Second Circular

29th International Applied Geochemistry Symposium, IAGS2020
EXPERIENCE CHILE

Facing the challenges of today using applied geochemistry

In Memory of Dr. Peter Winterburn

We are one year away from the start of the 29th International Applied Geochemistry Symposium, IAGS2020, which will be held in Viña del Mar, Chile from November 8th to 13th, 2020.

This second circular provides the latest news regarding IAGS2020 and will guide you on how to write and submit your abstract.

We hope to see you all in Viña del Mar!

Abstract Guidelines

Abstracts must be submitted to one of the 9 Technical Sessions of the IAGS2020 Scientific Program. Please keep in mind the following before submitting your abstract:

- English is the official language of the Symposium; Therefore, Abstracts must be submitted in English.
- Title: Maximum 190 characters
- Authors: Maximum 100 characters
- Affiliations: Maximum 800 characters
- Content of the Abstract: Minimum of 1500 characters to a maximum of 2500 characters (may include sub-sections and references directly in the text).
- Do not include figures in the abstract.
- **Please note that the character counting system includes spaces.**

Guidelines for abstract submission

The submission of abstracts will be performed exclusively through the website of the symposium (www.iags2020.cl).

The first step is registering to the Symposium which can be done through the following link https://4id.cl/congress/registro?c=iags001&lang=en. After registering, the attendee will have a web account for the symposium where his/her personal information, registration, payment, and abstract information can be accessed and edited.

Abstracts must be uploaded to the following link https://4id.cl/congress/?c=iags001&lang=en.

Each participant is allowed to submit a maximum of two (2) abstracts as the first (primary) author. There are no restrictions regarding participation as a co-author.

It is not mandatory to pay for your registration fee in order to submit an abstract, but at least one author must be registered and paid for final acceptance to the Symposium.

The abstract online submission system will be available from November 1st, 2019 through March 31st 2020.

Technical Committee

The Technical Committee (TC) is constituted by researchers and individuals of the industry and academia.

Each Technical Session will be supported by the corresponding Chair in addition to 1 or more of the Committee members.

Session 1: Exploration geochemistry: present and future challenges

Chair: Carmina Jorquera, Teck Resources Ltd.

Description: This thematic session will be focused on, and open to studies related to the use of geochemistry for exploration. It will cover traditional techniques based on stream sediment, soil, rock chip sampling, lithogeochemistry, as well as more innovative techniques oriented to exploration in areas of transported overburden, partial extractions, biogeochemistry, mineral chemistry, hydrogeochemistry and any other novel uses of geochemistry applied to mineral exploration (at any scale). Geochemistry has been a long standing and traditional tool in mining exploration, in which advancing improvements of analytical techniques allow for new and novel opportunities to face the increasing challenges of exploration. Combination of geochemical exploration techniques with any other tools such as geophysics and mineral spectroscopy determinations is encouraged within an integrated geological framework.

Session 2: New field portable technologies: improving the analysis and turnaround times in exploration

Chair: Andrew Menzies, Bruker Nano GmbH

Description: The traditional use of geochemistry and mineralogy in mining exploration has evolved over time together with analytical capabilities, however the application of results has always been dependent on the turnaround time and sample processing capacity of internal or commercial laboratories. Consequently, this can have an impact on the timeous evaluation of exploration projects and can undermine the ability for quick decisions in the field. The advent and continual development of field portable technologies and their application to direct on-site analytical determinations has provided exploration geologists with a multiplicity of tools to assist quick decision making. This thematic session will focus on data quality and case studies of applications of field portable technologies in mining exploration, such as portable XRF, LIBS, XRD, spectroscopy, and any other on-site field geochemical analytical technologies.

