

# Aomawa L. Shields - Curriculum Vitae

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CONTACT	<p>UCLA Division of Astronomy and Astrophysics Department of Physics and Astronomy Box 951547 Los Angeles, CA 90095-1547 USA</p>	<p>ashields@astro.ucla.edu <a href="http://www.variablestargirl.com">http://www.variablestargirl.com</a></p>
INTERESTS	Climate and habitability of extrasolar planets orbiting low-mass stars. Multi-dimensional climate models. Interdisciplinary science education and communication.	
EDUCATION	<p><b>University of Washington (UW)</b>, Seattle, WA Ph.D., Astronomy and Astrobiology, August 2014 “The Effect of Star-Planet Interactions on Planetary Climate” Supervised by Victoria Meadows and Cecilia Bitz M.Sc., Astronomy, December 2011</p> <p><b>University of California, Los Angeles (UCLA)</b>, Los Angeles, CA MFA, Acting, June 2001</p> <p><b>Massachusetts Institute of Technology</b>, Cambridge, MA Sc.B., Earth, Atmospheric, and Planetary Sciences, June 1997</p> <p><b>Phillips Exeter Academy</b>, Exeter, NH Graduated with High Honors, June 1993</p>	
APPOINTMENTS	<p><b>UC Irvine, Department of Physics and Astronomy</b>, Irvine, CA Clare Boothe Luce Assistant Professor (on leave through June 2017)</p> <p><b>UCLA</b>, Los Angeles, CA <b>Harvard-Smithsonian Center for Astrophysics</b>, Cambridge, MA NSF Postdoctoral Fellow (Fall 2014–Present) UC President’s Postdoctoral Fellow (Fall 2014–Present)</p> <p><b>University of Washington</b>, Seattle, WA NSF Graduate Research Fellow (2011–2014) Academic Mentor, Pre-Major in Astronomy Program (2013–2014) NSF IGERT Trainee (2009–2011) Research &amp; Teaching Assistant, Department of Astronomy (2009–2014)</p> <p><b>California Institute of Technology</b>, Pasadena, CA Scientific Analysis Associate, Spitzer Space Telescope Observatory Planning and Scheduling Team (2008–2009) Scientific Analysis Assistant, Spitzer Science User Support Team (2005–2008)</p> <p><b>Skirball Cultural Center</b>, Los Angeles, CA External Affairs Assistant, Outreach and Communications (2003–2005)</p> <p><b>Griffith Observatory</b>, Los Angeles, CA Museum Guide (2001–2003)</p>	

APPOINTMENTS  
(CONTINUED)

**University of Wisconsin, Madison, Madison, WI**  
Research Assistant (1997–1998)

**Arecibo Observatory, Arecibo, Puerto Rico**  
Summer Research Assistant (1996)

**Lowell Observatory, Flagstaff, AZ**  
Research Assistant (1994–1996)

**MIT Center for Space Research (now Kavli Institute), Cambridge, MA**  
Research Assistant (1994–1995)

**Jet Propulsion Laboratory, Pasadena, CA**  
Summer Research Assistant (1994)

FUNDING

Over \$420k in competitive fellowships and grants from NSF, NASA, and the University of California, among others.  
400,000 CPU hours of computing time from the National Center for Atmospheric Research (NCAR).

SELECTED  
FELLOWSHIPS,  
AWARDS, AND  
HONORS

The Origins Project Postdoctoral Award Lectureship (2016)  
Kavli Fellow (2015)  
TED Fellow (2015)  
Rodger Doxsey Travel Prize, American Astronomical Society 225th Meeting (2015)  
NSF Astronomy and Astrophysics Postdoctoral Fellowship (2014-2017)  
UC President's Postdoctoral Program Fellowship (2014-2015)  
First Place, Astrobiology Science Conference Student Poster Competition (2012)  
“Audience Choice”, US FameLab Astrobiology communication competition (2012)  
NSF Graduate Research Fellowship (2011-2014)  
Member, Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science Professional Development Program (MS PHD'S PDP) (2011-2013)  
NASA Group Achievement Award, Spitzer Science Operations Planning Team (2010)  
NSF Integrative Graduate Education and Research Traineeship (2009-2011)  
NASA Public Service Group Achievement Award, Spitzer Observatory Planning/Scheduling Team (2009)

TEACHING &  
MENTORING

Benjamin Banneker Institute, Harvard-Smithsonian Center for Astrophysics, (2015–16)  
ESS 495 NASA Space Grant Seminar: “Rocks-n-Stars”, UW (2014)  
Teaching Assistant, ASTR 101, 102, and 150 (“The Planets”), UW (2010–2011)  
Science communication workshop, Caltech, UW (2007)

