

## Curriculum Vitae

### Dale T. Andersen

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**Current Position:** Senior Research Scientist, Carl Sagan Center for the Study of Life in the Universe, SETI Institute. 189 Bernardo Ave. Suite 200, Mountain View, CA 94043.

**Academic Degrees:** PhD, McGill University, 2004. Physical Geography. BS, Va Tech, 1979. Biology.

**Professional Background:** *1993-present, SETI Institute.* Experienced limnologist/aquatic ecologist with a long history of work in polar-regions and temperate deserts (Mojave, Atacama). Developed techniques for scientific diving and the use of ROV technology for the exploration of perennially ice-covered lakes in Antarctica; led the first comprehensive studies of perennial spring ecosystems of Axel Heiberg in the High Arctic; led the first expedition to explore the sub-ice environment of Lakes Untersee and Obersee in the mountains of Queen Maud Land, Antarctica using technical diving, discovering the only known modern large conical stromatolites. Extensive experience with EPO having created two PBS documentaries including the only live interactive broadcast from beneath Antarctic sea-ice with participation of middle schools in the US including early online blogs (1993); Polar, Research related images & video used by National Geographic, PBS, Discovery Channel, NASA, Nikon, and others for various magazines, journals and television programming, as well as non-fiction books. Contributed essay titled: "Life Under the Arctic Ice." National Geographic Ocean: An Illustrated Atlas (2008); as a member of the NASA Exobiology Implementation Team within the US/USSR Joint Working Group for Space Medicine and Biology, led the US team during a joint US/Soviet expedition to the Bunge Hills, Antarctica to study perennially ice-covered lakes in that oasis region. 1987-1993, Lockheed Engineering & Sciences. Co., programmatic support of NASA Exobiology, CELSS, Biospheric Program at NASA HQ, Washington, DC. Attended and completed the NASA Planetary Protection Course *Planetary Protection: Policies and Practices* (2006).

### **Specialized Skills**

1. Expertise of polar & scientific diving techniques; use of SCUBA and remotely operated vehicles for scientific investigations of remote and extreme environments. (18 Antarctic Expeditions, 31 Arctic Expeditions to the high arctic, Svalbard, Eastern Siberia)
2. Wilderness First Aid, CPR, Expedition planning, logistics coordination for remote/extreme environments.
3. Expertise in underwater photography and videography.
4. Expertise of general mountaineering techniques.
5. Editorial experience.

### **Honors**

- Deans Honors List (Top 10%), McGill University (2004)
- United States Antarctic Service Medal (1979)
- Fellow Member Explorers Club, FN1987
- 2014 NASA Ames Special Recognition Award for Group/Team: Pavilion Lake Research Project

- NASA Group Achievement Award, Ames Mars Exploration Telepresence/Virtual Reality Team, 1995
- NASA Certificate of Appreciation for Contributions to the US/Soviet Telemedicine Space Bridge 1990
- Lockheed Engineering and Sciences Company, Tony Gross Award Nominee, 1991
- Eagle Scout Award, Boy Scouts of America

**Recent Projects:** Privately funded research via the Chicago Field Museum (PI) to study large conical microbialites in Lake Untersee, Antarctica; Exobiology funded research to study microbialites in Lake Joyce Antarctica (PI); ASTEP funded research (Co-I) in University Valley Antarctica; Scientific diving support and research (Co-I) Pavilion Lake Research Group.

**Professional Committees & Review Panels:** Member of AGU; GSA; ASLO; AAUS; AAAS; Chair, NSF Antarctic Scientific Diving Control Board, External reviewer or panel member for NASA LASER, Exobiology, MFRP, NSF DEB, DPP, NOAA, Norwegian Research Council. Participant in numerous NASA Planetary Protection workshops. Serves on the Board of Directors for the Antarctic Society.

