Krista Marie Soderlund

Institute for Geophysics, John A. & Katherine G. Jackson School of Geosciences
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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., Physics, 2005, Summa Cum Laude
B.S., Space Science, 2005, Summa Cum Laude

Research Interests

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

Research Experience

University of Texas at Austin, Institute for Geophysics
UTIG Postdoctoral Fellow, October 2011-Present
University of California, Los Angeles, Department of Earth and Space Sciences
Graduate Student Researcher, Advisor: Dr. J.M. Aurnou, 2006-2011
California Institute of Technology, Division of Geological and Planetary Sciences
Summer Undergraduate Research Fellow, Dr. J.M. Stock, 2005
NASA Jet Propulsion Laboratory, CA
Consultant, Dr. B.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. N.E. Turner, 2004-2005
Naval Oceanographic Office, Hydrology Code, Stennis Space Center, MS
Physical science aid, 2003

Publications

Soderlund, K.M., B.E. Schmidt, D.D. Blankenship, J. Wicht (2012), Ocean dynamics of Europa: Implications for chaos distribution and ice-ocean coupling, In prep for Nature.

Soderlund, K.M., M.H. Heimpel, E.M. King, J.M. Aurnou (2012), Turbulent models of ice giant internal dynamics: Dynamos, heat transfer, and zonal flows, In review at Icarus.

Soderlund, K.M., E.M. King, J.M. Aurnou (2012), The influence of magnetic fields in planetary dynamo models, Earth Planet. Sci. Lett., 333-334, 9-20.

Soderlund, K.M. (2011), Investigating transitions in planetary dynamo models, Ph.D. thesis, University of California, Los Angeles.

Schubert, G. and *K.M. Soderlund* (2011), Planetary magnetic fields: Observations and models, Phys. Earth Planet. Int., 187, 92-108.

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.

Buratti, B.J., *K.M. Soderlund*, 9 coauthors (2006), Infrared (0.83-5.1 μm) Photometry of Phoebe from the Cassini VIMS, Icarus, 193, 309-322.

Buratti, B.J., et al. (2005), Cassini VIMS observations of Iapetus: Detection of CO_2, Astrophys. J., 622.2, 149-152.

Supercomputing Allocations

Principal Investigator, NASA Advanced Supercomputing Division, Impacts of ice-ocean interaction, 2012-2013

Co-Investigator, NASA Advanced Supercomputing Division, Modeling deep convective processes on gas planets, 2009-2013

Co-Investigator, NASA Advanced Supercomputing Division, Modeling zonal wind generation on the Jovian Planets, 2005-2008

Co-Investigator, NASA Advanced Supercomputing Division, Simulating the internal dynamics of the giant planets, 2008-2011

Co-Investigator, San Diego Supercomputing Center, The effects of deep convection on the ice giants, 2007-2008

Research Programs

Assistant, Jupiter Icy Moon Explorer (JUICE) Radar for Icy Moon Exploration (RIME), ESA, PI Lorenzo Bruzzone, to submit

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

Collaborator, Totten Glacier system and the marine record of cryosphere-ocean dynamics, NSF, PI Amy Leventer, 2012-2014

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, 2009-2012

Graduate Student Assistant, Modeling zonal wind generation on the jovian planets, NASA Planetary Atmospheres, PI Jonathan Aurnou, 2006-2008

Academic Service and Affiliations

Contributor, Europa Study Report, NASA, Science Definition Team, 2012

Graduate Student Rep, UCLA Dept of Earth and Space Sciences Curriculum Committee, 2008

Lead, Recommendations on Restructuring Graduate Coursework, submitted to UCLA Faculty

Member, American Geophysical Union (AGU), Division of Planetary Sciences (DPS) of the American Astronomical Society (AAS), Society for Industrial and Applied Mathematics (SIAM), Association for Polar Early Career Scientists (APECS), National Postdoctoral Association

Awards

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 Student Scholar Award
2004-2005	Florida Institute of Technology Outstanding Student Scholar Award
2004-2005	National Collegiate Physical Science Award