Overman – an exceptional gold deposit in the Rosebel mining area, Suriname

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Gold mineralization

Prominent features
- Unusual gold mineralization within rigid silica body (90–95% quartz)
- Field association with sheared graphitic mudstone (with lower maximum Au content)
- Visible gold associated with arsenopyrite, and invisible gold in As-bearing sulphides
- Style of mineralization uncommon for the Marowijne Greenstone Belt

Subhides
- Disseminated or fracture-associated in silica body
- Disseminated or vein-associated in graphitic mudstone
- Pyrite, arsenian pyrite and arsenopyrite most abundant; pyrrhotite, chalocite, chalcocite, galena and other sulphides present as well
- Textural and mineral chemical evidence for multiple generations and a complex mineralization history

Geochemistry

Pre-silicification precursors from bulk-rock data
- CA core drill samples from main lithological units were analyzed for major and trace elements by ICP-MS, and ICP-MS
- Geochemical and petrographic results identify 5 distinct rock types
- Original rocks, prior to silicification were probably heterogeneous and mainly of (meta-)sedimentary origin
- Trace-element signatures of lithological groups, least affected by silicification, show strong resemblance to meta-sediments of the northern deposits of the Rosebel district (U-Zone and Kochover) and the Rosebel deposit in the Central Trend.

Overman vs other primary gold deposits in Suriname

Overman
- Gold in brecciated and strongly silicified orebody with vuggy texture
- Invisible gold in sulphides.
- Abundance of arsenopyrite and presence of various other sulphides
- Relationship between arsenopyrite and gold
- Association with graphitic metasediment.

Widespread in Suriname
- Gold in greenstone lithologies, spatially associated with major fault zones.
- Carbonate and sericite alteration.
- Gold in near quartz-carbonate veins in near brittle-ductile shear zones.
- Gold mostly in association with pyrite.

Work in progress

- Complementary geochemical analysis
- Chemical mapping of sulphides
- Sulphur isotope analysis of sulphides
- Re-Os dating on sulphides

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