EDUCATION &  
PUBLIC  
OUTREACH

Founder & Director, Rising Stargirls, 2014–Present ([www.risingstargirls.org](http://www.risingstargirls.org))  
“How we'll find life on other planets”, TED (2015), over 1.4 million views on TED.com  
“Should we be looking for life elsewhere in the universe?”, TED-Ed (2016)  
“The Universe and Me” workshop for middle-school girls at YWCA Pasadena-Foothill Valley, Pasadena, CA, Sept. 20-Oct 27, 2016  
Astronomy/Astrobiology week-long workshop in Science Club for Girls program “Young Leaders in STEM”, Cambridge, MA, July 21-24 2015  
“Universe: More Than Meets the Eye” workshop for middle-school girls at Irving STEAM Magnet Middle School, Eagle Rock, CA, Feb. 25-Mar 9, 2015  
E/PO event for middle-/high-school students, Winter Meeting, American Astronomical Society, Seattle, WA (2015)  
UCLA Astronomy Live! *Exploring Your Universe* (2014)

EDUCATION &  
PUBLIC  
OUTREACH  
(CONTINUED)

Panorama Retirement Center, Lacey, WA, June 6, 2014  
Pacific Science Center/KCTS 9 Science Café, “Searching for Life Around Red Dwarf Stars” (2014)  
*Women Fly!*, Museum of Flight (2014)  
Boston Children’s Museum traveling exhibit “My Sky” (2014)  
Astronomy Panel, *GeekGirlCon*, Seattle, WA (2014)  
Astronomy and Astrobiology daylong workshop for girls in YWCA program “Girls Without Limits” in Olympia, WA (2013)  
Lakewood High School, “Ice and Climate on Extrasolar Planets”, Seattle, WA (2013)  
Burlington-Edison High school job shadow program (2013)  
Registered role model, Fab Fems ([www.fabfems.org](http://www.fabfems.org)) (2013-Present)  
Making Connections Program, University of Washington, April 6, 2013  
American Astronomical Society Astronomy Ambassadors Program (2012-Present)  
Planetarium Lecturer, UW (2011-2014)

REFEREED  
PUBLICATIONS

Wolf, E.T., **Shields, A. L.**, Kopparapu, R. K., Haqq-Misra, J., Toon, O. B. (2017) *Constraints on Climate and Habitability for Earth-like Exoplanets Determined from a General Circulation Model*, *Astrophysics Journal*, in press.

**Shields, A. L.**, Ballard, S., Johnson, J. (2016) *The Habitability of Planets Orbiting M-dwarf Stars*, *Physics Reports*, 663:1-38.

**Shields, A. L.**, Barnes, R., Agol, E., Charnay, B., Bitz, C. M., Meadows, V. S. (2016) *The Effect of Orbital Configuration on the Possible Climates and Habitability of Kepler-62f*, *Astrobiology*, 16, 6.

**Shields, A. L.**, Bitz, C. M., Meadows, V. S., Joshi, M. M., Robinson, T. D. (2014) *Spectrum-driven Planetary Deglaciation Due to Increases in Stellar Luminosity*, *Astrophysical Journal Letters*, 785, 9.

**Shields, A. L.**, Meadows, V. S., Bitz, C. M., Pierrehumbert, R. T., Joshi, M. M., Robinson, T. D. (2013) *The Effect of Host Star Spectral Energy Distribution and Ice-Albedo Feedback on the Climate of Extrasolar Planets*, *Astrobiology*, 13, 8.

Cowan, N. B., Robinson, T., Livengood, T. A., Deming, D., Agol, E., A’Hearn, M. F., Charbonneau, D., Lisse, C. M., Meadows, V. S., Seager, S., **Shields, A. L.**, Wellnitz, D. D. (2011) *Rotational Variability of Earth’s Polar Regions: Implications for Detecting Snowball Planets*, *Astrophysical Journal*, 731, 76.

Hunter, D. A., Elmegreen, B. G., **Baker, A. L.** (1998) *The Relationship between Gas, Stars, and Star Formation in Irregular Galaxies: A Test of Simple Models*, *Astrophysical Journal*, 493, 595.

SELECTED PRESS  
COVERAGE

“Astrobiology’s Rising Star”  
UC News, February 7, 2017

“Faculty Highlight: Aomawa Shields”  
*Astronomy in Color*, September 29, 2016

“A Planet 1,200 Light-Years Away is a Good Prospect for a Habitable World”  
UCLA Newsroom, May 26, 2016

SELECTED PRESS COVERAGE (CONTINUED)

“Why I Changed My Life: Acting, Astronomy, and a One-of-a-Kind Career”  
 Glamour, May 10, 2016

“The Origins Project Announces Recipient of \$10,000 Postdoctoral Lectureship Award”  
 The Origins Project, February 24, 2016

“Aomawa Shields: Life in Unlikely Places”  
 Ozy.com, February 11, 2016

“Astronomer, actor, role model: TED Fellow Aomawa Shields looks for life on other planets”  
 TED Blog, July 10, 2015

