# **Curriculum vitae**

# **Alfonso F. Davila, PhD**

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### RESEARCH AREAS: Astrobiology, Exobiology, Biogeochemistry, Planetary Sciences

### EDUCATION

2005…………………..PhD Geophysics, University of Munich, Germany.

2003…………………..MS, Marine Geology & Physics, University of Vigo, Spain.

2001…………………..BS, Marine Sciences, University of Vigo, Spain

### PROFESSIONAL EXPERIENCE

2014…………………..Adjunct Professor, Dept. of Physics, Santa Clara University

2010-present………...Co-I of the proposed *Icebreaker* Discovery Mission to Mars.

2009- present………..Research Scientist, NASA Ames Research Center/SETI Institute

2006-2009……………Post-Doctorate, NASA Ames Research Center, USA

**RESEARCH INTERESTS:** My research interests include the study of habitability and life in extremely dry and cold deserts. Results from these investigations are expanding our understanding of the limits of habitability and life, and help us improve models of planetary habitability, particularly the possibility of life on Mars. I am also interested in the origin and early evolution of life, including prebiotic chemistry and the origins of the genetic code.

### PUBLICATIONS

### Peer-reviewed publications

1. Gil, C., Losa-Adams, E., **Davila, A.F**., Gago-Duport, L. (2014) Pyrite nanoparticles as a Fenton-like reagent for in situ remediation of organic pollutants. Beilstein J. Nanotechnology, doi: 10.3762/bjnano.5.97. eCollection 2014.
2. Shelor, C.P., Dasgupta, P.K., Aubrey, A., **Davila, A.F**. et al. (2014), What can In-situ Ion Chromatography offer for Mars Exploration. Astrobiology. doi:10.1089/ast.2013.1131.
3. **A.F. Davila** and C.P. McKay (2014) Chance and necessity in biochemistry: implications for the search of biosignatures in Earth like planets. Astrobiology. Accepted.
4. A.G. Fairén, Stokes, C.R., Davies, N.S., Schulze-Makuch, D., Rodríguez, A.P., **Davila, A.F**., Uceda, E.R., Dohm, J.M., Baker, V.R. Clifford, Stephen M., [McKay, C.P.](http://adsabs.harvard.edu/cgi-bin/author_form?author=McKay,+C&fullauthor=McKay,%20Christopher%20P.&charset=UTF-8&db_key=AST), [Squyres, S.W.](http://adsabs.harvard.edu/cgi-bin/author_form?author=Squyres,+S&fullauthor=Squyres,%20Steven%20W.&charset=UTF-8&db_key=AST) (2014). A cold hydrological system in Gale crater, Mars. Planetary and Space Science, Volume 93, p. 101-118.
5. J. Heldmann et al. (2014) Midlatitude ice-rich ground on Mars as a target in the search for evidence of life and for in situ resource utilization on human missions. Astrobiology, 14(2): 102-118. doi:10.1089/ast.2013.1103
6. Crits-Christoph et al. (2013). Colonization patterns of soil microbial communities in the Atacama Desert. Microbiome 1: 28 http://www.microbiomejournal.com/content/1/1/28
7. K. Zacny et al. (2013) Reaching 1 m deep on Mars: The Icebreaker Drill. Astrobiology 13, DOI: 10.1089/ast.2013.1038.
8. D. Schulze-Makuch, A.G. Fairén, A.F. **Davila** (2013) Locally targeted Ecosynthesis: A proactive in situ search for extant life on other Worlds. Astrobiology 13, doi: 10.1089/ast.2013.0995
9. D. Lacelle, **A.F. Davila** et al. (2013). Excess ground ice of condensation-diffusion origin in University Valley, Dry Valleys of Antarctica: evidence from isotope geochemistry and numerical modeling. Geochem. Cosmochem. Acta. doi: 10.1016/j.gca.2013.06.032
10. L. Ziolkowski, J. Wierzchos, **A.F. Davila**, G. Slater (2013) Radiocarbon evidence of active endolithic microbial communities in the hyperarid core of the Atacama Desert. Astrobiology. *Accepted*
11. J.L. Heldmann et al. (2013) Comparison of geomorphic features formed in the presence of ice-cemented soil in the Upper Dry Valleys, Antarctica with observations at the Mars Phoenix landing site, Planet. Space Sci. *Accepted*.
12. **A.F. Davila**, D. Willson, J. Coates, C. McKay (2013) Perchlorate on Mars: a chemical hazard and a resource for humans. Int. J. Astrobiol. *Accepted*
13. McKay, C., Stoker, C., Glass, B., Davé, A., **A.F. Davila** et al. (2013) The Icebreaker Life mission to Mars: a search for biomolecular evidence of Life. Astrobiology 13, doi:10.1089/ast.2012.0878.