Session 3: Big-data: squeezing multi-element geochemical data by means of data science and self-learning techniques

Chair: Álvaro Egaña, Universidad de Chile

Description: The use of multi element geochemistry in the mining industry, coupled with geological, mineral, geophysical and spectroscopy data, from exploration to resource and reserve estimates, and applications of multi element geochemistry to quantitative mineral characterization among many other uses, generates ever increasing amounts of information, in which data processing by Big-data science techniques offers novel and very powerful opportunities to perform data integration, multivariate analysis, data modeling and interpretation. This thematic session will focus on and welcomes studies related to the use of data science, machine learning, statistical learning or deep learning techniques in the mineral industry, with particular attention to those associated with maximizing the use of multi-element geochemical data integrated with other sources of information.

Session 4: Geochemistry applied to mineral characterization for geological, geometallurgical and resource modeling

Chair: Brian Townley, Universidad de Chile

Description: This thematic session is oriented to studies that evaluate the value of multi-element geochemistry as a tool for semi-quantitative to quantitative bulk mineral characterization in geological, resource and geo-metallurgical modeling of ore deposits, applied to the characterization of lithology, hydrothermal / supergene alteration types and intensities, as well as mineralization. This session will be focused on applications that permit numerical classification techniques for mineral characterization in ore deposits which are based on multi-element geochemistry and/or spectroscopy based technologies, allowing for semi-quantitative to quantitative high resolution modeling of key aspects of lithology, hydrothermal alteration and mineralization. It will also offer insights to applications that may be cross-referenced to metallurgical test samples and therefore to geo-metallurgical properties of rocks and predictive modeling.

Session 5: Environmental geochemistry: closing the gap for sustainable mining and development / Mine Tailing Revalorization (Unesco-IGCP682)

Chair: Manuel Caraballo, Universidad de Chile

Description: Increasing awareness and regulations on environmental impacts and mitigation in the mining industry, within the framework of sustainable mining, have placed important emphasis on the necessity of an integral understanding of chemical and physical stability of mine waste as well as the direct environmental impacts of mining operations. This thematic session will focus on the use of geochemistry applied to environmental studies that provide a deep understanding of the behavior and impacts of mining waste products, and hence the necessary knowledge to determine efficient mitigation and control protocols. This session will include a specific special sub-session sponsored by the Unesco-IGCP682 project of mine tailing revalorization, focused on reprocessing of old and present tailing deposits for the recovery of elements / minerals of economic interest, within a framework of circular economy and sustainability. Studies on the applicability of environmental geochemistry to other impacts of the mining industry as well as other studies that provide useful applications to the mining industry are also welcomed.

Session 6: Water and hydrogeochemistry: challenges in exploration, mining and sustainable development

Chair: Luciano Achurra, Amphos 21 Consulting Chile

Description: Hydrogeochemical studies provide us with relevant information about water sources and the processes that affect them surficially and underground. The activities associated with the exploitation of metallic and non-metallic mineral deposits can cause changes in the chemistry of rivers and aquifers. Currently, the infiltration of water from tailings storage facilities and mitigation or remediation of sulfate or metals in aquifers is common. Related to this matter, concepts such as monitoring plans on water quality and mining closure plans, which involve a hydrogeochemical component, can condition the environmental approval of large projects. On the other hand, hydrochemical studies on brines, in the salt flats, are becoming increasingly important due to the growing demand of the lithium-associated energy industry, as well as the use of chemical and isotopic techniques in the exploration of deep geothermal systems. These topics and a general water scarcity have led to the current challenges which are focused on efficient water management and the protection of its chemical quality, which is closely related to its management.

In the session, discussions related to these issues are welcome through presentations of applied hydrogeochemical techniques in water studies as well as the use of modelling tools which allow for a better understanding of the processes involved in the water cycle and their implications in the environment.

Session 7: Isotopic geochemistry: new uses in applied geochemistry

Chair: Verónica Oliveros, Universidad de Concepción

Description: This session will deal with novel methodological approaches of isotopic geochemistry and geochronology in the fields of natural resources, environmental geology and earth dynamics. Examples of systematics studies and sampling protocols aiming at the discovery of new ore deposits, geochemical anthropic anomalies, paleoclimatic trends or processes and natural risk assessment are welcomed. Applications of new isotopic tools and geochronometers in the Earth Sciences will be also of interest in this session.

