

# Dr. Kaarel Mänd

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Google Scholar:  [scholar.google.com/citations?user=srxWszgAAAAJ](https://scholar.google.com/citations?user=srxWszgAAAAJ)

ETIS: [www.etis.ee/CV/Kaarel\\_Mand](http://www.etis.ee/CV/Kaarel_Mand)

University of Tartu  
Department of Geology  
Ravila 14A  
Tartu 50411  
Estonia

## Professional Appointments

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- 2020 – present    **Research Fellow**  
*University of Tartu, Department of Geology, Estonia*
- 2018 – 2019      **Teaching Assistant**  
*University of Alberta, Department of Earth and Atmospheric Sciences, Canada*
- 2018 – 2020      **Peer Writing Tutor**  
*University of Alberta, Centre for Writers, Canada*
- 2016 – 2020      **Environmental Chemistry Specialist**  
*University of Tartu, Department of Geology, Estonia*
- 2013 – 2015      **Laboratory Assistant**  
*University of Tartu, Department of Geology, Estonia*

## Education

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- 2016 – 2021      **PhD in Geochemistry**  
*University of Alberta, Department of Earth and Atmospheric Sciences, Canada*  
Supervisors: Kurt O. Konhauser, Aivo Lepland, Kalle Kirsimäe
- 2014 – 2016      **MSc in Geology cum laude**  
*University of Tartu, Department of Geology, Estonia*  
Supervisor: Kalle Kirsimäe
- 2010 – 2013      **BSc in Geology cum laude**  
*University of Tartu, Department of Geology, Estonia*  
Supervisor: Kalle Kirsimäe

## Grants & Funded Projects

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- 2020 – 2023      Estonian Research Council: **"Vanadium distribution and compounds in Tremadocian black shale and potential extraction technologies."** PI: Rutt Hints. *Tallinn University of Technology, University of Tartu.* Grant ID: [ResTA18](#).
- 2016 – 2021      Ministry of Education and Research of the Republic of Estonia, Archimedes Foundation: **Kristjan Jaak Scholarship for doctoral study abroad.** Kaarel Mänd, for study at University of Alberta, Canada.

## Awards & Honors

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2019 – 2020	<b>Ashley &amp; Janet Cameron Graduate Scholarship</b> <i>UAlberta North, University of Alberta, Canada</i>
2019	<b>Graduate Fellowship</b> <i>University of Alberta, Canada</i>  <b>Graduate Student Teaching Award</b> <i>University of Alberta, Canada</i>
2018	<b>Vega Graduate Scholarship</b> <i>University of Alberta, Canada</i>  <b>Harrington Paleoenvironmental Scholarship</b> <i>University of Alberta, Canada</i>  <b>Steve and Elaine Antoniuk Graduate Scholarship</b> in Arctic Research in Earth and Atmospheric Sciences <i>University of Alberta, Canada</i>
2016 – 2020	<b>Doctoral Recruitment Scholarship</b> <i>University of Alberta, Canada</i>
2014	National Contest for University Students: <b>1st prize in Bio- and Environmental Science</b> (undergraduate level) <i>Estonian Research Council, Estonia</i>

## Academic Service

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### Administration

2021 – present	Erasmus+ Departmental Coordinator Negotiating inter-university agreements, evaluating student applications. <i>Department of Geology, University of Tartu</i>
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### Committees

Future	Undergraduate Student Admissions Committee <i>Department of Geology, University of Tartu</i>  Master's Dissertation Examination Committee <i>Department of Geology, University of Tartu</i>
2022 – present	Vision and Integration Committee of the Institute of Ecology and Earth Sciences Conference organization, student advocacy, ecological advocacy. <i>University of Tartu 2020</i>

### Reviewer

- Science
- Nature Communications
- Proceedings of the National Academy of Sciences
- Earth and Planetary Science Letters
- Chemical Geology
- Precambrian Research
- Canadian Journal of Earth Sciences

