



Field Trip Itinerary (Preliminary)

FT04 – Domeyko Fault Zone Transect: Structural Controls of Giant Porphyry Systems

www.seg2019.org/field-trips.html#4

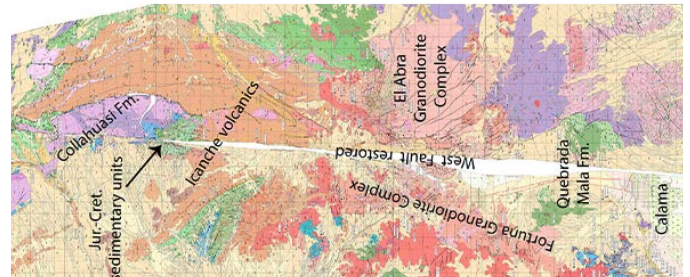
Date: October 11-13, 2019

Location: Departing from and returning to Calama, Chile

Leaders: Andrew Tomlinson
(andrew.tomlinson@sernageomin.cl), John Dilles,
Nicolas Blanco

Included: Accommodation, food, local ground transport, field trip guide

Not Included: Flights/airfare



This field trip emphasizes the structural controls on the emplacement of granitic intrusions and genetically related large porphyry Cu(Mo) magmatic-hydrothermal systems, with visits to key outcrops of the Eocene El Abra-Fortuna granodiorite batholiths and pre-ore regional structures as well as post-ore displacement on the West Fault System, northernmost segment of the Domeyko Fault System. The trip is appropriate for geologists and students interested in the role of pre-ore basement, sedimentary basins, and shortening structures on batholith emplacement, syn-ore faults and mylonites, and post-ore faults.

Calama is located in the desert, at an altitude of 2,300 m (7,550 ft). Some people make the mistake thinking that because it is a desert it is always hot, which is not true. Historic temperature means for October are highs of 24°C/75°F in the day and lows of 4°C/39°F at night. October is Spring time in the Southern Hemisphere. It'll be cool in the early morning, hot by late morning or midday, and quickly cooling after sunset. The mornings are usually without wind, but by early afternoon the infamous Calama wind picks up and creates a wind chill. Dress in layers so that you can add and remove clothing as the conditions change. It's hyperarid, so you don't have to worry about rain. As in any desert, the sun is strong so bring a hat, sun block and lip balm.

At 2,300 m (7,550 ft) altitude, most people won't feel altitude sickness in Calama. However, during the second day we will be visiting sites as high as 3,800 m (12,470 ft), so if you are susceptible to altitude sickness be aware and tell one of us.



We'll be visiting small abandoned mines, but nothing that requires going underground, so hardhats and steel-toe boots are not required. There are no restrictions on taking photos in any of the places we will be visiting so bring your cameras. We'll be traveling over dirt roads, most in very good condition, in 4-wheel drive, double cabin, pick-up trucks, with all the standard safety features. We'll be five to a truck (1 driver and 4 excursion participants) and so backpacks/equipment bags will have to be carried in the back of the trucks. The trucks will be equipped with a tarp to cover the back but this won't completely prevent the backpacks from getting a dusting. It is recommended bringing a separate cover specific for your backpack/equipment bag. Some backpack models have a weather-proof cover built into them.

FT04 – Itinerary

Day Before - Thursday, October 10, 2019

- 6:35pm - 9:47pm: Arrival of participants at Calama El Loa airport. We'll have TransVIP transfer vans waiting for you at the airport to shuttle you to the hotel.

Day 1 - Friday, October 11, 2019

- 7:45am: Meet in the Geotel Hotel parking lot, Calama, ready to leave for the field
- 8:00am - 9:30am: Drive to San Lorenzo Anticline
- 9:30am - 10:15am: Overlook of Jurassic to Eocene stratigraphy from core of San Lorenzo Anticline
- 10:15am – 12:15pm: Transect through northeast limb of San Lorenzo Anticline to look at units that recount the regional geologic and tectonic history of the area leading up to emplacement of the Eocene intrusive complexes related to large porphyry systems
- 12:15pm - 1:45pm: Lunch and overlook from Pampa Norte of post-ore West Fault trace and Triassic-Cretaceous geology to the east
- 2:15pm - 3:00pm: Yarosita mine in north end of Eocene Fortuna Granodiorite Complex; polymetallic fault-veins marginal to San Lorenzo granodiorite porphyries
- 3:15pm - 4:15pm: Overlook of Chuquicamata district from the crest of Sierra San Lorenzo, with visibility of the Ministro Hales pit to the south, Sur Mine pit, Chuquicamata pit and Radomiro Tomic pit to the north, all lying along or immediately adjacent the post-mineral West Fault Zone
- 4:30pm - 5:15pm: La Fiesta mine to look at the Fiesta Granodiorite and its contact with Tetera Aplite Granite, units of the Fortuna Granodiorite Complex
- 5:15pm - 6:00pm: Return to hotel
- Evening: Talk on regional geology, Eocene intrusive complex history and related porphyry copper mineralization



FT04 – Itinerary (cont.)

