

Krista Marie Soderlund

The University of Texas at Austin

Institute for Geophysics, John A. & Katherine G. Jackson School of Geosciences
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Research Interests

Geophysical Fluid Dynamics, Magnetohydrodynamics, Planetary Science, Cryosphere, Astrobiology

Education

University of California, Los Angeles

Ph.D., Geophysics and Space Physics, 2011

M.S., Geophysics and Space Physics, 2009

Florida Institute of Technology

B.S., Double major in Physics & Space Science, 2005, Summa Cum Laude

Employment

University of Texas at Austin, Institute for Geophysics

Research Associate, September 2014-Present

UTIG Postdoctoral Fellow, October 2011-September 2014

University of California, Los Angeles, Department of Earth and Space Sciences

Graduate Student Researcher, Advisor: Dr. Jonathan M. Aurnou, 2006-2011

California Institute of Technology, Division of Geological and Planetary Sciences

Summer Undergraduate Research Fellow, Dr. Joann M. Stock, 2005

NASA Jet Propulsion Laboratory, CA

Consultant, Dr. Bonnie J. Buratti, 2006

Planetary Geology & Geophysics Undergrad Research Program, Dr. B.J. Buratti, 2004

Florida Institute of Technology, Department of Physics and Space Science

Undergraduate Researcher, Dr. Niescja E. Turner, 2004-2005

Naval Oceanographic Office, Hydrology Code, Stennis Space Center, MS

Physical science aid, 2003

Grants and Research Experience

Co-Investigator, Radar for Europa Assessment and Sounding: Ocean to Near-surface (REASON),
NASA Europa Instrument Investigations Announcement of Opportunity, 2015-2034.

Principal Investigator, Modeling the Internal Dynamics of Ice Giants, NASA Solar System
Workings Program, 2015-2018 (\$314,212)

Science Principal Investigator, Convective Ocean Dynamics of Europa: Effects Of Salinity, NASA
Outer Planets Research Program, PI Donald Blankenship, 2014-2017 (\$318,175)

UT Principal Investigator, Planetary Magnetism and Thermochemical Evolution, NSF, PI Gerald
Schubert, 2013-2015 (\$138,597)

Co-Principal Investigator, Jackson School of Geosciences Seed Grant Proposal, Proof-of-Concept
Investigation of Dynamic Processes at Europa's Ice-Ocean Interface, 2014 (\$8,200)

Co-Principal Investigator, Jackson School of Geosciences Seed Grant Proposal, Collaborative Effort
to Develop a "Europa Simulator", 2013 (\$3,875)

Postdoctoral Associate, Ice Penetrating Radar (IPR) for Europa Exploration, NASA Instrument
Concepts for Europa Exploration, PI Alina Moussessian, 2013-2014 (\$499,868)

Named Participant, Jupiter Icy Moon Explorer (JUICE) Radar for Icy Moon Exploration (RIME),
ESA, PI Lorenzo Bruzzone, 2013-2033 (\$418,403)

Participant, SIMPLE: Sub-ice Investigation of Marine and Planetary-analog Ecosystems, NASA
Astrobiology Science & Technology for Exploring Planets, PI Britney Schmidt, 2012-2016

Participant, Investigating the Cryospheric Evolution of the Central Antarctic Plate (ICECAP), NSF, PI Donald Blankenship, 2011-2012

Graduate Student Assistant, Modeling deep convective processes on gas planets, NASA Planetary Atmospheres, PI Jonathan Aurnou, 2006-2011

Supercomputing Allocations

Principal Investigator, NASA Advanced Supercomputing Division, Oceanic circulations and impacts of ice-ocean interaction, 2012-2015 (300,803 processor-hours)

Co-Investigator, NASA Advanced Supercomputing Division, Simulating the internal dynamics of the giant planets, 2008-2015 (2.3 billion processor-hours)

Principal Investigator, Texas Advanced Computing Center, Convection in Europa's ocean, 2012 (50,000 processor-hours)

Co-Investigator, San Diego Supercomputing Center, The effects of deep convection on the ice giants, 2007-2008 (6,300 processor-hours)

