

Dustin M. Schroeder
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EDUCATION

- Ph.D. Geophysics, Jackson School of Geoscience, University of Texas at Austin, 2014
- B.S. Electrical Engineering (honors), Bucknell University, 2007
- B.A. Physics with minors in Mathematics and Philosophy, Bucknell University, 2007

PROFESSIONAL EXPERIENCE

- 2008 – University of Texas Institute for Geophysics, Advisor: D.D. Blankenship
Ice penetrating radar study of water beneath Thwaites Glacier, West Antarctica
- 2012 Johns Hopkins University, Applied Physics Lab, Advisor: R.K. Raney
Theoretical study of subglacial scattering functions in focused radar sounding
- 2007 – 2008 Platform Hardware Engineer, Freescale Semiconductor, Austin, TX
Developed interface for debugging board and created university hiring strategy
- 2006 – 2007 Bucknell University, Electrical Engineering, Advisor: D.F. Kelley
Optimized design of a dielectric rod antenna for ground penetrating radar
- 2005 Cleveland Clinic Lerner Research Institute, Advisor: S. Roy
Observed and modeled adult stem-cell kinetics on MEMS-fabricated surfaces
- 2004 Harvard-Smithsonian Center for Astrophysics, Advisor: P.B. Reid
Produced the first profile of grazing-incidence optics for the IXO X-ray telescope
- 2002 Case Western Reserve University, Physics Department, Advisor: D.S. Akerib
Experimental setup and improvement for the Cryogenic Dark Matter Search II

AWARDS AND FELLOWSHIPS

- 2009 – 2014 NSF Graduate Research Fellowship
- 2013 Best Ph.D. Student Speaker Award, Jackson School of Geoscience
- 2013 Jackson School of Geoscience Research Symposium, 1st Place Late-Career Ph.D.
- 2012 Gale White Fellowship, University of Texas Institute for Geophysics
- 2013 David Brunton Jr. Fellowship, University of Texas Graduate School
- 2010 The Friar Society, The University of Texas at Austin
- 2008 University of Texas Graduate School Recruiting Fellowship
- 2007 Thelma Johnson Showalter Prize, Bucknell University
- 2007 Phi Beta Kappa, Bucknell University
- 2006 Tau Beta Pi, Bucknell University
- 2006 Sigma Pi Sigma, Bucknell University
- 2006 Accenture Technology Development Undergraduate Research Grant
- 2005 COMAP Mathematical Contest in Modeling, Meritorious Winner

PUBLICATIONS

Refereed Papers

- 2013 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Evidence for a Water System Transition Beneath Thwaites Glacier, West Antarctica, *Proceedings of the National Academy of Sciences*
- 2012 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, *Journal of Geophysical Research Earth Surface*
- 2011 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*

Papers in Preparation

- D.M. Schroeder**, D.D. Blankenship, D.A. Young, A.E. Krishner, J.B. Anderson. Radar Sounding Evidence for Deformable Sediments and Exposed Bedrock Beneath Thwaites Glacier, West Antarctica, *Geophysical Research Letters*
- D.M. Schroeder**, R.K. Raney, D.D. Blankenship. Detecting Subglacial Water Bodies from the s Specularity of Radar Bed Echo. *IEEE Geoscience and Remote Sensing Letters*
- J.A. MacGregor, G.A. Catania, H.B. Conway, **D.M. Schroeder**, I.R. Joughin, D.A. Young, S.D. Kempf, D.D. Blankenship. Weak Bed Control of the Eastern Shear Margin of Thwaites Glacier. *Journal of Glaciology*
- C. Grima, **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Planetary Landing Zone Assessment by Radar Sounder: Demonstration in Antarctica, *Planetary and Space Science*
- A.E. Kirshner, C.M. Branecky, J.B. Anderson, W. Szczucinski, **D.M. Schroeder**, D.D. Blankenship, M. Jakobsson. Meltwater Intensive Glacial Retreat in Polar Environments and Investigation of Associated Sediments: example from Pine Island Bay, West Antarctica, *Quaternary Science Reviews*
- M.G.P. Cavitte, D.D. Blankenship, D.A. Young, **D.M. Schroeder**, M.J. Siegert, E. Le Meur. Radar Stratigraphy Connecting Lake Vostok and Dome C, East Antarctica, Across the Last Two Glacial Cycles, *The Cryosphere*

Technical Reports

- 2012 **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, NASA

INVITED TALKS

- 2012 Interpretation of Subglacial Hydrologic Systems from Radar Echo Specularity: Application to Thwaites Glacier, West Antarctica, Johns Hopkins University Applied Physics Lab, July 10th

