

Elisabeth R. Adams

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EDUCATION

Ph.D. in Planetary Science, Massachusetts Institute of Technology, June 2010
 B.S. with Honors in Geophysics, California Institute of Technology, June 2003

RESEARCH INTERESTS

The structure of the Kuiper Belt and the history of planet formation
 Finding and characterizing exoplanets

RESEARCH EXPERIENCE

Planetary Science Institute, Tucson, AZ, 2013-current

Associate Research Scientist

Smithsonian Astrophysical Observatory, Cambridge, MA, 2010-2012

Postdoctoral fellow with Andrea Dupree

Massachusetts Institute of Technology, Cambridge, MA, 2004-2010

Research associate, 2004-2005; Ph.D. student, "Transit Timing with Fast Cameras on Large Telescopes" (Advisors: J. L. Elliot, S. Seager), 2005-2010; Postdoctoral associate, 2010.

Harvard University, Cambridge, MA *Research associate, 2004-2005*

California Institute of Technology, Department of Geological and Planetary Sciences, 2002

Summer Undergraduate Research Fellowship (SURF) with Joann Stock

United States Geological Survey, Pasadena CA, 2000 – 2003

Research assistant to David Wald

FELLOWSHIPS AND AWARDS

EAPS Graduate Teaching Award, 2006-2007

Ida Green Fellowship, 2005-2006

John Hall Memorial Fellowship, 2001-2002

TEACHING/ADVISING EXPERIENCE

- *Summer REU project and undergraduate senior thesis, Mackenzie Jones (2011-2012), CfA/Butler U. "Worlds in transit: observations of exoplanets GJ-1214b, TrES-1b, TrES-3b, and XO-2b using IRTF-MORIS"*
- *Undergraduate senior thesis, Caroline Morley (2009-2010), MIT. "Measuring Transit Timing Variation of Exoplanets Using Small Telescopes"*
- *12.425 Extrasolar Planets, Fall 2007 and Fall 2008. Helped create new class (problem sets, exams, solutions, material for lecture slides). Graded, taught comprehensive review sections and fill-in lectures.*

- *12.410 Observational Techniques of Optical Astronomy, Fall 2006*. Led hands-on observing section 1 night/week at the George R. Wallace, Jr., Astrophysical Observatory in Westford, MA; graded student project reports.
- New Haven Reads tutor, 2013-present
- SAT tutor (math/writing), 2004
- College writing tutor, 2002-2003

INVITED TALKS AND COLLOQUIA

Observations of dynamic solar systems: lessons from the Kuiper Belt and extrasolar planets, PSI, May 22, 2013, Tucson, AZ.

A debiased census of Kuiper Belt objects, SWRI, Feb 9, 2013, Boulder, CO.

Searching for Exoplanets using Transit Timing Variations. Northern Arizona University Department of Physics and Astronomy Colloquium, Nov 9, 2009, Flagstaff, AZ.

Searching for Exoplanets using Transit Timing Variations. Women in Aerospace Symposium, Oct 20, 2009, Cambridge, MA.

CONFERENCE TALKS AND POSTERS

A Survey for Very Short-Period Planets in the Kepler Data. DPS 46, Nov 2014, Tucson, AZ.

Debiased Populations of Kuiper Belt Objects from the Deep Ecliptic Survey. DPS 44, Oct 2012, Reno, NV.

Adaptive Optics Images of Kepler Objects of Interest (poster). First Kepler Science Conference, Dec 2011, NASA Ames.

High-resolution images of Kepler Objects of Interest. EPSC-DPS Oct 2011, Nantes, France

Following up Kepler Objects of Interest Using Adaptive Optics Images (poster). AAS May 2011, Boston, MA

Hints of Period Change for OGLE-TR-113b. DPS Oct 2010, Pasadena, CA

Searching for Transit Timing Variations of the OGLE Planets (dissertation talk). AAS 216, May 2010, Miami, FL.

Lack of Transit Timing Variations of OGLE-TR-111b (poster). EGU annual meeting, May 2010, Vienna, Austria.

Transit Timing of the OGLE Planets (poster). AAS 215, Jan 2010, Washington D.C.

Transit Timing of OGLE-TR-111b. DPS 41, Oct 2009, Fajardo, PR.

Transit Timing with Fast Cameras on Large Telescopes. AAS 213, Jan 2009, Long Beach, CA.

Constraints on the Number of Kuiper Belt Objects from the Deep Ecliptic Survey. DPS 39, Oct 2007, Orlando, FL.

A Study of Transiting Extrasolar Planets Using Magellan (poster). DPS 38, Oct 2006, Pasadena, CA.

Using Geocoding to Recover Detailed Shaking Information from the Community Internet Intensity Maps (poster w/ David Wald). SSA, April 2001, San Francisco, CA.

PROFESSIONAL ACTIVITIES

- NASA panel reviewer, 2014.
- Expert reviewer, Smithsonian Middle School Space Sciences Curriculum, 2014.

