

# Dr. Christos Kanellopoulos

## Geologist



### PERSONAL INFORMATION

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- Affiliations:
- **Department of Geology, University of Patras**, Greece  
GR-26504 Rio – Patras, Greece
- Current positions:
- **Hellenic Survey for Geology and Mineral Exploration (HSGME, ex-IGME)**, Spyrou Loui 1, 3<sup>rd</sup> entrance, Olympic Village, 136 77 – Athens, Greece
  - **University Scholar** at the University of Patras, Department of Geology.
  - **Research associate** at the Hellenic Survey of Geology and Mineral Exploration (HSGME, ex-IGME)

### SUMMARY

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Dr. C. Kanellopoulos gain his BSc, MSc & PhD in geology focusing on environmental geochemistry/ geology, ore deposits and the study of geothermal systems, from the National and Kapodistrian University of Athens (NKUA). Part of his research was conducted at the National History Museum of London-U.K. and at the University of Sussex-U.K.

During his first Post-Doc, at the University of Geneva-Switzerland, he studied tectonically controlled hydrothermal ore deposits, and during his second Post-Doc, at the NKUA, he studied geothermal systems and evaluated their exploitation possibilities, while he extended his professional career on CO<sub>2</sub> Capture and Storage (CCS) in deep aquifers projects.

He worked as research geologist at the Geological Survey of Greece (IGME) and the Centre for Research and Technology, Hellas (CERTH) on EU co-financed projects and he was teaching, as University Scholar, at the Faculty of Geology & Geoenvironment, National and Kapodistrian University of Athens and the Department of Geology, University of Patras.

Afterwards, he worked as Special Scientific Adviser to the Minister of Environment and Energy, on Mineral Resources and Energy subjects.

Presently, he is working at Hellenic Survey for Geology and Mineral Exploration (HSGME) and he is teaching, as University Scholar, at the Department of Geology, University of Patras.

## PROFESSIONAL EXPERIENCE

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- 2016-7, 2017-8 **University Scholar, University of Patras, Department of Geology.**  
2018-9, Teaching graduate courses:  
2019-Now
- Industrial Minerals (2016-7, 2017-8, 2018-9, 2019-Now)
  - Rocks and minerals analyzing methods (2018-9, 2019-Now)
  - Environmental Geochemistry (2018-9, 2019-Now)
  - Earth materials (Department of Materials Science, 2016-7)  
(Collaborating with Assist. Prof. I. Iliopoulos)
- 2019 - Now **Research associate, Hellenic Survey for Geology and Mineral Exploration (HSGME, ex-IGME)**  
Experience on: mineralogical-petrographic study, digital processing of geological data, as well as geological and cartographic mapping with ArcGIS. (Collaborating with Dr. A. Fotiadis, Dr. I. Zananiri)
- 2019 – Now **Scientific Committee** for the Monitoring of the Environmental Terms of the Works (a) Mining and metallurgical installations of Kassandra mines and b) Removal, cleaning and restoration of old Olympic waste disposal site of Hellas Gold company (On-line publication number: ΨΔΕΜ4653Π8-8ΕΣ).
- 2019 – Now **Working Group** on the regulatory decisions of the new geothermal law and the modernization of the geothermal works regulation (On-line publication number: Ψ5Ω14653Π8-M12).
- 2019 – Now **Executive committee** for the coordination and monitoring of the Special Spatial Framework for Mineral Raw Materials development (Government Gazette B 2832 / 5-7-2019, 2<sup>nd</sup> issue).
- 2018 – Now **Working Group** on the introduction of institutional and legal framework for the protection and characterization of geotopes.
- 2018 – 2019 **Special Scientific Advisor to the Minister of Environment and Energy**, on mineral resources and Energy subjects.  
Experience on: evaluation of investment plans, national policy planning, licensing control etc.
- 2016-7, 2017-8 **University Scholar, National and Kapodistrian University of Athens, Department of Geology and Geoenvironment.**  
Teaching graduate course:
- Ore analyzing methods and Fluid Inclusions  
(Collaborating with Assist. Prof. I. Mitsis, Prof. S. Kiliass)
- 2016 – 2017 **Post-Doctoral Research Associate, National and Kapodistrian University of Athens**, Department of Geology and Geoenvironment, Greece. Under Greek State Scholarship Foundation scholarship, “IKY fellowships of excellence for Postgraduate studies in Greece – Siemens program”.  
Geothermal Energy exploration and evaluation of potential exploitation.  
Experience on: Geothermal systems/Energy, analyses of water samples, evaluation of geothermal direct uses. (Collaborating with Assist. Prof. C. Stouraiti).
- 2014 – 2015 **Research associate**
- **Geological Survey of Greece (I.G.M.E.)**  
Geothermal Energy exploration project – Main task: Responsible for the geochemical study of geothermal samples (hot water samples) and production of thematic maps using ArcGIS.  
Additional tasks: CO<sub>2</sub> and gas emissions in volcanos, soil CO<sub>2</sub> flux, mineralogical study of geothermal depositions.  
Experience on: Geothermal systems/Energy (i.e. sampling-analyzing-interpretation of geothermal fluids and depositions), radiological analyses of water samples (<sup>222</sup>Rn and <sup>226</sup>Ra), sampling and in situ measurements of gas phases from fumaroles, soil CO<sub>2</sub> flux measurements and interpretation, ArcGIS.  
(Collaborating with Director Dr. G. Vougioukalakis and Project Manager M. Xenakis).
  - **Centre for Research and Technology, Hellas/ Chemical Process & Energy Resources Institute (CE.R.T.H./C.P.E.R.I.)**  
Working on CO<sub>2</sub> Capture and Storage (CCS) in deep aquifers project.  
Experience on: geochemical processes and mineralogical alterations occurring during CO<sub>2</sub> storage in geological formations. (Collaborating with Director Dr. N. Koukouzas from CE.R.T.H./C.P.E.R.I., Prof. A. Papamichos from Aristotle University of Thessaloniki, Civil Engineering Department).
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## PROFESSIONAL EXPERIENCE

