

# Dustin M. Schroeder

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## EDUCATION

- 2014 **Jackson School of Geosciences, University of Texas**, Austin, TX  
Doctor of Philosophy (Ph.D.) in Geophysics
- 2007 **Bucknell University**, Lewisburg, PA  
Bachelor of Science in Electrical Engineering (B.S.E.E.), *honors, magna cum laude*  
Bachelor of Arts (B.A.) in Physics, *magna cum laude*  
Minors in Mathematics and Philosophy

## PROFESSIONAL EXPERIENCE

- 2014 – present **Jet Propulsion Laboratory, California Institute of Technology**, Pasadena, CA  
Radar Geophysicist and Systems Engineer
- 2012 **Applied Physics Lab, Johns Hopkins University**, Laurel, MD  
Graduate Researcher in Radar Sounding Theory, Advisor: R.K. Raney
- 2008 – 2014 **Institute for Geophysics, University of Texas**, Austin, TX  
Graduate Researcher in Geophysical Glaciology, Advisor: D.D. Blankenship
- 2007 – 2008 **Freescall Semiconductor**, Austin, TX  
Platform Hardware Engineer, Multimedia Applications Division
- 2006 – 2007 **Department of Electrical Engineering, Bucknell University**, Lewisburg, PA  
Undergraduate Researcher in Antenna Design, Advisor: D.F. Kelley
- 2005 **Lerner Research Institute, Cleveland Clinic Foundation**, Cleveland, OH  
Undergraduate Researcher in BioMEMS, Advisor: S. Roy
- 2004 **Harvard-Smithsonian Center for Astrophysics**, Cambridge, MA  
Undergraduate Researcher in Space Telescope X-ray Optics, Advisor: P.B. Reid
- 2002 **Department of Physics, Case Western Reserve University**, Cleveland, OH  
Undergraduate Researcher in Experimental Particle Astrophysics, Advisor: D.S. Akerib

## AWARDS AND FELLOWSHIPS

- 2014 Best Graduate Student Paper Award, Jackson School of Geosciences
- 2014 National Science Olympiad Heart of Gold Award for Service to Science Education
- 2013 Best Ph.D. Student Speaker Award, Jackson School of Geosciences
- 2013 Jackson School of Geosciences Research Symposium, 1<sup>st</sup> Place Late-Career Ph.D.
- 2012 NASA Group Achievement Award: Operation Ice Bridge
- 2012 Gale White Fellowship, University of Texas Institute for Geophysics
- 2012 David Brunton Jr. Fellowship, University of Texas Graduate School
- 2011 National Science Foundation Antarctic Service Medal
- 2010 The Friar Society, The University of Texas
- 2009 – 2014 NSF Graduate Research Fellowship
- 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
- 2005 COMAP Mathematical Contest in Modeling, Meritorious Winner

## PUBLICATIONS

## Refereed Papers

- 2015 J.S. Greenbaum, D.D. Blankenship, D.A. Young, A.R.A. Aitken, B. Legresy, **D.M. Schroeder**, T.G. Richter, J.L. Roberts, R.C. Warner, T.D. van Ommen, M.J. Siegert. Increasing Ocean Access to Totten Glacier, East Antarctica, *Nature Geoscience*
- 2015 **D.M. Schroeder**, R.K. Raney, D.D. Blankenship. Detecting Subglacial Water Bodies from the Specularity of Radar Bed Echoes. *IEEE Geoscience and Remote Sensing*
- 2014 **D.M. Schroeder**, D.D. Blankenship, D.A. Young, A.E. Kirshner, J.B. Anderson. Radar Sounding Evidence for Deformable Sediments and Outcropping Bedrock Beneath Thwaites Glacier, West Antarctica, *Geophysical Research Letters*
- 2014 G. Grima, D.D. Blankenship, D.A. Young, **D.M. Schroeder**. Surface Slope Control on Firn Density at Thwaites Glacier, West Antarctica: Results from airborne radar sounding, *Geophysical Research Letters*
- 2014 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*
- 2014 **D.M. Schroeder**, D.D. Blankenship, D.A. Young, E. Quartini. Evidence for Elevated and Spatially Heterogeneous Geothermal Flux Beneath the West Antarctic Ice Sheet, *Proceedings of the National Academy of Sciences*
- 2014 A.E. Witus, 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*
- 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*
- 2013 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 Glaciology*
- 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 and Review

