

## CURRICULUM VITA

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### T.C. Onstott

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### (a) Professional Preparation

Calif. Inst. of Technology	Geophysics	B.S. 1976
Princeton University	Geology	M.A. 1978
Princeton University	Geology	Ph.D. 1980
Princeton University/Univ. of Toronto	$^{40}\text{Ar}/^{39}\text{Ar}$ geochronology	1980-1983.

### (b) Appointments

Full Professor, Princeton University, 2001-present.  
Associate Professor, Princeton University, 1990-2001.  
Assistant Professor, Princeton University, 1985-1990.  
Research associate, Princeton University, 1983-1985.  
Research Assistant at U.S.G.S. Flagstaff, Arizona, 1974-1976.

### Other Professional Experiences:

U.S. representative to IGCP 108/144 "Correlation of West Africa and Eastern Brazil", 1980-1984.  
Chairman, GSA Special Symposium on "Radiometric Calibration of thermal histories of rocks" GSA Nat. Mtg., 1985.  
Chairman of U.S. working group for IGCP 204 "Precambrian Geology of the Amazonas Craton", 1987-1988.  
Editor, Special Issue of Precamb. Res., 42, 1988.  
Associate editor for Precambrian Research, 1988-1994.  
Editor, Special Issue of Precamb. Res., "Precambrian Paleomagnetism, Paleogeography and Paleoclimates, 1994.  
Co-Chairman of Deep Microbiology Working Group, Subsurface Science Program, U.S. Dept. of Energy, 1994-1996.  
Co-Chairman of Special Session on Subsurface Microbial Processes, Fall Meeting of American Geophysical Union, 1996.  
Member of Review Panel for Environmental Management Science Program, U.S. Dept. of Energy, 1996.  
Program Committee Member for 1997 SPIE Conference for Investigation of Extraterrestrial Microorganisms.  
Participant of NASA Workshop on Mars Drilling, NASA Ames, Dec. 1996  
Participant of NASA Workshop on Mars Sample Return, NASA Ames, June 1997  
Member of Athena Proposal Team in charge of Planetary Protection Issues, 06/97 to 04/98  
Participant of NASA Workshop on Deep Drilling Mars Mission, Los Alamos, May, 1998.  
Member of Review Panel for LExEn Program, NSF, May 2000.  
Organized Workshop on Biogeochemical Processes at Lead, South Dakota as part of Underground Laboratory Conference, Jan. 2000.  
Drafted Earth Lab report to NSF, 2004.  
S1 Principal Investigator for Deep Underground Science and Engineering Laboratory, (DUSEL) 2004-2007.  
Member of the DUSEL Experiment Development and Coordination committee 2007-2009.

Presenter at NASA Workshop on Deep Drilling Mars Mission, NASA Ames, Feb., 2008.  
Co-Director of Indiana-Princeton-Tennessee Astrobiology Institute, 2004-2008.  
Co-Chairman of Special Session on Underground Laboratories, Fall Meeting of American Geophysical Union, 2008.  
Co-Chairman of Special Session on Rocks, Fractures, Fluids, and Life: Insights From Underground Research Laboratories, Fall Meeting of American Geophysical Union, 2010.  
NSF DEB Review Panel Member, 2012  
U.S. DOE Early Career Proposals Review Panel Member, 2013.  
NASA - Member of the Mars 2020 Science and Definition Team, Spring/Summer 2013.  
NASA – Member of the Advisory Committee on Planetary Protection – 2014-today

#### Awards and Fellowships

Presidential Young Investigator Award, 1985-1989  
Jubilee Medal, Geological Society of South Africa, 1988  
Award for Meritorious Research in Subsurface Microbiology, U.S. Dept. of Energy, 1995  
Award for Meritorious Research in NABIR Program, U.S. Dept. of Energy, 1998  
Appreciation Award for Research Excellence, Office of Science, U.S. Dept. of Energy, 2002  
TIME100 Most Influential People in the World, 2007