Awards and Honors

2015 NASA Early Career Fellow
2014 UTIG Director's Circle of Excellence Award
2014 Invited speaker, 2014 Study of Earth's Deep Interior (SEDI) symposium
2014 National Science Foundation travel award to attend the 2014 SEDI symposium
2014 Japanese Geophysical Union travel award to attend the 2014 SEDI symposium
2013 UTIG Outstanding Young Researcher Award
2013 UTIG Director's Circle of Excellence Award
2013 Cover image for August issue of *Astrobiology* (Pappalardo et al.)
2013 Cover image for May issue of *Icarus* (Soderlund et al.)
2013 Invited speaker, 2013 American Geophysical Union (AGU) conference
2013 Invited speaker, 2013 European Geophysical Union (EGU) conference
2013 Keith Runcorn Travel Award for Non-Europeans for EGU 2013 conference
2011-2013 University of Texas Institute for Geophysics Postdoctoral Fellowship
2010 Sullwold Scholarship for academic excellence and outstanding original research
2009 Invited presenter, NASA Exhibit, Supercomputing Conference
2006-2009 National Defense Science and Engineering Graduate (NDSEG) Fellowship
2007, 2008 L.A. Basin Earth & Planetary Student Research Symposium Best Presentation Award
2007 San Diego Supercomputing Center Featured Researcher of the Month
2006 National Science Foundation Graduate Fellowship Honorable Mention
2001-2006 Marshall H. and Nellie Alworth Scholarship
2003-2005 Sons of Norway Nancy Lorraine Jensen Memorial Scholarship
2005 Florida Institute of Technology Faculty Honors Award for maintaining a 4.0 GPA
2001-2005 Florida Institute of Technology Presidential Academic Scholarship
2004-2005 Florida Institute of Technology Distinguished and Outstanding Student Scholar Awards
2004-2005 National Collegiate Physical Science Award
2001 Bausch and Lomb Honorary Science Student Award
2001 Minnesota Technology Scholarship

Professional Service

Reviewer, Proposals: NASA Cassini Data Analysis Program, NASA Earth Space Science Fellowship Program, NASA Mars Fundamental Research Program, NASA Outer Planets Research Program, NASA Solar System Workings Program, Swiss National Supercomputing Centre, French National Research Agency

Reviewer, Journals: Journal of Geophysical Research, Journal of Climate, Earth and Planetary Science Letters, Geophysical and Astrophysical Fluid Dynamics
Panelist, Chemical Energy for Life on Icy Worlds, Workshop on the Habitability of Icy Worlds, 2014
Chair, Workshop on the Study of Ice Giant Planets, 2014; Astrobiology Science Conference, 2015, American Astronomical Society Division of Planetary Science Conference, 2015
Member, Jackson School of Geoscience Planetary Theme Executive Committee, 2013-2015; Institute for Geophysics Annual Performance Evaluation Committee, 2015; Institute for Geophysics Strategic Planning Committee, 2015
Contributor, Europa Study Report, NASA, Science Definition Team, 2012
Lead, Development of the UTIG Planetary Geophysics website, 2013-2014
Lead, Recommendations on Restructuring Graduate Coursework, submitted to UCLA Faculty, 2008
Graduate Student Rep, UCLA Dept of Earth and Space Sciences Curriculum Committee, 2008
Judge, Astrobiology Science Conference Student Poster Competition, 2015
Judge, Jackson School of Geosciences Student Research Symposium, 2013, 2014
Judge, Lunar and Planetary Science Institute Dwornik Award, 2012, 2013
Judge, AGU Outstanding Student Paper Award, 2011, 2012, 2014