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- 2013 – 2014     **Post-Doctoral Research Associate, University of Geneva**, Mineral Resources and Geofluids Group, Switzerland. Under Swiss Government Excellence Scholarship for Foreign Scholars.  
Mineralogical, geochemical and isotopic study of tectonically controlled hydrothermal ore deposits (precious and critical metals).  
*Experience on:* mineralogical, petrological, geochemical and isotopic study of ore deposits with high-tech analytical techniques i.e. stable isotopes (C, O, S), fluid inclusions, cathodoluminescence, microprobe analysis (WDS), RAMAN, QEMSCAN, geochemical analysis with ICP-MS. (Collab. with Prof. R. Moritz).
- 2008             **Visiting Research Collaborator, Natural History Museum of London**, U.K.  
Studying cold and hot water samples and solid depositions (travertines) from hydrothermal systems.  
*Experience on:* mineralogical and geochemical study of hydrothermal systems (water samples and depositions) with high-tech analytical techniques i.e. scanning electron microscopy (SEM), microprobe analysis (EDS and WDS), micro-X-Ray Diffraction ( $\mu$ XRD), geochemical analysis with ICP-MS and ICP-OES. (Collaborating with Prof. E. Valsami-Jones, now at Univ. of Birmingham).
- 2008             **Visiting Research Collaborator, University of Sussex**, Department of Biology & Environmental Science, U.K. Under ER-PLACEMENT Grand, funded by E.U.  
Studying soils and plants for major and trace elements with ICP-MS and interpreting the results to certificate the potential contamination, and evaluation of the measurements uncertainty.  
*Experience on:* geochemical study of soil and plant with ICP-MS, estimating the contamination level, studying the uncertainty of field and lab measurements. (Collaborating with Prof. M. Ramsey).
- 2006 - 2010     **Teaching Assistant, N.K.U.A., Department of Geology & Geoenvironment.**  
Teaching assistant at: i) Geochemistry and ii) Environmental Geochemistry courses.  
*Experience on:* Teaching undergraduate and graduate students.  
(Collaborating with Prof. P. Mitropoulos and Assoc. Prof. A. Argyraki).