14. **A.F. Davila** et al. (2013) Salt deliquescence drives photosynthesis in the hyperarid Atacama Desert. Environmental Microbiology Reports. doi:10.1111/1758-2229.12050
15. **A.F. Davila** and P. Zamorano (2013) Mitochondria and the evolutionary roots of Cancer. Physical Biology. doi:10.1088/1478-3975/10/2/026008
16. **A.F. Davila** et al. (2013) Evidence of Hesperian glaciations along the Martian dichotomy boundary. Geology. doi:10.1130/G34201.1
17. M.M Marinova et al. (2013) Distribution of the depth to ground ice in the high elevation Quartermain Mountains, Dry Valleys of Antarctica. Antarctic Science doi: 10.1017/S095410201200123X.
18. A. Jackson, **A.F. Davila** et al. (2012) Perchlorate and chlorate biogeochemistry in ice-covered lakes of the McMurdo Dry Valleys, Antarctica. Geochem. Cosmochem. Acta. 98: 19-30.
19. J. Wierzchos, **A.F. Davila** et al (2012) Novel water source for endolithic life in the Atacama Desert's hyper-arid core. Biogeoscience J., 9, 2275-2286.
20. J. Wierzchos, **A.F. Davila** et al (2012) Ignimbrite as a substrate for endolithic live in the hyper-arid Atacama Desert: implications for the search for life on Mars. Icarus. In Press*.*
21. Battler, M. et al. (2012). Characterization of the acidic cold seep emplaced jarositic Golden Deposit, NWT, Canada, as an analogue for jarosite deposition on Mars. Icarus. doi:10.1016/j.icarus.2012.05.015.
22. K. Zacny et al. (2012) LunarVader: Development and Testing of a Lunar Drill in a Vacuum Chamber and in the Lunar Analog Site of the Antarctica. J. Aerosp. Eng. 26: 74-86.
23. A.G. Fairén, **A.F. Davila** et al. (2012). Glacial Paleoenvironments on Mars Revealed by the Paucity of Hydrated Silicates in the Noachian Crust of the Northern Lowlands. Planetary and Space Science, 70: 126-133.
24. D. Schulze-Makuch et al. (2012). The Biological Oxidant and Life Detection (BOLD) Mission: A Proposal for a Mission to Mars. Planetary and Space Sciences. Accepted.
25. J. Heldmann et al. (2012) Formation and evolution of buried snowpack deposits in Pearse Valley, Antarctica and implications for Mars. Antarctic Science.doi:10.1017/S0954102011000903.
26. **A.F. Davila** et al. (2010) New priorities in the robotic exploration of Mars: The case for in situ search of extant life. *Astrobiology* 10: 705-710. doi:10.1089/ast.2010.0538.
27. D.S.S. Lim et al. (2011) A historical overview of the Pavilion Lake Research Project -Analog science and exploration in an underwater environment. GSA. Accepted
28. C.S. Cockell et al (2011) Uninhabited habitats on Mars*.* Icarus*,* 217: 184-193. [doi:10.1016/j.icarus.2011.10.025](http://dx.doi.org/10.1016/j.icarus.2011.10.025)*.*
29. A.G. Fairén et al. (2011) Meteorites at Meridiani Planum provide evidence for significant amounts of surface and near-surface water on early Mars. Met. And Planet. Sci. 46: 1832-1841*.* doi:10.1111/j.1945-5100.2011.01297.x.
30. A.G. Fairén, **A.F. Davila** et al. (2011) Cold glacial oceans would have inhibited phyllosilicate sedimentation on early Mars. Nature Geosciences4, 667–670. doi:10.1038/ngeo1243
31. D. Schulze-Makuch, et al. (2011) A Two-Tiered Approach to Assessing the Habitability of Exoplanets. *Astrobiology*, 11: 1041-1052. doi:10.1089/ast.2010.0592
32. **A.F. Davila** et al. (2011) A large sedimentary basin in the Terra Sirenum region of the southern highlands of Mars. Icarus 212: 579-589. [doi:10.1016/j.icarus.2010.12.023](http://dx.doi.org/10.1016/j.icarus.2010.12.023).
33. J. Wierzchos et al. (2011) Microbial colonization of Ca-sulfate crusts in the hyperarid core of the Atacama Desert: implications for the search for life on Mars. Geobiology 9: 44-60. doi: 10.1111/j.1472-4669.2010.00254.x
34. D. Lacelle, **A.F. Davila** et al. (2011) Stability of ancient massive ground ice bodies in the McMurdo Dry Valleys (Antarctica): using stable O-H isotope as tracers of sublimation. Earth and Planetary Science Letters, 301: 403-411. [doi:10.1016/j.epsl.2010.11.028](http://dx.doi.org/10.1016/j.epsl.2010.11.028)
35. A.G. Fairén, **A.F. Davila** et al. (2010) Astrobiology through the ages of Mars. Astrobiology, 10: 821-843. doi: 10.1089/ast.2009.0440
