



Société Française de Minéralogie et de Cristallographie

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SFMC HAÛY-LACROIX 2024 PRIZE



The French Society of Mineralogy and Crystallography committee presents its Haüy-Lacroix 2024 prize to Chloé TRUONG

Chloé TRUONG's thesis, entitled "In search of biosignatures of hyperthermophilic archaea," was carried out at the Museum National d'Histoire Naturelle in Paris under the supervision of François Guyot, Aurore Gorlas, and Sylvain Bernard. The aim of her thesis was to

determine whether the black smoker vents at ocean ridges, which expel warm, metal-rich water, can host hyperthermophilic life, i.e., organisms that develop in water at over 100 °C. To do this, Chloé Truong adopted



a multidisciplinary approach combining experimental mineralogical and microbiological studies in the laboratory and the characterisation of natural samples. This thesis provides major results on the formation and evolution of mineral phases such as pyrite, demonstrating that its presence can result from the activity of microorganisms. The identification of such mineral biosignatures will enable a systematic search for traces of life in modern and fossil black smokers.

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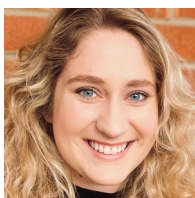
Victoria Nogués obtained her degree in geology from the University of Buenos Aires, Argentina. She is currently a PhD geology student at the National University of Córdoba, Argentina with Dr. Diego Gaiero and Dr. Nicolás Cosentino as her advisors. She enjoys fieldwork, collecting samples, and performing numerical modeling with the aim of deciphering the processes that affect the Earth

at global-to-regional scales. Early in her career, she was part of a research group studying active volcanoes and is a co-author of papers published in the field of the chemistry of volcanic fluids. She is now pursuing her PhD thesis in a research group that investigates South American loess deposits as a paleoclimate record. The aim of the project is to use loess properties as proxies of the atmospheric conditions that controlled the regional dust cycle during the last glacial period (~70–12 ka BP). As part of her PhD dissertation, Victoria will analyze the intensity of the weathering processes that affect loess deposits with elemental analysis (ICP-OES, ICP-MS)/Mössbauer spectroscopy/XPS. She will apply laboratory techniques to analyze the Fe-bearing phases in the deposits and to quantify iron availability in paleo-dust through leachate experiments.



Alpa Rajput is a PhD scholar in the School of Civil and Environmental Engineering at the Indian Institute of Technology Mandi (IIT Mandi) in Himachal Pradesh (India). Her dissertation research focuses on studying the occurrence and movement of pharmaceutically active compounds (PhACs) in the water, soil, and sediments of the mid-Himalayan ecosystem. As a recipient of IAGC

Student Research Grant 2024, she will focus on investigating interactions of PhACs with natural organic matter (NOM) and geological material through field and laboratory experiments.



Jessica Rush received her BS in biological sciences and BA in Spanish from Chapman University (USA) in 2018. She is now a PhD candidate in the Department of Ecology and Evolutionary Biology and Cooperative Institute for Research in Environmental Sciences at the University of Colorado, Boulder (USA). Her research focuses on understanding redox processes in northern

peatland ecosystems that are sensitive to global climate change. The

goal of her dissertation research is to better characterize redox-active carbon molecules, traditionally referred to as "humics," and understand how they govern carbon greenhouse gas production in peatland ecosystems. She uses a variety of techniques to understand the reduction of these molecules, including excitation-emission matrix fluorescence spectroscopy and mass spectrometry.



Dionysios Stamatis holds a BSc in geology and an MSc in geosciences from the University of Patras, Greece. He is currently a second-year PhD student in the Earth and Environmental Science Department at the University of Iowa, USA. His research focuses on unraveling temperature and precipitation patterns during past interglacial periods. To achieve this, he employs a range of

analytical techniques, including measuring $\delta^{18}\text{O}$, $\delta^{13}\text{C}$, $\delta^{44}\text{Ca}$, trace elements, dual-clumped isotopes, and TEX86 in speleothems. His aim is to illuminate the hydroclimate dynamics of the midcontinental USA during periods resembling projected future climate conditions.



Bárbara Zambelli Azevedo is a Brazilian hydrogeologist with a speleology background. She holds a BSc in geological engineering (Federal University of Ouro Preto, Brazil / University College Cork, Ireland) and an MSc in groundwater management (Technical Mining University of Freiberg, Germany). Barbara is very interested in interdisciplinary and applied research, being engaged

with geoethics and science communication. Since 2022, she has been part of the Socio-hydrogeology Network (IAH) as Task Team Leader for Gender and Groundwater. Her PhD at the University of Pisa (Italy) is part of the PlasticUnderground Project, funded under the Marie Skłodowska-Curie Actions. Her research aims to understand the impact of microplastic (MP) contamination in groundwater and assess the risk perception of such pollution on local communities. Her project includes the development of stakeholder analysis and public engagement of groundwater users focused on MP pollution. It also includes the development of a groundwater quality monitoring program to assess the occurrence of MPs at catchment scale, including sampling and measurement of major and trace elements, stable isotopes, emerging contaminants, and MP analysis. The results will be used to develop an integrated analysis of risk perception on the actual presence of microplastics in groundwater in highly stressed aquifers.