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# Applied Geochemistry

journal homepage: <http://www.elsevier.com/locate/apgeochem>

## Editorial

### A Story of a “Watershed”: Celebrating 35 Years of *Applied Geochemistry*



#### 1. An artistic cover tells the story of *applied geochemistry*

Imagine a first-person perspective in front of the cover art. The scenery outside the window and the items laid out on the table tell a poetic story of the journal *Applied Geochemistry*. Please join us in celebrating 35 years (1986–2021) by reflecting on the journal’s history. Again, the scenery outside the window is a “watershed”, with two mountains separated by a peaceful river that sets apart the two eras of the journal and captures the evolution of applied geochemistry at large (see Fig. 1).

The mountain on the left appears to be a mining site with ore veins and fractures (i.e., a mountain of gold and silver). A brilliant group of pioneers in exploration geochemistry made up a significant portion of the authorship and readership of the journal in its early years. Way back in its infancy, geochemistry was primarily applied to the recovery of mineral resources. After geochemical exploration revealed the occurrence of ore deposits, mining and ore processing impacted the ecosystem including deforestation and water/soil loss. The discoloration of the river water on the left signifies the detrimental impact of acid mine drainage (AMD) (Blowes and Jambor, 1990). The deterioration of the environment on the left was an inevitable consequence under the stress of fast resource exploitation, economic growth, and urbanization, and the restored environment on the right points to a brighter future with smarter, more environmentally conscientious applications of geochemistry.

Now, focus on the table indoors: A toolset with a rock hammer, hand lens and compass was the standard equipment for conventional geologists. Back in the 1980’s, manuscripts were produced with typewriters and exchanged between editors and reviewers via postal mail. If you zoom in, the manuscript in progress on the typewriter is titled “Aqueous geochemistry of radioactive waste disposal”, which was published in the inaugural issue in 1986 (Krauskopf, 1986), authored by Prof. Konrad Krauskopf (1910–2003), who was at the time a professor emeritus at Stanford. Later that year, the Chernobyl nuclear disaster unfolded, and our authors began publishing studies on the radioactive nuclides released from the catastrophic accident (Albertazzi et al., 1987; Karlsson and Wikberg, 1987).

On the right side of the window view, the green mountain and clear water are symbols of the journal’s contemporary mission to advance knowledge related to the preservation of environments. In the last 35 years, the journal’s scope and aims have evolved to include more research in environmental geochemistry, hydrogeochemistry, the water cycle, and contaminant fate and impacts (Kersten et al., 2021). We began our odyssey by applying geochemical knowledge to exploit the earth for economic growth and human welfare, and in return we also



Fig. 1. The special cover art for 35 year celebration of *Applied Geochemistry*.

apply geochemistry to protect, remediate and preserve the ecology and environment to sustain the development of next generations. Over the years we have learned that “clear waters and green mountains are as valuable as gold and silver mountains.”

The indoor items on the right signify the new tools and media that *Applied Geochemistry* has adopted, shared and disseminated. The typewriter was replaced by a desktop computer, and our archived papers

<https://doi.org/10.1016/j.apgeochem.2021.104931>

from back in the 80's and 90's were gradually made available online by the early 2000's. Likewise, smartphones have replaced compasses and cameras. The QR code displayed on the screen is linked to the Wechat page of the journal. The popularity of social media also introduces new dynamics and impacts to the journal, especially in the young generations of authors and readers.

