
The volcanic lake of Pinatubo.Photographer: Orlando Vaselli

GEOCHEM NEWSLETTER

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IN THIS ISSUE

So.Ge.I. – ITALIAN GEOCHEMICAL SOCIETY

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Letter from the President

Orlando Vaselli

Dear Friends and Colleagues,

As you know, in less than a couple of months the 3rd Congress of the Italian Society of Geochemistry ("*Geochemistry across time and space*") will take place in Ravenna. From the 30th of June to the 3rd of July, Ravenna will indeed host this event where we are hopefully expecting to have a large participation. The congress will be articulated in 4 distinct thematics: *1. Experimental and Computational Geochemistry; 2. Biogeochemical Cycles and Anthropogenic Activities; 3. Recent Advances and Emerging Applications in Isotope Analysis; 4. Geochemistry of Magmatic–Hydrothermal Systems: Multidisciplinary Approaches for Volcanic Monitoring and the Exploration of Geothermal Energy and Earth Resources*. Each thematic will have a plenarist and a key-note speaker, as follows: 1. Pascale Bénézeth (CNRS-Géociences Environnement Toulouse, France) and Marc Blanchard (CNRS-Géociences Environnement Toulouse, France); 2. Thomas Röckman (Utrech University, The Netherlands) and Mary Anne Tafuri (University of Rome – La Sapienza, Italy); 3. Riikka Rinnan (Københavns Universitet, Finland) and Sergio Balzano (Zoological Station "Anton Dohrn", Italy); 4. Giancarlo Tamburello (INGV, Bologna, Italy) and Paolo Fulignati (University of Pisa, Italy).

For the sake of clarity, here below you can find the tentative program of the congress and the registration fees.

The congress is sponsored by the Department of Biological, Geological and Environmental Sciences of Bologna, INGV and CNR. Many thanks are also due to the Municipality of Ravenna, CIRSA (Center for Research in Environmental Sciences and CIFLA (Innovation Center of the Flaminia Foundation). Private companies (Analytical Pollution, Encotech and ThermoFisher) are gratefully acknowledged for supporting this congress. The Ravenna's event will also award the best PhD theses. Four awards are indeed raffled: Galli Award, Tonani award, Tongiorgi Award and Nisi award, the latter being also supported by CNR-IGG Firenze. More info can be found in the web at https://www.societageochimica.it/wp-content/uploads/2026/05/Premi-sogei_2026.pdf. We hope to have a large participation. The deadline for submitting your abstracts (free-of-charge) is the 17th of May. One oral and two posters are allowed for each participant. The oral presentations are in Italian while the slides have to be in English.

A couple of weeks before Ravenna at Vulcano Island, the Vulcano Summer School 2026: "*Sampling Techniques in Extreme Environments*" (https://sites.google.com/view/vulcanosummerschool2026) will be held from the 15th to the 19th of June 2025. The organizers (Rebecca Biagi, Sergio Calabrese, Lorenza Li Vigni, Guendalina Pecoraino, Antonio Randazzo, Andrea Ricci, Franco Tassi, Francesco Tripodi and Stefania Venturi) did a great job since a new record was achieved since more than 150 participants will join the 2026 School who will be introduced to standard and new sampling techniques used in fluid geochemistry, micro- and biology, atmospheric chemistry and volcanology. I wish to thank Monia Procesi (INGV-Rome) who with the Italian Society of Geochemistry supported this School. IAVCEI is also gratefully acknowledged for providing travel grants to some of the participants.

30/06/2026	01/07/2026	02/07/2026	03/07/2026
	Oral session 8:30-10:30	Oral session 8:30-10:30	Oral session 8:30-10:30
	Coffee break 10:30-11:00	Coffee break 10:30-11:00	Coffee break 10:30-11:00
Registration From 11:00	Oral session 11:00-12:00	Oral session 11:00-12:00	Oral session 11:00-12:30
	Plenary Lecture 12:00-13:00	Plenary Lecture 12:00-13:00	Poster session 12:30-13:00
	Lunch break + Poster session 13:00-14:30	Lunch break + Poster session 13:00-14:30	Closing of the Congress 13:00-13:30
Opening Ceremony 14:30-15:00	Oral session 14:30 -16:00	Oral session 14:30 -16:00	
PhD Thesis Awards 15:00-16:00			
Plenary Lecture 16:00-17:00			
Coffee break 17:00-17:30	Coffee break 16:00-16:30	Coffee break 16:00-16:30	
Plenary Lecture 17:30 -18:30	Oral session 16:30 -18:00	Oral session 16:30 -18:00	
	Poster session 18:00-18:30	Poster session 18:00-18:30	
Icebreaking Event Museo d'Arte di Ravenna	Visit to the Ravenna UNESCO Monuments (20€/pers.; registration is required)	Social Dinner Osteria Passatelli – Ex Cinema Mariani (45€/pers.; registration is required)	

