

# XXXV SEG-SGA-UNESCO Latin American Metallogeny Course

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The most recent edition (2017) of the SEG-SGA-UNESCO Latin American Metallogeny Course was held in Buenos Aires, Argentina in November 2017. The course returned to Argentina after an absence of thirteen years, when we had the 2004 edition in Mendoza. This year the course was run under the general title of “Geology and geochemistry of magmatic-hydrothermal deposits from the Central Andes” and included 66 geologists interested in the knowledge and exploration of ore deposits from six Latin American countries (Argentina, Brazil, Colombia, Chile, Ecuador and Peru), Australia, Spain, Canada, and the UK. The Organizing Committee provided grants to 14 post-graduate students to support their travel expenses to attend the course.

As in previous editions, the course was structured in three parts, including theoretical talks, workshops and a field trip.

The first talk covered recent advances in the geology and exploration of porphyry and epithermal systems and was presented by David Cooke (CODES, Australia). The



Fig. 3: Attendants at the course in the University of Buenos Aires.

second group of talks was devoted to the general aspects of the geochemistry and geochronology of ore forming systems, including the presentations by Fernando Tornos (CSIC, Spain) on the geochemistry of hydrothermal systems, John Hanchar (Memorial University of Newfoundland,

Canada) on U-Pb geochronology of zircon, and Colombo Tassinari (Universidade de Sao Paulo, Brazil) on the use of isotopic tracers and other geochronological methods for studying ore deposits. The regional geology and metallogeny, the topic of the third group of talks, included presentations

Two workshops were devoted to hydrothermal alteration and its implications in mineral exploration (Nora Rubinstein) and the application of radiogenic isotopes to geochronology and geochemistry of ore deposits (John Hanchar and Colombo Tassinari). Student participants presented their ongoing research projects in a poster session.

This year, the SGA awarded prizes for the best three posters presented by the student participants. The recipients were Caio de Mello (Universidade Sao Paulo), Cecilia Pavón (CONICET-Universidad Nacional del Sur), and María José Espeche (CONICET-Universidad Nacional de Córdoba).

The field trip was organized by Carolina and Vicente Mendez (UBA and consultant, respectively). The trip took us to northern Argentina, departing from San Antonio de Jujuy after a short flight from Buenos Aires. The first day was devoted to drive northwards through the spectacular landscape of the Quebrada de Humahuaca to the town with the same name, where we spent the night. That was necessary for acclimatization to the high altitude of the Altiplano. The morning of the second day was used to travel to the Chinchillas Mine through the Altiplano and its amazing geology with several short stops along the way, thoughtfully explained by Vicente Mendez.

As soon as we arrived to the Chinchillas Mine, we passed a mandatory medical test. Mina Chinchillas is the highest town in Argentina at ca. 4120 m. It was followed by a safety induction and a short explanation on the deposit that is currently mined by SSR Mining and that is one of the largest silver mines Latin America. The lectures were followed by a visit to the open pit and stock piles. Due to the high altitude, the medical centre at the mine was rather busy but a small dose of oxygen helped people to keep on going. The next day, fully restored, we visited the well-exposed Chinchillas project, a large epithermal Zn-Pb-Ag system owned by SSR and Golden Arrow. We had the unique chance to hike around the area looking for different types of mineralization and alteration and then were given the opportunity to examine some selected drill core in a superb visit organized by Hugo Caranza. On the way back to Piriquitas, we visited the Carahuasi project, of similar characteristics to Chinchillas. The final day included a long drive from Piriquitas to Salta via the Salar de Olaroz and the lithium mine, where we had the chance to learn about lithium mining. After a breath-taking drive off the Altiplano and a short stop in Purmamarca, we made a late evening arrival in Salta. The next day, we had a free morning for visiting such a great city. After

lunch, the First Quantum team that came with us on the field trip organized a superb visit to the drill core shack of the Tata Taca porphyry project, giving an excellent end to the course. An unofficial end was at a small “Peña” in Salta, where a group of us had the opportunity of hearing the local folklore and taste excellent local wines.

This edition has been the 35<sup>th</sup> of the course and it could not have been lasted so long without the full support of the SEG, SGA and UNESCO, and the many speakers involved. In this edition, we would like to also thank the University of Buenos Aires, the SEGEMAR (Argentinian Geological Survey) and the companies SSR Mining, Golden Arrow, First Quantum and Salar de Olaroz for their support. Further information can be found on [https://www.unige.ch/sciences/terre/research/Groups/mineral\\_resources/latinometal/buenos\\_aires17/buenos\\_aires17.html](https://www.unige.ch/sciences/terre/research/Groups/mineral_resources/latinometal/buenos_aires17/buenos_aires17.html)

The next edition will be held in Peru in 2019 and will be coordinated by Lluís Fontboté. The coordination group is open to suggestions for future venues where to run the course and of volunteers that can help to organize it. More information can be found on the web page of the course.



Fig. 4: At the Chinchillas project.



Fig. 5: Hugo Caranza and the Chinchillas project.



Fig. 6: The Cerro de los Siete Colores in Humahuaca.



by Eduardo Zappettinni (SEGEMAR) on the metallogeny of Argentina, Victor Ramos (Universidad de Buenos Aires) on the geologic evolution of the Andes, Martin Gonzalez (SEGEMAR) on the lithium resources of Argentina, Nora Rubinstein (CONICET-UBA) on porphyry deposits, and Diego Guido (Universidad Nacional de La Plata) on epithermal deposits.

Figs. 1 and 2: Dave Cooke teaching on porphyry copper deposits, the international speakers.



Fig. 7: The informal farewell at the Salta square.