- Estonian Journal of Earth Sciences

## Examiner

- 2021 MSc dissertation examiner (Nanyun Zhang)  
*University of Tartu, Institute of Chemistry*
- BSc dissertation examiner (Maria Ojap)  
*University of Tartu, Department of Geology*

## Conferences

- 2021 Schola Geologica XVII  
Session chair.  
*Tartu, Estonia*
- 2020 Northern Research Day 2020  
Oral presentation awards adjudicator.  
*Edmonton, AB, Canada*
- 2019 2nd Geobiology Society Conference  
Session chair and co-organizer.  
*Banff, AB, Canada*
- 2017 1st Geobiology Society Conference  
Co-organizer.  
*Banff, AB, Canada*

## Open-Source Software

- 2020 – present **pyrolite** | <https://pyrolite.readthedocs.io/en/main/>  
A set of tools for getting the most from your geochemical data.  
Role: 🧑🏫 Code contributor  
Code: 📄 [github.com/morganjwilliams/pyrolite](https://github.com/morganjwilliams/pyrolite)

## Teaching & Mentorship

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### Courses

- 2021 – present LTOM.03.006: **Isotope Geochemistry and Geochemical Modelling**  
Teaching the module on transition metal isotopes.  
*University of Tartu, Estonia*
- 2018 – 2019 EA100: **Planet Earth**  
Lab instructor and examiner for two lab groups (40 students per year).  
*University of Alberta, Canada*
- 2018 EA205: **Environment Earth**  
Teaching the module on earthquakes.  
*University of Alberta, Canada*
- 2014 LOOM.03.010: **Field-training of Earth Sciences I**  
Field co-instructor.  
*University of Tartu, Estonia*

## Supervision

- Future**      **Bojidar Mandjukov**  
Lead PhD advisor.  
*University of Tartu, Department of Geology, Estonia*  
Co-supervisor: Anthony Chappaz
- 2019**      **Baptiste Coutret**  
Direct supervisor on BSc thesis and undergraduate internship.  
*University of Alberta, Canada; Université de Poitiers, France*  
Co-supervisors: Abderrazak El Albani, Kurt O. Konhauser

## Media & Outreach

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- 2022**      Interviewed by *Novaator* web portal, “Eesti geoloogid otsivad maapõuest keeruka elu tekke jälgi” (13 April 2022): [novaator.err.ee/1608563866](https://novaator.err.ee/1608563866)
- 2021**      Interviewed by *Eos* magazine, “Updating Dating Helps Tackle Deep-Time Quandaries” (22 February 2022): [eos.org/features/updating-dating-helps-tackle-deep-time-quandaries](https://eos.org/features/updating-dating-helps-tackle-deep-time-quandaries)
- 2020**      Interviewed by *Smithsonian Air & Space* magazine, “Long-lasting Oxygen in Earth’s Early Atmosphere May Have Jump-Started the Evolution to Animal Life” (19 May 2020): [smithsonianmag.com/air-space-magazine/..](https://smithsonianmag.com/air-space-magazine/..)
- Interviewed by *Õhtuleht* newspaper, “MILJARDIPARADOKS LAHENE! Eesti teadlased kirjutavad ümber maakera ajalugu” (12 May 2020): [oh tuleht.ee/1001539](https://oh tuleht.ee/1001539)
- Interviewed by the radio show “Labor” on *Vikerraadio* (09 May, 2020): [vikerraadio.err.ee/1082611/labor-ohuhapniku-ajalugu-ja-viljakusmolekulid](https://vikerraadio.err.ee/1082611/labor-ohuhapniku-ajalugu-ja-viljakusmolekulid)
- Interviewed by the radio show “Alberta Morning News” on 770 CHQR Newstalk (03 May 2020).
- Interviewed by *Strana Rosatom: Laboratory* magazine.
- Co-published press report on the web portal *Novaator*, “Keskikka jõudnud Maa atmosfäär püsis ootamatult hapnikurikas” (19 March 2020): [novaator.err.ee/1065971](https://novaator.err.ee/1065971)
- Co-published press report on the web portal *EurekaAlert!*, “Study challenges common view of oxygen scarcity on Earth 2 billion years ago” (24 March 2020): [eurekaalert.org/news-releases/665842](https://eurekaalert.org/news-releases/665842)
- 2018**      Published press report on the web portal *Science Trends*, “Geochemical Methods Help Resolve A Long-Standing Debate In Amber Palaeontology” (17 December 2018): [sciencetrends.com/..](https://sciencetrends.com/..)
- 2015**      Instructor at an outreach day for high-school students as part of the *RGNO2015* oceanographic summer school in Swakompund, Namibia.
- Volunteer at *Science Town, Tartu Hanseatic Days* in Tartu, Estonia.
- 2014 – 2015**      Various geoscience recruiting talks and tours for the University of Tartu, Department of Geology, Estonia.