	FULL		DAILY	
	EARLY REGISTRATION	POST 26/05/2026	EARLY REGISTRATION	POST 26/05/2026
PERMANENT PERSONNEL	€ 300 type A	€ 340 type B	€ 160 type C	€ 200 type D
NON-PERMANENT PERSONNEL*	€ 200 type E	€ 250 type F	€ 80 type G	€ 110 type H
*NON-PERMANENT PERSONNEL: RESEARCH FELLOWS, SCHOLARSHIP HOLDERS, PHD STUDENTS, PRESENTING STUDENTS				
NOT INCLUDED OPTIONAL ACTIVITIES (Registration required with payment by 18/06/2026)				
SOCIAL DINNER: 45 € GUIDED TOUR: 20 €				

Letter from the President

Orlando Vaselli

The So.Ge.I. will be present at Turin (Science Campus, University of Turin (Via Valperga Caluso / Via Pietro Giura) from the 20th to the 27th of August 2026 as sponsor of the International Earth Sciences Olympiad (IESO: https://www.ieso2026-to.com) during which more than 160 participants, 100 mentors and delegations from 40 countries for eight days are expecting to compete in scientific challenges across the Alps, Piedmontese geoparks and university laboratories. Competitions will be concerning; 1. **written Test** – 4 theoretical exams covering geology, geophysics, meteorology, oceanography, terrestrial astronomy and environmental sciences; 2. **practical Test** – 4 laboratory-based exams using scientific equipment at the University of Turin Departments of Earth Sciences, Physics and Chemistry; 3. **ITFI (International Team Field Investigation)** – Field investigation in mixed international teams across 5 geological sites and 4. **ESP (Earth Science Project)** – Collaborative research project on Alpine glaciers.

From the 1st to the 6th of September, 2026, the first Summer School on "*Observe, measure, interpret: methods to study the environmental matrices in protected areas*" will be held at the Island of Pianosa. Brunella Raco and Sandra Trifirò (CNR-IGG) are the main organizers of this event which will be sponsored, among the others, by So.Ge.I. More info can be found at https://www.brp.cnr.it/ , keeping in mind that this event is limited to 15 participants. The Pianosa Research Base (BRP-CNR) offers spaces and services in a precious environmental context, promoting the integrated implementation of theoretical and practical field activities. This Summer School was created with the aim of providing concrete tools to address scientific problems related to environmental monitoring, natural variability, and the impacts of global changes, through: (1) sampling and characterization of the main environmental matrices (water, soil, sediments, biota); (2) monitoring techniques in islands characterized by protected areas; (3) analysis and processing of environmental data, with attention to variability and uncertainty and (4) integration of multidisciplinary data to understand natural processes. The School is aimed at students, doctoral students, postdocs, and early-career researchers working in the fields of geosciences and the environment. The training will combine presentations and practical exercises, which will be conducted in multidisciplinary groups.

