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**Title:** BAJA CALIFORNIA, MEXICO- NEW IOCG DISCOVERIES IN A FRONTIER DISTRICT

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**Abstract:** Multi-disciplinary exploration by Cardero of the 500km by 15km Mesozoic belt of Baja California, Mexico has successfully defined a new IOCG district. The Mesozoic succession represents a convergent margin comprised of intermediate volcano-sedimentary rocks that accumulated under extensional conditions in the Alisitos Arc. Arc formation was broadly coeval with batholith emplacement, the westernmost plutonic complexes being intruded during regional extension. Plutonism in the Eastern Complex occurred during the Mid-Late Cretaceous following regional-scale tectonic inversion. The newly discovered district covers a minimum area of 60km northwest by 10-15km northeast. IOCG occurrences contain significant amounts of magnetite and/or specularite and vary from massive replacements to disseminated bodies to structurally controlled breccia and vein-dominated occurrences hosted by both volcanics and intrusives. Detailed studies indicate that significant volumes of rock are pervasively altered and record a complex, multiphase iron oxide - sodic - potassic - calcic alteration assemblage. Based on limited age dating, mineralization appears to be temporally associated with a switch from extension to net compression at approximately 100Ma. Property-scale exploration adjacent to the historic San Fernando narrow vein mine revealed a large volcanoclastic hosted disseminated IOCG body measuring a minimum of 1.5km east - west by 600m north - south and 400m depth. "Barren" sodic & sodic-calcic alteration becomes increasingly overprinted by pervasive potassic alteration ± associated copper in a westerly direction (values range from 193m at 0.25% Cu to 31m at 0.96% Cu). The property records five distinct hydrothermal alteration assemblages: Early pervasive albite replacement of host rocks with abundant disseminated to semi-massive magnetite is cut by sodic-calcic alteration (scapolite - actinolite - magnetite). Sodic-calcic zones are post-dated by a replacive potassic assemblage of biotite and magnetite

followed by potassium feldspar. Restricted zones of tourmaline - quartz alteration along veins cuts earlier assemblages. Finally weakly developed retrograde albite-calcite replaces earlier assemblages. Chalcopyrite mineralization occurred during both potassic and tourmaline-quartz alteration events.

At the Picale prospect 16km south of San Fernando mapping has delineated an IOCG manto over an intermittent strike length of 5km. Subsequent drilling intersected predominantly massive magnetite over a minimum area of c. 1 km<sup>2</sup>. Magnetite is interpreted to have replaced a favourable limestone unit within a 30-40m thick volcano-sedimentary package which has been pervasively potassically altered. Chalcopyrite mineralization is syn- to post-magnetite and contains variable grades from trace up to 6.6m @ 4% Cu and 0.4 g/t Au.

The geological setting of Baja California shares similarities in tectonic setting, age, alteration and metallogeny to the Chilean IOCG district.