

Jakub Dan Žárský

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married, father of three children, fourth expected in August 2023

Research Interests

Microbial ecology and biogeochemistry of the cryosphere, with an emphasis on:

- biogeochemical cycling in glaciated catchments and ecological stoichiometry
- diversity and distribution patterns of microorganisms
- glacial algae and their phylogenetic proximity to the land plants

Education

2008 – 2014: PhD (University of Innsbruck, Austria)

- thesis: Potential for microbial nitrogen cycling in the supraglacial environment of the High Arctic . Part of ITN Marie-Curie Actions NSINK.

2005 – 2008: MSc in Ecology (Charles University in Prague)

- thesis: Phylogeny of the genera *Koliella*, *Raphidonema*, *Koliellopsis* and *Raphidonemopsis* (Trebouxiophyceae, Chlorophyta) and ecophysiology of nine selected strains.

2002 – 2005: BSc in Biology (University of South Bohemia)

- thesis: Resistance of soil algae from different geographic regions to deep freezing.

Professional experience

Since 2017: Squad commander SSG (OR–4) in active reserve of the 43. airborne batallion in Chrudim (Czech Armed Forces) regularly attending the unit excercises. Passed the basic airborne course (ZVK) in 2022.

Since 2015: Post-doc at Department of Ecology, Charles University in Prague. Currently Senior Project Research Advisor in Marek Stibal's CryoEco.eu group.

Projects: The bright future of subglacial ecosystems: Impacts of deglaciation on microbial activity beneath glaciers and carbon flows from glacial systems GAČR #15–17346Y (PI) and Greenland Ice Sheet surface as a model ecosystem for microbial macroecology GAČR #19–21341S (co–author).

Teaching currently: Kurs zimní ekologie MB120T09, Ecology of the Cryosphere MB162P30, Ecological Stoichiometry MB162P29, Ekologické terénní praktikum MB162T02.

2013 – 2014: Teaching at the Centre for Polar Ecology, Univ. of South Bohemia (Č. Budějovice, The Nostoc station in Petuniabukta and Julius Payer House in Longyearbyen, Svalbard) and part-time research position at the Institute of Botany, Academy of Sciences of the Czech Republic.

2008 – 2011: Marie-Curie research fellow, University of Innsbruck, Austria PhD research project within the frame of Marie-Curie Initial Training Network “NSINK” – Training in sources, sinks and impacts of atmospheric nitrogen deposition in the Arctic (FP7–PEOPLE, 215503).

Recent papers in ISI-covered journals

Full publication record: <https://orcid.org/0000-0001-7072-0327>

The list of ISI-covered papers attached below.

Awarded scholarships

GAČR 19-21341S – Greenland ice sheet as a model for microbial macroecology (current).

GA ČR 15-17346Y - The bright future of subglacial ecosystems: Impacts of deglaciation on microbial activity and carbon cycling at glacier beds.

GA UK 279715 – Cold origin of land plants?

Scholarship for Ph.D. students at University of Innsbruck awarded for the period November 2011 – October 2012.

Julius Payer Stipendium der Österreichischen Gesellschaft für Polarforschung (Scholarship of the Austrian Society for Polar Research) awarded in 2010 - Metabolic activity of microbial communities in the melting snowpack of an ice sheet.

Relevant experience & skills

- Experience with multidisciplinary research (integration of field and laboratory derived data from biological, chemical, isotopical, geographical and glaciological analyses in reconstruction of ecological processes on catchment scale).
- Computer skills: Mac/Linux user, grid computing tasks, molecular data management.
- Multivariate statistics in ecology, R environment and CANOCO.
- Basics of GIS (QGIS, ArcGIS) analysis of satellite data.
- Laboratory skills: cultivation of photosynthetic organisms, viability tests, environmental DNA extraction, PCR, qPCR, illumina sequencing data analysis QIIME2.
- Photography photoblog.com/jakub, scientific graphics (proficient user of InDesign) and website architecture and maintenance (WordPress, cryoeco.eu).
- Regular scientific oral presentation at international conferences, seminars and at university courses.

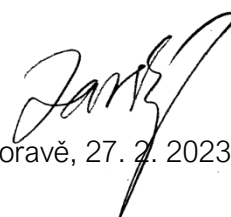
Languages

Czech (native); English (fluent), German (fluent), Norwegian (basic).