Antonio Randazzo (INGV-Rome), Mauro Tieri (UNIPG) and Daniele Cinti (INGV-Rome) are the organizers of the workshop titled: "*Diving into the extreme: The Solforata of Pomezia (Rome, Italy) as a Mars-analogue environment*", sponsored by the So.Ge.I. This event will be held at Solforata di Pomezia (Pomezia, Roma) from the 22nd to the 24th of September 2026. This initiative aims to organize a multidisciplinary sampling and in-situ measurement campaign at the Solforata of Pomezia (Rome, Italy), involving various Public Research Institutions (INGV, CNR-IGG, CNR-IRSA, CNR-IGAG, INAF) and Universities (Università degli Studi di Firenze, Università degli Studi di Perugia, Università degli Studi di Napoli Federico II, Università di Bologna, Università di Milano Bicocca). The aims of this study are fourfold: (1) investigating the origin and the processes regulating water and gas dynamics; (2) constraining the complex relationship between geological conditions and the aquatic microbial community; (3) evaluating the potential geochemical risk of exhalations in the area; and (4) applying mission-specific operational techniques to maximize science return in extreme environments. To address these goals, synergic and intertwined activities are planned in the field (water lakes, soils, sediments and air). The expected outcomes of this multidisciplinary investigation will have implications not only for the understanding of the local hydrothermal phenomenon, as well as the assessment of the local geochemical risks associated with geogenic exhalations, but also for elucidating and improving our knowledge of potential geo(bio)mechanisms influencing the evolution of the early-Earth and Mars at the scale of robotic and human exploration.

What about the content of this Geochemnewsletter n. 22? Stefano Covelli is reporting the successful event of the Winter School held in Trieste from the 19th to the 23rd of January 2026, titled "*Deep-sea mineral deposits: from biogeochemistry to geopolitics*". The School was partially sponsored by our Society and faced a very interesting aspect of geology: marine georesources which are expected to have a very important development in the next few years due to the increasing demand of raw and critical materials. Donato Belmonte, Giordano Montegrossi, Giuseppe Saldi and Marino Vetuschi Zuccolini are summarizing the workshop, fully organized by the Italian Society of Geochemistry, titled "*Geochemical modeling applied to natural fluid-rock systems*" that was held in Florence the 9th to the 12th of February 2026. During the course, which had 24 participants, thermodynamic principles and theoretical frameworks were recall to enter the base of geochemical codes and their correct use. The organizers covered aqueous solution speciation, numerical methods to solve gas-water-rock equilibrium systems, and the role of thermodynamic databases in understanding the data and affecting the model results.

Participants could learn how to process large datasets and present results through graphs derived from speciation and solubility calculations. They also learned the importance of time (through kinetic modeling) and temperature on geochemical reactions. The final part of the course was focus on inverse modeling. I would like to express my deepest gratitude to the organizers since this was a very challenging course and had a very impressive success. I hope that this workshop can be repeated with an advanced course of geochemical modeling in 2027.

The last contribution to this newsletter is by Maurizio Ambrosino: "*Soil Geochemistry and Food Safety: An Inevitable yet Overlooked Link*". The short-article refers to the investigation on selected soils from Campania and Sicily. The interesting results highlighted the need for future studies to better understand the main mechanisms underlying the Potentially Toxic Elements (PTE) uptake in edible hyperaccumulator plants and to identify soils suitable for their cultivation.

I am in debt with Stefania Venturi and Jacopo Cabassi who are always available to give their help to the GeochemNewsletter. I do gratefully acknowledge their amazing and precious work. Stefania is handling all the newsletter issues while Jacopo assembles the list of publications of our members. The publications of the SoGeI members are sorted by Scopus, independently by the IF of the journal. If there are publications that are not quoted by Scopus but they are of international relevance, you are kindly asked to send the citations (or the Digital Object Identifier: doi) to my e-mail address. They will be included in the next newsletter.

And last but not least, a special issue dedicated to Barbara Nisi and Paolo Censi (*From solid to fluid geochemistry -A tribute to Barbara Nisi and Paolo Censi*) will be published by Applied Geochemistry. I have received 17 potential contributions, so far and I hope all of them can be appearing in this issue. The deadline to submit titles and authors is the 5th of May while the manuscripts are to be submitted by the end of January 2027. I would like to thank Elisa Sacchi (co-chief editor of Applied Geochemistry) for her precious suggestions and help in this this very first step of the issue. A great thank is also due to all the authors who wanted to remember Barbara and Paolo.