- SSP colloquium coordinator, 2011-2012.
- Planetary Astronomy Lab systems administrator, 2009-2010.
- EAPS Graduate Student Advisory Council Treasurer, 2007-2009.
- Planetary Internal Colloquium Series (PICS) coordinator, 2006-2007.

OBSERVATIONAL EXPERIENCE

- MMT (6.5 m), 2011. AO (ARIES) and Hectochelle queue observations.
- Magellan (6.5 m), 2005-2011. Transit observations (MagIC/POETS/IMACS) and infrared astrometry (PANIC). Also assisted with MIT queue (MagIC, PANIC, LDSS2/3, IMACS).
- IRTF (3 m), 2008-2011. Transit observations (POETS/SpeX).
- Wallace Astrophysical Observatory (14", 24"), Westford, MA, 2009. Transit observations.
- Siding Spring (2.3 m), 2006. Visiting camera POETS, Pluto occultation, exoplanet transits.
- Kitt Peak (4 m), 2005. KBO orbital recovery.
- Lowell astrograph (18"), 2005. Strip scan astrometry of Pluto.
- Mt. Hopkins (1.2 m and 1.5m), 2004. Various service photometry, spectra observations.

COMPUTER AND TECHNICAL SKILLS

- Operating systems: Mac OS X, Linux/UNIX, Windows
- Programming languages: Python, Mathematica, IDL, C/C++, Perl, Scheme, Java
- Analysis software: IRAF, DS9
- Markup languages: LaTeX, HTML, XML
- Instrument software: LOIS/LOUI
- Miscellaneous: iCal server, MediaWiki, MySQL

REFEREED PUBLICATIONS

- (1) Dressing, C. D., **Adams, E. R.**, Dupree, A. K., Kulesa, C., and McCarthy, D., 2014. Adaptive Optics Images III: 87 Kepler Objects of Interest, AJ, accepted
- (2) **Adams, E. R.**, Gulbis, A. A. S., Elliot, J. L., Benecchi, S. D., Buie, M. W., Trilling, D. E., Wasserman, L. H., 2014. *De-biased Populations of Kuiper Belt Objects from the Deep Ecliptic Survey*, AJ, 148, 55.
- (3) Marcy, G. W. **et al.**, 2014. *Masses, Radii, and Orbits of Small Kepler Planets: The Transition from Gaseous to Rocky Planets*. ApJS, 210, 20, 70 pp.
- (4) Jackson, B., Stark, C. C., **Adams, E. R.**, and Chambers, J., and Deming, D., 2013. *A Survey for Very Short-Period Planets in the Kepler Data*. ApJ, 779, 165, 12 pp.
- (5) **Adams, E. R.**, Dupree, A. K., Kulesa, C., and McCarthy, D., 2013. *Adaptive Optics Images II: 12 Kepler Objects of Interest and 15 Confirmed Transiting Planets*. AJ, 146, 9.
- (6) Rogers, J., López-Morales, M., Apai, D., and **Adams, E.**, 2013. *Benchmark Tests for Markov Chain Monte Carlo Fitting of Exoplanet Eclipse Observations*. ApJ, 767, 64.
- (7) Weiss, L. M., Marcy, G. W., Rowe, J. F., Howard, A. H., Isaacson, H., **et al.**, 2013. *The Mass of KOI-94d and a Relation for Planet Radius, Mass, and Incident Flux*. ApJ, 768, 14.
- (8) Barclay, T., Rowe, J. F., Lissauer, J. J., Huber, D., Fressin, F., **et al.** 2013. *A sub-Mercury-sized exoplanet*. Nature, 494, 7438.

