

Dylan T. Wilmeth

Postdoctoral Researcher

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EDUCATION

- 2013—2018 **University of Southern California**, Los Angeles, CA
Ph.D., Geological Sciences-Geobiology
Advisor: Dr. Frank A. Corsetti
Dissertation: Gas production within Archean stromatolites: evidence for ancient microbial metabolisms.
- 2009—2013 **University of Wisconsin-Milwaukee**, Milwaukee, WI
B.Sc., Geosciences with Honors
Advisor: Dr. Stephen Q. Dornbos
Senior thesis: Putative microbial structures in fluvial siliciclastic facies of the Mesoproterozoic (1.09 Ga) Copper Harbor Formation, Upper Peninsula of Michigan.

RESEARCH EXPERIENCE

- 2020—Present **European Research Council (ERC) Postdoctoral Researcher**
Laboratoire Géosciences Océan
Institut Universitaire Européen de la Mer, Brest, France
Supervisor: Dr. Stefan V. Lalonde
- 2018—2020 **ERC Postdoctoral Researcher**
Département de Géomicrobiologie
Institut Physique du Globe de Paris, Paris, France
Supervisor: Dr. Mark A. van Zuilen
Publications: 5 published, 1 in review
- 2015—2018 **National Science Foundation (NSF) Graduate Research Fellow**
University of Southern California, Los Angeles, CA
Advisor: Dr. Frank A. Corsetti
Publications: 2 published, 1 in review
- 2014—2015 **Research Assistant**
University of Southern California, Los Angeles, CA
Advisor: Dr. Frank A. Corsetti
Publications: 2 published
- 2009—2013 **Undergraduate Research Fellow**
University of Wisconsin-Milwaukee, Milwaukee, WI
Advisor: Dr. Stephen Q. Dornbos
Publications: 2 published

PUBLICATIONS

Peer-Reviewed Papers & Book Chapters

11. **Wilmeth, D.T.**, Myers, K.D., Lalonde, S.V., Mänd, K., Konhauser, K.O., Grandin, P., van Zuilen, M.A., 2021. Evaporative silicification in floating microbial mats: patterns of oxygen production and preservation potential in silica-undersaturated streams, El Tatio, Chile. *Geobiology*. <https://doi.org/10.1111/gbi.12476>
10. Gong, J., Munoz-Saez, C., **Wilmeth, D.T.**, Myers, K.D., Skok, J.R., & van Zuilen, M.A., 2021. Abiogenic digitate structures in siliceous hot springs: Implications for biosignatures on ancient Earth and Mars. *Geobiology*. <https://doi.org/10.1111/gbi.12471>
9. Hao, W., Mänd, K., Swaren, L., Myers, K.D., Lalonde, S., **Wilmeth, D.T.**, Van Zuilen, M., Wilson, S.A., Alessi, D.S. and Konhauser, K.O., 2021. Trace elemental partitioning on clays derived from hydrothermal muds of the El Tatio Geyser Field, Chile. *Journal of Geophysical Research: Solid Earth*, <https://doi.org/10.1029/2020JB021422>
8. **Wilmeth, D.T.**, Nabhan, S., Myers, K.D., Slagter, S., Lalonde, S.V., Sansjofre, P., Homann, M., Konhauser, K.O., Munoz-Saez, C. and van Zuilen, M.A., 2020. Depositional evolution of an extinct sinter mound from source to outflow, El Tatio, Chile. *Sedimentary Geology*, p.105726. <https://doi.org/10.1016/j.sedgeo.2020.105726>
7. Shapiro, R.S., **Wilmeth, D.T.**, 2020. Treatise Online no. 134: Part B, Volume 1, Chapter 8: Microbialites. *Treatise on Invertebrate Paleontology*. <https://journals.ku.edu/treatiseonline/article/view/13862>
6. **Wilmeth, D.T.**, Corsetti, F.A., Beukes, N.J., Awramik, S.M., Petryshyn, V., Spear, J.R., Celestian, A.J., 2019. Neoproterozoic (2.7 Ga) lacustrine stromatolite deposits in the Hartbeesfontein Basin, Ventersdorp Supergroup, South Africa: Implications for oxygen oases. *Precambrian Research* 320, 291–302. <https://doi.org/10.1016/j.precamres.2018.11.009>
5. **Wilmeth, D.T.**, Johnson, H.A., Stamps, B.W., Berelson, W.M., Stevenson, B.S., Nunn, H.S., Grim, S.L., Dillon, M.L., Paradis, O., Corsetti, F.A., Spear, J.R., 2018. Environmental and biological influences on carbonate precipitation within hot spring microbial mats in Little Hot Creek, CA. *Frontiers in Microbiology* 9. <https://doi.org/10.3389/fmicb.2018.01464>
4. Fedorchuk, N.D., Dornbos, S.Q., Corsetti, F.A., Isbell, J.L., Petryshyn, V.A., Bowles, J.A., **Wilmeth, D.T.**, 2016. Early non-marine life: Evaluating the biogenicity of Mesoproterozoic fluvial-lacustrine stromatolites. *Precambrian Research* 275, 105–118. <https://doi.org/10.1016/j.precamres.2016.01.015>
3. **Wilmeth, D.T.**, Corsetti, F.A., Bisenic, N., Dornbos, S.Q., Oji, T., Gonchigdorj, S., 2015. Punctuated growth of microbial cones within early Cambrian oncoids, Bayan Gol Formation, Western Mongolia. *Palaios* 30, 836–845. <https://doi.org/10.2110/palo.2015.014>
2. Corsetti, F.A., Ritterbush, K.A., Bottjer, D.J., Greene, S.E., Ibarra, Y., Yager, J.A., West, J., Berelson, W.M., Rosas, S., Becker, T.W., Levine, N.M., Loyd, S.J., Martindale, R.C., Petryshyn, V.A., Carroll, N.R., Petsios, E., Piazza, O., Pietsch, C., Stellmann, J.L., Thompson, J.R., Washington, K.A., **Wilmeth, D.T.**, 2015. Investigating the Paleocological Consequences of Supercontinent Breakup: Sponges Clean Up in the Early Jurassic. *The Sedimentary Record* 13, 4–10. <https://doi.org/10.2110/sedred.2015.2.4>

