Jonathan Toner

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EDUCATION:

2012 Ph.D., Earth and Space Sciences, University of Washington.
2006 B.Sc., Physics, The College of New Jersey.

PROFESSIONAL APPOINTMENTS/EMPLOYMENT:

2015-present Research Associate, Earth and Space Sciences Department, University of Washington, Seattle.
2013-2015 NASA Astrobiology Institute Postdoc, Earth and Space Sciences Department, University of Washington, Seattle.
2012-2013 Postdoc, Earth and Space Sciences Department, University of Washington, Seattle.

PUBLICATIONS:

Toner, J. D. and D. C. Catling (in prep.), Seawater chemistry during evaporation and freezing.

Toner, J. D. and D. C. Catling (in prep.), The formation of chlorate brines on Mars: isopiestic water activities in the Na-Mg-Ca-ClO_3 system.

Toner, J. D., R. S. Sletten, J. K. Feathers, M. L. Prentice, and G. Berger (in prep), Optically stimulated luminescence ages of fluvial terraces in Taylor Valley, Antarctica.

Toner, J. D., D. C. Catling, and R. S. Sletten (2017), The geochemistry of Don Juan Pond: evidence for a deep groundwater flow system in Wright Valley, Antarctica. *Earth and Planetary Science Letters*, 474, 190–197.

Toner, J. D. and D. C. Catling (in review), A low-temperature thermodynamic model for the Na-K-Ca-Mg-Cl-SO_4 system incorporating new experimental heat capacities in K_2SO_4, Na_2SO_4, and $MgSO_4$ solutions, *Journal of Chemical and Engineering Data*.

Toner, J. D. and D. C. Catling (2017), A low-temperature thermodynamic model for the Na-K-Ca-Mg-Cl system incorporating new experimental heat capacities in KCl, $MgCl_2$, and $CaCl_2$ solutions, *Journal of Chemical and Engineering Data*, 62, 3, 995-1010.

Toner, J. D., D. C. Catling, and B. Light (2016), Water activities of $NaClO_4$, $Ca(ClO_4)_2$, and $Mg(ClO_4)_2$ brines from experimental heat capacities: water activity >0.6 below 200 K, *Geochimica et Cosmochimica Acta*, 181, 164-174.

Toner, J. D., D. C. Catling, and B. Light (2015), A revised Pitzer model for low-temperature soluble salt assemblages at the Phoenix Site, Mars, *Geochimica et Cosmochimica Acta*, 166, 327–343.

Toner, J. D., D. C. Catling, and B. Light (2015), Modeling salt precipitation from brines on Mars: evaporation versus freezing origin for soil salts, *Icarus*, 250, 451–461.

Toner, J. D., D. C. Catling, and B. Light (2014). Soluble salts at the Phoenix Lander site, Mars: A reanalysis of the Wet Chemistry Laboratory data. *Geochimica et Cosmochimica Acta*, 136: 142-168.

Toner, J. D., D. C. Catling, and B. Light (2014). The formation of supercooled brines, viscous liquids, and low temperature perchlorate glasses in aqueous solutions relevant to Mars. *Icarus* 233: 36–47.

Toner, J. D. and R. S. Sletten (2013). The formation of Ca-Cl-rich groundwaters in the Dry Valleys of Antarctica: Field measurements and modeling of reactive transport. *Geochimica et Cosmochimica Acta* 110: 84–105.

Toner, J. D., R. S. Sletten, and M. L. Prentice (2013). Soluble salt accumulations in Taylor Valley, Antarctica: Implications for paleolakes and Ross Sea Ice Sheet dynamics. *Journal of Geophysical Research* 118(1): 198-215.

ORAL PRESENTATIONS:

Toner, J. D. and D. C. Catling (2016). The formation of liquid water on present-day Mars: Calcium-magnesium chloride brines in the Antarctic Dry Valleys as a Mars analog. *Sixth Mars Polar Science Conference*; Reykjavik, Iceland. No. 1926.

Toner, J. D. (2015). Present-Day Liquid Water on Mars. University of Idaho (invited talk).