## Presentations

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- 2021 **Mänd, K.** Planavsky, NJ, Porter, SM, Robbins, LJ, Wang, C, Kreistmann, T, Paiste, K, Paiste, P, Deines, YE, Kirsimäe, K, Lepland, A, Konhauser, KO. Protracted oxygenation in the Paleoproterozoic did not result in proliferation of mitochondrial organisms, *Goldschmidt 2021*, Bordeaux, France (online).  
Abstract:  [doi.org/10.7185/gold2021.6732](https://doi.org/10.7185/gold2021.6732)
- Kreistmann, T, Lepland, A, Bau, M, Prave, AR, Paiste, K, **Mänd, K.** Romashkin, AE, Kirsimäe, K. Rare Earth Elements And Carbon Isotope Record from the Carbonates of the Zaonega Formation, *Shungite-2020–2021*, Petrozavodsk, Russia (online).  
Abstract:  [elibrary.ru/item.asp?id=46491364](https://elibrary.ru/item.asp?id=46491364)
- Paiste, K, Fike, DA, Kirsimäe, K, **Mänd, K.** Paiste, P, Jones, C, Lepland, A, Prave, AR, Romashkin, AE. Testing the Global Significance of the Sulfur Isotope Record of the Paleoproterozoic Zaonega Formation, *Shungite-2020–2021*, Petrozavodsk, Russia (online).  
Abstract:  [elibrary.ru/item.asp?id=46491364](https://elibrary.ru/item.asp?id=46491364)
- Mänd, K.** The origins of biodiversity: Did changing oxygen levels in the Proterozoic induce the rise of complex life? *Seminars on Animal Ecology*, Tartu, Estonia.  
Slides:  [kaarelmänd.github.io/publication/mand-2021-originsbiodiversity-did](https://kaarelmänd.github.io/publication/mand-2021-originsbiodiversity-did)
- 2020 **Mänd, K.** Kaotatud paradiis ja keeruka elu häll: Hapnik ja päristuumsed 2 miljardit aastat tagasi, *Schola Geologica XVI: Living densely together*, Tartu, Estonia.  
Slides:  [kaarelmänd.github.io/publication/mand-2020-kaotatudparadiisja](https://kaarelmänd.github.io/publication/mand-2020-kaotatudparadiisja)
- Lepland, A, Bakakas, K, Moussavou, M, Kreistmann, T, Paiste, K, **Mänd, K.** Deines, YE, Romashkin, AE, Prave, AR, Kirsimäe, K. Lomagundi-Jatuli Carbon Isotope Excursion – Isotopic Shift Happens, *Goldschmidt 2020*, Hawaii, USA (online).  
Abstract:  [doi.org/10.46427/gold2020.1460](https://doi.org/10.46427/gold2020.1460)
- Williams, MJ, Schoneveld, L, Miller, L, Mao, Y, **Mänd, K.** Gosses, J, Dalton, H, Bath, A, Barnes, SJ. pyrolite: Tools for Data Driven Geochemistry, *AGU 2020*, Online.  
Abstract:  [ui.adsabs.harvard.edu/abs/2020AGUFMIN040..06W](https://ui.adsabs.harvard.edu/abs/2020AGUFMIN040..06W)
- Wilmeth, DT, Myers, KD, Lalonde, SV, **Mänd, K.** Konhauser, KO, Grandin, P, van Zuilen, MA. Oxygen and pH gradients within silicifying microbial mats in El Tatio, Chile, *Gordon Research Conference “Geobiology 2020”*, Galveston, Texas, USA.
- 2019 **Mänd, K.** Robbins, LJ, Lalonde, SV, Thoby, M, Paiste, K, Kreistmann, T, Paiste, P, Reinhard, CT, Romashkin, AE, Kirsimäe, K, Lepland, A, Konhauser, KO. Oxygenated oceans persisted after the Lomagundi Event: evidence from the Zaonega Formation, *2nd Geobiology Society Meeting*, Banff, Alberta, Canada.  
Poster:  [kaarelmänd.github.io/publication/mand-2019-oxygenatedoceanspersisted](https://kaarelmänd.github.io/publication/mand-2019-oxygenatedoceanspersisted)  
Abstract:  [cms.eas.ualberta.ca/geobiology2019](https://cms.eas.ualberta.ca/geobiology2019)
- Hao, W, **Mänd, K.** Li, Y, Alessi, DS, Konhauser, KO. Acid weathering, clay transport and enhanced phosphate supply to early Paleoproterozoic oceans following the Great Oxidation Event, *2nd Geobiology Society Meeting*, Banff, Alberta, Canada.  
Abstract:  [cms.eas.ualberta.ca/geobiology2019](https://cms.eas.ualberta.ca/geobiology2019)
- 2018 **Mänd, K.** Thoby, M, Lalonde, SV, Paiste, K, Robbins, LJ, Lepland, A, Kirsimäe, K, Konhauser, KO. High molybdenum abundance in the 2 Ga Zaonega Formation: Implications for seawater following the Lomagundi Excursion, *Gordon research conference “Geobiology 2018”*, Galveston, Texas, USA.  
Poster:  [kaarelmänd.github.io/publication/mand-2018-highmolybdenumabundance](https://kaarelmänd.github.io/publication/mand-2018-highmolybdenumabundance)