## Refereed Journals and Reviews

\* Undergraduate, graduate or postdoctoral advisees

1. 2016 Youmi Oh, Brandon Stackhouse\*, Maggie C.Y. Lau\*, Jonathan Moch\*, Tullis C. Onstott, Christian Juncher Jørgensen, Ludovica D'Imperio, Bo Elberling, Craig A. Emmerton, Vincent L. St. Louis and David Medvigy, A scalable model explaining methane consumption in Arctic mineral soils. *Geophysical Research Letters* ,43, 5143—5150. doi:10.1002/2016GL069049.
2. 2016 Magnabosca C., Timmers P. H. A., Lau M. C. Y., Borgonie G., Linage-Alvarez B., Kuloyo O., Alleva R., Kieft T. L., Slater G. S., van Heerden E., Sherwood Lollar B. and Onstott T. C. The case for a dynamical subsurface ecosystem. *BioRxiv*, doi: [10.1101/040204](https://doi.org/10.1101/040204).
3. 2016 Maggie C.Y. Lau\*, Thomas L. Kieft, Olukayode Kuloyo, Borja Linage, Esta van Heerden, Melody R. Lindsay, Cara Magnabosco, Wei Wang, Jessica B. Wiggins, Ling Guo, David H. Perlman, Saw Kyin, Henry H. Shwe, Rachel L. Harris, Youmi Oh, Min Joo Yi and Tullis C. Onstott, The RNA portrait of the active C, N and S metabolic landscape at 1.34 km depth. *PNAS* 113 (49) doi: 10.1073/pnas.1612244113.
4. 2016 Y. Chen\*, Kevin K. Lehmann, Y. Peng, L.M. Pratt, J.R. White, S.B. Cadieux, B. Sherwood Lollar, G. Lacrampe-Couloume and T.C. Onstott, Hydrogen isotopic composition of Arctic and atmospheric CH<sub>4</sub> determined by a portable near-IR cavity ring-down spectrometer with a cryogenic pre-concentrator. *Astrobiology*, doi: [10.1089/ast.2015.1395](https://doi.org/10.1089/ast.2015.1395).
5. 2016 B. Stackhouse\*, M.C.Y. Lau\*, T. Vishnivetskaya, N. Burton\*, R. Wang\*, A. Southworth\*, L. Whyte, and T.C. Onstott, Atmospheric CH<sub>4</sub> oxidation by Arctic permafrost and mineral cryosols as a function of water saturation and temperature. *Geobiology*, doi: [10.1111/gbi.12193](https://doi.org/10.1111/gbi.12193).
6. 2016 R. L. Sanders\*, R. L. Sleighter, P. G. Hatcher, T. C. Onstott, L. G. Whyte, B. Stackhouse\*, and S. C. B. Myneni, Strikingly Different Form of Organic Carbon in Soils of Polar Regions, *Env. Sci. Tech.*, *in review*.
7. 2015 Cara Magnabosco\*, Kathleen Ryan\*, Maggie C.Y. Lau\*, Olukayode Kuloyo, Barbara Sherwood Lollar, Thomas L. Kieft, Esta van Heerden, and T.C. Onstott, A Metagenomic Window into Carbon Metabolism at 3 km Depth in Precambrian Continental Crust. *The ISME Journal*, doi:10.1038/ismej.2015.150.
8. 2015 G. Borgonie, B. Linage-Alvarez, A.O. Ojo, S.O.C Mundle, L.B. Freese, C. Van Rooyen, O. Kuloyo, J. Albertyn, C. Pohl, E.D. Cason, J. Vermeulen, C. Pienaar, D. Litthauer, H. Van Niekerk, J. Van Eeden, B. Sherwood Lollar, T.C. Onstott and E. Van Heerden, Eukaryotic opportunists dominate the deep-subsurface biosphere in South Africa. *Nature Communications* 6:8952, doi: 10.1038/ncomms9952.
9. 2015 Simkus, D. N., G. F. Slater, B. Sherwood Lollar, K. Wilkie, T. L. Kieft, C. Magnabosco, M.C.Y. Lau, M. J. Pullin, S. B. Hendrickson, K. E. Wommack, E. G. Sakowski, E. van Heerden, O. Kuloyo, B. Linage, G. Borgonie, T. C. Onstott, Variations in microbial carbon sources and cycling in the deep continental subsurface. *Geochim. Cosmochim. Acta*, 173:264–283.
10. 2015 Brandon T. Stackhouse\*, Tatiana A. Vishnivetskaya, Alice Layton, Susan Pfiffner, Nadia C. Mykityczuk, Lyle G. Whyte, Nabil Saad, and Tullis C. Onstott, Vertical gas fluxes, geochemical characteristics, and microbial community of polygonal active layer and permafrost during progressive spring thaw. *Journal of Geophysical Research: Biogeosciences* 120: doi:10.1002/2015JG003004.
11. 2015 Borgonie G, Linage-Alvarez B, Ojo A, Shivambu S, Kuloyo O, Cason E, Maphanga S, Vermeulen J, Litthauer D, Ralston C, Onstott TC, Sherwood-Lollar B, van Heerden E, Deep subsurface mine stalactites trap endemic fissure fluid Archaea, Bacteria, and Nematoda possibly originating from ancient seas. *Frontiers in Microbiology*, 6:833.