Publications

19. **Soderlund, K.M.** and J.M. Aurnou, Reversal of zonal jets by magnetic fields, in prep for *Astrophys. J. Lett.*
18. **Soderlund, K.M.** and J.M. Aurnou, Effects of electrical conductivity in geodynamo models, in prep for *Geophys. Res. Lett.*
17. **Soderlund, K.M.**, G. Schubert, M. Dumberry, A. Rivoldini, The origin and evolution of Mercury's magnetic field, in prep for *Earth Planet. Sci. Lett.*
16. Tajeddine, R., **K.M. Soderlund**, P.C. Thomas, P. Helfenstein, P.M. Schenk, M.M. Hedman, J.A. Burns, True polar wander of Enceladus from topographic data, in prep for *Nature*
15. Grima C., J.S. Greenbaum, E. Lopez Garcia, **K.M. Soderlund**, D.D. Blankenship, D.A. Young, Brine extent of McMurdo Ice Shelf, Antarctica, mainly controlled by snow accumulation, in prep for *Geophys. Res. Lett.*
14. **Soderlund, K.M.**, A. Sheyko, E.M. King and J.M. Aurnou (2015), The Competition between Lorentz and Coriolis forces in planetary dynamos, *Prog. Earth Planet. Sci.* 2, 24.
13. Aurnou, J.M., M.A. Calkins, J.S. Cheng, K. Julien, E.M. King, D. Nieves, **K.M. Soderlund**, S. Stellmach (2015), Rotating Convective Turbulence in Earth and Planetary Cores, *Phys. Earth Planet. Int.* 246, 52-71.
12. Scheinberg, A. **K.M. Soderlund**, G. Schubert (2015), Magnetic field generation in the lunar core: The role of inner core growth, *Icarus* 254, 62-71.
11. Cao, H., J.M. Aurnou, J. Wicht, W. Dietrich, **K.M. Soderlund**, C.T. Russell (2014), A dynamo explanation for Mercury's anomalous magnetic field, *Geophys. Res. Lett.* 41(12), 4127-4134.
10. **Soderlund, K.M.**, E.M. King, J.M. Aurnou (2014), Corrigendum to "The influence of magnetic fields in planetary dynamo models", *Earth Planet. Sci. Lett.* 392, 121-123.
9. **Soderlund, K.M.**, B.E. Schmidt, J. Wicht, D.D. Blankenship (2014), Ocean-driven heating of Europa's icy shell at low latitudes, *Nature Geosci.* 7(1), 16-19, doi:10.1038/ngeo2021.
8. Pappalardo, R.T., S. Vance, F. Bagenal, B.G. Bills, D.L. Blaney, D.D. Blankenship, W.B. Brinckerhoff, J.E.P. Connerney, K.P. Hand, T.M. Hoehler, J.S. Leisner, W.S. Kurth, M.A. McGrath, M.T. Mellon, J.M. Moore, G.W. Patterson, L.M. Prockter, D.A. Senske, B.E. Schmidt, E.L. Shock, D.E. Smith, **K.M. Soderlund** (2013), Science potential from a Europa lander, *Astrobiology* 13(8), 740-773. doi:10.1089/ast.2013.1003.
7. **Soderlund, K.M.**, M.H. Heimpel, E.M. King, J.M. Aurnou (2013), Turbulent models of ice giant internal dynamics: Dynamos, heat transfer, and zonal flows, *Icarus* 224, 97-113.

6. **Soderlund, K.M.**, E.M. King, J.M. Aurnou (2012), The influence of magnetic fields in planetary dynamo models, *Earth Planet. Sci. Lett.* 333, 9-20.
5. **Soderlund, K.M.** (2011), Investigating transitions in planetary dynamo models, Ph.D. thesis, University of California, Los Angeles.
4. Schubert, G. and **K.M. Soderlund** (2011), Planetary magnetic fields: Observations and models, *Phys. Earth Planet. Int.* 187, 92-108.
3. King, E.M., **K.M. Soderlund**, U.R. Christensen, J. Wicht, J.M. Aurnou (2010), Convective heat transfer in planetary dynamo models, *Geochemistry, Geophysics, Geosystems*, 11, Q06016.
2. Buratti, B.J., **K.M. Soderlund**, A. Bauer, J.A. Mosher, M.D. Hicks, D.P. Simonelli, J. Jaumann, R.N. Clark, R.H. Brown, D.P. Cruikshank, T. Momary (2008), Infrared (0.83-5.1 μm) Photometry of Phoebe from the Cassini VIMS, *Icarus*, 193, 309-322.
1. Buratti, B.J., D.P. Cruikshank, R.H. Brown, R.N. Clark, J.M. Bauer, R. Jaumann, T.B. McCord, D.P. Simonelli, C.A. Hibbitts, G.B. Hansen, T.C. Owen, K.H. Baines, G. Bellucci, J.-P. Bibring, F. Capaccioni, P. Cerroni, A. Coradini, P. Drossart, V. Formisano, Y. Langevin, D.L. Matson, V. Mennella, R.M. Nelson, P.D. Nicholson, B. Sicardy, C. Sotin, T.L. Roush, **K.M. Soderlund**, A. Muradyan (2005), Cassini VIMS observations of Iapetus: Detection of CO_2 , *Astrophys. J.*, 622.2, 149-152.