## OBSERVATIONAL GEOPHYSICAL GLACIOLOGY

- D.M. Schroeder**, C. Grima, D.D. Blankenship. Evidence for Variable Grounding Zone Extent and Shear Margin Bed Conditions Across Thwaites Glacier, West Antarctica, in preparation for *Geophysics* (in review)
- D.M. Schroeder**. Airborne Radar Sounding Constraints on the Englacial Attenuation and Thermal Structure of Thwaites Glacier, West Antarctica, in preparation for *Journal of Geophysical Research*
- 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, in preparation for the *Journal of Glaciology*

## ICE PENETRATING RADAR SOUNDING THEORY

- D.M. Schroeder**, C. Grima, B.A. Campbell. Radar Sounding Losses Through Rough Ice Surfaces, in preparation for *Geophysical Research Letters*
- M. Haynes and **D.M. Schroeder**. An Hybrid Eikonal/Point Target Model for Icy Satellite Radar Sounding, in preparation for *IEEE Transactions on Antennas and Propagation*

## GEOPHYSICAL RADAR SYSTEM DEVELOPMENT

- D. Castelletti, **D.M. Schroeder**, S. Hensley, D.D. Blankenship, A. Moussessian, L. Bruzzone, J.J. Plaut, Y. Gim, D.A. Young. Cross Track Clutter Discrimination Using a Two Channel VHF Radar Sounder: Demonstration in Greenland, in preparation for *IEEE Transactions on Geoscience and Remote Sensing*
- D.M. Schroeder** and C. Grima. Optimal Radar Sounder Frequency Selection for Ice Shell and Particle/Plasma Observation at Europa, in preparation for *Planetary and Space Science*
- C. Grima, D.D. Blankenship, **D.M. Schroeder**. Radio Propagation through Europa Ionosphere, in preparation for *Planetary and Space Science*

## Technical Reports

- 2014 **D.M. Schroeder**, C. Grima, G.W. Patterson, Y. Gim, D.D. Blankenship, A. Moussessian. Topographic Imager Requirements for Clutter Rejection for the Europa Clipper IPR, Europa Clipper Project, NASA
- 2014 C. Grima and **D.M. Schroeder**. Radio noise power level at Europa, REASON Science Team
- 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

## GRANTS

- 2015 **PI**, NASA Cryospheric Science (PI: D.M. Schroeder) (in preparation)
- 2015 **PI**, NASA NISAR Science Definition Team (PI: D.M. Schroeder) (in preparation)
- 2015 **Co-I**, NASA SWOT Science Team (PI: H. Seroussi) (in preparation)
- 2015 **PI**, NASA New Investigator Program in Earth Science (PI: D.M. Schroeder) (in preparation)
- 2015 **Collaborator**, Radar sounding estimation of hydrological and thermal boundary conditions for the deep interior of the West Antarctic Ice Sheet (NSF OPP, PI: D.A. Young) (in preparation)
- 2015 **Co-I**, Electromagnetic Modeling of Radar Sounder Scattering Phenomenology at Europa (JPL SURP, PI: M. Haynes) (in review)
- 2015 **PI**, Development of radar sounder analysis techniques to characterize the subsurface of Europa (JPL SURP, PI: D.M. Schroeder) (in review)
- 2015 **Co-I**, Radar Sounding and Propagation through Heterogeneous Media (JPL RTD: PI: M. Haynes) (in review)
- 2014 **Co-I**, Science Team Member, Radar for Europa Assessment and Sounding: Ocean to Near Surface (REASON) for NASA Europa Mission (NASA, PI: D.D. Blankenship) (in review)
- 2014 **PI**, Technique development for improved grounding zone characterization using airborne radar sounding (NASA Cryosphere, PI: D.M. Schroeder) \$90,000
- 2014 **Collaborator**, Radar Surface Statistical Reconnaissance of Mars for Landing Site and Geological Characterization of Planetary Bodies (Jackson School Seed Grant, PI: D.A. Young) \$15,311
- 2013 **Key Personnel**, Ice Penetrating Radar (IPR) for Europa Exploration (NASA Instrument Concepts for Europa Exploration. PI: A. Moussessian) \$1,546,860
- 2009 **NSF GRFP Fellow**, Quantifying Sources of Uncertainty in Predicted Contributions of the West Antarctic Ice Sheet to Sea Level Rise (NSF, PI: D.M. Schroeder) \$90,000

