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213 - Gold-Antimony occurrences in Victoria

Mr Cameron Cairns¹, Mr Sam Waugh⁴, Dr Zsanett Pinter², Dr Steven Boger¹, Mr Simon Travers¹, Mr Ross Cayley¹, Mr Tom Andrews¹, Dr Robert Creaser³

¹Geological Survey of Victoria; ²Commonwealth Scientific and Industrial Research Organisation; ³University of Alberta; ⁴Geoscience Australia

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251 gold-antimony occurrences are known in Victoria. The majority of these are located in central Victoria within exposed portions of the Melbourne and Bendigo zones. The Melbourne Zone hosts the most significant historical deposits, including the Costerfield and emerging Sunday Creek gold-antimony deposits. Australia's only current source of antimony, Costerfield has produced up to 4% of the world's antimony demand in recent years. The current endowment for Costerfield is at least 1 Moz gold and 111 kt antimony, while Sunday Creek has a current mineral exploration target of 1.7-2.6 Moz gold and 66.6-88.2 kt antimony.

Most antimony mineralisation occurs in narrow subvertical quartz-carbonate-stibnite-gold±sulphosalt veins which, individually, typically range from 0.01 m to <1 m wide, persist for tens of metres to around 200 m in strike-length and have proven vertical extents of at least 300 m. The footprint size of vein clusters that can constitute a deposit is kilometre-scale. System depth-extents are expected to be many kilometres.

Gold-antimony mineralisation and associated veins are most common in deformed, low-metamorphic-grade early Palaeozoic deep marine turbiditic sediments, although some occur in altered granite stocks and dykes where they are typically accompanied by disseminated mineralisation styles. Hydrothermal alteration associated with mineralisation in Palaeozoic metasediments comprises distal carbonate spotting and proximal arsenopyrite, while within intrusions mineralisation is often associated with pervasive sericite-pyrite. Overprinting relationships for the mineralisation have been determined at multiple sites in the Melbourne Zone using high-resolution X-ray fluorescence imaging and SEM-based automated mineralogy. Observations in common across many sites are that stibnite-gold mineralisation is late and overprints at least one generation of sulphide development. New U-Pb zircon and Re-Os arsenopyrite and pyrite geochronology indicates that there is a temporal link between 385-360 Ma granitic magmatism and gold-antimony occurrences in central Victoria.