12. 2015 T.C. Onstott Deep Subsurface Microbiology. In Gargaud M, Irvine W (Eds.) Encyclopedia of Astrobiology, Vol. x, pp xx–xxx. Heidelberg New York Dordrecht London.
13. 2015 M.C.Y. Lau\*, B.T. Stackhouse\*, A.C. Layton, A. Chauhan, T.A. Vishnivetskaya, K. Chourey, N.C.S. Mykytczuk, P.C. Bennett, G. Lamarche-Gagnon, N. Burton, J. Ronholm, W.H. Pollard, C.R. Omelon, D.M. Medvigy, R.L. Hettich, S.M. Pfiffner, L.G. Whyte and T.C. Onstott. An active atmospheric methane sink in high Arctic mineral cryosols. *ISME Journal*, doi:10.1038/ismej.2015.13.
14. 2015 J. Labonté, E. Field, M. Lau, D Chivian, E. van\_Heerden, K. E. Wommack, T. L. Kieft, T.C. Onstott and R. Stepanauskas. Single cell genomics indicates horizontal gene transfer and viral infections in a deep subsurface Firmicutes population. *Frontiers in Microbiology* 1-14: doi:10.1038/ismej.2015.48.
15. 2014 Sherwood Lollar, B., Onstott, T.C., Lacrampe-Coulome, G., and Ballentine, C., Continental lithosphere doubles global H<sub>2</sub> flux estimates for the deep biosphere. *Nature* 516:379-382, doi:10.1038/nature14017.
16. 2014 Chauhan, A., Layton, A.C., Vishnivetskaya, T.A., Williams, D., Pfiffner, S.M., Rekepalli, B., Stackhouse, B., Lau, M.C.Y., Phelps, T.J., Mykytczuk, N., Ronholm, J., Whyte, L., Onstott, T.C., Saylor, G.S. Metagenomes from thawing low-soil-organic-carbon mineral cryosols and permafrost of the Canadian high Arctic. *Genome Announcements* 2(6):e01217-14. doi:10.1128/genomeA.01217-14.
17. 2014 Magnabosco\*, C., C.Y.M. Lau\*, T.C. Onstott, T.L. Kieft, M. Tekere, J. Olivier, B. Linage-Alvarez, O. Kuloyo, M. Erasmus, E. Cason, E. van Heerden, and G. Borgonie. Comparisons of the composition and biogeographic distribution of the bacterial communities occupying South African thermal springs with those inhabiting deep subsurface fracture water. *Frontiers in Microbiology*, doi: 10.3389/fmicb.2014.00679.