CONFERENCE PARTICIPATION

Oral Presentation

- 2012 **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, WAIS Workshop, Eatonville, WA, September 19th – 22nd
- 2012 D.A. Young, J.L. Roberts, A.P. Wright, J.S. Greenbaum, S.D. Kempf, G. Ng, T.G. Richter, J.W. Holt, E. Le Meur, **D.M. Schroeder**, R.C. Warner, N.W. Young, D.D. Blankenship, M.J. Siegert, T. Van Ommen. ICECAP Data Over the Periphery of East Antarctica: A New View of a Crucial Ice Sheet, SCAR Open Science Conference, Portland, OR, July 16th – 19th
- 2011 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, Nantes, France, October 2nd – 7th
- 2011 D.A. Young, **D.M. Schroeder**, D.D. Blankenship, C.S. Jackson, M.J. Siegert, A.P. Wright, J.L. Roberts, R.C. Warner, T. van Ommen, N.W. Young. Under the Antarctic Ice: New Data in the East, New Approaches in the West, WAIS Workshop, Loveland, CO, September 21st – 23rd
- 2011 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. The Basal Boundary of the Thwaites Glacier Catchment: Characterizing and Anisotropic Hydrological Environment, International Symposium on Antarctic Earth Science, Edinburgh, UK, July 10th – 16th
- 2010 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Basal Specularity of Thwaites Glacier, West Antarctica: Results from a New Tool for Evaluating Subglacial Hydrology, West Antarctic Ice Sheet Workshop, Raystown, PA, September 19th – 22nd
- 2010 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. The Subglacial Hydrology of Thwaites Glacier: Characterization and Interpretation of a Basin-Scale Specularity Map, SCAR Open Science Conference, Buenos Aires, Argentina, August 3rd – 6th
- 2009 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Improved Characterization of Subglacial Hydrology Using Multiple Radar Focusing Windows: Examples from Thwaites Glacier, West Antarctica, First Antarctic Climate Evolution Symposium, Granada, Spain, September 7th – 11th

Posters

- 2012 **D.M. Schroeder**, D.D. Blankenship, D.A. Young, E.M. Powell. Configuration of Subglacial Water and Sediments Beneath Thwaites Glacier, West Antarctica: Context for a Potential Basal-Water-Triggered Grounding-Line-Retreat. AGU Fall Meeting, San Francisco, CA, December 3rd – 9th
- 2012 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Remote Sensing of Subglacial Water Networks with Ice Penetrating Radar, Chapman Conference on Remote Sensing of Terrestrial Water Cycle, Kona, HI, February 19th – 22nd
- 2011 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Interpretation of Sub-resolution Bedform and Subglacial Hydrologic Network Geometries from Radar Echo Specularity: Application to Thwaites Glacier, West Antarctica, AGU Fall Meeting, San Francisco, CA, December 5th – 9th (**Invited**)

- 2010 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Comparative Subglacial Hydrology of Thwaites Glacier Using Basal Specularity, Chapman Conference on the Exploration and Study of Antarctic Subglacial Aquatic Environments, Baltimore, March 15th – 17th

DEPARTMENTAL TALKS

- 2013 Characterizing the Subglacial Hydrology of Thwaites Glacier, West Antarctica Using Focused Airborne Radar Sounding, Technical Sessions, Jackson School of Geoscience, University of Texas at Austin, April 16th
- 2013 Configuration of Subglacial Water and Sediments Beneath Thwaites Glacier, West Antarctica: Context for a Potential Basal-Water-Triggered Grounding-Line-Retreat, 2nd Annual Jackson School Research Symposium, February 2nd

TEACHING EXPERIENCE

- 2013 Geophysical Glaciology: Ice Penetrating Radar, UT Institute for Geophysics
- 2010 Radar Principles Short Course, UT Institute for Geophysics

FIELD WORK

- 2010 – 2011 The ICECAP Project and Operation Ice Bridge, Antarctica, Lead Radar Engineer
- 2009 – 2010 The ICECAP Project, East Antarctica, Lead RF Engineer and Radar Operator
- 2008 – 2009 The ICECAP Project, East Antarctica, Lead Radar Operator
- Agencies: NSF (US), NASA (US), NERC (UK), AAD (AUS), IPEV (FR), PNRA (IT)
- Bases: McMurdo (US), Casey (AUS), Terra Nova (IT), Cap Prud'homme (FR)
- Targets: Aurora Subglacial Basin, Astrolabe, Byrd, Totten, and Wilkes Glaciers
- Instruments: VHF Radar, HF Radar, GPS, Gravimeter, Magnetometer, Lidar

INSTRUMENT DEVELOPMENT

- 2010 – 2011 University of Texas Dual Frequency Ice Penetrating Radar, Lead RF Engineer
- 2008 – 2011 University of Texas HiCARS II Ice Penetrating Radar, Lead RF Engineer

PROFESSIONAL SERVICE

- 2013 – External Reviewer, NASA Funding Panel
- 2012 – Reviewer, Geophysical Research Letters
- 2012 – Reviewer, Journal of Geophysical Research
- 2011 – Member, Radar Sounder Working Group, Jupiter Icy Moon Explorer
- 2010 – Technical Assistant, Europa Science Definition Team

OUTREACH

- 2003 – Astronomy National Event Supervisor, National Science Olympiad
- 2004 – Earth and Space Science Committee, National Science Olympiad
- 2007 – Science Olympiad Coach, Liberal Arts and Sciences Academy, Austin, TX

- 2011 Onboard Science Lecture, Aurora Australis AAD Voyage: Casey to Hobart
- 2010 Weekly Physics Department Colloquium, Bucknell University
- 2010 Guest Speaker, University Methodist Church, Austin, TX
- 2010 Guest Speaker, Solon High School, Solon, OH
- 2010 Tejas Club Life Raft Debate, Austin, TX
- 2009 Energy and Climate Facilitator, Clinton Global Initiative University, Austin, TX
- 2008 Science Olympiad Coaches Clinic, Dearborn, MI
- 2004 Space Science Workshop, Wright Center for Science Education, Tufts University

PROFESSIONAL AFFILIATIONS

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