- Paiste, K., Lepland, A., Zerkle, A.L., Wing, B.A., Kreitsmann, T., Kirsimäe, K., Izon, G., Mänd, K., Bui, T.H. Paiste, K., Lepland, A., Zerkle, AL, Wing, B., Kreistmann, T., Kirsimäe, K., Izon, G, **Mänd, K**, Bui, TH. Multiple S and Corg isotopes recording environmental changes in the ca. 2Ga Zaonega Fm, Onega Basin, Russia, *Gordon research conference “Geobiology 2018”*, Galveston, Texas, USA.
- 2017 **Mänd, K**, Lepland, A, Thoby, M, Lalonde, SV, Paiste, K, Robbins, LJ, Kirsimäe, K, Konhauser, KO. Trace metal enrichment in 1.98 Ga black shales of the Zaonega Formation, *1st Geobiology Society Meeting*, Banff, Alberta, Canada.  
Poster:  [kaarelmänd.github.io/publication/mand-2017-tracemetalenrichment](https://kaarelmänd.github.io/publication/mand-2017-tracemetalenrichment)
- 2016 **Mänd, K**, Bailey, JV, Lepland, A, Kirsimäe, K. Origin of rod and dumbbell shaped phosphate precipitates in Namibian shelf sediments, *32nd Nordic Geological Winter Meeting*, Helsinki, Finland.  
Slides:  [kaarelmänd.github.io/publication/mand-2016-originroddumbbell](https://kaarelmänd.github.io/publication/mand-2016-originroddumbbell)
- 2015 **Mänd, K**, Bailey, JV, Lepland, A, Kirsimäe, K. Apatitic micronodules in Namibian shelf sediments: Mineralized microbes or diagenetic precipitates? *Goldschmidt 2015*, Prague, Czechia.  
Slides:  [kaarelmänd.github.io/publication/mand-2015-apatiticmicronodules-namibian](https://kaarelmänd.github.io/publication/mand-2015-apatiticmicronodules-namibian)  
Abstract:  [goldschmidtabstracts.info/abstracts/abstractView?id=2015003584](https://goldschmidtabstracts.info/abstracts/abstractView?id=2015003584)
- Mänd, K**. Phosphatised microstructures in ancient and modern phosphorites, *Scientific knowledge applied to the sustainable use of coastal upwelling ecosystems*, Swakopmund, Namibia.  
Slides:  [kaarelmänd.github.io/publication/mand-2015-phosphatisedmicrostructuresancient](https://kaarelmänd.github.io/publication/mand-2015-phosphatisedmicrostructuresancient)
- 2014 **Mänd, K**. Mikrofossiilid maailma vanimates fosforiitides, *Schola Geologica X*, Jämeda, Estonia.  
Slides:  [kaarelmänd.github.io/publication/mand-2014-mikrofossiilidmaailmavanimates\\_](https://kaarelmänd.github.io/publication/mand-2014-mikrofossiilidmaailmavanimates_)

