**David G. Long, Ph.D.** 18 May 2020

Brigham Young University:

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**Education:**

**1989** **Ph.D.** **University of Southern California**. Electrical Engineering. Advisor: Prof. Jerry Mendel, Chair EE-Systems Dept.

**1983** **M.S.** **Brigham Young University**. Electrical Engineering. Cum Laude.

**1982** **B.S.** **Brigham Young University**. Electrical Engineering. Summa Cum Laude.

**Experience:**

**1990-present Brigham Young University.** Provo, Utah

 ***Professor of Electrical and Computer Engineering****.* (1999-present) Teach undergraduate and graduate courses in electrical engineering. Conduct research in spaceborne scatterometry, synthetic aperture radar, and microwave remote sensing. Mentor undergraduate and graduate students. Mentor new faculty. University, college, and department committee assignments.

 ***Associate Dean, Ira A. Fulton College of Engineering &Tech.*** (2012-2016)

 ***Associate Professor of Electrical and Computer Engineering***. (1994-99)

 ***Assistant Professor of Electrical and Computer Engineering***. (1990-94)

***Director*, BYU Center for Remote Sensing**. (2000-) Coordinate, promote, and direct BYU interdisciplinary remote sensing activities across the University. Manage support staff. Develop academic support program.

***Head,* Microwave Earth Remote Sensing (MERS) Laboratory**. (1991-present) Direct research in microwave remote sensing. Coordinate research and laboratory resources among faculty and students. Manage the acquisition and maintenance of laboratory computer and microwave test equipment. Manage support staff.

 ***Principal Investigator***. (1990-) NASA, NSF, NOAA, and DoD sponsored research projects. Selected titles include “Boundary Layer Modeling of Surface Winds Using NSCAT Data,” “Model-Based Wind Retrieval of Wind Fields Using Seasat Scatterometer Data,” “High Resolution Imaging of Land and Ice Using SASS Data,” “Research in Oceanic Air/Sea Interaction,” “Geologic Applications of Small SAR,” “Scatterometer Climate Record Pathfinder,” “Application and Extension of the Scatterometer Climate Record Pathfinder,” “MicroSAR for small UAV,” “Passive Inspection Cubesat.” Member of a number of NASA and international science teams. PI for the Scatterometer Climate Record Pathfinder (www.scp.byu.edu).

 ***Instructor,* *BYU Education Week****.* (1995-2005) Give 1-3 public lectures per year

**1990-** **Consultant**. Technical expertise in scatterometer performance and design analysis, radar resolution enhancement, and radar remote sensing. Teach short courses. Help develop small businesses.

**1983-1990 Jet Propulsion Laboratory, California Institute of Technology (JPL).** Pasadena, California.

***Experiment Manager*, SCANSCAT Project.** (1989-90) Senior manager responsible for all technical and programmatic aspects of the SCANSCAT Project in the development and proposal phase. Eventually known as *SeaWinds*, this highly successful $250 M project resulted in two successful launches and one extended mission (*SeaWinds-on-QuikSCAT*: 1999-present). Managed and coordinated all JPL design and development efforts among staff spread over multiple disciplines at JPL. Prepared and negotiated budget and technical requirements between JPL, NASA headquarters, other NASA centers, and contractors.

***Project Engineer*, Spaceborne Scatterometer Projects Office**. (1988-90) Senior technical manager for the JPL scatterometer projects office. Responsible for the high level design, analysis, and technical management of the scatterometer projects including instrument design and fabrication, algorithm development and coding for the ground processing system, mission operations, calibration data analysis, system performance analysis, and development and maintenance of system and low-level requirements. Supervised Project Engineering staff. Managed large multi-disciplinary design team. Functioned as interface between scientists, engineering support teams, and upper management.

***Group Leader,* Radar Systems Engineering.** (1988-90) Supervised a staff of 5 radar system engineers involved in the design and performance analysis of JPL flight projects in spaceborne radar remote sensing including the SIR-C and Magellan synthetic aperture radars and the NSCAT, NUSCAT, and SCANSCAT scatterometer missions. Responsibilities included personnel hiring, task assignment, project reporting, and managing and negotiating budgets.