Invited Lectures and Seminars

The University of Texas at Austin, Jackson School of Geosciences, DeFord Lecture Series, October 2015, Austin, TX.

Baylor University, Center for Astrophysics, Space Physics and Engineering Research, Modeling Deep Convective Flows and Magnetic Fields of Uranus and Neptune, October 2015, Waco, TX.

Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Dynamics and Dynamos of the Ice Giants, April 2015, Atlanta, GA.

The University of Texas at Austin, Department of Astronomy, Theoretical Astrophysics and Interstellar Medium/Planets Seminar. Convective Dynamics in the Interiors of Ice Giants and Icy Satellites, April 2014, Austin, TX.

The University of Texas at Austin, Institute for Geophysics Seminar. Convective Dynamics in the Interiors of Ice Giants and Icy Satellites, March 2014, Austin, TX.

Trinity University, Department of Physics Seminar. Convective Dynamics in the Interiors of Ice Giants and Icy Satellites, March 2014, San Antonio, TX.

Jet Propulsion Laboratory Ices Seminar. Convective Dynamics of the European Ocean: Insights from the giant planets, August 2013, Pasadena, CA.

Universidad de los Andes, Department of Physics Seminar. Convective Dynamics of Ice Giants and Icy Satellites, May 2013, Bogota, Colombia.

The University of Texas at Austin, Institute for Geophysics Brownbag Seminar. Investigating Planetary Interiors Through Convection and Dynamo Modeling, February 2012, Austin, TX.

UCLA, Department of Earth and Space Sciences Planetology Seminar. Convection and Magnetic Field Generation in Planetary Dynamo Models, May 2011, Los Angeles, CA.

Norwegian Polar Institute. Planetary Dynamo Models: Applications to Uranus and Neptune, February 2011, Tromso, Norway.

UCLA, Department of Earth and Space Sciences Planetology Seminar. Behavioral Transitions in Planetary Dynamo and Convection Models, June 2009, May 2010, Los Angeles, CA.

UCLA, Department of Earth and Space Sciences Planetology Seminar. Zonal flows and thermal emissions of the ice giants, May 2008, Los Angeles, CA.

UCLA, Department of Earth and Space Sciences Planetology Seminar. Modeling deep convection on the ice giants, May 2007, Los Angeles, CA.