## INVITED TALKS

- 2015 Department of Geophysics, Stanford University, April 23<sup>rd</sup>
- 2015 Radar Science and Engineering Section, Jet Propulsion Laboratory, Caltech, March 27<sup>th</sup>
- 2015 Department of Electrical Engineering, University of Colorado, Boulder, February 13<sup>th</sup>
- 2014 Department of Geophysics, Stanford University, November 13<sup>th</sup>
- 2014 Norwegian Polar Research Institute, Tromsø, Norway, June 4<sup>th</sup>
- 2014 Department of Geology, University of Kansas, April 9<sup>th</sup>
- 2013 Bromery Seminar, Earth and Planetary Science, Johns Hopkins University, November 7<sup>th</sup>
- 2013 Radar Science and Engineering Section, Jet Propulsion Laboratory, Caltech, September 19<sup>th</sup>
- 2012 Institute for Geophysics, University of Texas at Austin, September 7<sup>th</sup>
- 2012 Space Research Group, Applied Physics Lab, Johns Hopkins University, May 3<sup>rd</sup>

## CONFERENCE PARTICIPATION

- 2015 J.S. Greenbaum, D.D. Blankenship, D.A. Young, T.G. Richter, J.L. Roberts, A.R.A. Aitken, B. Legresy, **D.M. Schroeder**, R.C. Warner, T.D. van Ommen, M.J. Siegert, *Controls on a Costal Marine Ice Sheet Instability Zone Along the Sabrina Coast, East Antarctica*, International Symposium on International Earth Sciences, Goa, July 2015
- 2015 M.G.P. Cavitte, D.D. Blankenship, D.A. Young, **D.M. Schroeder**, M.J. Siegert, F. Parrenin, E. Le Meur, J. A. MacGregor, *Radar Internal Layer Stratigraphic Constraints on the East Antarctic Plateau's Old Ice*, International Symposium on International Earth Sciences, Goa, July 13<sup>th</sup> – 17<sup>th</sup>
- 2015 E. Quartini, D.D. Blankenship, D.A. Young, **D.M. Schroeder**, *An Evaluation OF Active Subglacial Volcanism as a Source of Thwaites Glacier Heterogeneous Geothermal Flux*, International Symposium on International Earth Sciences, Goa, July 13<sup>th</sup> – 17<sup>th</sup>
- 2015 D. Castelletti, **D.M. Schroeder**, S. Hensley, C. Grima, G. Ng, D. Young, Yonggyu Gim, L. Bruzzone, A. Moussessian, D. D. Blankenship, *Clutter Detection Using Two-Channel Radar Sounder Data*, IEEE Geoscience and Remote Sensing Society, Milan, July 26<sup>th</sup> – 31<sup>st</sup>
- 2015 D.D. Blankenship, A. Moussessian, K.M. Soderlund, C. Grima, D.A. Young, **D.M. Schroeder**, Y. Gim, J.J. Plaut, *Revealing Secrets of Europa's Ice Shell, Hidden Water and Plume Activity Through Flyby Radar Sounding*, Astrobiology Science Conference, Chicago, June 15<sup>th</sup> – 19<sup>th</sup>
- 2015 D.A. Young, **D.M. Schroeder**, E. Quartini, D.D. Blankenship, The Context for Subglacial Water Systems from Antarctic Airborne Observations, Sublacial Antarctic lake exploration: first results and future plans, The Royal Society, London, March 30<sup>th</sup> – 31<sup>st</sup>
- 2014 **D.M. Schroeder**, C.Y. Grima, D.D. Blankenship, Characterizing Englacial Attenuation and Grounding Zone Geometry Using Airborne Radar Sounding, AGU Fall Meeting, San Francisco, December 15<sup>th</sup> - 19<sup>th</sup>
- 2014 M.J. Siegert, N. Ross, **D.M. Schroeder**, Channelised Subglacial Hydrology Modulates West Antarctic Ice Stream Basal Conditions and Flow, AGU Fall Meeting, San Francisco, December 15<sup>th</sup> – 19<sup>th</sup>
- 2014 **D.M. Schroeder**, Analysis Techniques, Information Content, and Measurement Requirements for Airborne Radar Sounding Data, NASA/NSF Workshop on Instruments for Polar Geology and Geophysics Research, Washington DC, October 9<sup>th</sup> -10<sup>th</sup> (**invited**)
- 2014 **D.M. Schroeder**, C. Grima, D.D. Blankenship, Characterizing the Location and Extent of the Thwaites Glacier Grounding Zone Using Airborne Radar Sounding, West Antarctic Ice Sheet Workshop, Julian, CA, September 24<sup>th</sup> – 27<sup>th</sup>
- 2014 D.A. Young, E. Quartini, E.M. Powell, **D.M. Schroeder**, T.G. Richter, D.D. Blankenship, Structure of the Marie Byrd Land crustal province from GIMBLE aerogeophysics, SCAR Open Science Conference, Auckland, New Zealand, August 25<sup>th</sup> – 28<sup>th</sup>
- 2014 D.A. Young, D.D. Blankenship, **D.M. Schroeder**, J.S. Greenbaum, The subglacial environment from remote sensing: key questions and paths forward, SCAR mini symposium on innovation on Antarctic science, Auckland, New Zealand, August 25<sup>th</sup> – 28<sup>th</sup>
- 2014 **D.M. Schroeder**, D.D. Blankenship, D.A. Young, E. Quartini, J.B. Anderson, A.E. Witus, Radar-sounding observations of basal water, sediments and geothermal heat flux, IGS Symposium on the Contribution of Glaciers and Ice Sheets to Sea-Level Change, Chamonix, France, May 26<sup>th</sup> – 30<sup>th</sup>
- 2014 D.D. Blankenship, **D.M. Schroeder**, Airborne Studies of Subglacial Boundaries in West Antarctica, International Symposium on Polar Sciences, Incheon, South Korea, May 27<sup>th</sup> – 29<sup>th</sup>
- 2014 D.D. Blankenship, A. Moussessian, **D.M. Schroeder**, K.M. Soderlund, C.Grima, Y. Gim, J.J. Plaut, B.E. Schmidt, Flyby Sounding of Europa's Icy Shell: Radar Investigations, Analogs, and Instruments for the Europa Clipper Mission, Workshop on the Habitability of Icy Worlds, Pasadena, CA, February 5<sup>th</sup> – 7<sup>th</sup>
- 2014 C.Grima, **D.M. Schroeder**, D.D. Blankenship, D.A. Young, Europa Landing Site Selection Supported by Ice Penetrating Radar, Workshop on the Habitability of Icy Worlds, Pasadena, CA, February 5<sup>th</sup> – 7<sup>th</sup>
- 2014 **D.M. Schroeder**, C.B. Burch, K.M. Soderlund, C. Grima, D.D. Blankenship, T.D. Komacek, T.M. Quinn, M.A. Van Hecke, B.E. Schmidt, G.W. Patterson, J.J. Plaut, Icy World Science and Habitability in the National Science Olympiad for Middle School Students, Workshop on the Habitability of Icy Worlds, Pasadena, CA, February 5<sup>th</sup> – 7<sup>th</sup>