***Principal Investigator***. (1989-90) NASA-sponsored research project “Model-Based Wind Retrieval of Wind Fields Using Seasat Scatterometer Data.”

***Member Technical Staff****.* (1983-1987) Developed requirements and the high-level design for the NASA Scatterometer (NSCAT) project as the NSCAT Instrument Systems Engineer. Developed performance analysis tools and performed tradeoffs in developing the onboard signal processor design and the ground processing system. Managed technical development in supporting disciplines.

**1982 ESL, Inc.** Sunnyvale, California (summer hire)

***Member Technical Staff.*** Studied the effects of bit errors in digital communication channels on the intelligibility of LPC-coded speech.

**1980-1981 Timet Corp.** Henderson, Nevada (summer hire)

***Engineer*.** Designed custom analog and digital control systems for high-power vacuum arc furnaces and molten salt electrolytic cells.

**Publications:**

One hundred and forty-one refereed journal papers, one book, and seven book chapters. Well over 300 conference papers and presentations. Two patents. Eleven published software packages. 30 major scientific datasets.

**Society Memberships:**

Fellow of IEEE, American Geophysical Union, and Tau Beta Pi, Eta Kappa Nu, Phi Kappa Phi, and Sigma Xi honor societies. Past faculty advisor for Eta Kappa Nu and Tau Beta Pi.

**Awards:**

**2015 NASA *Group Achievement Award.*** For outstanding accomplishments in the calibration of RapidSCAT in 2014.

**2010 NASA *Group Achievement Award.*** For outstanding accomplishments in the Characterization of Arctic Sea Ice Experiment (CASIE), conducted in Svalbard, Norway, July 2009.

**2009 IEEE *Best Paper of the Year, Trans. Geoscience and Remote Sensing*.** With Li Li and Peter Gaiser.

**2009 University of Miami, Rosenstiel School Division of Applied Marine Physics Bader Lecturer**

**2009 Ames Honor Award.** For excellence in the category of Group/Team, CASIE 2009 Project Team.

**2008 BYU *Karl G. Maeser Distinguished Faculty Lecturer Award*.** (Top BYU faculty award).

**2005 IEEE *Best Paper of the Year, Trans. Geoscience and Remote Sensing*.** With David W. Draper (student).

**2004 BYU *Sponsored Research Award*.** For outstanding achievement in scholarly activities funded by external sponsors.

**2004 Utah County Sheriff *Citizen Service Award*.** For contributions to search and rescue activities.

**2002 BYU *Karl G. Maeser Excellence in Research and Creative Arts Award*.** For outstanding research and creative accomplishments.

**2001 BYU *Martha Jane Knowlton Coray Professorship*.** To acknowledge senior faculty who are outstanding scholars, teachers, and university citizens.

**2001 BYU *College of Engineering and Technology, Department of Electrical Engineering Faculty Award*.**

**2000 NASA *Group Achievement Award.*** For outstanding performance in the development, launch and operations of the Quick Scatterometer spacecraft.

**1997 NASA *Team Recognition.*** In recognition of proficient advice on scientific requirements during the development of the mission, successful development of methods for optimal data retrieval and outstanding early demonstration of scientific application of NSCAT observations.

**1986,'88,'91,'91,'92 NASA *Certificate of Recognition.*** For technical papers on scatterometer instrument design, analysis, and data processing.

**1986,'88** **NASA *Certificate of Recognition.*** For the development of a sophisticated computer graphics package which was commercially distributed by NASA's Computer Software Management and Information Center (COSMIC). The package was among the center's most popular program packages for several years.

**Research Interests:**

Microwave remote sensing, spaceborne scatterometry, synthetic aperture radar, speech and signal processing, radar theory, estimation theory, computer graphics, resolution enhancement, reconstruction theory, scattering theory, polar ice, and mesoscale atmospheric dynamics.