18. 2014 Lau, C.Y. M\*, C. Cameron, C. Magnabosco\*, C.T. Brown, F., Schilkey, S. Grim, S. Hendrickson, M. Pullin, G. Lacrampe-Couloume, B. Sherwood Lollar, Esta van Heerden, T.L. Kieft and T.C. Onstott, Phylogeny and phylogeography of functional genes shared among seven terrestrial subsurface metagenomes reveal N-cycling and microbial evolutionary relationships. *Frontiers in Microbiology*, doi: 10.3389/fmicb.2014.00531.
19. 2014 Y. Chen (陈宇衡), P. Mahaffy, V. Holmes, J. Burris, P. Morey, Y. Tang, K.K. Lehmann, B. Sherwood Lollar, G. Lacrampe Couloume and T.C. Onstott, Isotopic Analyses of CH<sub>4</sub> during Planetary Surface Missions Using Near Infrared Cavity Ring-down Spectroscopy. *Planetary and Space Sciences*, 105:117-126, 10.1016/j.pss.2014.11.016.
20. 2014 M. Kang, C. Kanno, M. Reid, X. Zhang, D. Mauzerall, M. Celia, Y. Chen, T. C. Onstott, Methane emission from old abandoned oil and gas wells in northwest Pennsylvania. *Proc. National Academy of Sciences*, 10.1073/pnas.1408315111.
21. 2014 Wilkins, M., Daly, P. Mouser, Sharma, D. Cole, Wrighton, J. Biddle, J.K. Fredrickson, T.L. Kieft, T.C. Onstott, Petersen, S.M. Pfiffner, T.J. Phelps, and M. Schrenk Trends and Future Challenges in Sampling the Deep Terrestrial Biosphere. *Frontiers in Microbiology* 5: doi: 10.3389/ fmicb.2014.00481.
22. 2014 Allan, J., J. Ronholm, N. C. S. Mykytczuk, C. W. Greer, T. C. Onstott and L. G. Whyte, Methanogen community composition and rates of methane consumption in Canadian High Arctic permafrost soils. *Environmental Microbiology Reports* doi:10.1111/1758-2229.12139.
23. 2014 Vishnivetskaya, TA, AC Layton, MCY Lau\*, A Chauhan, KR Cheng, AJ Meyers, JR Murphy, AW Rogers, GS Saarunya, DE Williams, SM Pfiffner, L Whyte, JP Biggerstaff, BT Stackhouse\*, TJ Phelps, GS Saylor and TC Onstott, Commercial DNA extraction kits impact observed microbial community composition in permafrost samples. *FEMS Microbiol Ecol.* 87:217-230. doi: 10.1111/1574-6941.12219.
24. 2014 Onstott, T.C., Magnabosco, C.\*, Aubrey, A.D., Burton, A.S., Dworkin, J.P., Elsila, J.E., Grunsfeld, S., Cao, B.H., Hein, J.E., Glavin, D.P., Kieft, T.L., Silver, B.J.\*, vanHeerden, E., Opperman, D.J. and Bada, J.L., Does Aspartic Acid Racemization Constrain the Depth Limit of the Subsurface Biosphere? *Geobiology*, DOI:

10.1111/gbi.12069.

25. 2013 Y. Chen\*, J. Kessler\*, K. K. Lehmann, B. Sherwood Lollar, G. Lacrampe Couloume and T.C. Onstott, Measurement of the  $^{13}\text{C}/^{12}\text{C}$  of atmospheric  $\text{CH}_4$  using near-IR Cavity Ringdown Spectroscopy, *Analytical Chemistry* 85:11,250-11,257.
26. 2012 Mailloux, B.J.\*, Dochenetz, A., Bishop, M., Dong, H.\*, Ziolkowski, L.A., Wommack, K.E., Sakowski, E.G., Onstott, T.C. and Slater, G.F. A carbon free filter for collection of large volume samples of cellular biomass from oligotrophic waters. *Jour. Microbio. Methods* 90:145-151, doi:10.1016/j.mimet.2012.04.016.
27. 2012 Murdoch, L., Germanovich, L., Wang, H., Onstott, T.C., Elsworth, D., Stetler, L., and Boutt, D. Hydrogeology of the Vicinity of DUSEL Homestake. *Hydrogeology Journal* 20:27-43.
28. 2012 Rummel, J.D., M.S. Race, G. Horneck, J. Arnould, A. Baker, L. Billings, P. Boston, C. Chyba, C. Cleland, S. Clifford, C. Conley, P. Ehrenfreund, E. Foote, J. Gabrynowicz, A. Kerrest, G. Kminek, C. McKay, T.C. Onstott, D. Paige, T. Peters, S. Priest, R. Randolph, P. Rettberg, B. Stackhouse, E. Wilson, J-C Worms, Ethical Considerations for Planetary Protection in Space Exploration: A Workshop. *Astrobiology* 12:1017-1023.
29. 2012 Wanger, G., Moser, D.\*, Hay, M. Myneni, S., Onstott, T.C. and Southam, G., Mobile Hydrocarbon Microspheres from >2 Billion Year Old Carbon-bearing Seams in the South African Deep Subsurface. *Geobiology* 10: 496-505.
30. 2012 Silver, B.J., Raymond, R., Sigman, D., Prokopenko, M., Sherwood Lollar, B., Lacrampe-Couloume, G., Fogel, M., Pratt, L., Leticariu, L., Onstott, T.C., The origin of  $\text{NO}_3^-$  and  $\text{N}_2$  in deep subsurface fracture water of South Africa. *Chem. Geol.* 294-295:51-62.
31. 2012 Graham, D.E., Matthew D. Wallenstein, Tatiana A. Vishnivetskaya, Mark P. Waldrop, Tommy J. Phelps, Susan M. Pfiffner, T.C. Onstott, Lyle G. Whyte, Elizaveta M. Rivkina, David A. Gilichinsky, Dwayne A. Elias, Rachel Mackelprang, Nathan C. VerBerkmoes, Robert L. Hettich, Dirk Wagner, Stan D. Wullschleger, and Janet K. Jansson, Commentary Microbes in Thawing Permafrost: The Unknown Variable in the Climate Change Equation, *The ISME Journal* 6:709-712.
32. 2011 Scheibe, T.D., S.S. Hubbard, T.C. Onstott and M.F. DeFlaun, Lessons Learned from Bacterial Transport Research at the South Oyster Site, Review Paper, *Ground Water* 45:745-763.
33. 2011 Lippmann-Pipke, J., Sherwood Lollar, B., Niedermann, S., Stronick, N., Naumann, R., vanHeerden, E. and Onstott, T.C. 2 Ga old crustal neon component implies long water-rock reaction times of deep fracture water. *Chem. Geol.* 283:287-296 (doi:10.1016/j.chemgeo.2011.01.028).
34. 2011 Borgonie, G., Antonio García-Moyano, Derek Litthauer, Wim Bert, Armand Bester, Esta van Heerden, and Tullis C. Onstott. Nematoda from the terrestrial deep subsurface of South Africa. *Nature*, 474:79-82, doi:10.1038/nature09974.
35. 2011 Peters, C.A., Dobson, P.F., Oldenburg, C.M., Wang, J.S.Y., Onstott, T.C., Scherer, G.W., Freifeld, B.M., Ramakrishnan, T.S., Stabinski, E.L., Liang, K. and Verma, S. LUCI: A facility at DUSEL for large-scale experimental study of geologic carbon sequestration. *Energy Procedia*, 4: 5050–5057 (doi:10.1016/j.egypro.2011.02.478).
36. 2011 Johnson, A.P., Pratt, L.M., Vishnivetskaya, T., Pfiffner, S., Bryan, R.A., Dadachova, E., Whyte, L., Radtke, K., Chan, E., 1, Tronick, S.\*, Borgonie, G., Mancinelli, R.M., Rothshchild, L.J., Rogoff, D.A., Horikawa, D.D., Onstott, T.C. Extended Survival of Several Organisms and Amino Acids under Simulated Martian Surface Conditions. *Icarus*, 211:1162–1178 (doi:10.1016/j.icarus.2010.11.011).