36. A.G. Fairén et al. (2010) Noachian and more recent phyllosilicates in impact craters on Mars Proc. Nat. Acad, Sci., 107: 12095-12100. doi:10.1073/pnas.1002889107
37. de los Rios et al. (2010) Comparative analysis of the microbial communities inhabiting halite evaporites of the Atacama Desert. Int. Microbiology, 13: 79-89. doi:10.2436/20.1501.01.113.
38. **A.F. Davila** et al. (2010) Hygroscopic salts and the potential for life on Mars. Astrobiology 10, 617-628. doi:10.1089/ast.2009.0421
39. P. Vítek et al (2010) Microbial colonization of halite from the hyper-arid Atacama Desert studied by Raman spectroscopy. Phil. Trans. Royal Soc. *A.* 368: 3205-3221. doi:10.1098/rsta.2010.0059.
40. D.S.S. Lim et al. (2010) Scientific Field Training for Human Planetary Exploration. Planetary and Space Sciences, 58: 920-930. [doi:10.1016/j.pss.2010.02.014](http://dx.doi.org/10.1016/j.pss.2010.02.014).
41. G. Marzo, **A.F. Davila** et al. (2010) Evidence for Hesperian impact-induced hydrothermalism on Mars. Icarus, 208: 667-683. [doi:10.1016/j.icarus.2010.03.013](http://dx.doi.org/10.1016/j.icarus.2010.03.013)
42. G. Kminek et al. (2010) Report of the COSPAR mars special regions colloquium. *Adv. Space Res.* 46: 811-829. doi:[10.1016/j.asr.2010.04.039](http://adsabs.harvard.edu/cgi-bin/nph-abs_connect?fforward=http://dx.doi.org/10.1016/j.asr.2010.04.039).
43. A.G. Fairén, **A.F. Davila**, et al (2009) Stability against freezing of aqueous solutions on early Mars. Nature, 459: 401-404. doi:10.1038/nature07978.
44. A.G. Fairén et al. (2009) Evidence for Late Amazonian Acidic Liquid Water on Mars from the MER Missions. Planet. Space Sci. 57: 276-287. [doi:10.1016/j.pss.2008.11.008](http://dx.doi.org/10.1016/j.pss.2008.11.008).
45. J.M. Dohm et al. (2009) New evidence for a magmatic influence on the origin of Valles Marineris, Mars, J. Volcan. Geotherm Res. 185: 12-27. [doi:10.1016/j.jvolgeores.2008.11.029](http://dx.doi.org/10.1016/j.jvolgeores.2008.11.029)
46. D. Schultze-Makuch, A.G. Fairén, **A.F. Davila** (2008) The Case for Life on Mars. Planet. Space. Sci. 7: 117-141. doi:10.1017/S1473550408004175.
47. **A.F. Davila** et al (2008) Subsurface formation of oxidants on Mars and implications for the preservation of organic biosignatures. Earth and Planetary Science Letters, 272: 456-463. doi:10.1016/j.epsl.2008.05.015.
48. **A.F. Davila** et al (2008) Facilitation of endolithic microbial survival in the hyper-arid core of the Atacama Desert by mineral deliquescence. JGR-Biogeoscience 113, doi: 10.1029/2007JG000561
49. M. Winklhofer, L. Abracado, **A.F. Davila** et al (2007) Magnetic optimization in a multicellular magnetotactic prokaryote. Biophys. J. 92: 661-670. doi:[10.1529/biophysj.106.093823](http://dx.crossref.org/10.1529/biophysj.106.093823)
50. **A.F. Davila** et al (2006) Mapping the sources of urban dust in a coastal environment by measuring magnetic parameters of *Platannus hispanica* leaves. Env. Sci. & Technol. 40: 3922-3928. doi:10.1021/es0525049.
51. **A.F. Davila** et al (2005) Magnetic pulse affects a putative magnetoreceptor mechanism. Biophys. J. 89: 56-63. doi:[10.1529/biophysj.104.049346](http://dx.crossref.org/10.1529/biophysj.104.049346)
52. Y. Pan, N Petersen, M. Winklhofer, **A.F. Davila** et al. (2005) Rock magnetic properties of uncultured magnetotactic bacteria. Earth and Planetary Science Letters 237: 311-325. doi:[10.1016/j.epsl.2005.06.029](http://dx.doi.org/10.1016/j.epsl.2005.06.029)
53. Y. Pan, N. Petersen, **A.F. Davila** et al. (2005) The detection of bacterial magnetite in recent sediments of Lake Chiemsee. Earth and Planetary Science Letters. 232: 109-123. [doi:10.1016/j.epsl.2005.01.006](http://dx.doi.org/10.1016/j.epsl.2005.01.006)
54. **A.F. Davila** et al. (2003) A new model for a magnetoreceptor in homing pigeons based on interacting clusters of superparamagnetic magnetite. Phys. Chem. of the Earth, 28: 647-652. doi: [10.1016/S1474-7065(03)00118-9](http://dx.doi.org/10.1016/S1474-7065%2803%2900118-9).
55. Muxworthy, M. Matzka, **A.F. Davila**, N. Petersen (2003) Magnetic signature of daily sampled urban atmospheric particles. Atm. Environ. 37: 4163-4169. [doi:10.1016/S1352-2310(03)00500-4](http://dx.doi.org/10.1016/S1352-2310%2803%2900500-4)