**NASA Science Teams:**

Past or current member of science teams: *NASA Scatterometer, SeaWinds, Ocean Vector Winds, SMAP, TRMM, JASON-1, and ESA ERS-2*. Past chair of the NSCAT model function subcommittee and the QuikSCAT/SeaWinds Committee on Model Functions.

**Selected Professional Service Activities:**

Editor-in-Chief, *IEEE Remote Sensing Code Library* since 2018.

Associate Editor, *IEEE Geoscience and Remote Sensing Letters* since 2003.

Affiliate Director, Rocky Mountain Space Grant Consortium since 2002.

IEEE Geoscience and Remote Sensing subcommittees: Data Standards since 1997, Data Fusion since 1997, Instrumentation/Future Technologies since 1997, Active sensing 1997-98.

National Academies Committee on Radio Frequencies (CORF): standing committee 2006-2012; review board since 2019

NASA/JPL Scatterometry Steering Committee 1999-2000.

Technical Program Committee for IGARSS, 2005, 2010, 2011

Organizing Committee for EUMETSAT Meteorological Satellite Conference, 2011

**Selected Major Addresses:**

**2009 University of Miami, Rosenstiel School Division of Applied Marine Physics Bader Lecture**

**2009 BYU Forum Address, Karl G. Maeser Distinguished Faculty Lecture**“Microwaves, Icebergs, and Global Warming” multiple broadcasts on KBYU-TV and radio

**2004 BYU Education Week Address**“Remote Sensing” multiple broadcasts on KBYU-TV

**1997 BYU Forum Address**“Lost Cities – Radar Engineering and Remote Sensing,” with D.V. Arnold

**1993 Sigma Xi Address**“Remote Sensing at BYU”

**1992,93;2014,16 Eta Kappa Nu** initiation dinner invited speaker

**1991-present** Numerous public outreach presentations

**Students:**

Two post-docs, 18 Ph.D. students completed, 58 Masters students completed with several in progress. Numerous undergraduate research assistants. Completed students work in academia, in industry, and for government research laboratories.

*Post-Doctorial. Student*s *(2): (Brigham Young University)*

**Salvador Guiterrez, 2001-2003.**

**Aaron C. Paget, 2013-2015.**

*Ph.D. Student*s *(18): (Brigham Young University)*

**Richard Lindsley, *Enhanced-Resolution Processing and Applications of the ASCAT Scatterometer*, 2016.**

**Craig Stringham†, *Developments in LFM-CW SAR for UAV operation*, 2014.**

**Michael I. Duersch, *Backprojection for Synthetic Aperture Radar*, 2013.**

**Keith M. Stuart, *Application of SeaWinds Scatterometer Data to the Study of Antarctic Icebergs*, 2012.**

**Michael P. Owen, *Signal Scatterometer Contamination Mitigation*, 2010.**

**Brent A. Williams, *Signal Processing Methods for Ultra High Resolution Scatterometry*, 2010.**

**Evan C. Zaugg, *Generalized Image Formation for Pulsed and LFM-CW Synthetic Aperture Radar,* 2010.**

**Derek L. Hudson, *Improving Accuracy in Microwave Radiometry via Probability and Inverse Problem Theory*, 2009.**

**Congling Nie, *Wind/Rain Backscatter Modeling and Wind/Rain Retrieval for Scatterometer and Synthetic Aperture Radar*, 2008.**

**Haroon Stephen, *Microwave Remote Sensing of Saharan Ergs and Amazon Vegetation*, 2006.**

**Ivan S. Ashcraft†, *Microwave Remote Sensing of the Greenland Ice Sheet*, 2004.**

**David W. Draper, *Wind Scatterometry with Improved Ambiguity Selection and Rain Modeling*, 2003.**

**Peter K. Yoho, *Satellite Scatterometers: Calibration using a Ground Station and Statistical Measurement Theory*, 2003.**

**Michael W. Spencer,** A Methodology for the Design of Spaceborne Pencil-Beam Scatterometer Systems, 2001.

**Quinn P. Remund**, Multisensor Microwave Remote Sensing in the Cryosphere, 2000.

**Paul E. Johnson†**, Uncertainties in Oceanic Microwave Remote Sensing: the Radar Footprint, the Wind-Backscatter Relationship, and the Measurement Probability Density Function, 1999.

