

Luka Badurina, Ph.D.

Construction Chemist

Dr. Badurina is an applied mineralogist with strong experience in a wide range of material characterizations and analytical techniques comprising of quantitative XRF-WDS and XRD analyses, SEMEDX, LA-ICP-MS and FTIR, with results published across 13 peer-reviewed publications. Dr. Badurina is an expert in complex interpretations of many diverse matrices, ranging from volcanic ashes, bentonites, sands, clays, silica polymorph mixtures to cements and fly ashes. His analytical expertise encompasses diverse portfolios including projects with variety of bentonite occurrences across central and SE Europe, ophiolite deposits, method development of LA-ICP-MS in micro-analysis of clay minerals, and many more. Dr. Badurina's expertise in highly specialized quantitative XRD made a significant impact on understanding commercial heat-treated silica products.

At CTLGroup, Dr. Badurina specializes in specialized materials characterizations and method developments, forensic investigations, emerging technologies and research projects as well as litigation. Dr. Badurina focuses on XRF and XRD analyses of cementitious materials, cements, clinkers, supplementary cementitious materials such as ashes, slags, and a wide range of inorganic raw materials and aggregates. Dr. Badurina brings his extensive background in clay and general mineralogy for interpretations of complex mineral mixtures.

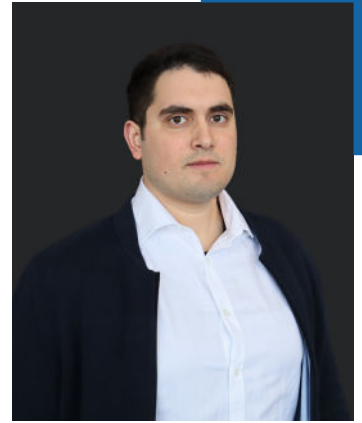
Published Journal Articles

Kukoč D, Smirčić D, Grgasović T, Horvat M, Belak M, Japundžić D, Kolar-Jurkovšek T, Šegvić B, Badurina L, Vukovski M, Slovenec D. 2023. **Biostratigraphy and facies description of Middle Triassic rift-related volcano-sedimentary successions at the junction of the Southern Alps and the Dinarides** (NW Croatia). International Journal of Earth Sciences, 112(4):1175-201, <https://doi.org/10.1007/s00531-023-02301-w>.

Šegvić B, Lukács R, Mandić O, Strauss P, Badurina L, Guillong M, Harzhauser M. 2023. **U–Pb zircon age and mineralogy of the St Georgen halloysite tuff shed light on the timing of the middle Badenian (mid-Langhian) transgression, ash dispersal and palaeoenvironmental conditions in the southern Vienna Basin, Austria**. Journal of the Geological Society, 180(2):jgs2022-106, <https://doi.org/10.1144/jgs2022-106>.

Šegvić B, Slovenec D, Badurina L 2023. **Major and rare earth element mineral chemistry of low-grade assemblages inform dynamics of hydrothermal ocean-floor metamorphism in the Dinaridic Neotethys**. Geological Magazine, 160(3):444-70, <https://doi.org/10.1017/S0016756822001030>.

Slovenec D, Horvat M, Smirčić D, Belak M, Badurina L, Kukoč D, Grgasović T, Byerly K, Vukovski M, Šegvić B. 2023. **On the evolution of Middle Triassic passive margins of the Greater Adria Plate: inferences from the study of calc-alkaline and shoshonitic tuffs from NW Croatia**. Ofioliti, 1–6, <https://doi.org/10.4454/ofioliti.v48i1.560>.



Academic Credentials

Ph.D. in Geosciences,
Texas Tech University, 2023

Bachelor of Science in Geology,
University of Zagreb, 2018

Professional Affiliations

The Clay Minerals Society

Croatian Geological Survey

ASTM International

Contact Information

1660 Feehanville Drive, Suite 300
Mount Prospect, IL 60056

LBadurina@CTLGroup.com

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Grizelj A, Milošević MO, Miknić M, Hajek-Tadesse V, Bakrač K, Galović I, Badurina L, Kurečić TO, Wacha L, Šegvić B, Matošević M. 2022. **Evidence of Early Sarmatian volcanism in the Hrvatsko Zagorje Basin, Croatia: Mineralogical, geochemical and biostratigraphic approaches.** *Geologica Carpathica*, 74(1):59-82, <https://doi.org/10.31577/GeolCarp.2023.02>.

Slovenec, D., Belak, M., Badurina, L., Horvat, M., & Šegvić, B. 2023. **Triassic evolution of the Adriatic-Dinaridic platform's continental margins—insights from rare dolerite subvolcanic intrusions in External Dinarides.** *Comptes Rendus. Géoscience*, 355(G1), 35-62, <https://doi.org/10.5802/crgeos.183>.