1. **Wilmeth, D.T.**, Dornbos, S.Q., Isbell, J.L., Czaja, A.D., 2014. Putative domal microbial structures in fluvial siliciclastic facies of the Mesoproterozoic (1.09 Ga) Copper Harbor Conglomerate, Upper Peninsula of Michigan, USA. *Geobiology* 12, 99–108.
<https://doi.org/10.1111/gbi.12071>

In Review

Wilmeth, D.T., Berelson, W.M., Beukes, N., Awramik, S.M., Petryshyn, V.A., Spear, J.R., Celestian, A.J., Mahseredjian, T., & Corsetti, F.A. (in review) Rapid rates of oxygenic photosynthesis in Neoproterozoic stromatolites. *Geology*.

Nabhan, S., **Wilmeth, D.T.**, Myers, K.D., Liesegang, M., Nowak, S., Slagter, S., Lalonde, S.V., Sansjofre, P., Homann, M., Munoz-Saez, C., Konhauser, K.O., van Zuilen M.A. (in review) Diagenesis of siliceous hot-spring sinter deposits from El Tatio, Chile. *Sedimentary Geology*

SELECTED TALKS & POSTERS (* = invited or awarded, ** = undergraduate mentee)

Wilmeth, D.T., Fralick, P.W., Riding, R., Lalonde, S.V. (2021). A Mesoproterozoic oxygen oasis expanded: new trace element and stable isotope data from the 2.8 Ga Mosher Carbonate, Steep Rock Lake, Canada. *Goldschmidt Annual Meeting, online (talk)*

Wilmeth, D.T., Nabhan, S., Myers, K.D., Slagter, S., Lalonde, S.V., Sansjofre, P., Homann, M., Konhauser, K.O., Munoz-Saez, C., van Zuilen, M.A. (2020). Stratigraphy of an extinct sinter mound from source to outflow, El Tatio, Chile. *Gordon Geobiology Symposium, Galveston, TX (talk)*

***Wilmeth, D.T.**, Myers, K.D., Lalonde, S.V., Mand, K., Konhauser, K.O., Grandin, P., & van Zuilen, M.A. (2019). Oxygen and pH gradients within silicifying microbial mats in El Tatio, Chile. *Geobiology Conference, Banff, AB (*invited talk)*