“NSF Fellow Pairs Art, Astronomy to Hook Girls on Science”  
 Education Week, March 18, 2015

“Rising Stargirls: Girls of All Colors Learning, Discovering, and Exploring”  
 Women in Astronomy blog/The Planetary Society blog, February 4, 2015

“The Best Bet for Alien Life May Be in Planetary Systems Very Different From Ours”  
 Wired Magazine, January 16, 2015

“Meet the 2015 class of TED Fellows and Senior Fellows”  
 TED.com, December 17, 2014

“A Warmer Planetary Haven Around Cool Stars, as Ice Warms Rather Than Cools”  
 University of Washington News Release, July 18, 2013

Guest Scientist, *Sci-Trek: Volcanoes*, The Discovery Channel (2009)

Guest Scientist, *Universe*, The History Channel (2007)

TV Host and Field Reporter, *Wired Science*, PBS (2007)

SERVICE & MEMBERSHIPS

Reviewer/Panelist: NSF  
 Member, Division for Planetary Sciences, American Astronomical Society,  
 American Geophysical Union

INVITED TALKS

Colloquium, **Cal Poly Pomona**, November 10, 2016  
 Colloquium, **Carnegie Observatories**, May 24, 2016  
 Seminar, Center for Astrophysics and Space Sciences, **UC San Diego**, May 18, 2016  
 Public Lecture and Colloquia, **Arizona State University**, April 4–8, 2016  
 ITC Colloquium, **Harvard-Smithsonian Center for Astrophysics**,  
 February 25, 2016  
 Seminar, Center for Astronomy and Astrophysics, **Yale University**, February 23, 2016  
 Seminar, Institute of Geophysics and Planetary Physics, **UC Santa Cruz**,  
 November 20, 2015  
 Presentation, **Kavli Frontiers of Science Symposium**, Beckman Center of the  
 National Academies, November 5, 2015  
 Colloquium, **University of Rochester**, October 14, 2015

INVITED TALKS  
(CONTINUED)

AST Colloquium, **Rochester Institute of Technology**, October 12, 2015  
Astrophysics Colloquium, **UC Irvine**, September 8, 2015  
Diversity Speaker Series Seminar, **NRAO** (Socorro), July 6, 2015  
Colloquium, **NRAO** (Socorro), July 7, 2015  
Planetary Sciences Seminar, **Caltech**, May 19, 2015  
Keynote presentation, **President's Postdoctoral Fellowship Program  
Spring Retreat**, April 25, 2015  
TED talk, **TED Conference**, March 16, 2015  
Astrophysics Colloquium, **UC Irvine**, February 24, 2015  
Seminar, Institute for Planets and Exoplanets, **UCLA**, February 20, 2015  
Bromery Lecture, **Johns Hopkins University**, November 6, 2014  
Colloquium, **University of East Anglia (United Kingdom)**, February 7, 2014  
Engage: The Science Speaker Seminar, **University of Washington**, (2013–2014)  
Solar, Stellar, and Planetary Sciences seminar, **Harvard-Smithsonian Center for  
Astrophysics**, November 20, 2013  
Planetary Science seminar, **Jet Propulsion Laboratory**, November 11, 2013  
**American Association of Physics Teachers Summer Meeting**, July 15, 2013

CONTRIBUTED  
TALKS

*Reaching Middle School Girls From Groups Underrepresented in the Sciences With an  
Innovative Approach to Astronomy and Astrobiology Teaching*  
Astrobiology Science Conference, Chicago, IL, June 16, 2015

*The Effect of Orbital Configuration on the Possible Climates and Habitability of  
Kepler-62f*  
Astrobiology Science Conference, Chicago, IL, June 15, 2015

*The Effect of Star-Planet Interactions on Planetary Climate*  
American Astronomical Society Meeting #225, #306.02D, Seattle, WA, January, 2015

*Climate Hysteresis for Planets Orbiting Stars of Different Spectral Type*  
Division for Planetary Sciences Meeting #45, #103.04, Denver, CO, October 2013

*The Effect of Host Star Spectral Energy Distribution and Ice-Albedo Feedback on the  
Climate of Extrasolar Planets*  
American Astronomical Society Meeting #221, #333.07, Long Beach, CA, January 2013

PROFESSIONAL  
REFERENCES

**Brad Hansen**

Professor, UCLA Physics and Astronomy Department  
Tel: 310-825-5924; Email: hansen@astro.ucla.edu

**John Johnson**

Professor, Harvard Astronomy Department  
Tel: 617-496-9820; Email: jjohnson@cfa.harvard.edu

**Jonathan Mitchell**

Professor, UCLA Department of Earth and Space Sciences  
Email: jonmitch@ucla.edu