The “watershed” outdoors bridges the evolution of the journal's focus and scope from 1986 to 2021. From one end of the table to the other, geochemical research tools have also evolved. This coevolution of research tools and research goals is precisely what has paved the way for our more environmentally conscious scientific outlook in more recent years. From the beginning, the diversity of perspectives provided by the journal's international community has been a major benchmark for our success, as the theme of the desktop mat shows. Prof. Earl Ingerson (Fleischer, 1986) founded the Geochemical Society in 1955 and subsequently recognized a need for an international geochemical society. He was the driving force in the founding of the International Association of Geochemistry and Cosmochemistry (IAGC) in 1967 (Hitchon, 1986). In 1986, *Applied Geochemistry* journal was founded by pioneering geochemists in North American (Alfred Levinson and Brian Hitchon), then the executive editors in Europe and Asia, united by the common mission, consecutively took the helm of the journal, supported by associate editors all over the world.<sup>1</sup> We are proud that *Applied Geochemistry* firmly maintains an international character, especially in terms of our readers, authors, editors and reviewers.

Through putting the viewer in the shoes of past geochemists, this cover art provides an opportunity to reflect on the progression of geochemistry's path through history. Anyone who has ever published or reviewed papers in the journal will surely feel like a part of it as well.

## 2. New dynamics and versatility within the journal

The name *Applied Geochemistry* implies that every paper in the journal has some practical application to an aspect of human endeavor. In other words, every subfield of geochemistry is included to some degree because all of them can be applied under given circumstances. While the journal has always taken prompt actions to expand its scope to attract emerging topics (such as urban geochemistry (Thornton, 1993; Chambers et al., 2016; Kaushal et al., 2020), geological carbon sequestration (Humez et al., 2014; Myers et al., 2013), organic contaminant emission and fates (Simoneit, 2002), shale gas hydraulic fracturing (Haluszczak et al., 2013), etc.), at this milestone, we want to re-organize the structure of the journal's scope in seven different themes:

- Environmental Geochemistry and Biogeochemical Cycling
- Hydrogeochemistry, Hydrogeology and Water Cycle
- Contamination/Processes, Impacts and Remediation
- Urban Geochemistry and Environmental Health
- Geochemical Dynamics at Interfaces (including multiscale air-water-soil interactions)
- Geochemistry in Sustainable Systems and Environmental Disasters

<sup>1</sup> The major driving force behind the start-up of the journal was Alfred A. Levinson along with Brian Hitchon, both having realized that applied geochemistry was a considerably broader field than that encompassed by exploration geochemistry, in which they had both been involved. In the early 1980s the IAGC was looking to establish its own journal, the focus of which was agreed would be applied geochemistry. Subsequently, an agreement was reached with Pergamon Press to publish a specialist journal, *Applied Geochemistry*, as the official journal of IAGC. With Al Levinson the Chairman of the IAGC Publications Committee, Brian Hitchon became the founding Editor of the journal. The inaugural volume of the journal included three issues designated as a Festschrift for Earl Ingerson. Later, Ron Fuge (UK, 1993–2012), Michael Kersten (Germany, 2013–) and Zimeng Wang (China, 2020–) were appointed executive editors of the journal. As of 2021, the journal has over 40 associate editors almost evenly distributed in North America, Europe, and Asia/Pacific.

- Mineral and Energy Exploration and Resources Recovery

Such a structure of the journal's scope is a product of thorough discussions within the editorial board. We also carefully considered the scope to better defend our competitive edge relative to other journals with similar niches. Anthropogenic affected geochemical processes observed at the interface of the geosphere, pedosphere and hydrosphere are in the focus that distinguishes *Applied Geochemistry* thereby promoting the idea of the Earth's Anthropocene Era, but not pure spatial, temporal or retrospective monitoring studies in the anthroposphere. The exploration and recovery of mineral and energy resources are still covered in the journal, but remediation of its environmental legacy becomes more important. We are also expanding the types of manuscripts to be published in the journal. From 2021, AG accepts the following manuscript types: Research Articles, Rapid Communications, Critical Reviews, Feature, Viewpoints, and Perspectives. The new formats of the papers will energize the venue with a wider readership and expand the influence of geochemists on the public and policy makers. An updated Author's Guide is available on the journal webpage.