**David S. Early†**, A Study of the Scatterometer Image Reconstruction Algorithm and Its Application to Polar Ice Studies, 1996.

**Ryan** Reed, *Statistical Properties of the Sea Scattered Radar Return*, 1996.

*Masters Student*s *(59): (Brigham Young University)*

Ryan Bartley, *Ku-Band Ultra-High Resolution Radar Tomography of an Alpine Snowpack*, 2019.

Jordan Brown, *An Exploration of Neural Networks in Enhanced Resolution Remote Sensing Products*, 2019.

Nolan Hutchings, *Ultrahigh Resolution Scatterometer Winds*, 2019.

Evan Chrisney, *Scatterometer Cross Calibration Using Volume Scatterometer Models for Amazon Rainforest Canopies*, 2019.

Garrett McDonald, *Adjustment of RapidScat Backscatter Measurements for Improved Radar Images*, 2018.

Sam Bury, *The Estimation of the Spatial Response Function for a Remote Sensing Pencil Beam Scatterometer Applied to the RapidScat Scatterometer*, 2018.

Jordan Hill, *Extension of the QuikSCAT Sea Ice Extent Data Set with OSCAT and ASCAT Dat*a, 2017.

Jeffery Budge, *Estimation of Size and Rotations of Icebergs from Historical Data Utilizing Scatterometer Data*, 2017.

John C. Niedfeldt, *RapidScat Slice Spatial Response Function Contour Parameterization*, 2016.

F. Dayton Minor, *Calibration of RapidScat Instrument Drift*, 2016.

David B. Lindell, *Arctic Sea Ice Classification and Soil Moisture Estimation Using Microwave Sensors*, 2016.

Nathan M. Madsen, *Calibration and Validation of the RapidScat Scatterometer Using Natural Land Targets*, 2015.

Jeffrey R. Blodgett, *Analysis, Validation, and Improvement of High-Resolution Wind Estimates from the Advanced Scatterometer (ASCAT)*, 2014.

Mark Crockett, *Target Motion Estimation Techniques Single-channel SAR*, 2014.

John Barrus, *Intercalibration of QuikSCAT and OSCAT Land Backscatter*, 2013.

Benjamin Dilsaver, *Experiments with GMTI Radar using MicroDoppler*, 2013.

Joseph W. Winkler, *An Investigation into Ground Moving Target Indication (GMTI) Using a Single-Channel Synthetic Aperture Radar (SAR)*, 2013.

Kevin R. Moon**†**\*, *Investigations of the Dry Snow Zone of the Greenland Ice Sheet Using QuikSCAT*, 2012.

Steven Reeves, *Sea Ice Mapping Using Enhanced Resolution Advanced Scatterometer Images*, 2012.

Kyra M. Moon, *Windowed Factorized Backprojection for Pulsed and LFM-CW Strip map SAR*, 2012.

Joshua P. Bradley, *Extending the QuikSCAT Data Record with the Oceansat-2 Scatterometer*, 2012.

Weston Jay Hullinger, *Mitigation of Sea Ice Contamination in QuikSCAT Wind Retrieval*, Utah, 2012.

Justin F. Penner, *Development of a Ground-Based High-Resolution 3D-SAR System for Studying the Microwave Scattering Characteristics of Trees*, 2011.

Aaron M. Swan, *Multi-year Arctic Sea Ice Classification Using QuikSCAT*, 2011.

Brian A. Gunn, *Scatterometer Image Reconstruction Tuning and Aperture Function Estimation for the Advanced Microwave Scanning Radiometer aboard the Earth Observing System*, 2010.

Stephen J. Preston, *Design and Feasibility Testing for a Ground-Based, Three-Dimensional Ultra-High-Resolution, Synthetic Aperture Radar to Image Snowpacks*, 2010.

Brian A. Gunn, *SIR Tuning and Aperture Function Estimation for AMSR-E*, 2010.