**Victoria Meadows**

Professor Department of Astronomy  
Director, UW Astrobiology Program  
Principal Investigator, Virtual Planetary Laboratory Lead Team  
University of Washington  
Tel: 206-543-0206; Email: vsm@astro.washington.edu

**Cecilia Bitz**

Professor  
Department of Atmospheric Sciences  
University of Washington  
Tel: 206-543-1339; Email: bitz@atmos.washington.edu

**Rory Barnes**

Research Assistant Professor, Astronomy  
Department of Astronomy  
University of Washington  
Tel: 206-543-8979; Email: rory@astro.washington.edu

**Mary Dussault**

Science Education Department  
Harvard-Smithsonian Center for Astrophysics  
Tel: 617-496-7962; Email: mdussault@cfa.harvard.edu

## Aomawa Shields: Publications

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### REFEREED PUBLICATIONS

Wolf, E.T., **Shields, A. L.**, Kopparapu, R. K., Haqq-Misra, J., Toon, O. B. (2017) *Constraints on Climate and Habitability for Earth-like Exoplanets Determined from a General Circulation Model*, *Astrophysics Journal*, in press.

**Shields, A. L.**, Ballard, S., Johnson, J. (2016) *The Habitability of Planets Orbiting M-dwarf Stars*, *Physics Reports*, 663:1-38.

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**Shields, A. L.**, Bitz, C. M., Meadows, V. S., Joshi, M. M., Robinson, T. D. (2014) *Spectrum-driven Planetary Deglaciation Due to Increases in Stellar Luminosity*, *Astrophysical Journal Letters*, 785, 9.

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Cowan, N. B., Robinson, T., Livengood, T. A., Deming, D., Agol, E., A'Hearn, M. F., Charbonneau, D., Lisse, C. M., Meadows, V. S., Seager, S., **Shields, A. L.**, Wellnitz, D. D. (2011) *Rotational Variability of Earth's Polar Regions: Implications for Detecting Snowball Planets*, *Astrophysical Journal*, 731, 76.

Hunter, D. A., Elmegreen, B. G., **Baker, A. L.** (1998) *The Relationship between Gas, Stars, and Star Formation in Irregular Galaxies: A Test of Simple Models*, *Astrophysical Journal*, 493, 595.

### POSTERS AND PROCEEDINGS

**Shields, A. L.**, Barnes, R., Agol, E., Charnay, B., Bitz, C. M., Meadows, V. S. *The Effect of Orbital Configuration on the Possible Climates and Habitability of Kepler-62f*, Exoclines, Squamish, BC, August 2016

**Shields, A. L.**, Bitz, C. M., Meadows, V. S., Joshi, M. M., Robinson, T. D. *Spectrum-driven Planetary Deglaciation Due to Increases in Stellar Luminosity*, Exoclines III, Davos, Switzerland, February 2014

**Shields, A. L.**, Meadows, V. S., Bitz, C. M., Pierrehumbert, R. T., Joshi, M. M., Robinson, T. D. *The Effect of Host Star Spectral Energy Distribution on Ice Line Latitude in Terrestrial Exoplanetary Systems*, *Astrobiology Science Conference*, Atlanta, GA, April 2012

**Shields, A. L.**, Abbey, W., Vance, S. *The Effect of Temperature on Fatty Acid Vesicle Formation in Simulated Deep-ocean Conditions*, *American Geophysical Union*, #P21B-1662, San Francisco, CA, December 2011

**Shields, A. L.**, Meadows, V. S., Robinson, T., Crisp, D., Deming, D., A'Hearn, M. F., Charbonneau, D., Livengood, T. A., Seager, S., Barry, R. K., Hearty, T., Hewagama, T., Lisse, C. M., McFadden, L., Wellnitz, D. D., EPOXI Earthling Team. *Earth as an Extrasolar Planet: Comparing Polar and Equatorial Views of Modern Day and Snowball Earth* *American Astronomical Society Meeting* #217, #349.04, January 2011

POSTERS AND  
PROCEEDINGS  
(CONTINUED)

Scire, E., Chan, B. H. P., Silbermann, N., **Shields, A. L.**. *The Spitzer Bibliography Database: bibliographic statistics*, 2010, Proceedings of the SPIE, 7737.

**Shields, A. L.**, Meadows, V. S., Robinson, T. D., Deming, L. D., A'Hearn, M. F., Charbonneau, D., Hewagama, T., Lisse, C., Livengood, T., McFadden, L., Seager, S., Welnitz, D. D., EPOXI Earthling Team. *Earth as an Extrasolar Planet: Comparing Polar and Equatorial Views* Astrobiology Science Conference, 2010, LPI Contribution No. 1538.

**Shields, A. L.**, Nolan, M. C. *Impact Simulations into Ice on Europa* American Astronomical Society Meeting #189, #19.01, January 1996