Conference Presentations

- Soderlund, K.M.**, et al., Parameterization of the Lorentz to Coriolis Force Ratio in Planetary Dynamos, *2015 American Geophysical Union Fall Meeting, San Francisco, CA.*
- Tajeddine, R., **et al.**, Topographic evidence of True Polar Wander on Enceladus, *2015 American Geophysical Union Fall Meeting, San Francisco, CA, Invited.*
- Moussessian, A., **et al.**, REASON for Europa, *2015 American Geophysical Union Fall Meeting, San Francisco, CA.*
- Soderlund, K.M.**, et al., Thermal coupling between the ocean and mantle of Europa: Implications for ocean convection, *2015 AAS / Division for Planetary Sciences Meeting, National Harbor, MD #405.08 (oral).*
- Patterson, G.W., **et al.**, REASON for Europa, *2015 AAS / Division for Planetary Sciences Meeting, National Harbor, MD #312.09.*
- Soderlund, K.M.**, et al., Convective transport properties of icy satellite oceans and implications for habitability, *2015 Astrobiology Science Conference, Chicago, IL.*
- Blankenship, D.D., **et al.**, Revealing secrets of Europa's ice shell, hidden water and plume activity through flyby radar sounding, *2015 Astrobiology Science Conference, Chicago, IL (oral), Invited.*
- Schmidt, B.E., **et al.**, Sub-ice marine and planetary ecosystems: First results from below the McMurdo Ice Shelf, *2015 Astrobiology Science Conference, Chicago, IL.*
- Soderlund, K.M.**, et al., Compositionally driven dynamos, *2014 American Geophysical Union Fall Meeting, San Francisco, CA, Abstract GP54A-05 (oral).*
- Cao, H., **et al.**, Symmetry and Symmetry Breaking in Planetary Magnetic Fields, *2014 American Geophysical Union Fall Meeting, San Francisco, CA, Abstract GP54A-02 (oral), Invited.*
- Soderlund, K.M.**, et al., Force balances in geodynamo models and the Earth's core, *2014 Study of Earth's Deep Interior symposium, Kanagawa, Japan (oral).*
- Soderlund, K.M.**, et al., Turbulent models of ice giant dynamos, *2014 Study of Earth's Deep Interior symposium, Kanagawa, Japan.*
- Cao, H., **et al.**, A dynamo explanation for Mercury's anomalous magnetic field, *2014 Study of Earth's Deep Interior symposium, Kanagawa, Japan.*
- Soderlund, K.M.** and J.M. Aurnou, Modeling the internal dynamics and magnetic fields of ice giant planets, *2014 Workshop on the Study of Ice Giant Planets, Laurel, MD (oral).*
- Soderlund, K.M.**, et al., The influence of heterogeneous mantle heating on ocean convection at Europa, *2014 Lunar and Planetary Science Conference, The Woodlands, TX, Abstract 2054 (oral).*
- Cao, H., **et al.**, New insights into Mercury's core dynamics from numerical dynamo simulations, *2014 Lunar and Planetary Science Conference, The Woodlands, TX, Abstract 1559 (oral).*
- Soderlund, K.M.**, et al., Convective processes in Europa's ocean and implications for ice-ocean coupling, *2014 Workshop on the Habitability of Icy Worlds, Pasadena, CA (oral).*
- Blankenship, D.D., **et al.**, Flyby sounding of Europa's icy shell: Radar investigations, analogs, and instruments for the Europa Clipper Mission, *2014 Workshop on the Habitability of Icy Worlds, Pasadena, CA.*
- Schmidt, B.E., **et al.**, A chaos conveyor belt? *2014 Workshop on the Habitability of Icy Worlds, Pasadena, CA (oral).*
- Schroeder, D.M. **et al.**, Icy world science and habitability in the National Science Olympiad for middle school students, *2014 Workshop on the Habitability of Icy Worlds, Pasadena, CA.*
- Soderlund, K.M.**, King, E.M., and Aurnou, J.M., The breakdown of dipolar magnetic field generation in planetary dynamo models, *2013 American Geophysical Union Fall Meeting, San Francisco, CA, Abstract GP33A-08 (oral), Invited.*