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Members' Activities

Winter School

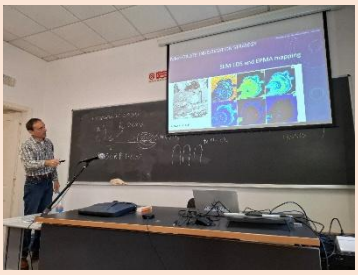
Deep-sea Mineral Deposits: from Biogeochemistry to Geopolitics

January 19-23, 2026 – Trieste (Italy)

Stefano Covelli

The Winter School *"Deep-sea Mineral Deposits: from Biogeochemistry to Geopolitics"* was held at the Department of Mathematics, Computer Science, and Geosciences (MIGe) of the University of Trieste, on the S. Giovanni Campus, in January, from Monday 19 to Friday 23, 2026. The Winter School was organized by colleagues from the University of São Paulo (USP) in Brazil, with which the University of Trieste has signed a Memorandum of Understanding (MoU), and is part of the activities outlined in the Executive Protocol between the Oceanographic Institute of USP and the MIGe at UniTS, with Prof. Christian Millo serving as the contact person for the Brazilian side, and Prof. Stefano Covelli for the University of Trieste.

The event, also sponsored by So.Ge.I., was attended by about forty participants from all over Italy and abroad, including students, Ph.D. candidates, laboratory technicians, researchers, and faculty members interested in expanding their knowledge on this highly topical issue, given the growing demand for Critical Raw Materials for the energy and digital transition. These were intense yet highly constructive days during which the Brazilian speakers took turns delivering a series of lectures.



Prof. Christian Millo

Prof. Christian Millo, marine geochemist, began by providing an overview of the classification and global distribution of deep-sea mineral deposits (polymetallic nodules, ferromanganese crusts, and hydrothermal sulfides), while Fernanda Jamel, a Ph.D. candidate in Microbiology, presented on the bioprecipitation of ferromanganese nodules and crusts.

Prof. Douglas Galante, astrobiologist at the Institute of Geosciences of USP and former coordinator of the Carnaúba beamline at Synchrotron Sirius (São Paulo), addressed the topic of structural and chemical analyses of geological materials, specifically deep-sea minerals, using spectroscopy and Synchrotron light-based techniques. Evandro Pereira Silva, a laboratory technician, illustrated Raman spectroscopy as a powerful, non-destructive tool for deep-sea mineral and organic characterization.

Prof. Douglas Galante

Christian Millo subsequently addressed geopolitical aspects of deep-sea mineral deposits, such as jurisdiction over deep-sea mineral deposits and the role of the International Seabed Authority, before concluding with environmental aspects of deep-sea mining. The event concluded with a final written test on the course content.

The outstanding efforts of the Brazilian speakers were met with great success among the participants, who in turn took part in brief presentations of papers and lively debates. Plans are already underway for the near future, with a similar event scheduled to take place at the University of São Paulo in July, featuring faculty members from Trieste, whereas other initiatives—including student and doctoral exchange programs for internships at both universities—are currently being finalized. In early March, the first Brazilian student, from São Paulo, joined MIGe, working in the MercuRILab research group coordinated by Stefano Covelli.

Fernanda Jamel, Ph.D. candidate; Prof. Douglas Galante; Prof. Christian Millo; Prof. Stefano Covelli, Evandro Pereira Silva, lab technician.

Geochemical Modelling Applied to Natural Fluid-Rock systems

February 9-12, 2026 – Firenze (Italy)

Donato Belmonte, Giordano Montegrossi, Giuseppe Saldi and Marino Vetuschi Zuccolini

The modeling School provided an intensive introduction to geochemical thermodynamics and its application to fluid–rock systems, with a strong emphasis on numerical modeling using PHREEQC-based tools. The program was structured to guide participants from fundamental principles to advanced computational approaches, combining theoretical lectures with practical, hands-on sessions.

The course began with the foundations of geochemical thermodynamics, including the behavior of solid, aqueous, and gaseous phases. Participants were introduced to key concepts such as thermodynamic properties, equations of state, mineral mixing models, aqueous speciation, and gas–water interactions. These principles form the basis for understanding natural geochemical processes and for constructing reliable models.

Building on this framework, the School explored phase equilibrium calculations in both simple and complex systems. Particular attention was given to the appropriate use of thermodynamic databases, Gibbs free energy minimization techniques, and the effects of redox conditions, pressure, and temperature in different geological environments. These sessions were supported by practical exercises to reinforce conceptual understanding.