**Papers in the Archival Literature**

1. Koo, H., B. M. Strobe, E. H. Kim, A. M. Shabani, R. Kumar, M. R. Crowley, **D. T. Andersen**, and A. K. Bej (2016), Draft Genome Sequence of *Janthinobacterium* sp. Ant5-2-1, Isolated from Proglacial Lake Podprudnoye in the Schirmacher Oasis of East Antarctica, *Genome Announcements*, 4(1), doi:10.1128/genomeA.01600-15.
2. Koo, H., J. A. Hakim, P. R. E. Fisher, A. Grueneberg, **D. T. Andersen**, and A. K. Bej (2016), Distribution of cold adaptation proteins in microbial mats in Lake Joyce, Antarctica: Analysis of metagenomic data by using two bioinformatics tools, *Journal of Microbiological Methods*, 120, 23-28, doi:10.1016/j.mimet.2015.11.008.
3. **Andersen, D. T.**, C. P. McKay, and V. Lagun (2015), Climate Conditions at Perennially Ice-Covered Lake Untersee, East Antarctica, *Journal of Applied Meteorology and Climatology*, 54(7), 1393-1412, doi:10.1175/jamc-d-14-0251.1.
4. Steel, H. C. B., C. P. McKay, and **D. T. Andersen** (2015), Modeling circulation and seasonal fluctuations in perennially ice-covered and ice-walled Lake Untersee, Antarctica, *Limnology and Oceanography*, n/a-n/a, doi:10.1002/lno.10086.
5. Mackey, T. J., D. Y. Sumner, I. Hawes, A. D. Jungblut, and **D. T. Andersen** (2015), Growth of modern branched columnar stromatolites in Lake Joyce, Antarctica, *Geobiology*, 13(4), 373-390, doi:10.1111/gbi.12138.
6. Zhang, L., A. D. Jungblut, I. Hawes, **D. T. Andersen**, D. Y. Sumner, and T. J. Mackey (2015), Cyanobacterial diversity in benthic mats of the McMurdo Dry Valley lakes, Antarctica, *Polar Biology*, doi:10.1007/s00300-015-1669-0.

7. Koo, H., T. Ptacek, M. Crowley, A. K. Swain, J. D. Osborne, A. K. Bej, and **D. T. Andersen** (2014), Draft Genome Sequence of *Hymenobacter* sp. Strain IS2118, Isolated from a Freshwater Lake in Schirmacher Oasis, Antarctica, Reveals Diverse Genes for Adaptation to Cold Ecosystems, *Genome Announcements*, 2(4), doi:10.1128/genomeA.00739-14.
8. Huang, J.P., Swain, A.K., **Andersen, D.T.**, Bej, A.K. (2014). Bacterial diversity within five unexplored freshwater lakes interconnected by surface channels in East Antarctic Dronning Maud Land (Schirmacher Oasis) using amplicon pyrosequencing. *Polar Biol* DOI 10.1007/s00300-013-1436-z
9. Karanovic, T., Gibson, J.A.E., Hawes, I., **Andersen, D.T.**, and Stevens, M.I. (2013). An endemic cyclopoid copepod from Lake Joyce challenges our understanding of McMurdo Dry Valley biodiversity. *Antarctic Science*. Available on CJO2013. doi:10.1017/S0954102013000643.
10. Mojib, N., Farhoomand, A., **Andersen, D.**, and Bej, A. (2013). UV and cold tolerance of a pigment-producing Antarctic *Janthinobacterium* sp. Ant5-2. *Extremophiles* 17, 367-378.
11. Marinova, M.M., McKay, C.P., Pollard, W.H., Heldmann, J.L., Davila, A.F., **Andersen, D.T.**, Jackson, W.A., Lacelle, D., Paulsen, G., and Zacny, K. (2013). Distribution of depth to ice-cemented soils in the high-elevation Quartermain Mountains, McMurdo Dry Valleys, Antarctica. *Antarctic Science* FirstView, 1-8.
12. Huang, J., Swain, A., Thacker, R., Ravindra, R., **Andersen, D.**, and Bej, A. (2013). Bacterial diversity of the rock-water interface in an East Antarctic freshwater ecosystem, Lake Tawani(P)†. *Aquatic Biosystems* 9, 4. doi:10.1186/2046-9063-9-4.
13. Filippova, S., N. Surgucheva, E. Kulikov, V. Sorokin, V. Akimov, A. Bej, C. McKay, **D. Andersen**, and V. Galchenko (2013), Detection of phage infection in the bacterial population of Lake Untersee (Antarctica), *Microbiology*, 82(3), 383-386.
14. Hawes, I., Sumner, D., **Andersen, D.**, Jungblut, A., and Mackey, T. (2013). Timescales of Growth Response of Microbial Mats to Environmental Change in an Ice-Covered Antarctic Lake. *Biology* 2, 151-176.
15. Christopher P. McKay, C.R.S., Brian J. Glass, Arwen I. Davé, Alfonso F. Davila, Jennifer L. Heldmann, Margarita M. Marinova, Alberto G. Fairen, Richard C. Quinn, Kris A. Zacny, Gale Paulsen, Peter H. Smith, Victor Parro, **Dale T. Andersen**, Michael H. Hecht, Denis Lacelle, and Wayne H. Pollard. (2013). The Icebreaker Life Mission to Mars: A Search for Biomolecular Evidence for Life. *Astrobiology* 13, 334-353.
16. Heldmann, J.L., Marinova, M., Williams, K.E., Lacelle, **D.**, Mckay, C.P., Davila, A., Pollard, W., and **Andersen, D.T.** (2012). Formation and evolution of buried snowpack