- (9) Steffen, J. H., Fabrycky, D. C., Agol, E., Ford, E. B., Morehead, R. C., **et al.**, 2013. *Transit timing observations from Kepler - VII. Confirmation of 27 planets in 13 multiplanet systems via transit timing variations and orbital stability*. MNRAS, 428, 1077-1087.
- (10) **Adams, E. R.**, Ciardi, D. R., Dupree, A. K., Gautier, T. N., III, Kulesa, C., and McCarthy, D., 2012. *Adaptive Optics Images of Kepler Objects of Interest*. AJ, 144, 42.
- (11) Lissauer, J. J., Marcy, G. W., Rowe, J. F., Bryson, S. T., **Adams, E.**, et al., 2012. *Almost All of Kepler's Multiple-planet Candidates Are Planets*. ApJ, 750, 112.
- (12) Howell, S. B., Rowe, J. F., Bryson, S. T., Quinn, S. N., Marcy, G. W., **et al.**, 2012. *Kepler-21b: A 1.6 R-Earth Planet Transiting the Bright Oscillating F Subgiant Star HD 179070*. ApJ, 746, 123.
- (13) Buchhave, L. A., Latham, D. W., Carter, J. A., Désert, J.-M., Torres, G., **et al.**, 2011. *Kepler-14b: A Massive Hot Jupiter Transiting an F Star in a Close Visual Binary*. ApJS, 197, 3.
- (14) **Adams, E. R.**, López-Morales, M., Elliot, J. L., Seager, S., Osip, et al., 2011. *Twenty-One New Light Curves of OGLE-TR-56b: New System Parameters and Limits on Timing Variations*. ApJ, 741, 101
- (15) Demory, B.-O., Seager, S., Madhusudhan, N., Kjeldsen, H., Christensen-Dalsgaard, J., **et al.**, 2011. *The High Albedo of the Hot Jupiter Kepler-7 b*. ApJ, 735, 12.
- (16) Gulbis, A. A. S., Bus, S. J., Elliot, J. L., Rayner, J. T., Stahlberger, **et al.**, 2011. *First results from the MIT Optical Rapid Imaging System (MORIS) on the IRTF: a stellar occultation by Pluto and a transit by exoplanet XO-2b*. PASP, 123, 461.
- (17) **Adams, E. R.**, López-Morales, M., Elliot, J. L., Seager, S., Osip, D. J., 2011. *Transit Timing Variation Analysis of OGLE-TR-132b with Seven New Transits*. ApJ, 728, 125.
- (18) Shporer, A., Winn, J. N., Dreizler, S., Colón, K. D., Wood-Vasey, W. M., **et al.**, 2010. *Ground-based Multisite Observations of Two Transits of HD 80606b*. ApJ, 722, 880.
- (19) **Adams, E. R.**, López-Morales, M., Elliot, J. L., Seager, S., Osip, D. J., 2010b. *Six High-Precision Transits of OGLE-TR-113b*. ApJ, 721, 1829.
- (20) Gulbis, A. A. S., Elliot, J., **Adams, E. R.**, Benecchi, S., Buie, M., et al., 2010. *Unbiased Inclination Distributions for Objects in the Kuiper Belt*. AJ, 140, 350.
- (21) Elliot, J. L., Person, M. J., Zuluaga, C. A., Bosh, A. S., **Adams, E. R.**, et al., 2010. *Size and albedo of Kuiper belt object 55636 from a stellar occultation*. Nature, 465, 897.
- (22) López-Morales, M., Coughlin, J. L., Sing, D. K., Burrows, A., Apai, D., et al., 2010. *Day-side z'-band Emission and Eccentricity of WASP-12b*. ApJL, 716, L36.
- (23) **Adams, E. R.**, López-Morales, M., Elliot, J. L., Seager, S., Osip, D. J. *Lack of Transit Timing Variations of OGLE-TR-111b: A Re-Analysis with Six New Epochs*. 2010a, ApJ, 714, 13.
- (24) Winn, J. N., Howard, A. W., Johnson, J. A., Marcy, G. W., Gazak, J. Z., **et al.**, 2009. *The Transit Ingress and the Tilted Orbit of the Extraordinarily Eccentric Exoplanet HD 80606b*. ApJ, 703, 2091.
- (25) **Adams, E. R.**, Seager, S., Elkins-Tanton, L., 2008. *Ocean Planet or Thick Atmosphere: On the Mass-Radius Relationship for Solid Exoplanets with Massive Atmospheres*. ApJ, 673, 1160.
- (26) Elliot, J. L., Person, M. J., Gulbis, A. A. S., Souza, S. P., **Adams, E. R.**, et al., 2007. *Changes in Pluto's Atmosphere: 1988-2006*. AJ, 134, 1.

- (27) Mochejska, B. J., Stanek, K. Z., Sasselov, D. D., Szentgyorgyi, A. H., **Adams, E. R.**, et. al., 2006. *Planets in Stellar Clusters Extensive Search. IV. A Detection of a Possible Transiting Planet Candidate in the Open Cluster NGC 2158*. AJ, 131, 1090.
- (28) Gulbis, A. A. S., Elliot, J. L., Person, M. J., **Adams, E. R.**, Babcock, B. A., et. al., 2006. *Charon's radius and atmospheric constraints from observations of a stellar occultation*. Nature, 439, 48.
- (29) Blazejowski, M., Blaylock, G., Bond, I. H., Bradbury, S. M., Buckley, J. H. **et. al.**, 2005. *A Multiwavelength View of the TeV Blazar Markarian 421: Correlated Variability, Flaring, and Spectral Evolution*. ApJ, 630, 130.
- (30) Price, A., Gary, B., Bedient, J., Cook, L., Templeton, M., Pullen, C., **et. al.**, 2004. *A New Cataclysmic Variable in Hercules*. PASP, **116**, 1117.

CONFERENCE PROCEEDINGS

Jacobsen, S. B., Petaev, M. I., Sasselov, D. D., **Adams, E. R.**, 2004. *The Evolution of Solids in Proto-Planetary Disks*. Workshop on Chondrites and the Protoplanetary Disk, November 8-11, 2004, Kauai, Hawaii.

PUBLISHED FICTION

“Subversion”, EscapePod, May 2013 (<http://escapepod.org/2013/05/30/ep398-subversion/>)
 “Second Birthday”, Analog, forthcoming (Mar 2015).