



16th SGA BIENNIAL MEETING KEYNOTE SPEAKER

In concurrent session:
New Zealand mineral deposits and metallogenesis



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The influence of host rocks on epithermal veining in the Waihi area of New Zealand

Shannon Richards and Lorraine Torckler

Epithermal deposits are known to be challenging deposit types to explore, though once they are discovered they can often present with high rewards sometimes several decades after their initial discovery. Veins in Waihi have produced >8 Moz of gold and sustained gold mining for 110 of the last 140 years.

In Waihi, mineralization is hosted by five deposits including the large Martha deposit. These all have interesting characteristics that resulted in their discovery and sometimes re-discovery. The veins in Waihi are hosted within a thick package of andesites that can be subdivided texturally into an upper horizon lacking any quartz phenocrysts and a lower horizon that contains quartz phenocrysts. Veins forming the Correnso and Martha deposits are developed almost entirely within the lower andesite. These veins extending up into the upper andesite pinch out abruptly just above the contact. The Trio deposit situated 1 km to the southeast of the Martha deposit, has developed within both the upper and lower andesite units. Historical mining of Trio was confined to the upper andesite where veins had long strike extents but were narrow and did not yield high gold grades. Exploration drilling in the 2000s intercepted the lower andesite at depth hosting wide, mineralised veins that were later mined from underground. The discovery of the Favona deposit situated approximately 1.5 km to the southeast of Martha is hosted solely within the upper andesite, challenging the previous dogma of a preferential host rock for mineralisation.

The veins recently discovered at Wharekirauponga in 2017 have developed within a rhyolite flow dome complex. Here, veining is abundant within the rhyolite flows, however vein density and grade decrease dramatically within the surrounding volcanoclastic units. Experience from Waihi has shown that conditions for vein development are different from one vein set to the next.



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Shannon is a Senior Exploration Geologist at OceanaGold based in Waihi New Zealand. She was born in Zimbabwe and studied geology in South Africa where she obtained a MSc from Stellenbosch University in structural geology. She has spent the last 15 years in New Zealand working in exploration and mining of low sulfidation epithermal gold deposits in and around Waihi.