deposits in Pearse Valley, Antarctica, and implications for Mars. *Antarctic Science* 24, 299-316.

17. Huang, J., Mojib, N., Goli, R., Watkins, S., Waites, K., Ravindra, R., **Andersen, D.**, and Bej, A. (2012). Antimicrobial activity of PVP from an Antarctic bacterium, *Janthinobacterium* sp. Ant5-2, on multi-drug and methicillin resistant *Staphylococcus aureus*. *Nat Prod Bioprospect* 2, 104-110.
18. Schulze-Makuch, D., Head, J.N., Houtkooper, J.M., Knoblauch, M., Furfaro, R., Fink, W., Fairén, A.G., Vali, H., Kelly Sears, S., Daly, M., Deamer, D., Schmidt, H., Hawkins, A.R., Sun, H.J., Lim, D.S.S., Dohm, J., Irwin, L.N., Davila, A.F., Mendez, A., and **Andersen, D.** (2012). The Biological Oxidant and Life Detection (BOLD) mission: A proposal for a mission to Mars. *Planetary and Space Science* 67, 57-69.
19. **Andersen, D.T.**, Sumner, D.Y., Hawes, I., Webster-Brown, J., and McKay, C.P. (2011). Discovery of large conical stromatolites in Lake Untersee, Antarctica. *Geobiology* 9, 280-293.
20. Hawes, I., Sumner, D.Y., **Andersen, D.T.**, and Mackey, T.J. (2011). Legacies of recent environmental change in the benthic communities of Lake Joyce, a perennially ice-covered Antarctic lake. *Geobiology* 9, 394-410.
21. Lacelle, D., Davila, A., Pollard, W., **Andersen, D.**, Heldmann, J., Marinova, M., and McKay, C. (2011). Stability of massive ground ice bodies in University Valley, McMurdo Dry Valleys of Antarctica: Using stable O-H isotope as tracers of sublimation in hyper-arid regions. *Earth and Planetary Science Letters* 301, 403-411.
22. Lim, D.S., Brady, A., Abercromby, A., **Andersen, D.**, **Andersen, M.**, Arnold, R., Bird, J., Bohm, H., Booth, L., and Cady, S. (2011). A historical overview of the Pavilion Lake Research Project—Analog science and exploration in an underwater environment. *Geological Society of America Special Papers* 483, 85-115.
23. Mojib, N., **Andersen, D.T.**, and Bej, A.K. (2011). Structure and function of a cold shock domain fold protein, CspD in *Janthinobacterium* sp. Ant5-2 from East Antarctica. *FEMS Microbiology Letters*, 319: 106–114. doi: 10.1111/j.1574-6968.2011.02269.x
24. Mojib, N., Nasti, T.H., **Andersen, D.T.**, Attigada, V.R., Hoover, R.B., Yusuf, N., and Bej, A.K. (2011). The antiproliferative function of violacein-like purple violet pigment (PVP) from an Antarctic *Janthinobacterium* sp. Ant5-2 in UV-induced 2237 fibrosarcoma. *International Journal of Dermatology* 50, 1223-1233.
25. Brady, A., Slater, G., Omelon, C., Southam, G., Druschel, G., **Andersen, D.**, Hawes, I., Laval, B., and Lim, D. (2010b). Photosynthetic isotope biosignatures in laminated microstromatolitic and non-laminated nodules associated with modern, freshwater microbialites in Pavilion Lake, BC. *Chemical Geology*.