Session 8: Linking geology and geochemistry to viticulture and wine

Chair: Pamela Castillo, Universidad de Chile

Description: Climate, soil and agricultural management are the main factors that impact yield and grape quality. Geologic studies are important in viticulture since the physical and chemical properties of soils are strongly influenced by lithological, geochemical and structural characteristic of the soil parent materials. This thematic session welcomes contributions that link diverse areas of geosciences (geology, geochemistry, geomorphology, geophysics, mineralogy, soil sciences, hydrogeology, hydrology, climatology, biogeochemistry, etc.) that influence aspects such as viticultural potential and wine quality, the terroir concept, soil-plant interactions, root system development, water availability, the characterization of viticultural valleys, exploration of new areas apt for viticulture, environmental issues, challenges and impacts of climate change, standardization of methodologies, and technological solutions, among others.

Session 9: Analytical geochemistry technologies and quality assurance / quality control

Chair: Cliff Stanley, Acadia University

Description: Appropriate sampling, sample preparation, analysis, and data quality assessment and control procedures are essential for the proper exploration, evaluation, and exploitation of mineral deposits as well as for environmental assessments, remediation, monitoring, and related applied research designed to improve these activities. This session invites contributions addressing two themes: (i) presentations that improve our understanding of QAQC procedures, that expand/improve the application of QAQC procedures, or illustrate interesting successes or failures in quality control and (ii) presentations that illustrate new analytical technologies or applications that can be used to improve the practice of exploration or environmental geochemistry.

Presentations accepted for this session will not involve the use of technologies that remain secret or proprietary; as such procedures cannot be fully evaluated in a scientific manner, preventing an objective assessment of their value and use in exploration and environmental geochemistry applications.

For more details of the TC please visit our website http://www.iags2020.cl

Workshops and Field Trips

Workshops will take place on November 6 and 7, 2020, before IAGS2020. Field trips will take place after IAGS2020. Costs related to Workshops and Field Trips will be included in the Third Circular.

The following Workshops are preliminarily approved by the Local Organizing Committee:

Responsible Person	Title
David Cohen	Fundamentals of geochemical exploration.
Cliff Stanley	Quality control/Quality assurance.
Gwendy Hall	Field portable geochemistry: applications and limitations.
Brian Townley	Geology, mineralogy and geochemistry in viticulture.
Ryan Mathur	Stable and radiogenic isotopes in mining exploration.
Alvaro Egaña	Data science in geochemistry: from exploration to geometallurgy.
Reynaldo Charrier	Geology and metallogenesis of Chile.
Matthew Leybourne	Hydrogeology and hydrochemistry in the mining industry.

Statements of interest for workshops will be received until March 30th, 2020 realization subject to a sufficient number of participants. Offered workshops will be confirmed on April 1st, 2020. Detailed outlines, scope and objectives of workshops will be soon posted in the IAGS2020 web page.

The following Field Trips are proposed:

Responsible Person/People	Title
Reynaldo Charrier	**Tectono-magmatic evolution of Central Chile** A transect of Central Chile, from coast (Vina del Mar) to the pre cordillera in Argentina (Mendoza).

Constantino Mpodozis	**Mineral deposits of Northern Chile** Field visits to porphyry copper, precious metals epithermal and stratabound copper deposits of the Antofagasta region.
Sofía López and Ignacio Serra	**Geology and vineyards of Central Chile** Field visits and tour of vineyards of Central Chile, focused on geology, geomorphology, landscape evolution and relation of sites with their local geological and viticultural environments.
Joseline Tapia	**Polluted areas of Central Chile** Field visits to polluted areas of Central Chile with a focus on the sources and impacts of contamination in soil, sediment, water and air. Special attention will be given to the Puchuncaví-Quintero area.

Statements of interest for field trips will be received until March 30th, 2020 and each field trip will be subject to a sufficient number of participants. Offered field trips will be confirmed on April 1st, 2020. Detailed outlines, scope and objectives of field trips will be posted soon on the IAGS2020 web page. Detailed itineraries will be defined before January 30th, 2020.