Dustin M. Schroeder

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Education

Ph.D. Geophysics, *Jackson School of Geoscience,* **University of Texas** **expected 2014**
Thesis: Characterizing the Subglacial Hydrology of Thwaites Glacier Using Airborne Radar Sounding

B.S. Electrical Engineering, *with Departmental Honors*, **Bucknell University** **2007**
Thesis: A Dielectric Rod Antenna for Ground Penetrating Radar Landmine Detection Applications

B.A. Physics, *Magna Cum Laude*, **Bucknell University** **2007**
Minors: Mathematics and Philosophy

Awards and Honors

NSF Graduate Research Fellowship 2009, 2013, 2014
University of Texas Graduate School, David Brunton Jr. Fellowship 2012
University of Texas Institute for Geophysics, Gale White Fellowship 2012
Friar Society, *Oldest Honor Society at the University of Texas* 2010
University of Texas Graduate School Recruitment Fellowship, *Top 10% in Discipline* 2008
Bucknell University, Thelma Johns Showalter Prize, *Greatest Promise in Public Affairs* 2007
Phi Beta Kappa, *Liberal Arts Honor Society* 2007
Tau Beta Pi, *Engineering Honor Society* 2006
Sigma Pi Sigma, *Physics Honor Society* 2006
COMAP Mathematical Contest in Modeling, Meritorious Winner 2005

Professional Experience

University of Texas, Institute for Geophysics Graduate Researcher 2008 - *present*
Advisor: D.D. Blankenship *Ice penetrating radar study of water beneath Thwaites Glacier, West Antarctica*

Johns Hopkins University, Applied Physics Lab Graduate Researcher Spring 2012
Advisor: R.K. Raney *Theoretical study of subglacial scattering functions in focused radar sounding*

Freescale Semiconductor Platform Hardware Engineer and University Relations 2007 – 2008
Developed interface for debugging board and created university hiring strategy

Bucknell University, Electrical Engineering Undergraduate Researcher 2006 - 2007
Advisor: D.F. Kelley *Optimized design of a dielectric rod antenna for ground penetrating radar*

Cleveland Clinic Lerner Research Institute Undergraduate Researcher Summer 2005
Advisor: S. Roy *Observed and modeled adult stem-cell kinetics on MEMS-fabricated surfaces*

Harvard-Smithsonian Center for Astrophysics Undergraduate Researcher Summer 2004
Advisor: P.B. Reid *Produced the first profile of grazing-incidence optics for the IXO x-ray telescope*

Parker Hannifin Corporation Undergraduate Intern Summer 2003
Modeled and optimized part of the inventory system for automation division

Case Western Reserve University, Physics Undergraduate Researcher Summer 2002
Advisor: D.S. Akerib *Experimental setup and improvement for the Cryogenic Dark Matter Search II*

Field Experience

The ICECAP Project and Operation Ice Bridge Antarctic Seasons: 2008, 2009, 2010
Sponsoring Agencies: NSF (US), NASA (US), NERC (UK), AAD (AUS), IPEV (FR), and PNRA (IT)
Bases of Operation: McMurdo (US), Casey (AUS), Terra Nova (IT), Cap Prud'homme (FR)
Targets: Aurora Subglacial Basin, Astrolabe Glacier, Byrd Glacier, Totten Glacier, and Wilkes Glacier
Instruments: VHF Radar, HF Radar, GPS, Gravimeter, Magnetometer, Photon-Counting Lidar
Role: **Lead RF Field Engineer and Radar Operator**

Led the RF development, testing, and operation of the University of Texas airborne ice-penetrating radar sounder during three seasons of an international airborne geophysical survey of East Antarctica

Teaching Experience

Principles of Ice Penetrating Radar, University of Texas Institute for Geophysics, 2010 & 2013
An unofficial course on the physical, technical, and glaciological principles of ice penetrating radar

High School Science Olympiad Coach, Liberal Arts and Sciences Academy 2007 - *present*
Placement Nationally: 30th(2007), 19th(2008), 8th(2009), 7th(2010), 9th(2011), 8th(2012)

Astronomy Event Supervisor, Science Olympiad National Championships, 2003 - *present*
Write rules and national championship exam for high school and middle school students in astronomy

Professional Service

National Science Olympiad	Earth and Space Sciences Committee	2003 - *present*
Jupiter Icy Moon Explorer	Radar Sounder Working Group	2011 - 2012
Clinton Global Initiative University	Energy and Climate Session Facilitator	Spring 2009
Freescale Semiconductor	University Relations Program Lead	2007 - 2008
Journal of Geophysical Research	Reviewer	
Geophysical Research Letters	Reviewer	

Outreach

Aurora Australis, AAD Voyage: Casey to Hobart	Onboard Science Lecture Speaker	Spring 2011
Bucknell University Physics Department	Weekly Colloquium	Fall 2010
University Methodist Church, Austin, TX	Guest Speaker	Spring 2010
Solon High School, Solon, OH	Guest Speaker	Spring 2010
Tejas Club, Austin, TX	Life Raft Debate Winner	Spring 2010
Science Olympiad Coaches Clinic, Dearborn, MI	Astronomy Session Speaker	Fall 2008
Tufts University, Wright Center for Science Education	Space Science Workshop Speaker	Summer 2004