David D. Madsen, *Coherent Change Detection for Synthetic Aperture Radar Data*, 2010.

Faozi Said\*, *An Evaluation of QuikSCAT UHR Wind Product’s Effectiveness in Determining Selected Tropical Cyclone Characteristics,* 2009.

Trevor. H. Paulsen, *Low Cost/High Prevision Flight Dynamics Estimation Using the Square-Root Unscented Kalman Filter*, 2009.

Matthew C. Edwards, *Design of a Continuous Wave Synthetic Aperture Radar System with Analog Dechirp*, 2009.

Matthew Tolman, *A Detailed Look at the Omega-K Algorithm for Processing Synthetic Aperture Radar Data*, 2008.

Benjamin Lambert, *Monitoring the Antarctic Ice Sheet from Space*, 2008.

Seth Nielsen, *A Wind and Rain Backscatter Model Derived from AMSR and SeaWinds Data*, 2007.

Ryan Halterman, *Observation and Tracking of Tropical Cyclones using Resolution Enhanced Scatterometry*, 2006.

Brandon Hicks, *Melt Detection and Estimation in Greenland using Tandem SeaWinds and QuikSCAT Scatterometers*, 2006.

Jeffrey R. Allen, *An Analysis of SeaWinds Simultaneous Wind/Rain Retrieval in Severe Weather Events*, 2005.

Michael I. Duersch\*, *BYU Micro-SAR: A Very Small, Low-Power, LFM-CW Synthetic Aperture Radar*, 2005.

Spencer S. Haycock, *Frequency Estimation of Linear FM Scatterometer Pulses Received by the SeaWinds Calibration Ground Station*, 2004.

Lukas B. Kunz, *A New Method for Melt Detection on Antarctic Ice-Shelves and Scatterometer Calibration Verification*, 2004.

David P. Duncan\*, *Motion Compensation of Interferometric Synthetic Aperture Radar*, 2004.

Jeremy B. Luke, High Resolution Wind Retrieval Using QuikSCAT, 2003.

Hyrum S. Anderson\*, Polar Sea Ice Mapping Using SeaWinds Data, 2003.

Jarom J. Ballatyne, Using Spaceborne Microwave Sensors to Track Large Antarctic Icebergs, 2002.

Andrew S. Fletcher\*, *An Implementation of Field-Wise Wind Retrieval for SeaWinds on QuikSCAT*, 2001.

Arden A. Anderson, *Analysis and Usage of the QuikSCAT Calibration Ground Station*, 2000.

James E.H. Dyal, *TRMM Sigma-0 Vegetation Signatures and Other Studies*, 1999.

Benjamin E. Barrowes**†**\*, YSCAT Backscatter Distributions, 1999.

Stephen L. Richards, A Field-Wise Wind Retrieval Algorithm for SeaWinds, 1999.

Gardner Watt, Vegetation Classification Using Seasonal Variations of Scatterometer Data at C-Band and Ku-Band, 1999.

Charles G. Brown\*, A Field-Wise Wind Retrieval Algorithm for the NASA Scatterometer, 1998.

Amy E. Gonzales, An Assessment of the NASA Scatterometer Ambiguity Removal Technique, 1998.

Clarence J. Wilson III, Calibration of and Attitude Error Estimation for a Spaceborne Scatterometer Using Measurements Over Land, 1998.

Travis E. Oliphant\*, New Techniques for Wind Scatterometry, 1996.

R. Scott Collier, Dependence of the Normalized Radar Cross Section on Bragg Wavelength: Wind Speed Sensitivity, 1994.

Douglas R. Daum\*, Application of Enhanced Resolution Imaging to SSM/I Data, 1994.

Warren B. Davis, Enhanced Resolution Imaging from Remotely Sensed Microwave Data, 1993.

David Luke**†**, (course work Master’s).

Gary Skouson, Calibration of Spaceborne Scatterometer Data, 1993.

Charles W. Hedelius, Development of a Wire Wave Gauge Array for Measuring Wind-Generated Water Waves, 1993.