- Schmidt, B.E., **Soderlund, K.M.**, et al., Europa's shallow subsurface: lakes, layers and life?, *2013 American Geophysical Union Fall Meeting*, San Francisco, CA, Abstract P43E-01 (oral), **Invited**.
- Scheinberg, A. L., **Soderlund, K.M.**, and Schubert, G., Persistence of the lunar dynamo: The role of compositional convection, *2013 American Geophysical Union Fall Meeting*, San Francisco, CA, Abstract GP41D-1157.
- Cao, H., et al., A dynamo explanation for Mercury's anomalous magnetic field, *2013 American Geophysical Union Fall Meeting*, San Francisco, CA, Abstract GP33A-05 (oral), **Invited**.
- Cheng, J.S., et al., Extreme rotating convection experiments and implications for modeling the dynamo, *2013 American Geophysical Union Fall Meeting*, San Francisco, CA, Abstract GP51A-1070.
- Soderlund, K.M.**, et al., Dynamic coupling of magnetic fields, thermal emissions, and zonal flows in ice giant planets, *2013 AAS / Division for Planetary Sciences Meeting*, Denver, CO #312.24.
- Blankenship, D.D., et al., Flyby sounding of Europa's icy shell: radar investigations, analogs and instruments for the Europa Clipper mission, *2013 International Symposium on Radioglaciology*, Abstract 67A072 (oral).
- Soderlund, K.M.**, King, E.M., and Aurnou, J.M., The influence of magnetic fields in planetary dynamo models, *2013 European Geophysical Union Meeting*, Vienna, Austria, Abstract EGU2013-469 (oral), **Invited**.
- Soderlund, K.M.**, et al., Dynamics of Europa's Ocean and Sensitivity to Water Properties, *2013 Lunar and Planetary Science Conference*, The Woodlands, TX, Abstract 3009 (oral).
- Schmidt, B.E., et al., Living on the Edge: Understanding the Habitability of Europa's Ice-Ocean Interface with Help from Earth, *2013 Lunar and Planetary Science Conference*, The Woodlands, TX, Abstract 3054.
- Soderlund, K.M.**, et al., European Ocean Dynamics Inferred from Surface Geology, *2012 American Geophysical Union Fall Meeting*, San Francisco, CA, Abstract 1503644 (oral).
- Soderlund, K.M.**, et al., Weakly-rotating Convective Dynamos: Application to Uranus and Neptune, *2012 American Geophysical Union Fall Meeting*, San Francisco, CA, Abstract 1496764.
- Soderlund, K.M.**, et al., Oceanography of Europa, *2012 AAS / Division for Planetary Sciences Meeting*, Reno, NV, #101.04 (oral).
- Schmidt, B.E., et al., Shake, Rupture And Flow: Hydraulic Constraints on the Formation of Europa's Chaos, *2012 AAS / Division for Planetary Sciences Meeting*, Reno, NV, #112.20.
- Soderlund, K.M.**, et al., Convective Heat Transfer in Europa's Ocean and the Formation of Chaos Terrain, *2012 Lunar and Planetary Science Conference*, The Woodlands, TX, Abstract 2903.
- Greenbaum, J., et al., Seafloor shapes of the floating portion of Totten Glacier and Moscow University Ice Shelf, East Antarctica, *2012 Forum for Research on Ice Shelf Processes* (oral).
- Soderlund, K.M.**, King, E.M., and Aurnou, J.M., Convective Dynamics in Planetary Dynamo Models and the Secondary Role of Magnetic Fields, *2011 American Geophysical Union Meeting*, San Francisco, CA, Abstract GP11B-01 (oral).
- Soderlund, K.M.** and Aurnou, J.M., Simulation of an ice giant-style dynamo, *2010 American Geophysical Union*, San Francisco, CA, Abstract GP23B-1007.
- Soderlund, K.M.** and Aurnou, J.M., Modeling the Zonal Winds, Thermal Emissions, and Magnetic Fields of Ice Giants, *2010 AAS / Division for Planetary Sciences Meeting*, #11.28.
- King, E.M., et al., Heat transfer and thermal mixing in planetary dynamo models, *2009 American Geophysical Union*, San Francisco, CA, Abstract P31C-1259.
- Soderlund, K.M.** and Aurnou, J.M., Effects of deep convective mixing on the ice giants, *2007 AAS / Division for Planetary Sciences Meeting*, #55.10.