- 2013 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Quantifying Bedform Geometry, Water Configuration, and Melt Rate Beneath Thwaites Glacier from Radar Scattering Functions. AGU Fall Meeting, San Francisco, CA, December 9<sup>th</sup> – 13<sup>th</sup>
- 2013 C. Grima, **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Planetary Surface Roughness Derived from Ice Penetrating Radar Data: Method and Concept Validation in Antarctica. AGU Fall Meeting, San Francisco, CA, December 9<sup>th</sup> – 13<sup>th</sup>
- 2013 C. Cura, E. Arnold, B. Karwoski, C. Grima, **D.M. Schroeder**, D.A. Young, D.D. Blankenship. Enhancing Europa Surface Characterization with Ice Penetrating Radar: A Comparative Study in Antarctica. AGU Fall Meeting, San Francisco, December 9<sup>th</sup> – 13<sup>th</sup>
- 2013 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. What Can Radar Scattering Tell Us About Past and Future Retreats in the Amundsen Sea Embayment? WAIS Workshop, Sterling, VA, September 29<sup>th</sup> – October 2<sup>nd</sup>
- 2013 A.E. Kirshner, C.M. Branecky, J.B. Anderson, W. Szczucinski, **D.M. Schroeder**, D.D. Blankenship, M. Jakobsson. The Sedimentary Record of Meltwater Intensive Glacial Erosion in Pine Island Bay, West Antarctica and Implications for Glacial Dynamics, WAIS Workshop, Sterling, VA, September September 29<sup>th</sup> – October 2<sup>nd</sup>
- 2013 **D.M. Schroeder**, D.D. Blankenship, R.K. Raney, D.A. Young. Buried Information: Constraining Bed Geometry and Material from the Doppler-Dependent Radar-Scattering Function. International Symposium on Radioglaciology, Lawrence, September 9<sup>th</sup> – 13<sup>th</sup>
- 2013 D.D. Blankenship, B.E. Schmidt, **D.M. Schroeder**, K.M. Soderlund, C. Grima. Flyby Sounding of Europa's Icy Shell: Radar Investigations, Analogs and Instruments for the Europa Clipper Mission, IGS International Symposium on Radioglaciology, Lawrence, KS, September 9<sup>th</sup> – 13<sup>th</sup>
- 2013 C. Grima, **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Firn Variability Derived from a Statistical Analysis of Airborne Ice-Penetrating Radar Over the Thwaites Glacier Catchment, West Antarctica, IGS International Symposium on Radioglaciology, Lawrence, KS, September 9<sup>th</sup> – 13<sup>th</sup>
- 2013 M.G.P. Cavitte, D.D. Blankenship, D.A. Young, **D.M. Schroeder**, M.J. Siegert, E. LeMeur. Extending East Antarctic Ice-Core Chronology with Radar Layer Stratigraphy. IGS International Symposium on Radioglaciology, Lawrence, KS, September 9<sup>th</sup> – 13<sup>th</sup>
- 2013 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Beyond Intensity and Depth: Geophysical Glaciology with Higher Order Information from Radio Echo Sounding, Radio Echo Sounding Layer Tracing Workshop, Copenhagen, DK, May 6<sup>th</sup> – 10<sup>th</sup>
- 2013 C. Grima, **D.M. Schroeder**, D.D. Blankenship. Identifying Surface Characteristics Using an Ice Penetrating Radar Sounder at Europa: Potential for Landing Site Selection, Lunar and Planetary Science Conference, The Woodlands, TX, March 18<sup>th</sup> – 22<sup>nd</sup>
- 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 B.E. Schmidt, D.D. Blankenship, **D.M. Schroeder**. Europa Subsurface Science from Mutli-Flyby Missions, European Planetary Science Congress, Madrid, September 23<sup>rd</sup> – 28<sup>th</sup>
- 2012 **D.M. Schroeder**, D.D. 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 13<sup>th</sup> – 25<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**)

