

Víctor Maksaev Jurchuc

ECONOMIC GEOLOGIST · Ph.D.

Former Associate Professor, Universidad de Chile

PROFESSIONAL PROFILE

Chilean economic geologist with extensive experience in Andean metallogeny, regional mineral exploration and geological mapping. Specialist knowledge of the geology and metallogeny of northern Chile, particularly porphyry copper and epithermal precious-metal deposits. Professional experience combines academic teaching and research, mineral exploration for Cambior and Barrick, and service with the Chilean Geological Survey. Additional experience includes geological consulting for mining companies and extension-course teaching.

EDUCATION

1986-1990 | Ph.D., Dalhousie University

Halifax, Canada. Specialization in metallogeny.

1985-1986 | Graduate studies, M.Sc. program, Dalhousie University

Completed M.Sc. coursework and transferred to the Ph.D. program with graduate-committee approval.

1970-1975; degree 1978 | Geologist, Universidad de Chile

Undergraduate studies; thesis completed in 1978.

PROFESSIONAL EXPERIENCE

2002-2018 | Associate Professor, Universidad de Chile

Economic Geology, Department of Geology, Facultad de Ciencias Físicas y Matemáticas.

Jul 1998-Dec 2001 | Assistant Professor, Universidad de Chile

Economic Geology, Department of Geology, Facultad de Ciencias Físicas y Matemáticas.

Mar-Jun 1998 | Consultant Geologist, Cambior Chile S.A.

Full-time responsibility for the drilling program at La Plata, Ecuador, a gold-bearing polymetallic VMS deposit.

Jan 1997-Mar 1998 | Senior Exploration Geologist, Cambior Chile S.A.

Advanced gold-exploration projects in Ecuador and evaluation of submitted projects from Andean countries.

Sep 1995-Dec 1996 | Senior Exploration Geologist, Barrick Chile S.A.

Exploration of the El Indio-Tambo epithermal precious-metal mining district.

Oct 1994-Oct 1995 | Senior Exploration Geologist, Cambior Chile S.A.

Grassroots gold-exploration program and evaluation of submitted projects from Andean countries.

Sep 1990-Sep 1994 | Head of Economic Geology, SERNAGEOMIN

Servicio Nacional de Geología y Minería, Chilean Geological Survey, Santiago, Chile.

PROFESSIONAL EXPERIENCE · CONTINUED

Sep 1987-Aug 1990 | Ph.D. graduate student, Dalhousie University
Halifax, Canada; on leave from SERNAGEOMIN.

Sep 1985-Aug 1986 | M.Sc. graduate student, Dalhousie University
Halifax, Canada; on leave from SERNAGEOMIN.

Aug 1981-Aug 1985 | Economic Geologist, SERNAGEOMIN
Chilean Geological Survey, Santiago, Chile.

Aug 1976-Jul 1981 | Staff Geologist, Instituto de Investigaciones Geológicas
Economic Geology Department, Santiago, Chile.

Jan-Aug 1976 | Contract Geologist, Instituto de Investigaciones Geológicas
Full-time, Economic Geology Department.

Aug-Dec 1975 | Contract Geologist, Instituto de Investigaciones Geológicas
Three-quarter-time, Economic Geology Department.

Feb 1973-Jul 1975 | Contract Geologist, Instituto de Investigaciones Geológicas
Quarter-time, Regional Geology Department.

TEACHING EXPERIENCE

From 1998 | Universidad de Chile

Regular teaching of three courses annually, typically GL61A Field Geology II, GL54A Ore Deposits, and GL60D Seminar on Porphyry Copper Deposits. Additional courses: Ore Deposit Models, Field Geology I, and Seminar on Epithermal Deposits.

1991, fall term | Lecturer, Universidad de Chile
GL-607 Epithermal Deposits, Department of Geology.

1987-1988 | Teaching Assistant, Dalhousie University
5150R Economic Geology, Department of Geology.

1985-1987 | Teaching Assistant, Dalhousie University
2200R Sedimentology & Biostratigraphy, Department of Geology.

1975, spring term | Teaching Assistant, Universidad de Chile
Stratigraphy and Sedimentation, Department of Geology.

ACADEMIC ADMINISTRATION

From 2002 | Head of undergraduate teaching, Universidad de Chile
Department of Geology, Facultad de Ciencias Físicas y Matemáticas.

From 2002 | Assistant Director, Department of Geology
Universidad de Chile.

2002-2005 | Graduate-studies committee member
Department of Geology, Universidad de Chile.

From 1999 | Department directive-board member
Universidad de Chile; elected for three consecutive terms.