### Book Chapters

**A.F. Davila** (2012) Glacial origin of fretted terrains on Mars. In Mars: Evolution, Geology and Exploration. NOVA Science Publishers.

J. Dohm et al. (2011) An inventory of potentially habitable environments on Mars: Geological and biological perspectives. In Gerry, B., and Bleacher, J. eds. *Analogs for Planetary Exploration, Geological Society of American Special Paper* 483, p. 317-347.

**A.F. Davila**, A.G. Fairén, D. Schulze-Makuch, C. McKay (2008). The ALH84001 case for life on Mars. In: From Fossils to Astrobiology.

A.G. Fairén, **A.F. Davila**, D. Lim, E.R. Uceda, J. Zavaleta, R. Amils and C.P. McKay (2007). The case for a cold and wet Mars. In: New Insights on Mars. NOVA Science Publishers.

**Conference Proceedings**

W.H. Pollard, D. Lacelle, **A.F. Davila**, D. Andersen, C.P. McKay, M.M. Marinova, J. Heldmann (2012). Ground ice conditions in University Valley, McMurdo Dry Valleys, Antarctica. Proceedings of the Tenth International Conference on Permafrost.

Wierzchos, J., de los Rios, J., **A.F. Davila** et al. (2009) Primary producers in extreme arid environment of the Atacama Desert: Where, how, and when? Geochem. Cosmochem. Acta. 73: A1439

Friedmann, E. I.; Wierzchos, J.; **A.F. Davila** et al. (2006) Biogeochemistry on Mars, both possible and realistic: Magnetite. Geochem. Cosmochem. Acta A185. DOI: 10.1016/j.gca.2006.06.372

**Conference Abstracts**

Davila AF, Wierzchos, J., Ascaso, C. (2012) The Dry Limit of Photosynthesis on Earth and the Possibility of Life on Mars. Photobiology Conference, Montreal

Fairén, AG, Gago-Duport, L., Davila, AF, Gil, C., McKay, CP (2012) Subsurface Diffusion of Salt-forming Cations on Early Mars, AbSciCon Conference

Fairen, AG, Davila, AF et al (2012) Glacial Paleomorphologies in Gale Crater, Mars. Lunar and Planetary Institute Science Conference Abstracts, 43, 2182.

Heldmann, JL, Schurmeier, L., Stoker, C., McKay, C., Davila, AF et al (2012) Mission Concept to Enable Science and In Situ Resource Utilization of Mid-Latitude Ice on Mars. Lunar and Planetary Institute Science Conference Abstracts Contributions, 1679, 4114.

