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REVIEWER'S REPORT

Manuscript No.: IJAR-59650

Title: Litho-structural characterization of the Birimian formations of the Chappelle gold deposit (Hiré, southern Fettékro Birimian belt, west-central Côte d'Ivoire): Implications for mineralization and metallogeny.

Recommendation:

Accept as it is .....

Accept after minor revision...

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		Good		
Techn. Quality	Excellent			
Clarity	Excellent			
Significance	Excellent			

Reviewer's ID: Dr. Sumathi

Detailed Reviewer's Report

1. **Gold mineralization is the geological process that concentrates gold from fluids or melts into host rocks, forming economic deposits. It generally occurs through primary (lode) and secondary (placer) mechanisms.**
2. **Gold mineralization is the geological process by which gold is concentrated from low background levels in the Earth's crust into localized, economically viable ore deposits. This complex process occurs primarily through the circulation of superheated, chemically active fluids—known as hydrothermal systems—deep within the Earth.**
3. **Hydrothermal alteration is a geological process where hot, mineral-rich water (hydrothermal fluids) circulates through cracks and pores in rocks, chemically and mineralogically transforming the original minerals.**
4. **Hydrothermal alteration is a geological process where hot, mineral-rich fluids interact with pre-existing rocks, changing their chemical composition, mineralogy, and physical texture. Driven by heat from**

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volcanic activity or magma intrusions, fluids (like groundwater, seawater, or magmatic water) dissolve vulnerable primary minerals and precipitate stable secondary minerals in their place.

5. **The litho-structural characterization of the Birimian formations (Paleoproterozoic, ~2.2 to 2.0 Ga) in the West African Craton defines them as highly prospective, structurally complex greenstone belts and sedimentary basins. These formations are crucial hosts for orogenic gold mineralization across countries like Ghana, Burkina Faso, Guinea, and Côte d'Ivoire.**
6. **Mineralization and metallogeny describe how economic mineral deposits form and how they are distributed across space and time within the Earth's crust. Understanding their implications is foundational for geology, resource exploration, and global economic planning.**
7. **Implications for mineralization and metallogeny refer to how specific geological processes, structures, and timestamps determine how, when, and where economic mineral deposits form across the Earth's crust. In economic geology, analyzing these implications helps geologists move from merely observing rock types to predicting where major resource districts hide.**
8. **Quartz veins are distinct, sheet-like bands of quartz crystallized within rock fractures. They form when hot, mineral-rich hydrothermal fluids circulate deep within the Earth's crust. As these high-pressure fluids flow through fractures and fault zones, they cool and depressurize, causing dissolved silica to precipitate out and solidify into quartz.**
9. **Key words are good.**
10. **Pictures with informations are impressive.**
11. **Summary points can be included.**
12. **References are good.**
13. **After a small changes good to publish in your journal.**