## Publications

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### Peer-reviewed Papers

- 2022 Yan, H, Pi, D-H, Jiang, S-Y, Mao, J, Xu, L, Yang, X, Hao, W, **Mänd, K**, Li, L, Konhauser, KO, Robbins, LJ, Mineral paragenesis in Paleozoic manganese ore deposits: Depositional versus post-depositional formation processes, *Geochimica et Cosmochimica Acta*, 325, 65–86.  
DOI:  [10.1016/j.gca.2022.03.030](https://doi.org/10.1016/j.gca.2022.03.030)
- Hao, W, Chen, N, Sun, W, **Mänd, K**, Kirsimäe, K, Teitler, Y, Somelar, P, Robbins, LJ, Babechuk, MG, Planavsky, NJ, Alessi, DS, Konhauser, KO, Binding and transport of Cr(III) by clay minerals during the Great Oxidation Event, *Earth and Planetary Science Letters* 584, 117503.  
DOI:  [10.1016/j.epsl.2022.117503](https://doi.org/10.1016/j.epsl.2022.117503)
- Mänd, K**, Planavsky, NJ, Porter, SM, Robbins, LJ, Wang, C, Kreistmann, T, Paiste, K, Paiste, P, Romashkin, AE, Deines, YE, Kirsimäe, K, Lepland, A, Konhauser, KO, Chromium evidence for protracted oxygenation during the Paleoproterozoic, *Earth and Planetary Science Letters* 584, 117501.  
DOI:  [10.1016/j.epsl.2022.117501](https://doi.org/10.1016/j.epsl.2022.117501)  
Preprint:  [doi.org/10.31223/X5NP6G](https://doi.org/10.31223/X5NP6G)

Soomer, S, Somelar, P, **Mänd, K**, Lepland, A, Kirsimäe, K, Geochemistry and mineralogy of Paleoproterozoic metasediments in the Imandra-Varzuga Greenstone Belt: Implications for sediment provenance, tectonic settings and weathering intensity at the transition to oxygenated surface environments, *Precambrian Research* 371, 106578.

DOI:  [10.1016/j.precamres.2022.106578](https://doi.org/10.1016/j.precamres.2022.106578)

Wilmeth, DT, Myers, KD, Lalonde, SV, **Mänd, K**, Konhauser, KO, Grandin, P, van Zuilen, MA, Evaporative silicification in floating microbial mats: patterns of oxygen production and preservation potential in silica-undersaturated streams, El Tatio, Chile, *Geobiology* 20, 310–330.

DOI:  [10.1111/gbi.12476](https://doi.org/10.1111/gbi.12476)

2021


**Mänd, K**, Robbins, LJ, Planavsky, NJ, Bekker, A, Konhauser, KO, Iron Formations as Palaeoenvironmental Archives, *Elements in Geochemical Tracers in Earth System Science*, Cambridge University Press.

