COLIN FERRARI

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Colin Ferrari

PhD in Water Sciences,
Specialist of stable metal isotopes and mining contaminations

LANGUAGES: English, French and Spanish

PROFESSIONAL EXPERIENCES

2024 – present Founder and CEO of "IsoFind", a startup specialized in using stable metal isotopes as environmental, industrial, archaeological and medical tracers (https://www.isofind.tech); Incubation within the University of Montpellier in the Deeptech program.

2024 - present Postdoctoral Researcher, Development of novel analytical methods to measure antimony, arsenate, arsenite and perchlorate isotope ratios using an Orbitrap Ascend. Application of antimony stable isotopes as arsenic tracer proxy in mining environments (The Giant Mine Project), *Groundwater and Geochemistry Remediation research group, University of Waterloo, Canada.*

2023 - present Founder of "Asean-Water", Development of isotopic tools for tracing sources of contamination and promotion of research on water (https://www.asean-water.com); Incubation within the University of Montpellier in the Deeptech program.
RCS registration: 948 087 242 R.C.S Foix
Asean-Water trademark registered with the INPI

2019 Research internship: Fate of Arsenic and Selenium in groundwater in the Bekaa (Lebanon) and in an experimental environment (microfluidic system), *ISTerre, Grenoble & Université Libanaise, Beyrouth*

2016-2017 Mapping of practicable roads and paths in the south of the « *Negros* » island, *Philippines*

EDUCATION

2019-2022 PhD in water sciences (environmental/analytical geochemistry and quantum chemistry):
« Stable Sb isotopes for tracing pollution sources and transfer processes in freshwater systems »,
HydroSciences Montpellier within ICIREWARD UNESCO International Water Research Center.
PhD supervisor: Corinne Casiot
Funding by ministerial scholarships

2017-2019 Master in Earth, Planetary and Environmental Sciences, specialized in Hydroresources, *Université Grenoble-Alpes, (UGA) & Institut Polytechnique de Grenoble, France*

2016-2017 Environmental Sciences, Master 1, *University of Philippines, Cebu, Philippines*

2013-2016 Bachelor in Geosciences, *UGA, Grenoble & Université Aix-Marseille*

PUBLICATIONS

2024 **Ferrari, C.**, Resongles, E., Freydier, R., Flores, M., Ormechea, M., Zamora, G., Casiot, C., *'Antimony isotopes along two river systems impacted by acid mine drainage and smelting activity in the city of Oruro, Bolivia',* under review in Geochemical Exploration

2024 **Ferrari, C.**, Resongles, E., Freydier, R., Casiot, C., 2024. *Antimony isotope fractionation during Sb(V) and Sb(III) adsorption on secondary Fe-minerals (schwertmannite, ferrihydrite) typical of mine waters*. Applied Geochemistry 163, 105935. https://doi.org/10.1016/j.apgeochem.2024.105935

2024 Guillevic, F., Rossi, M., Resongles, E., Freydier, R., **Ferrari, C.**, Quantin, C., Monvoisin, G., Poulenard, J., Arnaud, F., 2024. *Multi-isotope (Pb, Sb) approach to trace metallic contaminant sources at a*

historical mining and metallurgical site. Chemical Geology 121958. https://doi.org/10.1016/j.chemgeo.2024.121958

2023 **Ferrari, C.**, Resongles, E., Héry, M., Désoeuvre, A., Freydier, R., Delpoux, S., Bruneel, O., Casiot, C., *2023 'Antimony isotopic fractionation during Sb(III) oxidation to Sb(V): Biotic and abiotic processes.* Chemical Geology 121788. https://doi.org/10.1016/j.chemgeo.2023.121788

2022 **Ferrari, C.**, Resongles, E., Freydier, R., Casiot, C., *2022 'Equilibrium mass-dependent isotope fractionation of antimony between stibnite and Sb secondary minerals: A first-principles study'*, Chemical Geology, p. 121115. https://doi.org/10.1016/j.chemgeo.2022.121115.

2021 **Ferrari, C.**, Resongles, E., Freydier, R., Casiot, C., 2021. *A single-step purification method for the precise determination of antimony isotopic composition of environmental, geological and biological samples by HG-MC-ICP-MS*. Journal of Analytical Atomic Spectrometry 36, 776–785. https://doi.org/10.1039/D0JA00452A

INTERNATIONAL CONFERENCES

2024 **Ferrari C.** *Enhancing arsenic tracing in mining areas by using antimony isotopes as proxy.* Ontario Research Funds – Research Excellence: Integrated Tools and Technologies for environmentally responsible management of metal-bearing waste. Canada.

2023 Rossi M., Guillevic F., Resongles E., Freydier R., **Ferrari C.**, Quantin C., Monvoisin G., Poulenard J. and Arnaud F. *Multi-isotope (Pb, Sb) approach to trace metallic contaminant sources at an historical mining and metallurgical site.* Goldschmidt.

2021 **Ferrari C**, Resongles E., Freydier R., Casiot C., Méheut M. *Antimony isotopic fractionation in the environment: first insights from theorical and experimental investigations*. Goldschmidt.

2021 Resongles E., Freydier R., **Ferrari C.**, Zamora G., Casiot C. *Antimony isotopic composition in stream waters impacted by acid mine drainage.* Goldschmidt.

SKILLS

R, Python, ArcGIS, QGIS, Quantum Espresso, PHREEQC, FEFLOW
Analytical chemistry: HG-MC-ICP-MS, ICP-MS, AAS, UHPLC, Orbitrap
Geochemistry, Hydrology, Geology, Quantum Chemistry

TEACHING

2019-2022 Teaching to bachelor and master students at the University of Montpellier: Earth System, Hydrogeology, Hydrology, Water Chemistry, Geology

TEACHING QUALIFICATIONS

Inorganic chemistry
Emerging contaminants
Water chemistry

Environmental geochemistry
Use of stable isotopes
Contamination impacts on populations

REFERENCES

Laurent Charlet : Professor in Grenoble Alps University, ISTerre
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PhD supervisors:

Corinne Casiot: Research director at CNRS, Hydrosciences Montpellier
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Eléonore Resongles: Researcher at IRD (Research Institute for Development), Hydrosciences Montpellier
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Rémi Freydier: Research engineer at CNRS, Hydrosciences Montpellier
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