## EDUCATION

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- 2007 – 2011     **Ph.D. in Geology and Geo-Environmental Sciences**  
National and Kapodistrian University of Athens, School of Science, Dept. of Geology & Geoenvironment  
Thesis “Geochemical research and environmental impact of the distribution of metallic and other elements in cold groundwaters, geothermal fluids, soils and plants in Fthiotida Prefecture and Northern Euboea, Greece.” (Part of the research was conducted at the Natural History Museum of London and at the University of Sussex, Department of Biology & Environmental Science, U.K.)  
*Experience on:* sampling and conducting mineralogical and geochemical study of soil, water and plant samples, hydrothermal fluids and depositions, and evaluating the contamination level and the associated measurement uncertainty with several analytical techniques such as optical microscope, SEM -EDS and -WDS, X-Ray Diffraction (XRD), AAS, ICP-OES, ICP-MS etc.
- 2003 – 2006     **M.Sc. in Applied Environmental Geology**  
National and Kapodistrian University of Athens, School of Science, Dept. of Geology & Geoenvironment  
Thesis “Geochemical research on the distribution of metallic and other elements to the cold and hot groundwater in Fthiotida Prefecture and N. Euboea.”  
*Experience on:* sampling and conducting geochemical and radiological- isotopic ( $^{222}\text{Rn}$ ,  $^{226}\text{Ra}$ ,  $^{228}\text{Ra}$ ,  $^{228}\text{Th}$ ,  $^{40}\text{K}$ ) analyses of cold groundwaters and geothermal fluids with several analytical techniques.
- 1998 – 2003     **B.Sc. in Geology**  
National and Kapodistrian University of Athens, School of Science, Dept. of Geology & Geoenvironment

## PROFESSIONAL TRAINING

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- 2017-now Subject: - **Teaching adults**  
Institute: National and Kapodistrian University of Athens (3-months e-learning course)
- 2007 Title: - **Summer School on Nanotechnology, Biotechnology, Life Sciences, Microelectronics, Information Technology, Physical Sciences, Environment and Energy Pores (10 days).**  
Institute: National Center for Scientific Research “Demokritos”
- 2007 Title: - **Environmentalist**  
Institute: Training program of the public employment agency (21/5-17/10).
- 2005 Title: - **ArcGIS I** (ArcInfo – ArcView)  
- **ArcGIS II** (ArcInfo – ArcView)  
Institute: Marathon Data System
- 2004 Title: - **ArcGIS** ArcInfo - ArcView  
Institute: Dept. of Geology and Geoenvironment, N.K.U.A. & Marathon Data
- 2003-04 Title: - **Certificate of Specialization in Banking Management & Promotions of Bank Services**  
Institute: National and Kapodistrian University of Athens (9-months e-learning course)
- 2000 Title: - **Stock Markets and Portfolio Theory** (3.5 months)  
- **Accounting Principles** (3.5 months)  
Institute: Hellenic American Education Foundation, Athens College.

## COMPUTER EXPERIENCE (Software)

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- Rock-mineral data analysis: Minpet, Iqpet, EVA Basic, Match! (*XRD Evaluation*), *INCA (SEM-EDS analysis)*
- Water data analysis: AquaChem, AqQA, PhreeqC.
- Statistical: Minitab, SPSS.
- Measurements uncertainty: ROBAN.
- GIS & Geology: ArcGIS, Global Mapper.
- Other: Flux Revision/Flux Manager (CO<sub>2</sub> flux), FLIR Tools (Thermal Camera), MS Office, Corel.

## AREAS OF EXPERIENCE – RESEARCH INTERESTS

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- Geochemistry
- Environmental geochemistry/ geology
- Ore deposits
- Sustainable Development
- Geothermal systems/energy
- Travertines / Carbonate sedimentology
- Geomicrobiology
- Igneous petrology
- Mineralogy
- G.I.S.
- CO<sub>2</sub> related subject's i.e. mineralogical/geochemical alternation during CO<sub>2</sub> storage, soil CO<sub>2</sub> flux.