PROFESSIONAL SERVICE & RESEARCH

EDITORIAL AND EVALUATION ACTIVITIES

1999-2003 | Editorial board member

Ore Deposits Reviews.

From 1990 | Editorial board member

Revista Geológica de Chile.

From 1998 | Research-project evaluator

DID projects, Universidad de Chile.

From 1990 | Research-project evaluator

Geological research proposals submitted to FONDECYT, Chile.

Occasional editorial work on papers for the Journal of South American Earth Sciences.

RESEARCH PROJECTS

2004-2007 | FONDECYT 1040492

With Francisco Munizaga. Metallogeny of porphyry copper deposits in the Coastal Cordillera of the Atacama and Coquimbo regions, northern Chile (26°-31°S).

2003-2006 | FONDECYT 1030912

With Francisco Munizaga. Genesis of porphyry copper deposits of the Collahuasi district.

Research supported by FONDECYT 1110093, with Francisco Munizaga, on geochronology of the Quebrada del Carrizo Metamorphic Complex, El Jardín Schists and associated Sierra Castillo granitoids.

PROFESSIONAL AFFILIATIONS

Colegio de Geólogos A.G., Chile.

Society of Economic Geologists (SEG), USA.

SCHOLARSHIPS

1986-1990 | Isaak Walton Killam Memorial Scholarship

Ph.D. studies, Dalhousie University, Canada.

1985-1986 | Dalhousie Graduate Fellowship

Graduate studies, Dalhousie University, Canada.

LANGUAGES

Spanish: native.

English: spoken and written.

Russian: basic spoken proficiency.

SELECTED PUBLICATIONS

- García, M.; Correa, J.; Maksaev, V.; Townley, B. (2020).** Potential mineral resources of the Chilean offshore: an overview. *Andean Geology* 47(1), 1-13. DOI: 10.5027/andgeoV47n1-3260
- Zentilli, M.; Maksaev, V.; Boric, R.; Wilson, J. (2018).** Spatial coincidence and similar geochemistry of Late Triassic and Eocene-Oligocene magmatism in the Andes of northern Chile: evidence from the MMH porphyry type Cu-Mo deposit, Chuquicamata District. *International Journal of Earth Sciences* 107, 1097-1126. DOI: 10.1007/s00531-018-1595-9
- García, M.; Maksaev, V.; Townley, B.; Dilles, J. (2017).** Metallogeny, structural evolution, post-mineral cover distribution and exploration in concealed areas of the northern Chilean Andes. *Ore Geology Reviews* 86, 652-672. DOI: 10.1016/j.oregeorev.2017.01.025
- Maksaev, V.; Arancibia, J.; Munizaga, F.; Tassinari, C. (2015).** Detrital-zircon U-Pb geochronology of the Quebrada del Carrizo Metamorphic Complex and El Jardín Schists and spatially-related granitoids of the Sierra Castillo Batholith. *Andean Geology* 42(3). DOI: 10.5027/andgeoV42n3-a01.
- Maksaev, V.; Munizaga, F.; Tassinari, C. (2014).** Timing of the magmatism of the paleo-Pacific border of Gondwana: U-Pb geochronology of Late Paleozoic to Early Mesozoic igneous rocks of the north Chilean Andes between 20° and 31°S. *Andean Geology* 41(3), 447-506. DOI: 10.5027/andgeoV41n3-a01
- Barra, F.; Alcota, H.; Rivera, S.; Valencia, V.; Munizaga, F.; Maksaev, V. (2013).** Timing and formation of porphyry Cu-Mo mineralization in the Chuquicamata district, northern Chile: new constraints from the Toki cluster. *Mineralium Deposita* 48, 629-651.
- Maksaev, V.; Almonacid, T. A.; Munizaga, F.; Valencia, V.; McWilliams, M.; Barra, F. (2010).** Geochronological and thermochronological constraints on porphyry copper mineralization in the Domeyko alteration zone, northern Chile. *Andean Geology* 37(1), 144-176.
- Maksaev, V.; Munizaga, F.; Valencia, V.; Barra, F. (2009).** LA-ICP-MS zircon U-Pb geochronology to constrain the age of post-Neocomian continental deposits of the Cerrillos Formation, Atacama Region, northern Chile: tectonic and metallogenic implications. *Andean Geology* 36(2), 264-287. DOI: 10.5027/andgeoV36n2-a05
- Maksaev, V.; Munizaga, F.; Zentilli, M.; Charrier, R. (2009).** Fission track thermochronology of Neogene plutons in the Principal Andean Cordillera of central Chile (33-35°S): Implications for tectonic evolution and porphyry Cu-Mo mineralization. *Andean Geology* 36(2), 153-171.
- Munizaga, F.; Maksaev, V.; Fanning, C. M.; Giglio, S.; Yaxley, G.; Tassinari, C. C. G. (2008).** Late Paleozoic-Early Triassic magmatism on the western margin of Gondwana: Collahuasi area, Northern Chile. *Gondwana Research* 13, 407-427.
- Astudillo, N.; Roperch, P.; Townley, B.; Arriagada, C.; Maksaev, V. (2008).** Importance of small-block rotations in damage zones along transcurrent faults. Evidence from the Chuquicamata open pit, Northern Chile. *Tectonophysics* 450, 1-20.
- Maksaev, V.; Townley, B.; Palacios, C.; Camus, F. (2007).** Metallic ore deposits. In Moreno, T. and Gibbons, W. (eds.), *The Geology of Chile*. Geological Society, London, pp. 179-199.