The popularity of social media, especially the use of mobile internet in the last ten years, has dramatically shaped how scholarly papers and research findings are received by the readership and the public. There are some controversies regarding the pros and cons of social media on science, but it is an irrevocable mainstream in the scientific publishing world. Better late than never, *Applied Geochemistry* embraces the dynamics of social media to better promote the influence of geochemical research.

## 3. Celebrating with the global community: stronger partnership and engagement

At this 35-year milestone, we would like to celebrate with the global geochemical community, through which we collectively develop stronger partnership and engagement. We have already conferred our inaugural “**Excellence-in-Review**” awards on 28 colleagues worldwide (Wang et al., 2021). We have also launched a program called “**Emerging Investigator Series**” to highlight excellent work by independent researchers in their early careers (Qin and Beckingham, 2021). Featured articles as well as their authors will be extensively advertised to diverse disciplines and communities through multiple platforms of the journal and the IAGC. The selected Emerging Investigators will also be considered as candidates for the early career honors bestowed by IAGC and the editorial engagements with *Applied Geochemistry*. These journal-related awards and honors are thus endorsed by IAGC and reflect a community-wide recognition. We started our “**Editor's Choice**” program to offer outstanding papers promotional Open Access and to encourage our editorial boards and authors to creatively think about the broader impacts of the papers. We also recently announced a few **Special Issues** organized by renowned researchers with topics of interest to a precisely targeted community. With these new initiatives, we transform the regularly published individual paper into a medium that carries added values with higher visibility and influence.

The celebration of 35 years is also a great moment to reflect on the journal's publication milestones, which to some extent shaped their respective research areas. In our special program called “**AG Classics**”, we will select and highlight those key publications (for example, the highest cited arsenic review paper in the history (Smedley and Kinniburgh, 2002)). When possible, the journal will invite the author and a few commentators who worked in the same area and might have been influenced by the paper to create a virtual panel discussion or interview to present their perspectives on the evolution of that topic and identify the current frontiers, knowledge gaps, and research needs. We anticipate that this unprecedented initiative in geochemistry will engage over a hundred researchers all over the world with various backgrounds and eventually present valuable documentation of the journal's history and the discipline of geochemistry at large.

Since it was founded in 1986, *Applied Geochemistry* has been the official journal of IAGC. After 35 years of growth, both the journal and the society are more prepared to take on more leadership and initiatives in the international geochemistry community. Our journal, with the initiatives above, will support IAGC future partnerships with other international, regional or bilateral organizations beyond the traditional geochemistry community.

#### 4. A watershed moment leading to a beautiful future

For many people, age 35 is the watershed moment in life that determines the future trajectory of one's career. At this age, we are proud of the energy inside our bodies and minds, full of creative thoughts and ideas. We are often encountered with crises and challenges, but we still maintain an optimistic outlook to embrace unlimited possibility and opportunity. *Applied Geochemistry* as a journal has dealt with "watershed" related research since its birth. Now, we are standing at a watershed in the history of the journal as well as IAGC. With thoughtful and strategic planning, we are confident in our beautiful future ahead.

#### Acknowledgements

We acknowledge valuable inputs from the current and former leadership and council members of IAGC in preparing this editorial. The new blueprint and initiatives are also inspired by instructive discussions with numerous senior scholars, many of whom are dedicated authors, readers and reviewers of the journal. We thank the volunteering contribution of W. Design Studio (run by a geochemist) to the creation of this special cover art. The high-resolution version of the cover art can be download in websites of IAGC or the journal.

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Zimeng Wang, Co-Editor-in-Chief\*

Department of Environmental Science and Engineering, Fudan University, Shanghai, China

Michael Kersten, Co-Editor-in-Chief

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Department of Geography and Earth Sciences, Aberystwyth University, United Kingdom

Neus Otero, President of IAGC

Departament de Mineralogia, Petrologia i Geologia Aplicada, Facultat de Ciències de la Terra, Universitat de Barcelona, Barcelona, Spain

\* Corresponding author.

E-mail address: zimengw@fudan.edu.cn (Z. Wang).