Active and Extinct Geothermal Systems and Epithermal Environments of the North Island, New Zealand

LEADERS: Stuart Simmons (Hot Solutions) and Tony Christie (GNS Science)
START: Leaves from Auckland on Sunday 10 November, 2013
END: Finishes in Rotorua on Saturday 16 November, 2013
DURATION: Seven days

SCOPE: The goal of this excursion is to provide an overview of the volcanic-tectonic setting, hydrology, fluid chemistry, alteration and mineralization of sub-aerial hydrothermal systems and their energy and mineral resources. The itinerary includes visits to hydrothermal systems in the Taupo Volcanic Zone, Tongariro National Park, and epithermal Au-Ag deposits in the Coromandel peninsula.

PROVISIONAL ITINERARY

Sunday 10 November: Coromandel Peninsula site of ~50 epithermal Au-Ag deposits; drive Auckland to Waihi (overnight Waihi).

Monday 11 November: Examine Tertiary epithermal mineralization in andesitic volcanics. Visit to Martha Hill is planned pending permission from mine operations. Drive Waihi to Rotorua (overnight Rotorua).

Tuesday 12 November: Drive to Whakatane and take helicopter to White Island (20 minute flight, 90 minutes on the Island). Return to Rotorua (overnight Rotorua). Alternate dates will be utilized if weather is inclement for air transport.

Wednesday 13 November: Visits to Orakeikorako and Waiotapu thermal areas to see a diversity of thermal features including the Champagne Pool where gold and silver are now actively precipitating; (overnight Rotorua).

Thursday 14 November: Visits to producing steam-fields at Wairakei and Broadlands-Ohaaki; visit Waimangu in the afternoon which formed new hot springs, geysers and hydrothermal eruptions in the aftermath of the 1886 volcanic eruption of Mt Tarawera; (overnight Rotorua).

Friday 15 November: Overview Rotorua thermal area and visit to the Ohakuri epithermal Au prospect where geothermal activity extinguished about 30,000 years ago. Drive past Taupo Volcano to the Tongariro National Park; (overnight National Park).

Saturday 16 November: Tongariro National Park to Rotorua, arriving at Rotorua in the evening.
SPECIAL REQUIREMENTS: A moderate level of fitness is required. Sturdy footwear is essential and wet weather gear, sun hat and sunscreen are advised. If you are a visitor to New Zealand, you should arrange for travel and medical insurance before travelling to New Zealand, because many medical services are not free to overseas visitors.

MAXIMUM NUMBER OF PARTICIPANTS: 35

MINIMUM NUMBER OF PARTICIPANTS: 20

COST: NZ$3500 including GST, but discounted to NZ$2975 including GST if registered by Wednesday, July 31, 2013. Cost (ex-Auckland) includes transport (by bus or coach), accommodation (twin share), meals, and entry fees to thermal areas.

NOTE: This field trip is subject to confirmation and minimum numbers. Some activities may be weather dependent and the itinerary may be changed to fit with access and weather conditions on the day.

OPTIONAL RELATED ACTIVITIES: We suggest that participants in FT01 should also enrol in Short Course SC03 Epithermal deposits: geological characteristics and genetic processes for exploration and discovery, to be held on Sunday 17 November. This one-day short course has a separate fee of NZ$160.

FURTHER INFORMATION: Email Stuart Simmons at stuart@hotsolutions.co.nz

ROUTE MAP
Martha open pit gold-silver mine, Waihi
(photo: Mark Samson courtesy Newmont Waihi Gold)

White Island, an active andesite volcano in the Bay of Plenty
Viewing fumaroles in the crater of White Island

Orakeikorako sinter sheets. Note the fault scarp in the centre distance. Access to the thermal area is by boat across the Waikato River from the road end entry kiosk. Photo Lloyd Homer
Champagne Pool at Waiotapu. The pool is a former hydrothermal eruption vent, surrounded by a silica sinter terrace. (photo: Lloyd Homer)

Viewing orange As-Sb precipitates in Champagne Pool that contain up to 80 g/t gold and 175 g/t silver.
View along the Tarawera linear vent zone from Waimangu, across Lake Rotomahana, to Tarawera and Mt Edgecumbe. The pool in the foreground is in the Waimangu thermal area. Photo Lloyd Homer

Discussion of Ag-Au-bearing quartz vein stockwork in quartz-adularia altered ignimbrite at the Ohakuri epithermal Au-Ag prospect.
Inspecting the andesite volcanic and intrusive rocks on Mt Ruapehu, with Mt Ngauruhoe in distance.