Lim, DSS, McKay, CP, Heldmann, JL, Marinova, MM, Osinski, G., Brady, AL, Davila, AF et al (2012) The Use of Terrestrial Analogs as High Fidelity Test Beds for the Development and Refinement of Mars Surface System Capabilities. Lunar and Planetary Institute Science Conference Abstracts, 1679, 4192.

McKay, CP, Stoker, CR, Glass, BJ, Dave, AI, Davila, AF et al (2012) The Icebreaker Life Mission to Mars: A Search for Biochemical Evidence for Life. Lunar and Planetary Institute Science Conference Abstracts, 1679, 4091.

Schurmeier, LR, Heldmann, JL, Stoker, C., McKay, C., Davila, AF et al (2012) Characterization of a Mid-Latitude Ice-Rich Landing Site on Mars to Enable In Situ Habitability Studies, Lunar and Planetary Institute Science Conference Abstracts 43, 1271.

Zacny, K., Paulsen, G., Mellerowicz, B., Craft, J., McKay, C.; Glass, B., Davila, AF et al (2012) The Icebreaker: Mars Drill and Sample Delivery System. Lunar and Planetary Institute Science Conference Abstracts 43, 1153.

Zacny, K., Paulsen, G., McKay, C., Glass, B., Marinova, M., Davila, AF, Dave, A (2012) The Icebreaker: One Meter Class Mars Drill and Sample Delivery System, Lunar and Planetary Institute Science Conference Abstracts Contributions 1679, 4259.

Battler, MM, Osinski, GR, Lim, DSS, Davila, AF (2011) The Cold Seep Emplaced Golden Deposit as an Analogue for Sulfate Deposits on Mars. Lunar and Planetary Institute Science Conference Abstracts,1612, 6031.

Battler, MM, Osinski, GR, Lim, DSS, Davila, AF et al (2011) The Golden Deposit in the Canadian Arctic as an Analogue for Jarosite Deposition at Meridiani Planum and Mawrth Vallis, Mars. Lunar and Planetary Institute Science Conference Abstracts, 42, 2759.

Bebout, BM, Tazaz, AM, Kelley, CA, Poole, J., Davila, AF, Chanton, JP (2011) The Stable Isotopic Composition of Biogenic Methane in Mars Analogue Hypersaline Environments. Lunar and Planetary Institute Science Conference Abstracts, 1612, 6013.

Davila, AF and McKay, CP (2011) Salt Flats in Terra Sirenum---A Site to Search for Extant and Extinct Life on Mars. Lunar and Planetary Institute Science Conference Abstracts, 1612, 6028.

Fairén, AG, Dohm, JM, Thompson, SD, Davila, AF et al (2011) Meteorites at Meridiani Planum Indicate Extensive Surface Water on Early Mars. Lunar and Planetary Institute Science Conference Abstracts, 42, 2088.

Lacelle, D., Davila, AF et al (2011) Vapor-Diffusion Origin (Condensation-Adsorption) in Ice-Cemented Permafrost Spanning the last 135.5 Ka Years in University Valley, Dry Valley of Antarctica. Lunar and Planetary Institute Science Conference Abstracts, 1323, 6083.

Marinova, MM, McKay, CP, Heldmann, JL, Davila, AF et al (2011) Dry Soils: The Highlands of the Antarctic Dry Valleys and the Defining Environmental Conditions. EPSC-DPS Joint Meeting Nantes, France. p. 1319

Marinova, M., McKay, CP, Heldmann, JL, Davila, AF et al (2011) Mapping the depth to ice-cemented ground in the high elevation Dry Valleys, Antarctica. AGU Fall Meeting Abstracts, 1, 08

Marinova, MM, McKay, CP, Heldmann, JL, Davila, AF et al (2011) The High-Elevation Dry Valleys of Antarctica as a Mars Polar Analogue: Mapping Subsurface Ice Distribution and Modeling its Stability. Lunar and Planetary Institute Science Conference Abstracts, 1623, 6051

Marinova, MM, McKay, CP, Heldmann, JL, Davila, AF et al (2011) Sublimation-dominated active layers in the highlands of the Antarctic Dry Valleys and implications for other sites. Lunar and Planetary Institute Science Conference Abstracts 42, 2644.

