

Resolving Interference Pattern to Predict Ore Shoot: The RIPPORE Method

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Folded geological structures are widely recognized as significant controls on ore deposits of various commodities, including gold. This is especially the case for greenstone belts, where complex fold interference patterns have been documented in world-class gold deposits and seem to control the distribution of ore-shoots (e.g., Roberto, Wassa, Barberton deposits). In this contribution, we present the RIPPORE method, a new stereographic procedure based on stereographic polar distribution of fabrics (e.g., S0, S1, S2, ...) that allows rapid assessment of fold superposition patterns and identification of potential planar and linear ore-shoots, without necessarily relying on surface exposures. This approach is particularly well suited for tropical environments, where geologists must rely on oriented drill cores as surficial geological information and exposure are generally lacking. We apply the procedure on the Boulanger and Oko West gold deposits; two ongoing exploration projects in the Guiana Shield that are affected by fold interference patterns. The results demonstrate that the highest gold-grades are spatially correlated with the theoretical ore-shoots estimated with the RIPPORE methods. These findings are promising and open new perspectives for gold exploration and in the field of structural geology.