Wilmeth, D.T., Myers, K.D., Lalonde, S.V., Mand, K., Konhauser, K.O., Grandin, P., & van Zuilen, M.A. (2019). Oxygen and pH gradients within silicifying microbial mats in El Tatio, Chile. *Microbialites: Formation, Evolution, Diagenesis (M-FED); Dijon, France (talk)*

Wilmeth, D. T., Corsetti, F.A., Beukes, N., Awramik, S.M., Petryshyn, V.A., Celestian, A.J., & Spear, J.R. (2018). Rapid rates of oxygenic photosynthesis in Neoproterozoic stromatolites. *GSA Annual Meeting, Indianapolis, IN (talk)*

***Wilmeth, D.T.**, Corsetti, F.A., Berelson, W., Beukes, N., Rollins, N., Yager, J. (2016). Methanotrophy in 2.7 Ga South African lakes. *GSA Annual Meeting, Denver, CO (poster)*
***Award:** Best Student Presentation, Geobiology & Geomicrobiology Division

***Wilmeth, D.T.**, Grim, S., Krusor, M., Johnson, H., Berelson, W.M., Stamps, B., Piazza, O., Stevenson, B., Corsetti, F., & Spear, J. (2015). Patterns of carbonate precipitation within a laminated microbial mat. *Southern California Geobiology Symposium, Caltech, Pasadena, CA (poster)*
***Award:** Honorable Mention for Student Presentation, Geobiology & Geomicrobiology Division

Mahseredjian, T., **Wilmeth, D.T., Corsetti, F.A., Piazza, O., Frantz, C.M. (2017). Intra-Lamination Isotopic Variability in Green River Formation Stromatolites: Significance for Stromatolite-Based Paleoclimate Modeling of the Early Eocene Climatic Optimum.

EXTERNAL GRANTS & FELLOWSHIPS

2015-2018 NSF Graduate Research Fellowship: \$30,000/year for three years.
2015 AAPG Grants-In-Aid: \$2,000.
2015 GSA Research Grant: \$2,200.
2014 NASA Astrobiology Early Career Collaboration Award: \$2,600.
2014 SEPM Foundation Research Grant: \$1,500.

PROFESSIONAL SERVICE

Workshop Coordinator

2021 “Creating new microbialite databases: atlases, bibliographies, and beyond.”
Conference: Microbialites-Formation, Evolution, Diagenesis. Paris, France.

Proposal Review Panelist

2021 Future Investigators in NASA Earth & Space Science & Technology (FINESST)

Journal Referee

2017-Present Journals: Geology; Nature Reviews Earth & Environment; Geobiology; Frontiers in Microbiology; Palaeogeography, Palaeoclimatology, Palaeoecology; Sedimentary Geology

Symposium Co-Chair

2022* Gordon Graduate Symposium in Geobiology *voted symposium co-chair for 2022

Executive Committee Member

2020 Diverse Faces in Geobiology Initiative
<https://community.geosociety.org/gbgm/dfg>
Geological Society of America: Geobiology/Geomicrobiology Division (GSA-GBGM)
An initiative highlighting geobiology researchers from underrepresented communities.

2017 Southern California Geobiology Symposium, University of Southern California
A student-organized annual meeting for senior and junior geobiology researchers from USC, Caltech, JPL, and UC Riverside, among other institutions in Southern California.

Volunteer Judge

2017, 2018 Student Presentation Contest, GSA-GBGM

Website Developer

2020 www.erc-traces.org European Research Council-funded TRACES project.
www.dylanwilmeth.com Personal research website.

MENTORSHIP EXPERIENCE

2018 **Taleen Mahseredjian, B.S. (USC)**: Supervised undergraduate research on Eocene stromatolites, including laboratory petrographic and geochemical analyses
End results: Poster presentations at two conferences (GSA, Geobiology Banff)
Senior undergraduate thesis at the University of Southern California
Co-authorship on Wilmeth et al., in review (Geology)

- 2017 **Jonny Stanback, B.S. (USC):** Supervised undergraduate research on Mesoproterozoic stromatolites, including laboratory petrographic analyses
End result: Senior undergraduate thesis at the University of Southern California
- 2014 **Nemanja Bisenic, B.S. (USC):** Supervised undergraduate research on Cambrian microbialites, including laboratory petrographic analyses
End result: Co-authorship on Wilmeth et al., 2015