26. Cabrol N. A., **D. T. Andersen**, C. R. Stoker, P. Lee, C. P. McKay, and D. S. Wettergreen. (2010). Chapter 10: Other Analogs to Mars: High altitude, subsurface, desert, and polar environments. In: *Life in Antarctic Deserts and other Cold Dry Environments: Astrobiological Analogues*, Peter T. Doran, W. Berry Lyons, and Diane M. McKinght, (Eds.), Cambridge University Press, Cambridge Astrobiology, NY, 258-305.
27. Fairen, A.G., Davila, A.F., Lim, D., Bramall, N., Bonaccorsi, R., Zavaleta, J., Uceda, E.R., Stoker, C., Wierzchos, J., Dohm, J.M., Amils, R., **Andersen, D.**, and McKay, C.P. (2010). Astrobiology through the Ages of Mars: The Study of Terrestrial Analogues to Understand the Habitability of Mars. *Astrobiology* 10, 821-843.
28. Lim, D., Warman, G., Gernhardt, M., Mckay, C., Fong, T., Marinova, M., Davila, A., **Andersen, D.**, Brady, A., Cardman, Z., Cowie, B., Delaney, M., Fairen, A., Forrest, A., Heaton, J., Laval, B., Arnold, R., Nuytten, P., Osinski, G., Reay, M., Reid, D., Schulze-Makuch, D., Shepard, R., Slater, G., and Williams, D. (2010). Scientific field training for human planetary exploration. *Planetary and Space Science* 58, 920-930.
29. Niederberger, T.D., Perreault, N.N., Tille, S., Lollar, B.S., Lacrampe-Couloume, G., **Andersen, D.**, Greer, C.W., Pollard, W., and Whyte, L.G. (2010). Microbial characterization of a subzero, hypersaline methane seep in the Canadian High Arctic. *ISME J* 4, 1326-1339.
30. Lim, D., Laval, B., Slater, G., Antoniadis, D., Forrest, A., Pike, W., Pieters, R., Saffari, M., Reid, D., Schulze-Makuch, D., **Andersen, D.**, and Mckay, C. (2009). Limnology of Pavilion Lake, B. C., Canada - Characterization of a microbialite forming environment. *Fundamental and Applied Limnology* 173, 329-351.
31. Marinova, M., Laval, B., McKay, C., Shepard, R., Lim, D., Forrest, A., **Andersen, D.**, Arnold, R., Brady, A., and Cardman, Z. (2009). Physical influences on microbialite morphological variation and distribution in Pavilion Lake, British Columbia, Canada. *AGU Fall Meeting Abstracts* 1, 0320.
32. Mojib, N., Huang, J., Hoover, R.B., Pikuta, E.V., Storrie-Lombardi, M., Sattler, B., **Andersen, D.**, and Bej, A.K. (2009). Diversity of bacterial communities in the lakes of Schirmacher Oasis, Antarctica. Paper presented at: SPIE Optical Engineering+ Applications (International Society for Optics and Photonics).
33. Niederberger, T.D., Perreault, N.N., Lawrence, J.R., Nadeau, J.L., Mielke, R.E., Greer, C.W., **Andersen, D.T.**, and Whyte, L.G. (2009). Novel sulfur-oxidizing streamers thriving in perennial cold saline springs of the Canadian high Arctic. *Environ Microbiol* 11, 616-629.
34. Pollard, W., Haltigin, T., Whyte, L., Niederberger, T., **Andersen, D.**, Omelon, C., Nadeau, J., Ecclestone, M., and Lebeuf, M. (2009). Overview of analogue science

