Dustin M. Schroeder

Jet Propulsion Laboratory, California Institute of Technology
4800 Oak Grove Dr., Mail Stop 300-235 Pasadena, CA 91109
Dustin.M.Schroeder@jpl.nasa.gov, (626) 344 – 3307

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 **Freescale 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, 1st 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 Reatreat 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 23rd

2015 Radar Science and Engineering Section, Jet Propulsion Laboratory, Caltech, March 27th

2015 Department of Electrical Engineering, University of Colorado, Boulder, February 13th

2014 Department of Geophysics, Stanford University, November 13th

2014 Norwegian Polar Research Institute, Tromso, Norway, June 4th

2014 Department of Geology, University of Kansas, April 9th

2013 Bromery Seminar, Earth and Planetary Science, Johns Hopkins University, November 7th

2013 Radar Science and Engineering Section, Jet Propulsion Laboratory, Caltech, September 19th

2012 Institute for Geophysics, University of Texas at Austin, September 7th

2012 Space Research Group, Applied Physics Lab, Johns Hopkins University, May 3rd

CONFERENCE PARTICIPATION

2015 E. Quartini, D.D. Blankenship, D.A. Young, **D.M. Schroeder**, *An Evaluation OF Active Subglacial Volcanism as a Source of Thwaites Glacier Hetergeneous Geothermal Flux*, International Symposium on International Earth Sciences, Goa, July 13th – 17th

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 26th – 31st

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 15th – 19th

2015 D.A. Young, **D.M. Schroeder**, E. Quartini, D.D. Blankenship, The Context for Subglacial Water Systems from Antarctic Airborne Observations, Sublacial Anatarctic lake exploration: first results and future plans, The Royal Society, London, March 30th – 31st

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 15th - 19th

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 15th – 19th

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 9th -10th **(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 24th – 27th

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 25th – 28th

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 25th – 28th

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 26th – 30th

2014 D.D. Blankenship, **D.M. Schroeder**. Airborne Studies of Subglacial Boundaries in West Antarctica, International Symposium on Polar Sciences, Incheon, South Korea, May 27th – 29th

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 5th – 7th

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 5th – 7th

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 5th – 7th

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 9th – 13th

2013 C. Grima, **D.M. Schroeder**, D.D. Blankenship, D.A. Young. Planetary Surface Rougness Derived from Ice Penetrating Radar Data: Method and Concept Validation in Antarctica. AGU Fall Meeting, San Francisco, CA, December 9th – 13th

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 9th – 13th

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 29th – October 2nd

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 29th – October 2nd

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 9th – 13th

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 9th – 13th

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 9th – 13th

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 9th – 13th

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 6th – 10th

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 18th – 22nd

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 B.E. Schmidt, D.D. Blankenship, **D.M. Schroeder**. Europa Subsurface Science from Mutli-Flyby Missions, European Planetary Science Congress, Madrid, September 23rd – 28th

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 13th – 25th

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)**

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 5th – 9th

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 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 23rd – 25th

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

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 3rd – 6th

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 3rd – 6th

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 3rd – 6th

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 15th – 17th

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

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
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 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