Other interests and skills

- Courses
- (2009) FIRST AID COURSE Duration: 16+8 hrs by the Red Cross Innsbruck, Tirol (Austria). Repeated training in combat medical care regularly during the military exercises.
- (2009) POLAR BEAR SAFETY Duration: 4 - 6 hrs, Courses organized by UNIS. Regularly absolved from 2009 and 2010 twice a year and again in 2016.
- Resident of Svalbard 2019 – 2021. Nearly two years guiding experience in Svalbard with specialized safety courses regularly absolved in the company Svalbard Wildlife Expeditions (letter of support available in Norwegian).
- Certificates
- (2017) GENERAL RADIOTELEPHONE OPERATOR'S CERTIFICATE OF THE MARITIME MOBILE SERVICE
- (2017) C - YACHTMASTER
- (2015) EUROPEAN FIREARM PASS, (2009) CZECH FIREARM LICENSE
- (2002) DRIVING LICENSE Category B

Nové Město na Moravě, 27. 2. 2023



Publication list:

- **Žárský, J.**, Žárský, Vojtěch, Hanáček, M., Žárský, Viktor, 2022. Cryogenian Glacial Habitats as a Plant Terrestrialisation Cradle – The Origin of the Anydrophytes and Zygnematophyceae Split. *Front. Plant Sci.* 12, 735020. <https://doi.org/10.3389/fpls.2021.735020>
- Vinsova, P., Kohler, T.J., Simpson, M.J., Hajdas, I., Yde, J.C., Falteisek, L., **Zarsky, J.D.**, Yuan, T., Tejnecky, V., Mercl, F., Hood, E., Stibal, M., 2022. The Biogeochemical Legacy of Arctic Subglacial Sediments Exposed by Glacier Retreat. *Glob. Biogeochem. CYCLES* 36. <https://doi.org/10.1029/2021GB007126>
- Jaromerska, T.N., Trubac, J., Zawierucha, K., Vondrovicova, L., Devetter, M., **Zarsky, J.D.**, 2021. Stable isotopic composition of top consumers in Arctic cryoconite holes: revealing divergent roles in a supraglacial trophic network. *BIOGEOSCIENCES* 18, 1543–1557. <https://doi.org/10.5194/bg-18-1543-2021>
- Kohler, T.J., Vinšová, P., Falteisek, L., **Žárský, J.D.**, Yde, J.C., Hatton, J.E., Hawkings, J.R., Lamarche-Gagnon, G., Hood, E., Cameron, K.A., Stibal, M., 2020. Patterns in Microbial Assemblages Exported From the Meltwater of Arctic and Sub-Arctic Glaciers. *Front. Microbiol.* 11, 669. <https://doi.org/10.3389/fmicb.2020.00669>
- Hatton, J.E., Hendry, K.R., Hawkings, J.R., Wadham, J.L., Opfergelt, S., Kohler, T.J., Yde, J.C., Stibal, M., **Žárský, J.D.**, 2019. Silicon isotopes in Arctic and sub-Arctic glacial meltwaters: the role of subglacial weathering in the silicon cycle. *Proc. R. Soc. Math. Phys. Eng. Sci.* 475, 20190098. <https://doi.org/10.1098/rspa.2019.0098>
- Williamson, C.J., Cameron, K.A., Cook, J.M., **Zarsky, J.D.**, Stibal, M., Edwards, A., 2019. Glacier Algae: A Dark Past and a Darker Future. *Front. Microbiol.* 10, 524. <https://doi.org/10.3389/fmicb.2019.00524>
- Yde, J.C., **Žárský, J.D.**, Kohler, T.J., Knudsen, N.T., Gillespie, M.K., Stibal, M., 2019. Kuannersuit Glacier revisited: Constraining ice dynamics, landform formations and glaciomorphological changes in the early quiescent phase following the 1995–98 surge event. *Geomorphology* 330, 89–99. <https://doi.org/10.1016/j.geomorph.2019.01.012>
- Lamarche-Gagnon, G., Wadham, J.L., Sherwood Lollar, B., Arndt, S., Fietzek, P., Beaton, A.D., Tedstone, A.J., Telling, J., Bagshaw, E.A., Hawkings, J.R., Kohler, T.J., **Zarsky, J.D.**, Mowlem, M.C., Anesio, A.M., Stibal, M., 2019. Greenland melt drives continuous export of methane from the ice-sheet bed. *Nature* 565, 73–77. <https://doi.org/10.1038/s41586-018-0800-0>
- Müllerová, J., Elsterová, J., Černý, J., Ditrich, O., **Žárský, J.**, Culler, L.E., Kampen, H., Walther, D., Coulson, S.J., Růžek, D., Grubhoffer, L., 2018. No indication of arthropod-vectored viruses in mosquitoes (Diptera: Culicidae) collected on Greenland and Svalbard. *Polar Biol.* 41, 1581–1586. <https://doi.org/10.1007/s00300-017-2242-9>
- **Žárský, J.D.**, Kohler, T.J., Yde, J.C., Falteisek, L., Lamarche-Gagnon, G., Hawkings, J.R., Hatton, J.E., Stibal, M., 2018. Prokaryotic assemblages in suspended and subglacial sediments within a glacierized catchment on Qeqertarsuaq (Disko Island), west Greenland. *FEMS Microbiol. Ecol.* 94. <https://doi.org/10.1093/femsec/fiy100>
- Kohler, T.J., **Žárský, J.D.**, Yde, J.C., Lamarche-Gagnon, G., Hawkings, J.R., Tedstone, A.J., Wadham, J.L., Box, J.E., Beaton, A.D., Stibal, M., 2017. Carbon dating reveals a seasonal progression in the source of particulate organic carbon exported from the Greenland Ice Sheet: Trends in Exported Subglacial Carbon Age. *Geophys. Res. Lett.* 44, 6209–6217. <https://doi.org/10.1002/2017GL073219>
- Cameron, K.A., Stibal, M., Hawkings, J.R., Mikkelsen, A.B., Telling, J., Kohler, T.J., Gözdereliler, E., **Zarsky, J.D.**, Wadham, J.L., Jacobsen, C.S., 2017. Meltwater export of prokaryotic cells from the Greenland ice sheet: Microbial Export from the Greenland Ice Sheet. *Environ. Microbiol.* 19, 524–534. <https://doi.org/10.1111/1462-2920.13483>