A major component of the program was dedicated to the use of PHREEQC and related tools. Participants learnt how to translate field and laboratory data into computational models, gaining familiarity with the structure, capabilities, and programming logic of PHREEQC-based codes. Through guided examples, they reproduced published diagrams, troubleshot unexpected results, and developed effective modeling strategies.

Photo of participants engaged in a practical session, where theory meets reality (and reality sometimes wins).

The course then advanced to kinetic modeling, including the treatment of stable isotopes and time-dependent processes. Additional sessions introduced complementary tools such as Phreeplot, PHAST, iPHREEQC, and PhreeSQL, enabling participants to tackle transport–reaction problems, generate complex diagrams, and handle large datasets through parallel computation.

Finally, the School emphasized the integration of experimental and modeling approaches, illustrating how kinetic reaction models and sorption phenomena can be investigated and understood using PHREEQC. By the end of the program, participants acquired a comprehensive understanding of geochemical modeling workflows, from conceptualization to implementation, and developed practical skills relevant to research and applied geoscience contexts.

Results from the evaluation form

The evaluation of the Geochemical Modelling School held in Florence (February 2026) indicated an overall positive outcome, with participants expressing strong satisfaction with both the scientific content and the practical training components.

The course achieved a generally high level of appreciation, with overall scores clustering around values between “good” and “excellent,” reflecting the effectiveness of the program structure and teaching approach.

From a conceptual standpoint, the integration between geochemical theory and PHREEQC applications was well received. Participants reported a solid understanding of thermodynamic principles, aqueous speciation, and the use of thermodynamic databases, with average scores typically around 4 or higher on a scale of 5. The coherence and progression of the course were also positively evaluated, suggesting that the gradual transition from fundamental concepts to applied modeling was effective. However, slightly lower scores in some responses point to a large variability in prior knowledge among participants, indicating that certain theoretical aspects could benefit from additional clarification or preparatory material.

Regarding operational skills in PHREEQC, the results show a satisfactory but more heterogeneous level of confidence. While many participants reported good ability in constructing input files and performing speciation or fluid–rock interaction

modeling, lower average scores (around 3–3.5 in several cases) suggest that achieving full autonomy remains challenging within the limited duration of the course. In particular, kinetic modeling and critical interpretation of outputs appear to be areas where participants would benefit from extended practice and more in-depth training.

One of the strongest outcomes of the evaluation concerns participants' interest in further training. The majority expressed a high willingness to recommend the course and to attend advanced or specialized modules, with scores frequently approaching the maximum. This highlights both the perceived value of the School and the demand for continued learning opportunities, especially in more advanced topics such as kinetics, reactive transport modeling, and specialized applications.

Qualitative feedback further confirms this trend, showing significant interest in expanding toward complex modeling approaches, including reactive transport, coupled geochemical–geomechanical models, and other advanced numerical techniques. This suggests that the course successfully stimulated curiosity and provided a solid foundation for future specialization.

In conclusion, the Geochemical Modelling School proved to be an effective and well-structured training initiative, successfully balancing theory and practice. While some aspects—particularly advanced modeling skills and user autonomy—could be strengthened through longer or follow-up courses, the overall results demonstrate a high level of participant satisfaction and a strong interest in continued education in geochemical modeling.

During the School, one day was also spent in a vintage room of the Department of Earth Sciences of Florence.

Future perspective

The relatively high number of participants (24 attendees) is particularly encouraging for this type of initiative, as numerical modeling is often not systematically integrated into standard academic curricula and may present initial challenges for learners. These challenges are typically associated with the need for a solid background in thermodynamics, as well as familiarity with coding and comprehensive knowledge of geochemical and mineralogical systems. In this context, the strong participation reflects a clear demand for such training. This experience therefore represents a significant first step and provides a robust foundation for the future development, repetition, and enhancement of similar educational activities.

Building on the strong interest and positive feedback from participants, a follow-up advanced geochemical modeling School would provide an opportunity to deepen both theoretical understanding and practical skills. In particular, it could focus on topics that were identified as more challenging, such as kinetic modeling, reactive transport processes, and the critical interpretation of complex simulation outputs.

The advanced course could adopt a more hands-on, problem-oriented approach, with extended practical sessions designed to strengthen user autonomy in PHREEQC and related tools or progress further with reactive-flow models (e.g. TOUGHREACT) or custom models (e.g. in Matlab). It could also introduce participants to more specialized applications, including large-scale data processing, coupled processes, integration with magma degassing, and advanced scripting or parallel computation techniques.

