

A Geodynamic Atlas for West African Mineral Systems

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ABSTRACT

Understanding mineral systems in Proterozoic and Archean cratons requires a detailed understanding of the spatial and temporal relationships between magmatic, depositional, metamorphic, mineralising, and structural data. The AMIRA International P934 West African Exploration Initiative, a 12-year partnership between industry, researchers and geological surveys has compiled a comprehensive GIS for available geoscience and exploration data that provides important constraints on our understanding of the geodynamic setting for metallogenesis.

We have built upon this GIS to produce a digital “Geodynamic Atlas” that allows us to explore the spatial relationships between key geological elements for arbitrary time-slices. This has not only allowed us to test alternate hypotheses for the evolution of Birimian tectonics, but also to better understand how this evolution has led to mineralisation across the craton.