activities at the McGill Arctic Research Station, Axel Heiberg Island, Canadian High Arctic. *Planetary and Space Science* 57, 646-659.

35. Perreault, N.N., Greer, C.W., **Andersen, D.T.**, Tille, S., Lacrampe-Couloume, G., Lollar, B.S., and Whyte, L.G. (2008). Heterotrophic and autotrophic microbial populations in cold perennial springs of the high arctic. *Appl Environ Microbiol* 74, 6898-6907.
36. Antoniadis, D., Crawley, C., Douglas, M., Pienitz, R., **Andersen, D.**, Doran, P., Hawes, I., Pollard, W., and Vincent, W. (2008). L08702-Reply to comment by K. Gajewski on "Abrupt environmental change in Canada's northernmost lake"(DOI 10.1029/2007GL032889). *Geophysical Research Letters* 35.
37. **Andersen, D.T.**, 2007, Antarctic inland waters: scientific diving in the perennially ice-covered lakes of the McMurdo Dry Valleys and Bunger Hills, *in* Lang, M.A., and Sayer, M.D.J., eds., *International Polar Diving Workshop: Svalbard*, Smithsonian Institution, Washington, DC, p. 213.
38. Antoniadis, D., Crawley, C., Douglas, M., Pienitz, R., **Andersen, D.**, Doran, P., Hawes, I., Pollard, W., and Vincent, W. (2007). Abrupt environmental change in Canada's northernmost lake inferred from fossil diatom and pigment stratigraphy. *Geophysical Research Letters* 34, 1-L18708.
39. Forrest, A., Bohm, H., Laval, B., Reid, D., **Andersen, D.**, Magnusson, E., and Doble, M. (2007). Small AUV deployment under ice: Pavilion lake, BC, Canada (a case study). *Geophysical Research Abstracts* 9, 08318.
40. Perreault, N.N., **Andersen, D.T.**, Pollard, W.H., Greer, C.W., and Whyte, L.G. (2007). Characterization of the prokaryotic diversity in cold saline perennial springs of the Canadian high Arctic. *Appl Environ Microbiol* 73, 1532-1543.
41. Omelon, C. R., W. H. Pollard, and **D. T. Andersen** (2006), A geochemical evaluation of perennial spring activity and associated mineral precipitates at Expedition Fjord, Axel Heiberg Island, Canadian High Arctic, *Applied geochemistry*, 21(1), 1-15.
42. Heldmann, J. L., O. B. Toon, W. H. Pollard, M. T. Mellon, J. Pitlick, C. P. McKay, and **D. T. Andersen** (2005), Formation of Martian gullies by the action of liquid water flowing under current Martian environmental conditions, *J. Geophys. Res.*, 110, E05004, doi:10.1029/2004JE002261.
43. Heldman, J.L., W.H. Pollard, C.P. McKay, **D.T. Andersen**, and O.B. Toon, Annual development cycle of an icing deposit and associated perennial spring activity on Axel Heiberg Island, Canadian High Arctic, *Arctic, Antarctic and Alpine Research*, 37 (1), 2005.
44. **Andersen, D. T.** Perennial springs in the Canadian High Arctic, PhD Thesis, McGill University, Montreal, CA. 2004

