

# David O Zakharov

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## Curriculum vitae

Address: University of Lausanne, Institute of Earth Sciences, Géopolis, Lausanne, Switzerland

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### RESEARCH INTERESTS

Isotope geochemistry of water-rock interaction,  $\Delta^{17}\text{O}$  in terrestrial systems, environmental conditions of the early Earth

### EDUCATION

1. University of Oregon 06/2014-09/2019  
*PhD thesis: Triple Oxygen Isotopes in High-Temperature Hydrothermally Altered Rocks: A Record of Paleoclimate and Ancient Hydrosphere-Rock Interactions*  
Advisor: Dr. Ilya Bindeman
2. Russian State Geological Prospecting University 09/2008-07/2013  
(MGRI-RSPGU)  
A specialist degree in mineralogy, petrology and applied geochemistry  
*Degree thesis: Geochemistry and Petrography of Peralkaline Granites from the 1.9 Ga Gremyakhavyrmes complex, Kola Peninsula*

### EMPLOYMENT

1. University of Lausanne, Switzerland 01/2020-present  
*Postdoctoral researcher*
2. University of Oregon, Eugene 06/2014-12/2019  
*Graduate student employee/research associate*
3. University of Manitoba, Winnipeg 09/2013-05/2014  
*Research and Teaching Assistant*
4. University of Illinois, Urbana-Champaign 06/2013-09/2013  
*Research Assistant*
5. Vernadsky Institute of Geochemistry, Moscow 04/2012-05/2013  
*Research Assistant*

### PUBLISHED, SUBMITTED AND ACCEPTED PAPERS

1. [Zakharov D.O.](#), Bindeman I.N., Tanaka R., Fridleifsson G.O., Reed M.H. and Hampton R.L. (2019) Triple oxygen isotope systematics as a tracer of fluids in the crust: A study from modern geothermal systems of Iceland. *Chemical Geology* **530**, 119312.
2. [Zakharov D.O.](#), Bindeman I.N., Serebryakov N.S., Prave A.R., Azimov P.Ya. and Babarina I.I. (2019) Low  $\delta^{18}\text{O}$  rocks in the Belomorian belt, NW Russia and Scourie dikes, NW Scotland: A record of ancient meteoric water captured by the early Paleoproterozoic global magmatism. *Precambrian Research* **333**, 105431.
3. [Zakharov D.O.](#) and Bindeman I.N. (2019) Triple oxygen and hydrogen isotopic study of hydrothermally altered rocks from the 2.43-2.41 Ga Vetreny belt, Russia: An insight into the early Paleoproterozoic seawater. *Geochimica Cosmochimica Acta* **248**, 185-209.
4. Bindeman I.N., [Zakharov D.O.](#), Palandri J., Greber N.D., Retallack G.J., Hofmann A., Dauphas N., Lackey J.S. and Bekker, A. (2018) Rapid growth of subaerial crust and the onset of a modern hydrologic cycle at the Archean-Proterozoic transition. *Nature* **557**, 545-548.
5. Avice, G., Marty, B., Burgess, R., Hofmann, A., Philippot, P., Zahnle, K., and [Zakharov, D.](#) (2018). Evolution of atmospheric xenon and other noble gases inferred from Archean to Paleoproterozoic rocks. *Geochimica Cosmochimica Acta* **232**, 82-100.

6. Zakharov D.O., Bindeman I.N., Slabunov A.I., Ovtcharova M., Coble M.A., Serebryakov N. S. and Schaltegger U. (2017) Dating the Paleoproterozoic snowball Earth glaciations using contemporaneous subglacial hydrothermal systems. *Geology* **45**, 5–8.
7. Bindeman I.N., Bekker, A. and Zakharov D.O. (2016) Oxygen isotope perspective on crustal evolution on early Earth: A record of Precambrian shales with emphasis on Paleoproterozoic glaciations and Great Oxygenation Event. *Earth Planet. Sci. Lett.* **437**, 101-113.
8. Khisamutdinova A.I., Zakharov D.O. and Soloviev A.V. (2015) The Western Kamchatka sedimentary basins: origin, age and composition of basal conglomerates. *Russian Journal of Pacific Geology*, **34**, 78-92.
9. Onikienko L.D., Uganov, S.S., Zakharov D.O. and Ivanov, M.A. (2012) Geology, mineralogy and formation conditions “Oskolskiy” gold-bearing conglomerates from Kursk Magnetic Anomaly. *Razvedka i Ohrana Nedr (Prospect and Protection of Mineral Resources; in Russian)* **12**, 3-7.

### CONFERENCE PRESENTATIONS (SELECTED)

1. Zakharov D.O., Bindeman I.N., Friðleifsson G.O. and Reed M. (2017) Triple Oxygen and Hydrogen Isotopes in Syn-glacial Hydrothermally Altered Rocks: Comparison Between Modern Rocks of Iceland and Snowball Earth Age Rocks from the Baltic Shield , GSA 2017, Oct22-25, Seattle; *talk*.
2. Zakharov D.O. and Bindeman I.N. (2015) Stable Isotope Geochemistry of Extremely Well-Preserved 2.45-Billion-Year-Old Hydrothermal Systems in the Vetryny Belt, Baltic Shield: Insights into Paleohydrosphere, AGU 2015, Dec 14-18, San Francisco; *poster*.

### AWARDS

- Russian Federal Agency on Mineral Resources award for undergraduate research
- Manitoba Province Graduate Scholarship
- GSA Student Research Grant 2017 (\$1265)
- National Geographic Young Explorer Grant 2017 (\$4620)
- Evolving Earth Foundation Grant 2018 (\$2780)

### TEACHING EXPERIENCE

- Fourteen terms of experience as a teaching assistant for classes: Introduction to Geology (100 and 200-series), Earth Materials, Mineralogy, Introduction to Petrology, Evolving Earth, Volcanoes and Earthquakes, Isotope Geochemistry, Data Analysis, Paleopedology
- Invited lectures and lab tours: Oxygen isotopes and paleoclimate for Earth Materials (geology department), Oxygen (chemistry department)

### OUTREACH AND INVOLVEMENT IN THE COMMUNITY

Co-organizer and chair of the session “Triple isotopes of oxygen and sulfur in terrestrial systems” at AGU 2018, Washington DC

Founder of Curiosity: community science project: <http://blogs.uoregon.edu/curiosity/>

Volunteer for science fair students from Western and Central Oregon (Central Western Oregon Science Expo, CWOSE)

Invited reviewer for: *Lithos*, *Geochimica Cosmochimica Acta*, *Contributions to Mineralogy and Petrology*

### RELEVANT SKILLS

Acid digestion, chromatography, gas source isotope ratio mass spectroscopy, vacuum lines and fittings, laser fluorination technique, petrographic expertise, rock crushing, sample mounting, cutting, polishing, thin/thick/double polished sections, Matlab, R, CorelDraw, MS Office