



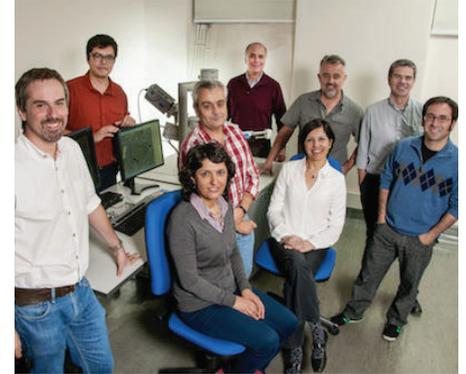
Area of Impact: Environment
Specialty: Geology, Mining

The Millennium Nucleus Center Metals Tracing along Subduction (NMTM) seeks to understand how metals concentrate and form large deposits in the crust.

Today, it is under discussion whether giant deposits have one mode of formation or if they represent the extreme end of a continuous spectrum of sizes, formed by the effect of an optimum convergence of geological processes. This evidence has accumulated in recent decades, recognizing important factors which include particular tectonic configurations, reactive host rocks or flow of fluids highly focused that are not unusual per se, but that make more efficient the process of concentration of metals.

Considering that mining is one of the pillars of the Chilean economy, the country faces the ongoing challenge of maintaining the sector's growth. Competitiveness and sustainability also depends on constant development in basic science that impacts exploration and exploitation, and on the value added to commodities (Cu, Au, Fe and Mo) through, for example, byproducts of "critical elements" such as rhenium, uranium and elements of the rare grounds group.

Therefore, a better understanding of the factors controlling the location of large mineral deposits is crucial for the development of more effective and environmentally sustainable exploratory techniques. One of the goals of NMTM is to generate, through investigation of fundamental aspects of economic geology, an impact on the exploration of new resources in Chile and the world.



MAIN ACHIEVEMENTS

- Principal Researcher Martin Reich is invited by Elements Magazine to edit its October issue, being the first Latin American to hold that position.
- NMTM raises new model on deposits of iron that combines in a chain of events the two opposite theories that have been competing so far.
- Increase of women in the graduate program in an area traditionally dominated by men.

CONTACT INFORMATION

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Martin Reich



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RESEARCHERS

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RESEARCH TOPICS

- Role of the Mantle.
- Magmas, Fluids, and Metals.
- Supergene Processes.

NOTED OUTREACH ACTIVITIES

• **Photographic book "The Mineral Wealth"**, ea proposal for a photographic book for non-specialized adults, covering the main minerals of economic interest of Chile, highlighting the beauty of the samples. (Work on this project begins in April and it is expected to be done by September 2016).

• **Video and workshops "Factory Minerals"**, a two-minute animated video (available in Spanish and English) created in 2D with a graphical motion (animated infographics) that explains in the simplest and most illustrative manner possible how and why Chilean mineral deposits are formed.
<https://www.youtube.com/watch?v=J-mPgtgRHoQ>

 **PRODUCTIVITY PUBLICATIONS**
(2015)
ISI: 17

 **ACTIVE MILLENNIUM NUCLEUS CENTER**
From 12/24/2014 to 12/24/2017
The Millennium Nucleus Centers can be renewed after 3 years, reaching a maximum of 6 years.

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