45. Doran, P.T., J.C. Priscu, W.B. Lyons, R.D. Powell, **D.T. Andersen** and R.J. Poreda. 2004. [Paleolimnology of extreme cold terrestrial and extraterrestrial environments](#). In R. Pienitz, M.S.V. Douglas and J.P. Smol (eds). Long-Term Environmental Change in Arctic and Antarctic Lakes. Kluwer Academic Publishers, Dordrecht, The Netherlands.
46. McKay, C., **Andersen, D.**, Pollard, W.H., Heldmann, J., Doran, P., Fritsen, C., Priscu, J., (2004) Polar Lakes, Streams, and Springs as Analogs for the Hydrological Cycle on Mars. In Water on Mars and Life, edited by T. Tokano, Springer-Verlag, Berlin, 219-233.
47. McKay, C.P., E.I. Friedmann, B. Gomez-Silva, L. Caceres-Villanueva, **D.T. Andersen**, and R. Landheim, Temperature and moisture conditions for life in the extreme arid region of the Atacama Desert: Four years of observations including the El Nino of 1997-98, *Astrobiology*, 3, 393-406, 2003.
48. McKay, C.P., K.P. Hand, P.T. Doran, **D.T. Andersen**, and J.C. Priscu, Clathrate formation and the fate of noble and biologically useful gases in Lake Vostok, Antarctica. *Geophys. Res. Lett.*, 30, 10.1029/2003GL017490, 2003.
49. Hawes I, **D.T. Andersen**, W. H. Pollard, Submerged aquatic bryophytes in Colour Lake, a naturally acidic polar lake. *Arctic Vol.* 55, No. 4. 2002.
50. Gibson, J., and **D.T. Andersen**, Physical structure of epishelf lakes of the southern Bunge Hills, East Antarctica, *Antarctic Science*, 14 (3), 253-262, 2002.
51. **Andersen, D.T.**, W.H. Pollard, C.P. McKay, and J. Heldmann, Cold springs in permafrost on Earth and Mars, *Journal of Geophysical Research*, 107 (3), 4, 2002.
52. Cogley, J.G., M.A. Ecclestone and **D.T. Andersen**, Melt duration on glaciers: environmental controls examined with orbiting radar, *Eastern Snow Conference Proceedings*, 58, 171-186, 2001.
53. Cogley, J.G., M.A. Ecclestone, and **D.T. Andersen**, Melting on glaciers: environmental controls examined with orbiting radar, *Hydrological Processes*, 15 (18), 3541-3558, 2001.
54. McKnight, D. M., E. W. Boyer. P. Doran, P.K. Westhoff, T. Kulbe, **D. Andersen**. Spectrofluorometric characterization of dissolved organic matter for indication of precursor organic material and aromaticity. *Limnology and Oceanography*. Vol. 46, No. 1., p. 38-48, 2001.
55. Doran, P.T., R. A. Wharton, W.B. Lyons, D. J. DesMarais, **D. T. Andersen**. Sedimentology and Isotopic Geochemistry of a Perennially Ice-Covered Epishelf Lake in Bunge Hills Oasis, East Antarctica. *Antarctic Science*, 12 (2) 131-140, 2000.

56. Kepner, R., Jr., A. Kortyna, R.W. Wharton, Jr., P. Doran, **D. Andersen**, and E. Roberts, Effects of research diving on a stratified Antarctic lake, *Water Research*, 34 (1), 71-84, 2000.
57. Pollard, W.H., C. Omelon, **D.T. Andersen**, and C.P. McKay, Perennial spring occurrence in the Expedition Fiord area of Western Axel Heiberg Island, Canadian High Arctic, *Canadian Journal of Earth Sciences*, 36, 105-120, 1999
58. **Andersen, D.T.**, C.P. McKay, and J. R. A. Wharton, Dissolved gases in perennially ice-covered Antarctic lakes of the McMurdo Dry Valleys, *Antarctic Science*, 10 (2), 124-133, 1998.
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63. Wharton, R.A., C.P. McKay, G.D. Clow, **D.T. Andersen**, Perennial ice covers and their influence on Antarctic lake ecosystems, in *Physical and Biogeochemical Processes in Antarctic Lakes*, Antarctic Res. Ser. vol. 59, edited by W. Green and E.I. Friedmann, American Geophysical Union, Washington, D.C., 53-70, 1993.
64. Wharton, R.A., C.P. McKay, G.D. Clow, **D.T. Andersen**, G.M. Simmons, and F.G. Love, Changes in ice cover thickness and lake level of Lake Hoare, Antarctica: Implications for local climate change, *J. Geophys. Res.*, 97, 3503-3513, 1992.
65. **Andersen, D.T.**, C.P. McKay, R.A. Wharton, Jr., and J. Rummel, Testing a Mars Science Outpost in the Antarctic Dry Valleys, *Adv. Space Res.*, vol. 12 (5 )1992, p. 205-209.
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68. Simmons, G.M., Jr., R.A. Wharton, Jr., B.C. Parker, and **D.T. Andersen**. Preliminary observations on chlorophyll-a and ATP Levels In Antarctic and temperate lake sediments. *Microbial Ecology* 9: 123 - 135, 1983.