TEACHING EXPERIENCE

- 2021 Guest lecturer, University of Wisconsin-Milwaukee: Stratigraphy & Sedimentation (511)
- 2013-4 TA, University of Southern California: Planet Earth (105), Earth History (125)
 Awarded USC Earth Sciences Annual Teaching Award (2014)
- 2013 TA, University of Wisconsin-Milwaukee: The Earth Environment (120)

ATTENDED WORKSHOPS AND COURSES

Scientific

- 2021 Microbialite Database Workshop, Paris, France. Funding: European Research Council.
 Coordinators: **Dylan Wilmeth**, Karim Benzerara, Emmanuelle Gerard, Elodie Muller
- 2019 Unisense Microsensor Workshop (1 week), Aarhus, Denmark. Funding: European
 Research Council. Coordinator: Tage Dalsgaard
- 2018 Astrobiology Grand Tour (2 weeks): Western Australia. Funding: European Research
 Council. Coordinator: Martin van Kranendonk
- 2018, 2019 ERC TRACES/PROMETHEUS/EARTHBLOOM Workshops: Huelva, Spain (2018);
 Douarnenez, France (2019). Funding: European Research Council. Coordinators: Mark
 van Zuilen, Juan Manuel Garcia-Ruiz, Stefan Lalonde
- 2017 ICDP Moodies Drilling Workshop (1 week): Barberton, S. Africa. Funding: Int'l
 Continental Drilling Program. Coordinator: Christoph Heubeck
- 2015 International Geobiology Course (4 weeks): USC Wrigley Institute, California. Funding:
 Agouron Institute. Coordinators: Frank Corsetti, John Spear

Mentorship & Diversity

- 2018, 2020 Gordon Research Conference Power Hour, Geobiology Division: Galveston, TX
- 2016 Society for Advancement of Chicanos/Hispanics and Native Americans in Science
 (SACNAS) Annual Meeting, Long Beach, CA
- 2016 American Geophysical Union Workshop, Research Mentoring of Young Scientists from
 Undergraduate to Postdocs: San Francisco, CA

AWARDS

- 2016 Best Student Presentation, GSA-GBGM
- 2015 Honorable Mention for Student Presentation, GSA-GBGM
- 2014 Annual Teaching Assistant Award, University of Southern California
- 2012, 2013 Best Student Presentation, University of Wisconsin-Milwaukee Research Symposium

FIELD EXPERIENCE

- 2017-2021 Red, Woman, Favourable, and Shabu Lakes, Ontario; **Age:** Mesoarchean (2.8-9 Ga)
Stratigraphy, sedimentology, and core examination of Archean stromatolites and sediments
- 2018-2019 El Tatio, Chile; **Age:** Modern
Field sampling and chemical micro-profiling of silicifying cyanobacterial communities, core drilling and stratigraphy of recent siliceous sinters
- 2018-2019 Barberton, South Africa; **Age:** Paleoarchean (3.3 Ga)
Stratigraphy and sedimentology of Archean clastic microbialites and barite deposits, aerial field mapping using drones
- 2015-2016 New Jersey, Nevada, Utah, and Nova Scotia; **Age:** Early Jurassic (200 Ma)
Stratigraphy, sedimentology, and core examination of clastic and carbonate lacustrine sediments, including stromatolites
- 2015 Little Hot Creek, California & Walker Lake, Nevada; **Age:** Modern
Microbial ecology and chemical profiles within modern hot-spring microbial mats
- 2014-2017 Hartbeesfontein, South Africa; **Age:** Neoarchean (2.7 Ga)
Stratigraphy and sedimentology of Archean stromatolites and sediments
- 2013 Spring Mountains, Nevada; **Age:** Early Triassic (250 Ma)
Stratigraphy and sedimentology of carbonate microbialites
- 2012-2013 Upper Peninsula, Michigan; **Age:** Mesoproterozoic (1.1 Ga)
Stratigraphy and sedimentology of Precambrian stromatolite beds and clastic microbial deposits

PROFESSIONAL MEMBERSHIPS

Geological Society of America
GSA Geobiology & Geomicrobiology Division
American Geophysical Union
Society for Sedimentary Geology
American Association of Petroleum Geologists
American Institute of Professional Geologists
European Association of Geochemistry