Such a continuation would respond directly to the demand for further training, allowing participants to consolidate their knowledge and progress toward independent and research-level geochemical modeling.

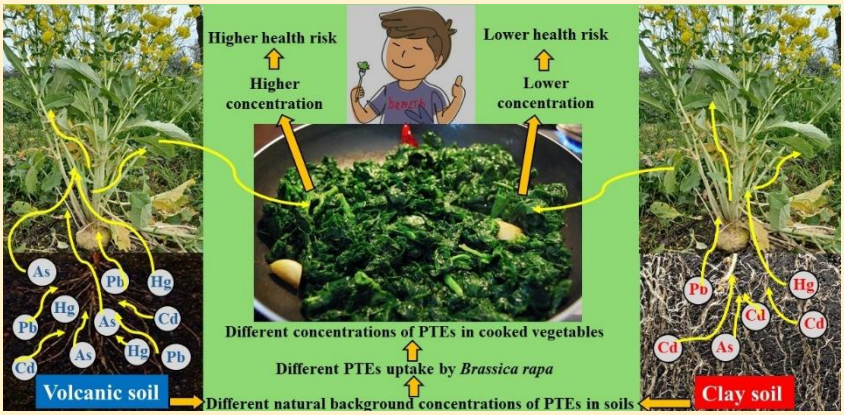
One of the always welcome coffee breaks, providing a valuable moment for informal discussion and exchange among participants.

Soil Geochemistry and Food Safety: An Inevitable yet Overlooked Link

Maurizio Ambrosino

Soil is a non-renewable resource, and grasping it deeply is the first step to preserving its health. It is essential to preserve soil because it provides nutrients and water to ecosystems, but also because it is the primary receptor of anthropogenic pollution. To this end, limits have been imposed on the concentrations of toxic substances in soil to assess whether to exploit it for agriculture (Legislative Decree 46/2019), for public green spaces, or for industrial use (Legislative Decree 152/2006). In soil geochemistry, many studies have focused primarily on the search for specific elements, which has made the role of the geochemist ambiguous and controversial. In mineral exploration, the geochemist calls these elements raw materials and is eager to find them in very high concentrations in the soil because they can indicate a mineral deposit. In environmental monitoring surveys, the geochemist searches for the same elements but, despite knowing they've contributed to their extraction and dispersion, wishes they weren't there, as high concentrations can harm human health. In this case, geochemists refer to them as potentially toxic elements (PTEs) and conduct geochemical surveys in areas heavily impacted by human activity to assess their inputs and potential health effects. A logical consequence of this *modus operandi* is the widespread belief among the population that uncontaminated soil is always low in PTEs and therefore suitable for cultivation. Indeed, if you think about it, it may be rich in raw materials at most, but certainly not in PTEs. Joking aside, some SoGeI members, in collaboration with biologists and chemists from the University of Messina and the CNR of Catania, wanted to answer a question: *Is growing crops in uncontaminated soil with PTE levels generally below legal limits sufficient to produce food with low PTE concentrations?*

To answer this question, 10 sampling sites were selected in Campania and Sicily, where previous studies by SoGeI members have highlighted natural enrichment of PTEs (Ambrosino et al., 2025; Lo Medico et al., 2025; Varrica et al., 2024). In each region, both coarse-textured samples with a clear volcanic signature and fine-textured samples with a strong clay component were collected. The sites were also selected for the presence of *Brassica rapa L.* (See figure below), an edible hyperaccumulator plant, widely used in Italian cuisine. This plant was chosen not only for its hyperaccumulation of PTEs but also for growing wild, making it possible to sample plants far from agricultural areas where fertilizers and pesticides are used.



