

**Dustin M. Schroeder**  
University of Texas Institute for Geophysics  
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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, 1<sup>st</sup> 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 10<sup>th</sup>

## 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 19<sup>th</sup> – 22<sup>nd</sup>
- 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 16<sup>th</sup> – 19<sup>th</sup>
- 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 2<sup>nd</sup> – 7<sup>th</sup>
- 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 21<sup>st</sup> – 23<sup>rd</sup>
- 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 10<sup>th</sup> – 16<sup>th</sup>
- 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 19<sup>th</sup> – 22<sup>nd</sup>
- 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 3<sup>rd</sup> – 6<sup>th</sup>
- 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 7<sup>th</sup> – 11<sup>th</sup>

### 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 3<sup>rd</sup> – 9<sup>th</sup>
- 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 19<sup>th</sup> – 22<sup>nd</sup>
- 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 5<sup>th</sup> – 9<sup>th</sup> (**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 15<sup>th</sup> – 17<sup>th</sup>

## **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 16<sup>th</sup>
- 2013 Configuration of Subglacial Water and Sediments Beneath Thwaites Glacier, West Antarctica: Context for a Potential Basal-Water-Triggered Grounding-Line-Retreat, 2<sup>nd</sup> Annual Jackson School Research Symposium, February 2<sup>nd</sup>

## **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