SELECTED PUBLICATIONS · CONTINUED

Maksaev, V.; Munizaga, F.; Fanning, M.; Palacios, C.; Tapia, J. (2006). SHRIMP U-Pb dating of the Antucoya porphyry copper deposit: new evidence for an Early Cretaceous porphyry-related metallogenic epoch in the Coastal Cordillera of northern Chile. *Mineralium Deposita* 41(7), 637-644.

Encinas, A.; Maksaev, V.; Pinto, L.; Le Roux, J. P.; Munizaga, F.; Zentilli, M. (2006). Pliocene lahar deposits in the Coastal Cordillera of central Chile, as related to uplift, avalanche deposits and porphyry copper systems in the Main Andean Cordillera. *Journal of South American Earth Sciences* 20, 369-381.

Maksaev, V. (2005). World Skarn Deposits: Skarns of Chile. Contribution: pp. 1-4 and one table, electronic folder "15 Chile", in the "Meinert" folder of the supplementary CD-ROM to Meinert, L. D., Dipple, G. M. and Nicolescu, S., World Skarn Deposits. In Hedenquist, J. W. et al. (eds.), *Economic Geology 100th Anniversary Volume*, SEG, pp. 299-336.

Maksaev, V.; Munizaga, F.; McWilliams, M.; Fanning, M.; Mathur, R.; Ruiz, J.; Zentilli, M. (2004). New chronology for El Teniente, Chilean Andes, from U/Pb, ⁴⁰Ar/³⁹Ar, Re-Os and fission track dating: Implications for the evolution of a supergiant porphyry Cu-Mo deposit. In Sillitoe, R. H., Perelló, J. and Vidal, C. E. (eds.), *Andean Metallogeny: New Discoveries, Concepts and Updates*. SEG Special Publication 11, pp. 15-54.

Townley, B.; Hérail, G.; Maksaev, V.; Palacios, C.; de Parseval, P.; Sepúlveda, F.; Orellana, R.; Rivas, P.; Ulloa, C. (2003). Gold grain morphology and composition as an exploration tool: application to gold exploration in covered areas. *Geochemistry: Exploration, Environment, Analysis* 3, 29-38.

Maksaev, V.; Zentilli, M. (2002). Chilean strata-bound Cu-(Ag) deposits: An Overview. In Porter, T. M. (ed.), *Hydrothermal Iron Oxide Copper-Gold & Related Deposits: A Global Perspective*, vol. 2. PGC Publishing, Adelaide, pp. 185-205.

Clarke, B.; McCuish, K. L.; Vernon, R. H.; Maksaev, V.; Miller, B. V. (2002). The Port Mouton Shear Zone: intersection of a regional fault with a crystallizing granitoid pluton. *Lithos* 61(3-4), 141-159; special issue on magmatic processes honoring R. H. Vernon.

Tomlinson, A. J.; Dilles, J. H.; Maksaev, V. (2001). Application of Apatite (U-Th)/He Thermochronometry to the Determination of the Sense and Amount of Vertical Fault Displacement at the Chuquicamata Porphyry Copper Deposit, Chile - A Discussion. *Economic Geology* 96, 1307-1310.

Palacios, C.; Hérail, G.; Townley, B.; Maksaev, V.; Sepúlveda, F.; de Parseval, P.; Rivas, P.; Lahsen, A.; Parada, M. A. (2001). Geochemistry of gold crystals in the Cerro Casale gold-rich porphyry deposit, Maricunga Belt, Northern Chile. *Canadian Mineralogist* 39, 843-851.

Townley, B. K.; Maksaev, V. J.; Palacios, C. M.; Lahsen, A. A.; Parada, M. A. R. (2000). Base and precious metals geochemistry of rock units of the mainland Aysén region, Chilean Patagonia. *Journal of Geochemical Exploration* 68(1-2), 21-46.