- Likar, J.J., **et al.**, Mission Design Concept for in Situ Characterization of Saturnian Atmospheric Composition, *2006 American Geophysical Union*, San Francisco, CA, Abstract P41C-1297.
- Dawson, O.R., **et al.**, Comparative Planetology at Saturn: Mission Concept for a Flyby with Shallow Probes, *2006 AAS / Division for Planetary Sciences Meeting*, #45.21.
- Buratti, B.J., **et al.**, Visual and Infrared Photometry of the Icy Satellites of Saturn with the Cassini Visual Infrared Mapping Spectrometer (VIMS), *2006 AAS / Division for Planetary Sciences Meeting*, #69.06.
- Turner, N.E., **et al.**, Use and Evaluation of 3D GeoWall Visualizations in Undergrad. Space Science Classes, *2005 American Geophysical Union*, San Francisco, CA, Abstract ED31C-1227.
- Soderlund, K.M.**, et al., The Infrared Rotational Lightcurve of Phoebe from the Cassini Visual Infrared Mapping Spectrometer (VIMS), *2004 AAS / Division for Planetary Sciences Meeting*, #15.04.
- Buratti, B.J., **et al.**, Iapetus: First data from the Cassini Visual Mapping Spectrometer, *2004 AAS / Division for Planetary Sciences Meeting*, #04.09.

Affiliations

Member, American Geophysical Union (AGU), Division of Planetary Sciences (DPS) of the American Astronomical Society (AAS), Japanese Geophysical Union (JpGU), Association for Polar Early Career Scientists (APECS)

Field Experience

Field assistant, Data acquisition, analysis, and management for airborne geophysical surveys in East Antarctica, University of Texas Institute for Geophysics, Nov 2011-Jan 2012

Geophysical watchstander, Data editing and quality assurance onboard the R/V Nathaniel B. Palmer in the South Pacific, California Institute of Technology, March 2006

Teaching Experience

Planetary Science, Guest Lecturer on planetary dynamos and Europa, University of Texas at Austin, April 2014

Planetary Science, Guest Lecturer on giant planets, University of Texas at Austin, April 2012

Solar System and Planets, Teaching Assistant, UCLA Department of Earth & Space Sciences, 2010

Oceanography, Teaching Assistant, UCLA Department of Earth & Space Sciences, 2009

Outreach Activities

Radio interview, Texas Standard, KUT, Austin, TX, 2015

Radio interview, "They Blinded me with Science", KVRX, Austin, TX, 2015

Podcast, "Water on Other Planets and Moons", Museum of Science, Boston, MA, 2014

Volunteer, Science Olympiad, 2014

Exhibitor, Hot Science-Cool Talks pre-lecture fair, 2013

Mentor, GeoFORCE, 2012

Community presentation, "Tour of the Solar System", Grace Lutheran Science Camp, 2009

Community presentation, "Life of a Scientist", "Antarctica", Cotton High School, 2006

Press

Radar Instrument selection for the Europa Mission:

UT Press Release: Radar Techniques Used in Antarctica Will Scour Europa for Life-Supporting Environments

Associated local, national, and international press included articles in Huffington Post, The Guardian, Ars Technica, AmericaSpace, space.com

Cao et al., *Geophys. Res. Lett.* 41(12), 4127-4134, 2014:

UCLA Press Release: Mercury's magnetic field tells scientists how its interior is different from Earth's

Associated national press included articles in *Physics Today*, *Astrobiology Magazine*, *SciTechDaily*.

Soderlund et al., *Nature Geosci.* 7(1), 16-19, 2014:

UT Press Release: Model Suggests Ocean Currents Shape Europa's Icy Shell in Ways Critical for Potential Habitats

Associated local, national, and international press included articles in *Daily Texan*, *United Press International*, *New Scientist*, *Discovery News*, *French Tribune*, *Tehran Times*, *io9*, *Nature World News*, *space.com*, *Agencia Efe*, *Time*, *Astrobiology Magazine*, *Ars Technica*.

Pappalardo et al., *Astrobiology* 13(8), 740-773, 2013:

UT Press Release: Scientists Helped Design NASA Mission Concept to Search for Life on Europa

JPL Press Release: If we landed on Europa, what would we want to know?

Associated local, national, and international press included articles in the *Daily Texan*, *Austin-American Statesman*, *Houston Chronicle*, *Galveston Daily News*, *Los Angeles Times*, *Huffington Post*, *National Geographic*, *U.S. News and World Report*, *Der Tagesspiegel*.