Day 2 - Saturday, October 12, 2019

- 8:00am - 9:30am: Drive to Quebrada Honda
- 9:30am - 10:00am: Overlook of Quebrada Honda, El Abra Complex and Cerro Jaspe geology
- 10:15am - 11:00am: Quebrada Pelcuno to look at the Cerro Jaspe Fault, a regional Eocene reverse fault placing Carboniferous-Permian granite, granodiorite and rhyolite over Eocene volcanic and sedimentary rocks
- 11:15am - 12:15pm: Quebrada Pacopaco to look at post-mineral West Fault where it places Middle Miocene alluvial gravels against Upper Cretaceous conglomerates
- 12:30pm - 3:30pm: Quebrada Ichuno, lunch and walk through units of the El Abra Granodiorite Complex and exotica mineralization
- 4:15pm - 5:00pm: Powerline road to look at Clara Granodiorite contact against older intrusive units
- 5:00pm - 6:30pm: Return to hotel

Day 3 - Sunday, October 13, 2019

- 8:00am - 8:30am: Check out of hotel, leave bags in storage
- 8:30am - 9:00am: Drive to first stop
- 9:00am - 10:15am Mylonite belt in Fortuna Granodiorite Complex and contact of San Lorenzo Granodiorite porphyry
- 10:30am - 12:00am: Tres Amigos mine to look at an example of the San Lorenzo Granodiorite porphyry containing a quartz vein stockwork, potassic alteration, and disseminated copper
- 12:00pm - 1:30pm: Lunch and overlook of Fortuna Granodiorite Complex and intrusive contact with east side Upper Cretaceous country rock
- 1:45pm - 2:30pm: Pampa east of the Cuesta de Montecristo to look at Aralar Quartz Monzodiorite of the Los Picos Monzodiorite-Monzonite Complex
- 2:45pm - 3:30pm: Cuesta de Montecristo to look at country rock on west side of Eocene intrusive complexes and angular unconformity between Jurassic-Lower Cretaceous units and Upper Cretaceous
- 4:00pm - 4:30pm: Arrive at hotel to pick up bags
- 5:00pm: Arrive at Calama El Loa airport

Accommodation (October 10-13, 2019)

Geotel Calama

Cobija 2273, Calama, Chile | +56-55-255-1000 | www.geotelcalama.com/contacto

(continued on next page)



FT04 – Flight Information *(airfare not included)*

There are 3 airlines with service between Santiago and Calama: Latam, Sky, and JetSmart.

Flights from Santiago to Calama for Thursday, October 10, 2019

Airline	Flight number	Departure Time	Arrival Time	Comments
Sky	Sky 252	4:30 PM	6:35 PM	
Latam	LA150	4:36 PM	6:41 PM	
Latam	LA344	4:50 PM	6:55 PM	
JetSmart	JA 6	5:06 PM	7:12 PM	
Latam	LA156	5:15 PM	7:20 PM	
Latam	LA142	5:40 PM	7:45 PM	
Latam	LA350	6:16 PM	8:21 PM	
Sky	Sky 254	6:35 PM	8:40 PM	
Latam	LA158	7:42 PM	9:47 PM	May miss dinner in hotel

Information valid as of August 3, 2019.

We require that people schedule a Santiago-Calama flight for Thursday, October 10, so that we can get an early start Friday morning. We recommend that you arrive in Calama before 9:00pm on Thursday. If you arrive on the last flight of the evening, 9:40pm, you may miss dinner since the hotel restaurant closes at 11:00pm. We'll have transfer vans (TransVIP) waiting for you at the Calama airport to shuttle you to the hotel (cost included in excursion fee).

If you can't make one of the Thursday evening flights, as a last resort there are two early Friday morning flights available through Latam, departing Santiago at 4:32am and 5:00am, and arriving in Calama at 6:37am and 7:05am, respectively. You'll have to make your own arrangements for transfer to the hotel and there is a risk that you may miss the first day of the excursion if you arrive at the hotel later than 8:00am.

If you schedule any flights arriving later than 7:05am, you'll likely miss the first excursion day.

Airlines generally request that travelers arrive at the Santiago airport with 2 hours anticipation for domestic flights. Traffic can be congested in Santiago, particularly at peak hours (7:30-9:30am and 5:30-8:30pm) so you should plan accordingly.



FT04 – Flight Information *(cont.)*

Flights from Calama to Santiago for Sunday, October 13, 2019

For the return trip to Santiago on Sunday, October 13, we ask that you schedule a flight that departs no earlier than 5:50pm and we prefer that you schedule either the 6:59pm or one of the later flights.

Airline	Flight Number	Departure Time	Arrival Time
Sky	Sky 249	5:50 PM	7:55 PM
JetSmart	JA 11	6:59 PM	9:00 PM
Latam	LA151	7:11 PM	9:15 PM
Latam	LA157	8:00 PM	10:04 PM
Latam	LA351	9:01 PM	11:05 PM
JetSmart	JA 5	9:15 PM	11:16 PM

Information valid as of August 3, 2019.

FT04 - Leaders

Andrew Tomlinson

Geologist

Servicio Nacional de Geología y Minería, Chile

Mobile: +56-9-7893-7105

E-mail: andrew.tomlinson@sernageomin.cl or atomlinson49@gmail.com

John H. Dilles

Professor

Oregon State University

Mobile: +1-541-609-8602

E-mail: john.dilles@oregonstate.edu

Nicolás Blanco

Geologist

Servicio Nacional de Geología y Minería, Chile

Mobile: +56-9-8981-6643

E-mail: nicolas.blanco@sernageomin.cl