Maksaev, V.; Zentilli, M. (1999). Fission Track Thermochronology of the Domeyko Cordillera, Chile: Metallogenic Implications for Andean Porphyry Copper Metallogenesis. *Exploration and Mining Geology* 8(1-2), 65-89; special issue on Latin American mineral deposits.

Boric, R.; Díaz, F.; Maksaev, V. (1990). Geología y Yacimientos Metalíferos de la Región de Antofagasta, Norte de Chile. *SERNAGEOMIN Boletín* 40, 246 pp.; two metallogenic maps at 1:500,000 scale.

GEOLOGICAL MAPS & CONFERENCE PUBLICATIONS

Marinovic, N.; Smoje, I.; Maksaev, V.; Hervé, M.; Mpodozis, C. (1995). Hoja Aguas Blancas, Región de Antofagasta. SERNAGEOMIN, Carta Geológica de Chile 70, 150 pp.

1999 expanded abstracts

In Maksaev, V. (editor), International Symposium on Geochemical and Mineralogical Tracers in the Mountainous Supergene Environment Applied to Mining Exploration. Comunicaciones, Special Issue 50, Department of Geology, Universidad de Chile.

Palacios, C.; Hérail, G.; Rivas, P.; Sepúlveda, F.; Townley, B.; Maksaev, V.; Lahsen, A.; Parada, M. A. (1999). Geochemistry of gold grains in the Cerro Casale porphyry gold deposit, Maricunga Belt, Northern Chile. Expanded abstract, pp. 43-48.

Palacios, C.; Hérail, G.; Rivas, P.; Sepúlveda, F.; Townley, B.; Maksaev, V.; Lahsen, A.; Parada, M. A. (1999). Geochemistry of gold crystals in epithermal, gold porphyry, and gold-rich copper porphyry deposits: a discrimination model. Expanded abstract, pp. 65-70.

Palacios, C.; Sepúlveda, F.; Parseval, P.; Hérail, G.; Maksaev, V.; Townley, B.; Lahsen, A.; Parada, M. A. (1999). Vertical zonation of copper and silver in gold crystals at the Cerro Casale gold porphyry deposit, Maricunga Belt, Northern Chile. Expanded abstract, pp. 77-80.

Townley, B.; Maksaev, V.; Palacios, C.; Lahsen, A.; Parada, M. A. (1999). Base and precious metals distribution in the mainland Chilean Patagonia: exploration potential. Expanded abstract, pp. 81-86.

Hernández, T.; Townley, B.; Palacios, C.; Maksaev, V. (1999). Geology and geochemistry of the Colliguay gold district, Central Coastal Cordillera, Chile. Expanded abstract, pp. 91-96.

Palacios, C.; Ulloa, C.; Sepúlveda, F.; Maksaev, V.; Hérail, G.; Townley, B.; Lahsen, A.; Parada, M. A. (1999). Morphological and chemical characteristics of gold grains: methodological improvements for gold-bearing exploration in active continental margins. Expanded abstract, pp. 97-100.

Townley, B.; Palacios, C.; Maksaev, V.; Hurtado, R.; Jorquera, R. (1999). Gold exploration in the Antena district, Central Coastal Cordillera, Chile: partial extraction techniques. Expanded abstract, pp. 109-116.

CONFERENCE PROCEEDINGS

Zentilli, M.; Maksaev, V. (1996). Metallogenic model for the late Eocene-early Oligocene supergiant porphyry event, northern Chile. Extended abstract. Second Giant Ore Deposits Workshop, 25-27 April 1995, Queen's University, Kingston, Ontario. Proceedings, pp. 152-165.

Maksaev, V.; Zentilli, M. (1994). The Eocene-Oligocene belt of Porphyry Copper Deposits of Northern Chile. Abstract. SEG Symposium: Andean Copper Deposits: New Discoveries, Mineralization Styles and Metallogeny. Actas 7° Congreso Geológico Chileno, vol. II, p. 1590.

Cuitiño, L.; Moscoso, R.; Maksaev, V. (1994). Aspectos mineralógicos y termométricos del Prospecto Esperanza-Cerros Bravos, Maricunga, III Región, Chile. Actas 7° Congreso Geológico Chileno, vol. II, pp. 771-775.

Yáñez, G.; Maksaev, V. (1994). Sobre la distribución espacial de cuerpos intrusivos asociados a diapirismo y la caracterización de la fuente magmática en pórfidos cupríferos. Inestabilidades gravitacionales en un medio viscoso. Abstract. SEG Symposium: Andean Copper Deposits: New Discoveries, Mineralization Styles and Metallogeny. Actas 7° Congreso Geológico Chileno, vol. II, pp. 1642-1645.