37. 2011 Onstott, T.C., Chan, E., Polizzotto, M., Lanzon, J. and DeFlaun, M.F. Precipitation of Arsenic Under Sulfate Reducing Conditions and Subsequent Leaching Under Aerobic Conditions. *App. Geochem.* 26: 269–285, doi:10.1016/j.apgeochem.2010.11.027.
38. 2011 Davidson, Mark M.\*, Silver, Bianca J.\*, T.C. Onstott, D.P. Moser\*, Lisa M. Pratt, E.A. Boice, B. Sherwood Lollar, J. Lippmann-Pipke, S. M. Pfiffner, T.L. Kieft, W. Seymore and C. Ralston, Capture of Planktonic Microbial Diversity in Fractures by Long Term Monitoring of Flowing Boreholes, Evander Basin, South Africa. *Geomicrobiology Journal*, 28:275–300, DOI: 10.1080/01490451.2010.499928.
39. 2010 K. Zacny, D. McKay, L. Beegle, T.C. Onstott, R. Mueller, G. Mungas, P. Chu and J. Craft, Novel Method of Regolith Sample Return from Extraterrestrial Body using a Puff of Gas. Institute of Electrical and Electronics Engineers Aerospace Conference 2010, paper #1082, p. 1-10.
40. 2010 Randy L. Stotler, Shaun K. Frape, Barry M. Freifeld, Brian Holden, Tullis C. Onstott, Timo Ruskeeniemi, Eric Chan, A Method For Hydrogeological and Geochemical Measurement Beneath Deep Permafrost. *Ground Water* 49: 348-364, DOI: 10.1111/j.1745-6584.2010.00724.x.
41. 2010 Silver, Bianca J.\*, Tullis Onstott, Li-Hung Lin, George Rose, Colin Ralston, Barbara Sherwood-Lollar, Susan M. Pfiffner, Thomas L. Kieft and Sean McCuddy. *In situ* cultivation of subsurface microorganisms in a deep mafic sill: implications for SLiMEs. *Geomicrobiology Journal* 27:329-348.
42. 2010 Onstott, T.C., Hinton, S.M., Silver, B.J.\* and King, Jr., H.E. Coupling Hydrocarbon Degradation to Anaerobic Respiration and Mineral Diagenesis: Theoretical Constraints. *Geobiology*, 8:69-88.
43. 2009 Davidson, Mark M.\*, M.E. Bisher, Lisa M. Pratt, Jon Fong, Gordon Southam, Susan M. Pfiffner, Z. Reches and T.C. Onstott, Sulfur Isotope Enrichment during Maintenance Metabolism of the Thermophilic Sulfate Reducing *Desulfotomaculum putei*. *Applied and Environmental Microbiology* 75: 5621–5630.
44. 2009 Onstott, T.C., Daniel J. McGown\*, Corien Bakermans, Timo Ruskeeniemi, Lasse Ahonen, Jon Telling, Carl Boettiger, Ruby Ho, Bruno Soffientino, Susan M. Pfiffner, Sarah DiFurio, Barbara Sherwood Lollar, Shaun Frape, Randy Stotler, Lisa M. Pratt, and Tatiana A. Vishnivetskaya, Microbial Sulfur Cycling in Subpermafrost Saline Fracture Water at the Lupin Gold Mine, Nunavut, Canada. *Microbial Ecology* 58:786-807.
45. 2009 Stotler, R.L., Shaun K. Frape, Timo Ruskeeniemi, Lasse Ahonen, Tullis C. Onstott and Monique Y. Hobbs, Hydrogeochemistry of groundwater's in and below the base of thick permafrost at Lupin, Nunavut, Canada. *Jour. of Hydrology* 373:80-95.
46. 2009 West, L.\* , D.J. McGown\*, T.C. Onstott, R.V. Morris, P. Suchecki and L.M. Pratt, High Lake gossan deposit: An Arctic analogue for ancient Martian surficial processes? *Planetary and Space Science* 57:1302-1311.
47. 2009 Paul Backes, Tullis Onstott, Yoseph Bar-Cohen, Mircea Badescu, Lisa Pratt, Daniel Helmick, Stewart Sherrit, Adam Johnson and Xiaoqi Bao. Planetary Sample Sealing for Caching. *IEEEAC*, 978-1-4244-2622-5.
48. 2009 Smith, David J.\*, Andrew C. Schuerger, Mark M. Davidson, Stephen W. Pacala, Corien Bakermans, and Tullis C. Onstott. Survivability of *Psychrobacter cryohalolentis* K5 Under Simulated Martian Surface Conditions. *Astrobiology Journal* 9: DOI: 10.1089/ast.2007.0231.
49. 2009 Zacny, K., Bar-Cohen, Y., Davis, K., Coste, P., Paulsen, G., Sherrit, S., George, J., Derkowski, B., Gorevan, S., Boucher, D., Guerrero, J., Kubota, T., Thomson, B.J., Stanley, S., Thomas, P., Lan, N., McKay, C., Onstott, T.C., Stoker, C., Glass, B., Wakabayashi, S., Whyte, L., Visentin, G., Re, E., Richter, L., Badescu, M., Bao, X., Fincher, R., Hoshino, T., Magnani, P. and Menon, C., Chap. 6. Extraterrestrial Drilling and

Exploration in Drilling in Extreme Environments: Penetration and Sampling on Earth and Other Planets, Bar-Cohen and Zacny (eds.) Wiley&Sons.