DOI:  [10.1017/9781108993791](https://doi.org/10.1017/9781108993791)

Zhang, Y, Li, J, Chen, L, Wei, Y, Shi, Q, Wang, D-G, Wu, Q-M, Song, L-Y, Tian, M, Kuang, H-W, Liu, Y-Q, **Mänd, K**, Bai, H-Q, Liu, Z-L, Wang, Y-C, Qiao, D-W, Zhu, W-J, Manganese carbonate stromatolites of the Ediacaran Doushantuo Formation in Chengkou, northern Yangtze Craton, China, *Journal of Palaeogeography* 10, 22.

DOI:  [10.1186/s42501-021-00099-9](https://doi.org/10.1186/s42501-021-00099-9)

Farrell, ÚC..., **Mänd, K...**, Planavsky, NJ, Lau, KV, Johnston, DT, Sperling, EA, The Sedimentary Geochemistry and Paleoenvironments Project, *Geobiology* 19, 545–556.

DOI:  [10.1111/gbi.12462](https://doi.org/10.1111/gbi.12462)

Tong, X, Wang, C, Peng, Z, Li, Y, Hao, W, **Mänd, K**, Robbins, LJ, Zhang, L, Ke, Q, Zhai, M, Konhauser, KO, Depositional and Environmental Constraints on the Late Neoproterozoic Dagushan Deposit (Anshan-Benxi Area, North China Craton): An Algoma-Type Banded Iron Formation, *Economic Geology* 116, 1575–1597.

DOI:  [10.5382/econgeo.4841](https://doi.org/10.5382/econgeo.4841)

Shen, F, Yue, L, Liu, Z, Yang, W, **Mänd, K**, Jin, H, Li, F, Zhou, Y, Zhang, M, Jiang, R, Heterogeneity of tight sandstone reservoirs based on fractal theory: the Xu-6 member of Xujiahe Formation in Guang'an area, central Sichuan Basin, *Arabian Journal of Geosciences* 14, 1515.

DOI:  [10.1007/s12517-021-07851-4](https://doi.org/10.1007/s12517-021-07851-4)

Lumiste, K, **Mänd, K**, Bailey, JV, Stüeken, EE, Paiste, K, Lang, L, Sepp, H, Lepland, A, Kirsimäe, K, Constraining the conditions of phosphogenesis: stable isotope and trace element systematics of Recent Namibian phosphatic sediments, *Geochimica et Cosmochimica Acta* 302, 141–159.

DOI:  [10.1016/j.gca.2021.03.022](https://doi.org/10.1016/j.gca.2021.03.022)

Hao, W, **Mänd, K**, Li, Y, Alessi, DS, Somelar, P, Moussavou, M, Romashkin, AE, Lepland, A, Kirsimäe, K, Planavsky, NJ, Konhauser, KO, The kaolinite shuttle links the Great Oxidation and Lomagundi events, *Nature Communications* 12, 2944.

DOI:  [10.1038/s41467-021-23304-8](https://doi.org/10.1038/s41467-021-23304-8)

Code:  [github.com/kaarelmänd/hao\\_et\\_al\\_kaolinite\\_shuttle](https://github.com/kaarelmänd/hao_et_al_kaolinite_shuttle)

Hao, W, **Mänd, K**, Swaren, L, Myers, KD, Lalonde, SV, Wilmeth, DT, van Zuilen, MA, Wilson, SA, Alessi, DS, Konhauser, KO, Trace elemental partitioning on clays derived from hydrothermal muds of the El Tatio Geyser Field, Chile, *Journal of Geophysical Research: Solid Earth* 126, e2020JB021422.

DOI:  [10.1029/2020JB021422](https://doi.org/10.1029/2020JB021422)



**Mänd, K**, Lalonde, SV, Paiste, K, Thoby, M, Lumiste, K, Robbins, LJ, Kreistmann, T, Romashkin, AE, Kirsimäe, K, Lepland, A, Konhauser, KO, Iron Isotopes Reveal a Benthic Iron Shuttle in the Palaeoproterozoic Zaonega Formation: Basinal Restriction, Euxinia, and the Effect on Global Palaeoredox Proxies, *Minerals* 11, 368.