***Papers presented at National and International Meetings***

1. Brown, A., C. E. Viviano- Beck, J. L. Bishop, N. A. Cabrol, **D. T. Andersen**, P. Sobron, J. Moersch, A. S. Templeton, and J. A. Russell (2016), A serpentinization origin for Jezero Crater carbonates, in *47th Lunar and Planetary Science Conference*, edited, The Woodlands, Texas.
2. **Andersen, D. T.** (2015), An Oasis in a Frozen Desert: Perennially Ice-covered Lake Untersee, Antarctica, Invited Talk. *Origins Institute Colloquia*, McMaster University, Hamilton, Ontario, Canada.
3. H. Koo, **D. T. Andersen.**, I. Hawes, C. D. Morrow, R. Kumar, A. K. Bej (2015), Microbial Diversity of an Antarctic Perennially Ice-covered Lake Untersee Ecosystem Representing Unique Conical Mats that are Analogous to Archean Stromatolites, in *15th General Meeting of the American Society for Microbiology*, edited, New Orleans, LA.
4. A. J. Brown, C. V.-B., J.L. Bishop, N.A. Cabrol, **D. Andersen**, P. Sobron, J. Moersch, M. Van Kranendonk, M.J. Russell (2015), The Evidence for Hydrothermal Formation of Talc-Carbonate at Nili Fossae and Implications for Astrobiology on Mars, in *Astrobiology Science Conference 2015*, edited, Chicago, IL.N.
5. A. Cabrol, **D. Andersen**, J. B., Adrian Brown, S. Cady, A. Davila, E. DeVore, G. Ertem, J. Farmer, E. A. Grin, V. Gulick, N. Hinman, J. Moersch, V. Parro, C. Phillips, R. Quinn, P. Sobron, P. Sarrazin, D. Summers, D. S. Wettergreen, J. Wray, K. Zacny, D. Blake, U. Feister, D-P. Häder, R. Leveille, W. Pollard, and R. Arvidson (2015), Roadmap to Biosignature Exploration on Mars, in *Astrobiology Science Conference 2015*, edited, Chicago, IL.
6. Mackey, T. J., D. Y. Sumner, I. Hawes, A.-D. Jungblut, and **D. T. Andersen** (2015), Calcification of Modern Stromatolites from Lake Joyce, McMurdo Dry Valleys, Antarctica: Preserved Carbon Pool Modification in a Changing Microbial Ecosystem, in *Astrobiology Science Conference 2015*, edited, Chicago, IL.
7. Murray, A. E., **D. T. Andersen**, and C. P. McKay (2014), Antarctic Analogs for Enceladus, in *American Geophysical Union, Fall Meeting* edited, San Francisco, CA, USA.

8. Lim, D., Hawes I., Mackey T.J., Brady A., Biddle J.F., **Andersen D.T.**, et al. (2014), The microbial mats of Pavilion Lake microbialites: examining the relationship between photosynthesis and carbonate precipitation, in *American Geophysical Union Fall Meeting*, edited, San Francisco, CA, USA.
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