- 2011 A.M. Baker, **D.M. Schroeder**, M. Van Hecke. Bringing Field Science to a High School Audience: Connecting to the Next Generation of Scientific Minds through Science Olympiad, AGU Fall Meeting, San Francisco, December 5<sup>th</sup> – 9<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, 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 23<sup>rd</sup> – 25<sup>th</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>
- 2010 D.A. Young, D.D. Blankenship, M.J. Siegert, T. Van Ommen, A.P. Wright, J.L. Roberts, J.S. Greenbaum, B.C. Frederick, **D.M. Schroeder**, J.W. Holt, R.C. Warner, N.W. Young. Extent, geomorphology and geo- physics of the Aurora and Wilkes Subglacial Basins, East Antarctica: Influences on ice sheet architecture, SCAR Open Science Conference, Buenos Aires, Argentina, August 3<sup>rd</sup> – 6<sup>th</sup>
- 2010 A.P. Wright, M.J. Siegert, D.A. Young, D.D. Blankenship, T. Van Ommen, J.L. Roberts, J.S. Greenbaum, B.C. Fredrick, **D.M. Schroeder**, J.W. Holt, R.C. Warner, N.W. Young. Subglacial hydrology of the Aurora Basin, East Antarctica, from the geophysical investigations of the ICECAP project, SCAR Open Science Conference, Buenos Aires, Argentina, August 3<sup>rd</sup> – 6<sup>th</sup>
- 2010 J.W. Holt, D.A. Young, D.D. Blankenship, J.S. Greenbaum, **D.M. Schroeder**, T.G. Richter, A.P. Wright, T. Van Ommen, M.J. Siegert, J.L. Roberts, R.C. Warner. Bed topography of the Byrd Glacier trunk from radar soundings of the ICECAP project, SCAR Open Science Conference, Buenos Aires, Argentina, August 3<sup>rd</sup> – 6<sup>th</sup>
- 2010 **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Comparative Subglacial Hydrology of Thwaites Glacier, Using Basal Specularity, Chapman Conference, Exploration and Study of Antarctic Subglacial Aquatic Systems, Baltimore, MD, March 15<sup>th</sup> – 17<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>