Badurina, L. and Šegvić, B. 2022. **Assessing trace-element mobility during alteration of rhyolite tephra from the Dinaride Lake System using glass-phase and clay-separate laser ablation inductively coupled plasma mass spectrometry.** *Clay Minerals*, 1–6, <https://doi.org/10.1180/clm.2022.12>.

Šegvić, B., Badurina, L., Slovenec, D. 2022. **Major and REE mineral chemistry of low-grade assemblages shed light on the dynamics of hydrothermal ocean floor metamorphism in the Dinaridic Neotethys.** *Geological Magazine*, <https://doi.org/10.1017/S0016756822001030>

Kolawolea, O., Millikan, C., Ispas, I., Schwartz, B., Kumar, M., Weber, J., Badurina, L., Šegvić, B. 2022. **Impact of microbial-rock-CO₂ interactions on containment and storage security of supercritical CO₂ in carbonates.** *International Journal of Greenhouse Gas Control*, 120, 103755, <https://doi.org/10.1016/j.ijggc.2022.103755>.

Badurina, L., Šegvić, B., Mandić, O. and Slovenec, D. 2021. **Miocene tuffs from the Dinarides and Eastern Alps as proxies of the Pannonian Basin lithosphere dynamics and tropospheric circulation patterns in Central Europe.** *Journal of the Geological Society*, 178, jgs2020-262, <https://doi.org/10.1144/jgs2020-262>.

Leila, M., Lévy, D., Battani, A., Piccardi L. Šegvić, B., Badurina, L., Pasquet, G., Combaudon, V., Moretti, I., 2021. **Origin of continuous hydrogen flux in gas manifestations at the Larderello geothermal field, Central Italy.** *Chemical Geology*, 120564, <https://doi.org/10.1016/j.chemgeo.2021.120564>.

Šegvić, B., Slovenec, D., Schuster, R., Babajić, E., Badurina, L. and Lugović, † B. 2020. **Sm-Nd geochronology and petrologic investigation of sub-ophiolite metamorphic sole from the Dinarides (Krivaja-Konjuh, Ophiolite Complex, Bosnia and Herzegovina).** *Geologia Croatica*, 73, 119–130, <https://doi.org/10.4154/gc.2020.09>.

Badurina, L., Šegvić, B., Mandić, O. and Zanoni, G. 2020. **Smectitization as a Trigger of Bacterially Mediated Mn-Fe Micronodule Generation in Felsic Glass (Livno-Tomislavgrad Paleolake, Bosnia and Herzegovina).** *Minerals*, 10, 899, <https://doi.org/10.3390/min10100899>.

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Conference Proceedings

Badurina, L; Werts, K; Šegvić, B “**Modelling trace-element mobility during tephra alteration in a lacustrine setting using glass phase and clay separate LA-ICP-MS geochemistry**” / AIPEA – XVII International Clay Conference, Istanbul, 25th-29th July, 2022 (Oral presentation)

Badurina, L; Belak, M; Slovenec, D; Šegvić, B “**On the occurrence and significance of biopyribole from mafic subvolcanic rocks from the External Dinarides**” / AIPEA – XVII International Clay Conference, Istanbul, 25th-29th July, 2022 (Poster presentation)

Šegvić, B; Badurina, L; Slovenec, D; “**Chlorite REE geochemistry to unveil hydrothermal processes at Mid-Triassic ocean ridge of the Dinaridic Tethys**” / AIPEA – XVII International Clay Conference, Istanbul, 25th-29th July, 2022 (Oral presentation)

Dantale, S; Ugarković, M; Badurina, L; Šegvić, B “**A Long Journey of Amphoriskoi from Levant to Eastern Adriatic: Introducing the Distant Markets of Luxurious Phoenician Products of the 2nd and 1st C. BCE**” / GSA Connects 2021 in Portland, Oregon, 2021 (Poster presentation)

Badurina, L; Šegvić, B; Mandić, O; Slovenec, D; “**Mineralogy, geochemistry, and magmatic provenance of Miocene tuffs from the Dinarides and adjacent basins - evidences for mantle upwelling?**” / 6th Croatian Geological Congress, Zagreb, 25th-29th October, 2019 (Oral presentation)

Šegvić, B; Badurina, L; Šegvić, B; Mandić, O; Slovenec, D; “**Does tuff geochemistry control its diagenetic rate? - case study of the Ugljevik Basin tuffs from the Miocene Dinaride Lake System (NE Bosnia and Herzegovina)**” / 6th Croatian Geological Congress, Zagreb, 25th-29th October, 2019 (Poster presentation)