Peter T. Whiting\*, Resolution Enhancement of Seasat Scatterometer Data, 1992.

**† Received a NSF or NASA graduate fellowship** \* Went on to a Ph.D.

##### David G. Long, Selected Publications (\* denotes student co-authors)

141 journal publications, 1 book, 7 book chapters, over 300 conference papers, 2 patents, 11 major software packages, and over 30 major datasets.

### *Journal Publications (141 total, 91 with student co-authors)*

N. Hutchings\*, T. Kilpatrick, and D.G. Long, “Ultrahigh Resolution Scatterometer Winds near Hawaii,” *Remote Sensin*g, Vol. 12, No. 3, 564, 18 pgs., doi:10.3390/rs12030564, 2020.

J.Willis\*, P.Walton\*, D.Wilde, D. Long, “Miniaturized Solutions for CubeSat Servicing and Safety Requirements,” *IEEE Journal on Miniaturization for Air and Space Systems*, Vol. 1, No. 1, pp. 1-5, doi:10.1108/TGRS.2019.2954807, 18 Dec 2019.

T. Kilpatrick, S-P Xie, H. Tokinaga, D.Long, and N. Hutchings\*, “Systematic Scatterometer Wind Errors Near Coastal Mountains,” *Earth and Space Science*, Vol. 6, pp. 1900-1914,doi.org/10.1029/2019EA000757, 2019.

E. Rodriguez, M.A. Bourassa, D. Chelton, J.T. Farrar, D.G. Long, D. Perkovic-Martin, R. Samelson, “The Winds and Currents Mission Concept,” *Frontiers in Marine Science*, Vol. 6, pp. 438-437, doi.org/10.3389/fmars.2019.00438, 24 Jul 2019.

P. Walton\* and D. Long, “Space of Solutions to Ocean Surface Wind Measurement Using Scatterometer Constellations,” *Journal of Applied Remote Sensing*, Vol. 13, No. 3, 032506, doi:10.1117/1.JRS.13.032506, 17 July 2019.

P. Walton\*, J. Cannon\*, B. Damitz\*, T. Downs\*, D. Glick\*, J. Holtom\*, N. Kohls\*, A. Laraway\*, I. Matheseon\*, J. Redding\*, C. Robinson\*, J. Ryan\*, N. Stoddard\*, J. Willis\*, K. Warnick, M. Wirthlin, D. Wilde, B.D. Iverson, D. Long, “Passive CubeSats for Remote Inspection of Space Vehicles,” *Journal of Applied Remote Sensing*, Vol. 13, No. 3, 032505, doi:10.1117/1.JRS.13.032505, 12 July 2019.

D.G. Long, M.J. Brodzik, and M. Hardman, “Enhanced Resolution SMAP Brightness Temperature Image Products,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 57. No. 7, pp. 4151-4163, doi:10.1109/TGRS.2018.2889427, 2019.

N. Hutchings\* and D.G. Long, “Improved Ultra High Resolution Wind Retrieval for RapidScat,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 57, No. 6, pp. 3370-3379, doi:10.1109/TGRS.2018.2884128, 2019. (8.0 MB PDF\*)

D.G. Long, "Scatterometer Backscatter Imaging Using Backus-Gilbert Inversion," IEEE Transactions on Geoscience and Remote Sensing, Vol. 57, No. 6, pp. 3179-3190, doi:10.1109/TGRS.2018.2882136, 2019. (4.2 MB PDF\*)

M.J. Brodzik, D.G. Long, and M.A. Hadman, "Best Practices in Crafting the EASE-grid 2.0 Calibrated, Enhanced-resolution Passive Microwave Brightness Temperature Earth System Data Record,” *Remote Sensing*, Vol. 20, No. 1793, 18 pgs., doi.org/10.3390/rs10111793, 2018.

K.E. Alley, T.A. Scambosa, J.Z. Miller, D.G. Long, M. MacFerrin, “Quantifying vulnerability of Antarctic ice shelves to hydrofracture using microwave scattering properties,” *Remote Sensing of Environmen*t, Vol. 20, pp. 297-306, doi.org/10.1016/j.rse.2018.03.025, 2018.