- Cameron, K.A., Stibal, M., **Zarsky, J.D.**, Gözdereliler, E., Schostag, M., Jacobsen, C.S., 2016. Supraglacial bacterial community structures vary across the Greenland ice sheet. *FEMS Microbiol. Ecol.* 92, fiv164. <https://doi.org/10.1093/femsec/fiv164>
- Vonnahme, T.R., Devetter, M., **Žárský, J.D.**, Šabacká, M., Elster, J., 2016. Controls on microalgal community structures in cryoconite holes upon high Arctic glaciers, Svalbard. *Biogeosciences Discuss.* 12, 11751–11795.
- Stibal, M., Gözdereliler, E., Cameron, K.A., Box, J.E., Stevens, I.T., Gokul, J.K., Schostag, M., **Zarsky, J.D.**, Edwards, A., Irvine-Fynn, T.D.L., Jacobsen, C.S., 2015. Microbial abundance in surface ice on the Greenland Ice Sheet. *Front. Microbiol.* 6. <https://doi.org/10.3389/fmicb.2015.00225>
- Björkman, M.P., **Zarsky, J.D.**, Kühnel, R., Sattler, B., Psenner, R., 2014. Microbial cell retention in a melting High Arctic snowpack. *Arct. Antarct. Alp. Res.* 46, 471–482. <http://dx.doi.org/10.1657/1938-4246-46.2.471>
- Hell, K., Edwards, A., **Zarsky, J.**, Podmirseg, S.M., Girdwood, S., Pachebat, J.A., Insam, H., Sattler, B., 2013. The dynamic bacterial communities of a melting High Arctic glacier snowpack. *ISME J.* 7, 1814–26. <https://doi.org/10.1038/ismej.2013.51>
- **Zarsky, J.D.**, Stibal, M., Hodson, A., Sattler, B., Schostag, M., Hansen, L.H., Jacobsen, C.S., Psenner, R., 2013. Large cryoconite aggregates on a Svalbard glacier support a diverse microbial community including ammonia-oxidizing archaea. *Environ. Res. Lett.* 8, 035044. <https://doi.org/10.1088/1748-9326/8/3/035044>
- Stibal, M., Šabacká, M., **Žárský, J.**, 2012. Biological processes on glacier and ice sheet surfaces. *Nat. Geosci.* 5, 771–774. <https://doi.org/10.1038/ngeo1611>