## **PUBLICATIONS (selected)**

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- Kanellopoulos, C., 2012. Distribution, lithotypes and mineralogical study of newly formed thermogenic travertines in Northern Euboea and Eastern Central Greece. *Open Geosciences* (former Central European Journal of Geosciences), 4(4), 545-560, DOI: <https://doi.org/10.2478/s13533-012-0105-z>
- Kanellopoulos, C. and Argyraki, A., 2013. Soil baseline geochemistry and plant response in areas of complex geology. Application to NW Euboea, Greece. *Chemie der Erde – Geochemistry*, 73(4), 519-532, DOI: <https://doi.org/10.1016/j.chemer.2013.06.006>
- Kanellopoulos, C., Argyraki, A., Mitropoulos, P., 2015. Geochemistry of serpentine agricultural soil and associated groundwater chemistry and vegetation in the area of Atalanti, Greece. *Journal of Geochemical Exploration*, 158, 22-33, DOI: <https://doi.org/10.1016/j.gexplo.2015.06.013>
- Kanellopoulos, C., Lamprinou, V., Mitropoulos, P., Voudouris, P., 2015. Thermogenic travertine deposits in Thermopylae hot springs (Greece) in association with cyanobacterial microflora. *Carbonates and Evaporites Journal*, DOI: <https://doi.org/10.1007/s13146-015-0255-4>
- Gemeni, V., Vasilatos, C., Koukouzas, N., Kanellopoulos, C., 2015. Geochemical consequences in shallow aquifers from the long-term presence of CO<sub>2</sub> in a natural field: The case of Florina Basin, W. Macedonia, Greece. *Greenhouse Gases: Science and Technology*, 6(4), 450-469, DOI: <https://doi.org/10.1002/ghg.1574>
- Papavassiliou, K., Voudouris, P., Kanellopoulos, C., Glasby, G., Alfieris, D., Mitsis, I., 2016. New geochemical and mineralogical constraints on the genesis of the Vani hydrothermal manganese deposit at NW Milos island, Greece: Comparison with the Aspro Gialoudi deposit and implications for the formation of the Milos manganese mineralization. *Ore Geology Reviews*, 80, 594-611, DOI: <https://doi.org/10.1016/j.oregeorev.2016.07.023>
- Stouraiti, C., Patziris, I., Vasilatos, C., Kanellopoulos, C., Mitropoulos, P., Moritz, R., Chiaradia, M., 2017. Ophiolitic remnants from the Upper Unit of the Attic- Cycladic Crystalline Belt (Aegean, Greece): fingerprinting geochemical affinities of magmatic precursors. *Geosciences Journal*, 7(1), 1-32, DOI: <https://doi.org/10.3390/geosciences7010014>
- Kanellopoulos, C., Mitropoulos, P., Valsami-Jones, E., Voudouris, P., 2017. A new terrestrial active mineralizing hydrothermal system associated with ore-bearing travertines in Greece (northern Euboea Island and Sperchios area). *Journal of Geochemical Exploration* 179, 9-24, DOI: <https://doi.org/10.1016/j.gexplo.2017.05.003>
- Kanellopoulos, C., Mitropoulos, P., Argyraki, A., 2018. Radiological and hydrochemical study of thermal and fresh groundwater samples of northern Euboea and Sperchios areas, Greece: Insights into groundwater natural radioactivity and geology. *Environmental Monitoring and Assessment Journal* 190:265, DOI: <https://doi.org/10.1007/s10661-018-6643-1>
- Venturi, S., Tassi, F., Vaselli, O., Vougioukalakis, G.E., Rashed, H., Kanellopoulos, C., Caponi, C., Capecchiacci, F., Cabassi, J., Ricci, A., Giannini, L., 2018. Active hydrothermal fluids circulation triggering small-scale collapse events: the case of the 2001-2002 fissure in the Lakki Plain (Nisyros Island, Aegean Sea, Greece). *Natural Hazards Journal*, 93(2), 601-626, DOI: <https://doi.org/10.1007/s11069-018-3318-8>
- Kanellopoulos, C., Valsami-Jones, E., Voudouris, P., Stouraiti, C., Moritz, R., Mavrogonatos, C., Mitropoulos, P., 2018. A new occurrence of terrestrial native iron in the earth's surface: The Ilia thermogenic travertine case, northwestern Euboea, Greece. *Geosciences Journal*, 8, 287, DOI: <https://doi.org/10.3390/geosciences8080287>
- Kanellopoulos, C., Thomas, C., Xirokostas, N., Ariztegui, D., 2019. Banded Iron Travertines at the Ilia Hot Spring (Greece): An interplay of biotic and abiotic factors leading to a modern BIF analog? *The Depositional Record*, DOI: <https://doi.org/10.1002/dep2.55>