Professional Affiliations

American Geophysical Union
International Glaciological Society
IEEE Geoscience and Remote Sensing Society
IEEE Antennas and Propagation Society

Publications

Refereed Articles

A.P. Wright, D.A. Young, J.L. Roberts, **D.M. Schroeder**, J.L. Bamber, J.A. Dowdeswell, N.W. Young, A.M. Le Brocq, R.C. Warner, A.J. Payne, D.D. Blankenship, T.D. van Ommen, M.J. Siegert *Evidence for a Hydrological Connection Between the Ice Divide and Ice Sheet Margin in the Aurora Subglacial Basin Sector of East Antarctica*, JGR Earth Surface, 117, March 2012

D.A. Young, A.P. Wright, J.L. Roberts, R.C. Warner, N.W. Young, J.S. Greenbaum, **D.M. Schroeder**, D.E. Sugden, J.W. Holt, D.D. Blankenship, T. Van Ommen, M.J. Siegert. *A Dynamic Early East Antarctic Ice Sheet Suggested by Ice Covered Fjord Landscapes*, Nature, 2, June 2011

Manuscripts in Review or Preparation (copies available upon request)

D.M. Schroeder, D.D. Blankenship, D.A. Young, A.E. Krishner, J.B. Anderson. *Contemporary Subglacial Bedforms Suggest that the West Antarctic Ice Sheet May be Poised for a Melt-water Intensive Retreat*

D.M. Schroeder, D.D. Blankenship, D.A. Young. *The Hidden Plumbing of the West Antarctic Ice Sheet*

J.A. Macgregor, G. Catania, H. Conway, **D.M. Schroeder**, I. Joughin S.D. Kempf, D.A. Young, D.D. Blankenship. *Bed Control on the Eastern Sheer Margin of Thwaites Glacier*

Technical Reports

D.M. Schroeder, C. Grima, D.D. Blankenship. *Assessing the Utility of the Europa Clipper Radar Sounder to Identify Potential Landing Sites,* Europa Science Definition Team, July 2012

Selected Abstracts: Invited Talks

Interpretation of Subglacial Hydrologic Systems from Radar Echo Specularity: Application to Thwaites Glacier, West Antarctica, Johns Hopkins University Applied Physics Lab, July 2012

Interpretation of Sub-resolution Bedform and Subglacial Hydrologic Network Geometries from Radar Echo Specularity: Application to Thwaites Glacier, West Antarctica, AGU Fall Meeting, December 2011

Selected Abstracts: Oral Presentations

D.M. Schroeder, D.B. Blankenship, D.A. Young. *Evidence for Ice-Flow-Coupled Subglacial Water Systems Beneath West Antarctica's Potentially Unstable Thwaites Glacier*, 2012 WAIS Workshop, Eatonville, WA

D.A. Young, J.L. Roberts, A.P. Wright … **D.M. Schroeder**… *ICECAP Data Over the Periphery of East Antarctica: A New View of a Crucial Ice Sheet*, SCAR Open Science Conference, Portland, OR, July 2012

D. D. Blankenship, B. E. Schmidt, D. A. Young, **D.M. Schroeder**, J.S. Greenbaum. *The Search for a Habitable Europa: Radar, Water, and an Active Ice Shell*, EPSC-DPS Joint Meeting, October 2011

D.A. Young, **D.M. Schroeder**, D.D. Blankenship, C.S. Jackson… *Under the Antarctic Ice: New Data in the East, New Approaches in the West*, WAIS Workshop, Loveland, CO, September 2011

D.M. Schroeder… *The Basal Boundary of the Thwaites Glacier Catchment: Characterizing and Anisotropic Hydrological Environment*, International Symposium on Antarctic Earth Sci., Edinburgh, UK, July 2011

D.M. Schroeder, D.D. Blankenship… *The Subglacial Hydrology of Thwaites Glacier: Characterization and Interpretation of a Basin-Scale Specularity Map*, SCAR Open Sci. Conf., Buenos Aires, Argentina, August 2010

D.M. Schroeder, … *Improved Characterization of Subglacial Hydrology Using Multiple Radar Focusing Windows: Examples from Thwaites Glacier,* Antarctic Climate Evolution, Granada, Spain, September 2009

Selected Abstracts: Posters

D.M. Schroeder, D.D. Blankenship, D.A. Young. *Remote Sensing of Subglacial Water Networks with Ice Penetrating Radar*, Chapman Conf. on Remote Sensing of Terrestrial Water Cycle, Kona, February 2012

D.M. Schroeder, D.D. Blankenship… *Comparative Subglacial Hydrology of Thwaites Glacier, Using Basal Specularity*, Chapman Conf. on Exploration of Subglacial Aquatic Systems, Baltimore, March 2010