

Jaime Araya, Ph.D.

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Santiago, Chile

RESEARCH INTERESTS

Geophysics, geothermal systems, Andean tectonics, subduction zones, mineral deposits, magnetotellurics, potential field methods, geophysical monitoring.

EDUCATION

- 2012-2016 **Doktor der Naturwissenschaften (Dr. rer. nat.), Freie Universität Berlin, Germany.**
Dissertation: Large-scale distribution of fluids in the subduction zone of Northern Chile - constraints from magnetotelluric monitoring.
- 2004-2005 **Magíster en Ciencias, mención Geofísica, Universidad de Chile, Chile.**
- 2004-2005 **Geólogo, Universidad de Chile, Chile.**
- 1998-2003 **Licenciado en Ciencias, mención Geología, Universidad de Chile, Chile.**

WORK EXPERIENCE

- 2012-2016 **Ph.D. student at the GFZ German Research Centre for Geosciences, Germany.**
Responsible of processing, interpreting and archiving the magnetotelluric (MT) data collected at the Integrated Plate Boundary Observatory Chile (IPOC) network (<http://www.gfz-potsdam.de/en/section/near-surface-geophysics/projects/ipoc-mt/>), which is located in northern Chile. I have also participated in the installation and maintenance of the IPOC MT sites.
- 2004-2012 **Exploration Geologist at Exploraciones Mineras Andinas S.A., Chile.**
I worked in exploration for porphyry copper and iron-oxide copper gold (IOCG) deposits in the Andes of northern and central Chile using geophysical and geological tools. I was part of the team which discovered the Casualidad and Amankay IOCG deposits in northern Chile.
- 2003 **Geoscientist at Corporación Nacional del Cobre (CODELCO), Chile.**
Responsible of processing, modelling and geological interpretation of geophysical data (gravity, magnetic and MT) obtained in four regional profiles located in the Coastal Cordillera of northern Chile, applied for IOCG's exploration.

ACADEMIC EXPERIENCE

- 2012 **Universidad de Chile, Departamento de Geología. External advisor of undergraduate thesis of Sebastián Aguiléf.**
http://repositorio.uchile.cl/bitstream/handle/2250/112318/cf-aguiléf_sc.pdf?sequence=1
- 2002-2004 **Universidad de Chile, Departamento de Geofísica. Teaching Assistant in five courses: Geodynamics I and II, Physics of the Earth I and II, Geophysical Exploration Methods.**
- 2002-2003 **Universidad de Chile, Departamento de Geología. Teaching Assistant in two courses: Metamorphic Petrology, Advanced Structural Geology.**

PUBLICATIONS**ISI Papers**

Araya Vargas, J.; Ritter, O.; Meqbel, N.M.; Weckmann, U. Deep electrical resistivity structure of the central Andes forearc: implications for the fluid distribution and seismotectonic segmentation in the subduction zone. *Submitted*.

Yáñez, G., Ugalde, H., Araya Vargas, J. Topographic correction of magnetic data on rugged topography with application to Río Blanco-Los Bronces and El Teniente porphyry copper districts, Southern Andes, Chile. *Submitted*.

2- Aguilef, S., Araya Vargas, J., Yáñez, G. (2016). Relationship between bulk mineralogy and induced polarisation responses in iron oxide-copper-gold and porphyry copper mineralisation, northern Chile. *Exploration Geophysics*, doi: <http://dx.doi.org/10.1071/EG15077>

1- Araya Vargas, J., Ritter, O. (2016). Source effects in mid-latitude geomagnetic transfer functions. *Geophysical Journal International*, 204, 606-630, doi: 10.1093/gji/ggv474

Conferences

Araya Vargas, J.; Ritter, O.; Meqbel, N.M.; Weckmann, U. (2016). Segmentation in the Andean subduction zone revealed by a resistivity model obtained from 3-D inversion of magnetotelluric and geomagnetic data. 23rd Electromagnetic Induction Workshop (Chiang Mai, Thailand).

Aguilef, S.; Araya Vargas, J.; Yáñez, G. (2015). Efectividad del método IP para detectar sulfuros en sistemas tipo IOCG y Pórfido Cuprífero del Norte de Chile. 14th Congreso Geológico Chileno (La Serena, Chile), p.157-160.

Araya Vargas, J., Ritter, O. (2015). Monitoring deep resistivity changes with geomagnetic transfer functions: Expected variability range and removal of source effects. 26. Schmucker-Weidelt-Kolloquium für Elektromagnetische Tiefenforschung (Dassel, Germany).

Araya, J., Ritter, O. (2014). Detection of deep fluid flow in subduction zones with magnetotelluric monitoring. AGU 2014 Fall Meeting (San Francisco, USA).

Araya, J., Ritter, O. (2014). The active subduction zone in northern Chile monitored with magnetotellurics. 22nd Electromagnetic Induction Workshop (Weimar, Germany).

Araya, J., Ritter, O., Brändlein, D. (2013). Long-term variations of magnetotelluric transfer functions in northern Chile. 25. Schmucker-Weidelt-Kolloquium für Elektromagnetische Tiefenforschung (Kirchhunden-Rahrach, Germany), p. 124-129

Ritter, O., Brändlein, D., Araya, J., Weckmann, U. (2013). A modern magnetometer array to monitor the electrical conductivity structure of the South American subduction system in Northern Chile. 12th Scientific Assembly of the IAGA (Mérida, Mexico).

Yáñez, G., Barrett, J., Araya, J. (2009). Exploración minera regional utilizando el método IP: el caso de yacimientos Inca de Oro y Casualidad. 12th Congreso Geológico Chileno (Santiago, Chile).

Theses

Araya Vargas, J. (2016). Large-scale distribution of fluids in the subduction zone of Northern Chile - constraints from magnetotelluric monitoring. Dissertation, Freie Universität Berlin, 189 p.

Available at: http://www.diss.fu-berlin.de/diss/receive/FUDISS_thesis_000000102666

Araya, J. (2005). Geometría de los depósitos y plutones del Jurásico Superior - Cretácico Inferior en la Cordillera de la Costa entre Taltal (25°30'S) y Vallenar (28°35'S): una aproximación geológica y geofísica integrada. Tesis (magíster en ciencias, mención geofísica), memoria (geólogo), 303 p.

SCHOLARSHIPS & AWARDS

2012-2016 Doctoral Scholarship from the Deutscher Akademischer Austauschdienst (DAAD).

2002-2003 Outstanding student in the Faculty of Physical and Mathematical Sciences, Universidad de Chile.

MEMBERSHIP

Colegio de Geólogos de Chile A.G.

Sociedad Geológica de Chile.