



# International Association on the Genesis of Ore Deposits

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## SHORT COURSE REPORT: METALLOGENIC CARTOGRAPHY

A short course entitled Metallogenic Cartography was jointly organized in November 2019 by the International Association on the Genesis of Ore Deposits (IAGOD), the Argentine Geological Association (AGA) and the Geological and Mining Survey of Argentina (SEGEMAR). This short course was sponsored by the International Union of Geological Sciences (IUGS) and the Ibero American Association of Geological and Mining Surveys (ASGMI). The course was aimed at young professionals and PhD students based in Latin America and offered training in techniques for regional metallogenic evaluation, including an introduction to the general concepts of metallogenic cartography; a review of major mineral deposit models; a discussion of methods involved in the evaluation of mining and mineral exploration potential; and a series of case studies that allowed participants to directly apply these methodologies, giving them direct hands-on experience. The five-day course was presented by 12 SEGEMAR specialists and three international IAGOD experts; a total of 26 participants attended the course. Generous scholarships from the IUGS were provided to ten PhD students from various Latin American universities based in Colombia and the Argentine cities of Buenos Aires, La Plata, Tucumán, Córdoba and Río Cuarto. The attendance of a further ten geologists from the Geological Surveys of Colombia, Honduras, Cuba, Ecuador, Peru, Brazil, Portugal, Uruguay, Guatemala and the Dominican Republic was also supported by ASGMI.



The short course covered the following topics, which were subdivided into five modules:

### Module 1 General Concepts

- Metallogeny: Deposit models and tectonic settings.
- Paragenesis: Deposit models and related paragenetic mineral associations and methods used in the analysis of these deposits.
- Stable (S–O–C) and radiogenic (K–Ar, Ar–Ar, U–Pb, Sm–Nd, Rb–Sr) isotopes and their use in metallogenic studies.

### Module 2 Major Deposit Models

- Porphyry-type deposits.
- Epithermal deposits.
- Other mineral deposit models and related hydrothermal alteration.



IAGOD President Eduardo Zappettini engaging with course participants.

### Module 3 Techniques in Regional Metallogenic Evaluation

- Remote sensing identification of hydrothermal alteration anomalies.
- Fluid inclusion analysis.
- The use of geochemistry and airborne geophysics in regional mineral exploration.
- Metallogenic cartography.

### Module 4 Resource Evaluation

- Evaluating mining potential: Data compilation and the preparation of preliminary maps.
- Mineral deposit databases: Analysis and area selection, anomaly identification, and the evaluation of exploration results.
- Numerical modelling for the identification of anomalous areas for exploration targeting.
- Resources and reserve estimation and technical reporting, including quality assurance/quality control (QA/QC) criteria and the analysis of information presented in NI43–101 and JORC standard reporting.

### Module 5 Case Studies

- Practice examples of the transition from metallogenic mapping to the evaluation of mining potential.

The course was enjoyed by all, and all of the participants came away with both an increased knowledge of metallogenic cartography as well as a significant amount of information useful for their future research and mineral exploration activities.

The IAGOD aims to organize similar modular courses in other countries and invites host proposals. Watch this space for future announcements.

We also encourage the submission of original research and review articles to *Ore Geology Reviews*, the IAGOD affiliated journal.