50. 2008 Sherwood Lollar, B., Lacrampe-Couloume, G., Voglesonger, K., Onstott, T.C., Pratt, L.M. and Slater, G.F., Isotopic signatures of CH<sub>4</sub> and higher hydrocarbon gases from Precambrian Shield sites: A model for abiogenic polymerization of hydrocarbons. *Geochimica et Cosmochimica Acta* 72:4778-4795.
51. 2008 Wanger, G., Onstott, T. C. and Southam, G., Stars of the terrestrial deep subsurface: A novel 'star-shaped' bacterial morphotype from a South African platinum mine. *Geobiology* 6: 325–330.
52. 2008 Dylan Chivian, Eric J. Alm, Eoin L. Brodie, David E. Culley, Paramvir S. Dehal, Todd Z. DeSantis, Thomas M. Gihring, Alla Lapidus, Li-Hung Lin, Stephen R. Lowry, Duane P. Moser, Paul Richardson, Gordon Southam, Greg Wanger, Lisa M. Pratt, Gary L. Andersen, Terry C. Hazen, Fred J. Brockman, Adam P. Arkin, and Tullis C. Onstott. Environmental genomics reveals a single species ecosystem deep within the Earth. *Science* 322:275-278.
53. 2008 Freifeld, B.M., Onstott, T.C., Pratt, L.M., Stotler, R., Pfiffner, S., Chan, E.\*, Johnson, A., Holden, B., DiFurio, S., Ruskeeniemi, T., Frape, S., Neill, I. Arctic Ground Surface Temperature History using a Borehole Distributed Temperature Sensor at High Lake, Nunavut, Canada. *Geophys. Res. Letters*, 35: L14309, doi:10.1029/2008GL034762.
54. 2008 Pfiffner, S. M., T.C. Onstott, T. Ruskeeniemi, T., M. Talikka, C. Bakermans, D. McGown\*, E. Chan\*, A. Johnson, T. J. Phelps, M. Le Puil, S. A. Difurio, L.M. Pratt, R. Stotler, S. Frape, J. Telling, B. Sherwood-Lollar, I. Neill, and B. Zerbin. Challenges for Coring Deep Permafrost on Earth and Mars. *Astrobiology Journal* 8:623-638.
55. 2008 Mac Lean, L.C.W., Pray, T.J., Onstott, T.C. and Southam, G. High-resolution structural and chemical studies of framboidal pyrite formed within a bacterial biofilm. *Geobiology* 6: 471–480.
56. 2007 Sherwood Lollar, B., Voglesonger, K., Lin, L.-H., Abrajano, T.A., Onstott, T.C. and Pratt, L.M. Hydrogeologic controls on episodic H<sub>2</sub> release from Precambrian fractured rocks - Energy for deep subsurface life on Earth and Mars. *Astrobiology Journal* 7:971-986.
57. 2007 Mac Lean, L.C.W., Pray, T.J., Onstott, T.C. and Southam, G. Mineralogical, Chemical and Biological Characterization of an Anaerobic Biofilm Collected from a Borehole in a Deep Gold Mine in South Africa. *Geomicrobiology Journal* 24:491–504.
58. 2007 Elwood Madden, M., S. Ulrich, T.C. Onstott, and T. Phelps, Salinity-induced hydrate dissociation: a mechanism for recent methane release on Mars. *Geophys. Research Letters* 34, L11202, doi:10.1029/2006GL029156.
59. 2007 Mailloux, Brian J.\*, Devlin, S., Fuller, M. E., Onstott, T. C., DeFlaun, M. F., Choi, K-H, Green-Blum, M., Swift, D. J. P., McCarthy, J., and Dong, H. The Limited Role of Aquifer Heterogeneity on Metal Reduction in an Atlantic Coastal Plain Determined by Push-Pull Tests. *Appl. Geochem.* 22:974-995.
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