

# 2023 CODES University of Tasmania South America Field Trip

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It is a well-known fact that as a geologist the more rocks you see; the better geologist you'll be. So when the opportunity arose from the University of Tasmania for a 3-week excursion to South America, I applied immediately. What an incredible opportunity for an epic adventure!



Figure 1. Picture of myself holding some beautiful chalcopyrite-tourmaline cemented breccia drill core in Chile.

Having worked in the Macquarie Arc of NSW Australia, Porphyry-epithermal (Cu-Au) deposits are my bread and butter. But how would they compare to similar deposits in the Andes? What are the key differences I would see, especially of such a large age difference (Paleozoic vs Cenozoic). The Rio-blanco, Los Bronces district is the highest producing copper region in the world – why? What juicy concoction and conditions has led to this

deposit(s) formations? What is the significance tourmaline found throughout the Andes? What is it like to work above 4,000m altitude? These were just a few questions, I had in the back of mind before travelling across the world.

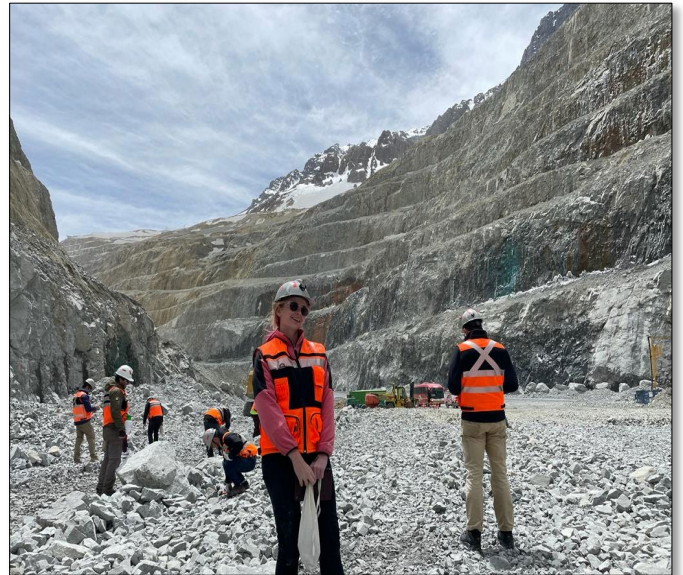


Figure 2. Picture taken in the Don Luis super pit within the Rio Blanco - Los Bronces district (the highest producing copper location in the world).

The Andes of South America is a highly prospective region, containing several world class ore deposits, some which are the source of most of the world's copper and molybdenum. As a result of this, the region is a major area globally for mining and mineral exploration – fuelling a consistent demand for research.

The trip's primary focus was the science of the various ores forming in these magmatic arc environments; including the specific geological, tectonic and environmental characteristics of the region.

Our South America trip, consisted of 9 days in Chile & 10 days in Peru (see map attached).

For the Chile component of the trip we travelled through Santiago, Las Condes, La Serna, Vallenar, Copiapo & Bahia Inglesa. Visiting varying deposits of Andina, El Teniente, Valeriano, Productora, Cortadera, Candelaria, Solares Norte, Manto Verde & Santo Domingo (Mix of porphyry – Cu-Mo, porphyry Cu – high sulfidation epithermal, IOCG & tourmaline breccia-hosted Cu-Au-Mo).



*Figure 3. Staring up at the Andes in complete Awe.*

In Peru, we travelled through Lima, Cajamarca, Churin, Ucchucchacua, Cerro de Pasco and Colquihirca. Deposits we got to view consisted of Cerro Lindo, Soldedad, Antakori, Tantauatay, La Zanja, Ucchuchacua, Yumpug & Colquijirca (Mix of VHMS, high sulfidation to Intermediate sulfidation, carbonate replacement deposits, skarns & porphyry copper deposits). It was this part of the trip where we experienced altitudes of greater than 5,000m above sea level. It definitely was quite the experience, but the local candy and Takis chips kept us going.

The trip was an incredible experience, filled with memories I'll never forget and new long-lasting friendships. Having seen some of the

largest, highest grade ore deposits in the world it has rekindled my passion for mineral exploration and re-invigorated the thrill of chasing a discovery!

I would like to say a special thank you to all of the mine and exploration sites for allowing us to visit, The University of Tasmania, CODES - especially Hellen Scott, Dave Cooke, Jaime Osorio, Yamila Cajal & Victor Torres. Also to special thankyou to the Australian Geoscience Council and the Australian Academy of Science for accepting my application for the 34<sup>th</sup> International geological congress travel grant scheme for early-career Australian and New Zealand Geoscientist.

Figure 4. Travel Map of the 2023 CODES Peru & Chile South America Trip.





