal gold deposits are spatially associated with felsic to lamprophyric minor intrusions and it has been suggested that magmatic processes related to such intrusions may be important in the genesis of these deposits. A comparison of the Pb-isotopic signature of gold-related galenas from Kambalda and Norseman with that of spatially associated minor intrusions (at the time ...

### **The relationship between Archean gold mineralization and ...**

The Golden Mile deposit was discovered in 1893 and represents today the largest Archean orogenic lode gold system in the world (50 M oz produced gold). The Golden Mile deposit comprises three major styles of gold mineralisation: Fimiston, Oroya and Charlotte styles.

### **Gold mineralisation throughout about 45 Ma of Archean ...**

Ore deposition resulted from pyritization of the host rocks and oxidation of the mineralizing fluid, which reduced a  $H_2S$  and caused destabilization of gold bisulfide species, leading to precipitation of native gold.

### **Constraints on the Genesis of the Archean Oxidized ...**

Meanwhile, the Archean meta-volcanic basement at the Baiyun pyrophyllite deposit, exhibit gold mineralization locally. These features herein provide a natural case to understand the geological distribution patterns of pyrophyllite alteration and its relationship with gold mineralization. Download : [Download high-res image \(574KB\)](#)

### **Genesis of the Baiyun pyrophyllite deposit in the central ...**

[Request PDF](#) | Constraints on the Genesis of the Archean Oxidized, Intrusion-Related Canadian Malartic Gold Deposit, Quebec, Canada | With a current resource of 13.4 Moz Au, plus past production of ...

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