Toner, J. D. (2014). Perchlorate on Mars: Implications for Human Exploration and Astrobiology, NASA, Ames.

Toner, J. D., D. C. Catling, and B. Light (2014). Soluble salts at the Phoenix Lander Site. No. 2498. Goldschmidt, Sacramento.

Toner, J. D., D. C. Catling, and B. Light (2014). The Preservation of Organics and Brines in Low-Temperature Aqueous Glasses. Workshop on the Habitability of Icy Worlds.

Toner, J. D., D. C. Catling, B. Light (2013). Experimental formation and persistence of super cooled salt solutions on Mars. Present Day Habitability of Mars Workshop.

Toner, J. D. (2012). Luminescence ages of terraces in Taylor Valley, Antarctica. Earth and Space Science Research Gala.

Toner, J. D. (2010). The evolution of salt accumulations in Taylor Valley, Antarctica. Earth and Space Science Research Gala.

Toner, J. D. (2009). Feldspar luminescence ages of Taylor Valley fluvial sediments. North American Luminescence Workshop.

CONFERENCE POSTERS

Toner, J. D., D. C. Catling, and R. S. Sletten (2017). New insights on brine dynamics and source in Don Juan Pond, Antarctica. Goldschmidt, Paris.

Toner, J. D., D. C. Catling (2017). Chlorate salts and the potential for liquid water on Mars. Astrobiology Science Conference. No. 1965.

Toner, J. D., D. C. Catling, S. Halbert, and B. Light (2014). Towards an Accurate Low-Temperature Thermodynamic Model for Perchlorate Brines on Mars. 45th LPSC. No. 1777, p.2515.

Toner, J. D., D. C. Catling, and B. Light (2013). Experimental evidence for supercooled brines, viscous liquids, and low temperature perchlorate glasses on Mars. AGU, Abstract #P23F-1853.

Toner, J. D., D. C. Catling, B. Light (2013). Reanalysis of Wet Chemistry Laboratory data with implications for parent salt assemblages at the Phoenix Site. 44th LPSC. No. 1719, p.1639.

Toner, J. D., R. S. Sletten, M. L. Prentice (2012). Soluble salt accumulations in Taylor Valley, Antarctica: Implications for paleolakes and the Ross Sea Ice Sheet. AGU, Abstract #C13A-0606.

Prentice, M. L., S. A. Arcone, J. Horsman, E. A. Medley, J. D. Toner, R. Sletten, K. Shoemaker (2009). Response of the Ross Sea Ice Sheet to the last deglaciation: New evidence from Taylor Valley, Antarctica. AGU, Abstract #C23A-0492.

Toner, J. D. (2009). Feldspar luminescence ages of Taylor Valley fluvial sediments. Talk at the North American Luminescence Workshop.

Toner, J. D., R. S. Sletten, M. L. Prentice (2008). Soil processes on delta and till deposits in Taylor Dry Valley, Antarctica. AGU, Abstract #C11D-0533.

HONORS AND AWARDS:

2013-2015	NASA Astrobiology Institute Postdoctoral Fellow.
2014	Coauthored winning Royalty Research award.
2010	Kenneth C. Robbins & Peter Misch Fellowship.
2010	Grant from the Peter Misch Fellowship.
2009	Grant from the Earth and Space Sciences department.
2002-2006	Full tuition, room, & board scholarship to The College of New Jersey.

TEACHING EXPERIENCE:

2013, 2017	Student mentoring for the NASA Summer Undergraduate Research Program.
2010	Changing Rivers of Puget Sound.
2009-20010	Geology Field Camp.
2008	Glaciers and Volcanoes of the Northwest.
2009-2010	Advanced Introductory Geology.
2010-2012	Introductory Geology.

SERVICE TO THE SCIENTIFIC COMMUNITY:

Reviewed papers for *Icarus*, *Geochimica et Cosmochimica*, *Antarctic Science*, *Chemical Geology*, *Earth and Planetary Science Letters*, and American Chemical Society (ACS) journals.

Service on a NASA review panel.