Zacny, K., Paulsen, G., McKay, C., Glass, BJ, Marinova, M., Davila, AF et al (2011) Testing of the Prototype Mars Drill and Sample Acquisition System in the Mars Analog Site of the Antarctica's Dry Valleys. AGU Fall Meeting Abstracts, 1, 02.

Bebout, B., Tazaz, A., Kelley, CA, Poole, JA, Davila, A., Chanton, J (2010) Methane as a biomarker in the search for extraterrestrial life: Lessons learned from Mars analog hypersaline environments. AGU Fall Meeting Abstracts, 1, 07.

Dohm, JM, Davila, AF et al (2010) Ancient Structurally-controlled Basins as Prime Martian Targets. Lunar and Planetary Institute Science Conference Abstracts, 1547, 18

Fairén, AG, Chevrier, V., Abramov, O., Marzo, GA, Gavin, P., Davila AF, et al (2010) Toro crater: First evidence for Hesperian phyllosilicates on Mars, Proceedings of the 41st Lunar and Planetary Science Conference 2683

Fairén, AG, Davila, AF et al (2010) Icebergs on Early Mars. Lunar and Planetary Institute Science Conference Abstracts, 41, 2478.

Fairén, AG, Gago-Duport, L., Davila, AF; et al (2010) Subsurface Diffusion of Salt-forming Cations on Early Mars. Lunar and Planetary Institute Science Conference Abstracts, 1538, 5502.

Perez-Poch, A., Gallardo, B., Laufer, R., Zavaleta, J., Davila, AF et al (2010) ACCESS Mars: A Mission Architecture for an initial settlement on Mars; using caves as habitation. 38th COSPAR Scientific Assembly, 38, 520.

Ziolkowski, LA, Slater, GF, Davila, AF, Wierzchos, J. (2010) Constraining carbon sources and cycling of endolithic microbial communities in the Atacama Desert. AGU Fall Meeting Abstracts 1, 03

Fairén, AG, Davila AF et al. (2009) Recent liquid water on Mars inferred from shock decomposition analysis of phyllosilicates within impact craters. Proceedings of the 40th Lunar and Planetary Science Conference 1156.

Fairén, AG, Davila, AF et al (2009) Mars: Cold and Wet. Lunar and Planetary Institute Science Conference Abstracts 40, 1155.

Wheelock, S., Dohm, J., Marzo, G., Davila, AF, Abramov, O (2009) An Examination of the Origin(s) of Phyllosilicates, Chlorites, and Kaolinite in an Impact Crater in Syrtis Major, Mars. AGU Fall Meeting Abstracts1, 1244.

Davila, AF et al (2008) Halite Crusts as Targets for the Search for Life on Mars, Lunar and Planetary Institute Science Conference Abstracts, 39, 1083.

Davila, A.F., et al (2008) Microbial survival in hyperarid environments: Extracting water from atmospheric humidity. AbsciCon Conference.

Fairén, AG; Davila, AF et al (2008) Subsurface Formation of Oxidants on Mars and Implications for the Preservation of Organic Biosignatures. Lunar and Planetary Institute Science Conference Abstracts, 39, 2061.

Marzo, GA, Davila, AF et al. (2008) Evidence for relatively recent hydrothermal activity due to an impact within the Syrtis Major. AGU Fall Meeting Abstracts 1438.

Melchiorri, R., Davila, AF et al (2008) Hygroscopic Salts on Mars. AGU Fall Meeting Abstracts, 1, 1255

Davila, AF et al (2007) Long-Duration Orbit Exposure Experiment with Sub-Surface Microorganism from a Mars Terrestrial Analog. Lunar and Planetary Institute Science Conference Abstracts, 1353, 3084.

Davila, AF et al. (2007) Multicellular magnetotactic prokaryote as a target for life search on Mars. 38th Lunar and Planetary Science Conference, 12-16

Pan, Y., Lin, W., Zhu, R., Yu, S., Davila, AF, Winklhofer, M., Petersen, N. (2005) Magentic Properties of Magnetites Produced by Magnetotactic Bacteria. AGU Fall Meeting Abstracts, 1, 0999.