Y. Li, K. Guan, N. McDowll, F. Meinzer, X. Xiantao, P. Gentine, A. Konigs, D.G. Long, J.M. Vilalta, W. Anderegg, and J. Kimball, “Estimating global ecosystem iso/anisohydry using active and passive microwave satellite data,” *J. Geophysical Research, Biogeosciences*, Vol. 122, pp. 3306-3321, doi:10.1002/2017JG003958, 2017.

J.S. Budge\* and D.G. Long, “A Comprehensive Database for Antarctic Iceberg Tracking Using Scatterometer Data,” *IEEE J. Selected Topics in Applied Earth Observations*, doi:10.1109/JSTARS.2017.2784186, Vol. 11, No. 2, pp. 434-442, 2017.

J.. Penner\* and D.G. Long, “Ground-Based 3-D Radar Imaging of Trees Using a 2-D Synthetic Aperture,” *Electronics*, special issue on Radio and Radar Signal Processing, doi:10.3390/electronics6010011, Vol. 6, No. 11, `13 pg,2017.

J.C. Hill\* and D.G. Long, “Extension of the QuikSCAT Sea Ice Extent Dataset with OSCAT Data,” *IEEE Geoscience and Remote Sensing Letter*s, Vol. 14, No.1, pp. 92-96, doi:10.1109/LGRS.2016.2630010, 2016.

F.J. Wentz, L. Ricciardulli, E. Rodriguez, B. Stiles, M. Bourassa, D. Long, R. Hoffman, A. Stoffelen, A. Verhoef, L. O'Neill, T. Farrar, D. Vandemark, A. Fore, S. Hristova Veleva, J. Turk, R. Gaston, and D. Tyler, “Evaluating and Extending the Ocean Wind Climate Data Record,” *IEEE Journal of Selected Topics in Applied Earth Observations*, Vol. 10, No. 3, pp. 2165-2185, Vol. 10, No. 3, 2016.

D.G. Long, “Comparison of SeaWinds Backscatter Imaging Algorithms,” *IEEE Journal of Selected Topics in Applied Earth Observations*, Vol. 10, No. 3, pp. 2214-2231, doi:10.1109/JSTARS.2016.2626966, 2016.

D.G. Long, “Polar Applications of Spaceborne Scatterometers,” *IEEE Journal of Selected Topics in Applied Earth Observations*, Review Article, Vol. 10, No. 3, pp. 2307-2320, doi:10.1109/JSTARS.2016.2629418 2016.

R. Lindsley\*, J.R. Blodgett\*, and D.G. Long, “Analysis and Validation of High-Resolution Wind from ASCAT,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 54, No. 10, pp. 5699-5711, 2016.

R. Lindsley\* and D.G. Long, “ASCAT and QuikSCAT Azimuth Modulation of Backscatter over East Antarctica,” *IEEE Geoscience and Remote Sensing Letters*, Vol. 13, No. 8, pp. 1134-1138, doi:10.1109/LGRS.2016.2572101 2016.

R. Lindsley\* and D.G. Long, “A Parameterized ASCAT Measurement Spatial Response Function,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 54, No. 8, pp. 4570-4579, doi:10.1109/TGRS.2016.2544835, 2016.

A.C. Paget\*, M.J. Brodzik, D.G. Long, and M.A. Hardman, “Bringing Earth's Microwave Maps into Sharper Focus,” *EOS*, Vol. 7, doi:10.1029/2016EO063675, 21 Dec. 2016.

D.B. Lindell\* and D.G. Long, “High-Resolution Soil Moisture Retrieval with ASCAT,” *IEEE Geoscience and Remote Sensing Letters*, Vol. 13, No. 7, pp. 972-976, doi:10.1109/LGRS.2016.2557321, 2016.

A.P. Paget\*, D.G. Long and N.M. Madsen\*, “RapidScat Diurnal Cycles Over Land,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 54, No. 6, pp. 3336-3344, doi:10.1109/TGRS.2016.2515022, 2016.