DOI: [doi 10.3390/min11040368](https://doi.org/10.3390/min11040368)

Tong, X, **Mänd, K**, Li, Y, Zhang, L, Peng, Z, Wu, Q, Li, P, Zhai, M, Robbins, LJ, Wang, C, Konhauser, KO, Iron and Carbon Isotope Constraints on the Formation Pathway of Iron-Rich Carbonates within the Dagushan Iron Formation, North China Craton, *Minerals* 11, 94.

DOI: [doi 10.3390/min11010094](https://doi.org/10.3390/min11010094)

2020

Kreistmann, T, Lepland, A, Bau, M, Prave, A, Paiste, K, **Mänd, K**, Sepp, H, Martma, T, Romashkin, AE, Kirsimäe, K, Oxygenated conditions in the aftermath of the Lomagundi-Jatuli Event: The carbon isotope and rare earth element signatures of the Paleoproterozoic Zaonega Formation, Russia, *Precambrian Research* 347, 105855.

DOI: [doi 10.1016/j.precamres.2020.105855](https://doi.org/10.1016/j.precamres.2020.105855)

Yan, H, Pi, D, Jiang, S-Y, Hao, W, Cui, H, Robbins, LJ, **Mänd, K**, Li, L, Planavsky, NJ, Konhauser, KO, Hydrothermally induced 34S enrichment in pyrite as an alternative explanation of the Late-Devonian sulfur isotope excursion in South China, *Geochimica et Cosmochimica Acta* 283, 1–21.

DOI: [doi 10.1016/j.gca.2020.05.017](https://doi.org/10.1016/j.gca.2020.05.017)

Paiste, K, Lepland, A, Zerkle, AL, Kirsimäe, K, Kreistmann, T, **Mänd, K**, Romashkin, AE, Rychanchik, DV, Prave, AR, Identifying global vs. basinal controls on Paleoproterozoic organic carbon and sulfur isotope records, *Earth-Science Reviews* 207, 103230.

DOI: [doi 10.1016/j.earscirev.2020.103230](https://doi.org/10.1016/j.earscirev.2020.103230)

Yan, H, Pi, D-H, Jiang, S-Y, Hao, W, **Mänd, K**, Robbins, LJ, Li, L, Konhauser, KO, New constraints on the onset age of the Emeishan LIP volcanism and implications for the Guadalupian mass extinction, *Lithos* 360–361, 105441.

DOI: [doi 10.1016/j.lithos.2020.105441](https://doi.org/10.1016/j.lithos.2020.105441)

**Mänd, K**, Lalonde, SV, Robbins, LJ, Thoby, M, Paiste, K, Kreistmann, T, Paiste, P, Reinhard, CT, Romashkin, AE, Planavsky, NJ, Kirsimäe, K, Lepland, A, Konhauser, KO, Palaeoproterozoic oxygenated oceans following the Lomagundi–Jatuli Event, *Nature Geoscience* 13, 302–306.

DOI: [doi 10.1038/s41561-020-0558-5](https://doi.org/10.1038/s41561-020-0558-5)

Robbins, LJ, **Mänd, K**, Planavsky, NJ, Alessi, DS, Konhauser, KO, Trace Metals, *Encyclopedia of Astrobiology*, Springer.

DOI: [doi 10.1007/978-3-642-27833-4\\_5422-1](https://doi.org/10.1007/978-3-642-27833-4_5422-1)

2019





Lumiste, K, **Mänd, K**, Bailey, JV, Paiste, P, Lang, L, Lepland, A, Kirsimäe, K, REE+Y uptake and diagenesis in Recent sedimentary apatites, *Chemical Geology* 525, 268–281.

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## Miscellaneous

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## Affiliations

- 2019 – present Geobiology Society