Davila, AF et al (2002) A New Model of A Magnetoreceptor In Homing Pigeons Based On Interacting Clusters of Superparamagnetic Magnetite Particles, EGU General Assembly Conference Abstracts, 27, 6715

**Other Publications**

**A.F. Davila** (2011) Salts, Ice and Live on Mars. New Scientist-February 2011

C.P. McKay, D. Schulze-Makuch, P. J. Boston, I.L. ten Kate, **A.F. Davila**, E. Shock (2010). The Next Phase in Our Search for Life—An expert discussion. Astrobiology. Volume 11(1). doi: 10.1089/ast.2010.1122

D. Schulze-Makuch and **A.F. Davila** Searching for life beyond our planet: Are we there yet? EOS, August 2010.

**A.F. Davila** (2010). Astromicrobiology. Encyclopedia of Life sciences.

**A.F. Davila** (2010) Magnetotactic Bacteria. Encyclopedia of Astrobiology (Eds. M. Gargaud et al.), Springer.

**A.F. Davila** (2010) Magnetosome. Encyclopedia of Astrobiology (Eds. M. Gargaud et al.), Springer.

**INVITED SEMINARS**

1. Sacramento State (2013) “Water and Life in the Solar System”
2. Photobiology Conference, Montreal (2012) “The Dry Limit of Photosynthesis on Earth and the Possibility of Life on Mars”
3. U. Illinois. (2011) “The Dry Limit of Life on Earth and the Potential of Life on Mars”
4. U. California Berkeley (2010, 2011, 2012) “The Dry Limit of photosynthesis and the Potential of Life on Mars”
5. Los Alamos Laboratory (2011) “The Dry Limit of Life on Earth and the Potential of Life on Mars”
6. Texas Tech (2011) “The Dry Limit of Life on Earth and the Potential of Life on Mars”
7. U. Ottawa (2011) “The Dry Limit of Life on Earth and the Potential of Life on Mars”
8. Michigan Tech (2011) “The Dry Limit of Life on Earth and the Potential of Life on Mars”
9. Michigan Tech (2011) “Ethics of Space Exploration”
10. U. Arkansas (2009) “The Atacama Desert, the Dry Limit of Life on Earth and the Potential of Life on Mars”
11. U. Pullman, Washington (2009) “The Atacama Desert, the Dry Limit of Life on Earth and the Potential of Life on Mars”

### FELLOWSHIPS, MEMBERSHIPS & AWARDS

* Invited Faculty-Research Fellowship at the University of Antofagasta, Chile (2012)
* Member of the Habitability of Exoplanets Research Group (HERG). Washington State University (2010-present)
* Antarctic Service Medal (2009)
* NASA Post-Doctoral fellowship (2006-2009)
* Student Fellowship at the Dept. for Marine Geosciences, University of Vigo, Spain (2000)

### FIELD WORK EXPERIENCE

**Queen Maud Land, Antarctica**, November 2013. Funded by the TAWANI expedition (PI Dale Andersen).

**Antarctic Dry Valleys**, October – December 2009 & 2010; December 2012-February 2013. Funded by the NASA Astrobiology, Science and Technology for Exploring Planets (ASTEP) program.

**Atacama Desert (Chile)**, 2-4 weeks; different seasons 2006, 2008-2013. Funded by NASA Post-doc Program, NASA Exobiology Program, Chilean Ministry of Science, and Spanish Ministry of Science and Technology.

**Canadian high Arctic**, March – April 2011, Funded by NASA ASTEP and Canadian Arctic Polar Shelf Program.

**Negev Desert (Israel)**, March – April 2006, Funded by the NASA Post-doc program.

**Canada Tart-sands and Prudhoe Bay Oil Fields (Alaska)**, August-September 2011. Funded by British Petroleum. Collaboration between University of California, Berkeley, Lawrence Livermore Laboratories and University of Illinois.

**Pavilion Lake, BC (Canada)**, June -July 2007 & 2006. Funded by the Pavilion Lake Research Project.

**Rio Tinto (Spain)**, May-June 2007 & 2005, Funded by NASA Post-doc Program.

### teaching experience

* Adjunct Professor at the University of Santa Clara (2014)
* PhD advisor at the University of Vigo (2010-2014)
* Invited faculty at the University of Antofagasta, Chile (2012).
* Mentoring graduate and undergraduate students at NASA Ames Research Center (c.a. 1-2 students per year). Students participate in actual science projects and receive practical and theoretical training.
* Faculty at the International Space University (2009). Coordinator of a Team Project on Mars Exploration (c.a. 40 students)

### LANGUAGES

Spanish-Native

English-Fluent (reading, speaking and writing)

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Dr. Christopher P. McKay (postdoctoral sponsor-NASA Ames Research Center, California)