The preliminary results obtained from this study relate only to the concentrations of As, Cd, Hg, and Pb, which, in agreement with previous studies, showed significantly different concentrations among the soil groups investigated (Ambrosino et al., 2026). The concentrations measured at the 10 sites investigated were in line with the area's geochemical baselines and generally below the threshold contamination levels (Concentrazione Soglia di Contaminazione, CSC) set by Italian and European regulations. Once the fundamental conditions for answering the question were verified (uncontaminated soil and concentrations below the CEC), the plants were analyzed to determine their PTE levels. Preliminary results revealed a very complex picture, showing that in volcanic soils (both in Campania and Sicily), the concentrations of the PTEs investigated in the edible parts of Brassica rapa L. exceed the thresholds set by the FAO-WHO for this type of vegetable. In clay soils, these thresholds are exceeded in only a few samples, and generally lower concentrations are observed compared to volcanic soils (especially in samples collected in Campania). The risk analysis showed that these concentrations generate a cancer risk in children up to 10 times higher than the tolerable limit associated with the consumption of plants grown on volcanic soils. Risk levels are generally lower in the clay soils investigated, but remain above the tolerable limit. This preliminary study shows that differences in PTEs uptake are related not only to differences in soil concentration but also to differences in soil pH and cation exchange capacity, highlighting the need for future investigations. However, part of the curiosity that drove this research has been satisfied, as it seems evident that growing crops in unpolluted areas with PTE levels below the CEC does not ensure the production of food with low PTE levels.

These results highlight the need for future studies to better understand the main mechanisms underlying PTE uptake in edible hyperaccumulator plants and to identify soils suitable for their cultivation. Of course, soil geochemistry alone is not sufficient to provide all the answers, as it is necessary to characterize other chemical, physical, and mineralogical soil parameters, as well as the mechanisms of PTE uptake by the plant under investigation. However, the role of geochemists is crucial in identifying target areas for future studies and highlighting soils particularly depleted in PTEs and likely more suitable for growing *Brassica rapa L.*, thus promoting sustainable soil management. Geochemists, therefore, play a crucial role in decision-making processes aimed at sustainable soil management and food security, as they are well aware that nature does not follow legislative decrees nor respond to policy demands to supply raw materials and overproduce food.

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Lo Medico, F., Varrica, D., Zuccolini, M. V., Miola, M., Scopelliti, G., & Alaimo, M. G. (2025). Geochemical baseline values and spatial distribution of major, trace, and rare earth elements in unpolluted soils of the Sicily region (Italy). Environmental Geochemistry and Health, 47(5), 1–17. https://doi.org/10.1007/s10653-025-02475-z

Varrica, D., Lo Medico, F., Zuccolini, M. V., Miola, M., & Alaimo, M. G. (2024). Geochemical baseline values determination and spatial distribution of trace elements in topsoils: An application in Sicily region (Italy). Science of the Total Environment, 955(October), 176951. https://doi.org/10.1016/j.scitotenv.2024.176951

Members' Publications

List of Members' Publications

referred to the period January 13– April 15, 2026

Abedini, A., Khosravi, M., Ameur-Zaimeche, O., Kechiched, R., Ouladmansour, A. & **Mongelli, G.** (2026). A machine learning framework to lanthanide element distribution and predictability from the northwestern Iranian karst bauxite deposits. *Earth Science Informatics*, *19*(3). https://doi.org/10.1007/s12145-026-02094-x

Ahmed, D., Spagnoli, E., Chakir, A., **Mancinelli, M.**, Ferroni, M., Mehdaoui, B., el Bouari, A. & Fabbri, B. (2025). Printable Chemoresistive Sensor Based on PrFeTiO5 Solid Solution for Acetone Detection. *Engineering Proceedings*, *118*(1). https://doi.org/10.3390/ECSA-12-26592

Akingboye, A.S., Bery, A.A., **Ogunyele, A. C.**, Gnapragasan, J., Adewumi, T., Oyeshomo, A. V., Akakuru, O. C. & Balogun, O. (2026). Magneto–radiometric and geochemical mapping of structurally controlled hydrothermal gold mineralization in the Okpella Neoproterozoic terrain, Igarra Schist Belt, SW Nigeria. *Scientific African*, *31*. https://doi.org/10.1016/j.sciaf.2025.e02960

Alioune, M.A.E.M., Hadji, R., **Barbieri, M.**, Gentilucci, M. & Hamed, Y. (2026). Integrated Analysis of Erosion and Flood Susceptibility in the Gorgol Basin, Mauritania. *Water (Switzerland)*, *18*(1). https://doi.org/10.3390/w18010034

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