## TEACHING EXPERIENCE

- 2013 Guest Lecturer, The Cryosphere, Rice University, 1 Lecture
- 2013 Geophysical Glaciology: Ice Penetrating Radar, UT Institute for Geophysics, 10 Weeks
- 2010 Radar Principles Short Course, UT Institute for Geophysics, 4 Weeks

## Graduate Student Mentorship

- 2015 Winnie Chu, Columbia University, Ph.D. Candidate in Geophysics
- 2014 – present Davide Castelletti, University of Trento, Ph.D. Candidate in Electrical Engineering
- 2014 – present Enrica Quartini, University of Texas, Ph.D. Candidate in Geophysics

## Undergraduate Student Mentorship

- 2013 – present Youry Agylamov, California Institute of Technology, Geophysics Major
- 2013 – 2014 Ben Ayton, University of Texas, Now: Ph.D. Student in Aerospace Engineering at Stanford
- 2012 Leo Breston, University of Illinois, Engineering Physics Major
- 2012 Harris Davidson, Olin College, Engineering, Mechanical Engineering Major

2011 – 2014 Arami Rosales, University of Texas, Physics Major  
 2010 – 2014 Evelyn Powell, University of Texas, Now: Ph.D. Student in Geophysics at Harvard  
 2008 – 2013 John DeSanto, University of Texas, Now: Ph.D. Student in Geophysics at UCSD

### High School Student Mentorship

2007 – 2014 Coached and mentored over 40 high school students in science competitions and/or research

### FIELD WORK

2010 – 2011 The ICECAP Project and Operation Ice Bridge, East Antarctica (2 Months)  
 2009 – 2010 The ICECAP Project, East Antarctica (3 Months)  
 2008 – 2009 The ICECAP Project, East Antarctica (3 Months)  
 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  
 Role: Lead RF Engineer and Radar Operator

### INSTRUMENT DEVELOPMENT

2014 – present REASON Radar Sounder, NASA Europa Clipper Mission  
 2013 – present RIME Radar Sounder, ESA JUICE Mission  
 2013 – 2014 University of Texas MARFA Dual Phase Ice Penetrating Radar  
 2010 – 2011 University of Texas Dual Frequency Ice Penetrating Radar  
 2008 – 2011 University of Texas HiCARS II Ice Penetrating Radar

### PROFESSIONAL SERVICE

2013 – present Technical Assistant, RIME Radar Sounder, JUICE mission, ESA  
 2015 – present Working Group Leader, RIME Passive Sounding Working Group  
 2015 – present JPL Early Career Core Committee  
 2013 – 2014 Technical Assistant, Europa Assessment Group, NASA  
 2011 – 2012 Member, Working Group for Europa and Ganymede Radar Sounding  
 2010 – 2012 Technical Assistant, Europa Science Definition Team, NASA  
 Reviewer: Geophysical Research Letters, Journal of Geophysical Research,  
 Journal of Glaciology, IEEE Geoscience and Remote Sensing Letters  
 Panels: NASA Operation Ice Bridge, NASA Cassini Data Analysis and Participating Scientist (external),  
 NASA Planetary Instrument Concepts for Advancement of Solar System Observations (external),  
 NASA Earth Science Fellowship Program  
 Affiliations: International Glaciological Society, American Geophysical Union, Society of Exploration  
 Geophysicists, IEEE Geoscience and Remote Sensing, IEEE Antennas and Propagation

### OUTREACH

2014 – present Co-Chair, Earth and Space Science Committee, National Science Olympiad  
 2013 – present Planetary Science National Event Supervisor, National Science Olympiad  
 2015 Keynote Speaker, MIT Science Olympiad Invitational  
 2015 Astronomy State Event Supervisor, Southern California Science Olympiad  
 2003 – 2013 Astronomy National Event Supervisor, National Science Olympiad  
 2011 Onboard Science Lecture, Aurora Australis AAD Voyage: Casey to Hobart  
 2010 Tejas Club Life Raft Debate, Austin, TX  
 2009 Energy and Climate Facilitator, Clinton Global Initiative University, Austin, TX