N.M. Madsen\* and D.G. Long, “Calibration and Validation of the RapidScat Scatterometer Using Tropical Rainforests,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 54, No. 5, pp. 2846-2854, doi:10.1109/TGARS.2015.2506463, 2016.

D.B. Lindell\* and D.G. Long, “Multiyear Arctic Ice Classification using ASCAT and SSMIS,” *Remote Sensing*, Vol. 8, art. 204, doi:10.3390/rs8040294, 2016.

D.G. Long and M.J. Brodzik, “Optimum Image Formation for Spaceborne Microwave Radiometer Products,” *IEEE Trans. Geoscience and Remote Sensing*, Vol. 54, No. 5, pp. 2763-2779, doi:10.1109/TGRS.2015.2505677, 2016.

R. Lindsley\* and D.G. Long, “Enhanced-Resolution Reconstruction of ASCAT Backscatter Measurements,” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 54, No. 5, pp. 2589-2601, doi:10.1109/TGARS.2015.2503762, 2016.

D.G. Long and R.O.W. Franz, “Band-Limited Signal Reconstruction from Irregular Samples with Variable Apertures,” *IEEE Trans. Geoscience and Remote Sensing*, Vol. 54, No. 4, pp. 2424-2436, doi:10.1109/TGARS.2015.2501366, 2016.

D.B. Lindell\* and D.G. Long, “Multiyear Arctic Sea Ice Classification Using OSCAT and QuikSCAT,” IEEE Trans. Geoscience and Remote Sensing, Vol. 54, No. 1, pp. 167-175, doi:10.1109/TGRS.2015.2452215, 2016.

E.I. Zaugg\* and D.G. Long, “Generalized Frequency Scaling and Backprojection for LFM-CW SAR Processing,” *IEEE Trans. Geoscience and Remote Sensing*, Vol. 53, No. 2, pp. 3600-3614, doi:10.1109/TGRS.2014.2380154, 2015.

M.D. Duersch\* and D.G. Long, “Backprojection SAR Interferometry,” *International Journal of Remote Sensing*, Vol. 36, No. 4, pp. 979-999, doi:10.1080/01431161.2014.1001087, 2015.

A.C. Paget\*, S. Frolking, D.G. Long, and T. Milliman, “Satellite Radar Anisotrophy Observed in Urban Areas,” *International Journal of Remote Sensing*, doi:10.1080/01431161.2014.999883, Vol. 36, No.2, pp. 665-679, 2015.

M.D. Duersch\* and D.G. Long, “An Analysis of Multi-static Pixel Correlation in SAR,” *IEEE Transactions on Geoscience and Remote Sensing*, doi:10.1109/TGRS.2014.232261, Vol. 53, No. 1, pp. 362-374, 2015.

C. Stringham\* and D.G. Long, “GPU Processing for UAS-Based LFM-CW Stripmap SAR,” *Photogrammetric Engineering and Remote Sensing*, doi:10.14358/PERS.80.12.1107, Vol. 80, No. 12, pp. 1107-1115, 2014.

Q.D. Remund and D.G. Long, “A Decade of QuikSCAT Scatterometer Sea Ice Extent Data,” *IEEE Transactions on Geoscience and Remote Sensing*, doi:10.1109/TGRS.2013.2281056, Vol. 52. No. 7, pp. 4281-4290, 2014.

D.J. Bogucki, W.M. Drennan, S. Woods, S. Gremes-Cordero, D.G. Long, and C. Mitchell, “Short surface waves in the Canadian Arctic in 2007 and 2008,” *Journal of Geophysical Research--Oceans*, doi:10.1002/jgrc.20273, Vol. 118, pp. 3712-3722, 2013.

W.J. Hullinger\* and D.G. Long, “Mitigation of Sea Ice Contamination in QuikSCAT Wind Retrieval,” *IEEE Trans. Geoscience and Remote Sensing*, doi:10.1109/TGRS.2013.2258400, Vol. 52, No. 4, pp. 2149-2158, 2014.

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