

## PUBLICATIONS

### Articles in Refereed Journals: Published or Accepted

- [1] Walsh, J., W. Huang, W., and **E.W. Gill**, The Second-order High Frequency Radar Ocean Surface Foot-scatter Cross Section for an Antenna on a Floating Platform, *IEEE Trans. Antennas Propag.*, vol. 61, no. 11, 2013. (in press, DOI: 10.1109/TAP.2013.2276925)
- [2] Shen, C., **E. W. Gill**, W. Huang, HF Radar Cross Sections of Swell Contaminated Seas for a Pulsed Waveform, *IET Radar Sonar Navig.*, 2013. (in press, DOI: 10.1049/iet-rsn.2013.0037)
- [3] Huang, W. and **E. Gill**, "Surface Current Measurement under Low Sea State Using Dual Polarized X-band Nautical Radar," *IEEE J. Sel. Topics Appl. Earth Observ. Remote Sens. (JSTARS)*, Vol. 5, No. 6, pp. 1868-1873, 2012.
- [4] Walsh, J., W. Huang, and **E.W. Gill**, The Second-order High Frequency Radar Ocean Surface Cross Section for an Antenna on a Floating Platform, *IEEE Trans. Antennas Propag.*, Vol. 60, No. 10, pp. 4804-4813, 2012.
- [5] Zhang, J., J. Walsh, and **E.W. Gill**, Inherent Limitations in High Frequency Radar Remote Sensing Based on Bragg Scattering from Gaussian Rough Surfaces, *IEEE Journal of Oceanic Engineering*, Vol. 37, No. 4, pp. 395-406, 2012.
- [6] Huang, W., **E. Gill**, X. Wu, and L. Li, Measurement of Sea Surface Wind Direction Using Bistatic High-Frequency Radar, *IEEE Trans. Geosci. Remote Sens.*, vol. 50, no. 10, pp. 4117-4122, 2012.
- [7] Walsh, J., J. Zhang, and **E.W. Gill**, High Frequency Radar Cross Section of the Ocean Surface for an FMCW Waveform, *IEEE J. Oceanic Eng.*, Vol. 36, No. 4, pp. 615-626, 2011.
- [8] Gurgel, Klaus-Werner, Anna Dzvonkovskaya, Thomas Pohlmann, Thomas Schlick, and **Eric Gill**, Simulation and detection of tsunami signatures in ocean surface currents measured by HF radar, *Ocean Dynamics*, Vol. 61, No. 10, pp. 1495-1507, 2011.
- [9] Walsh, J., W. Huang, and **E.W. Gill**, The First-order High Frequency Radar Ocean Surface Cross Section for an Antenna on a Floating Platform, *IEEE Trans. Antennas Propag.*, Vol.58, No. 9, pp. 2994-3003, 2010.
- [10] Green, D., **E.W. Gill**, and W. Huang, Extraction of Wind Speed from High Frequency Ground Wave Radar Oceanic Backscatter, *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 47, No. 10, pp. 3338-3346, 2009.

- [11] **Gill, E.W.** and J. Walsh, A Combined Sea Clutter and Noise Model Appropriate to the Operation of High Frequency Pulsed Doppler Radar in Regions Constrained by External Noise, *Radio Science*, Vol. 43, RS4012, 15pp, 2008.
- [12] **Gill, E.**, W. Huang, and J. Walsh, The Effect of Bistatic Scattering Angle on the High Frequency Radar Cross Sections of the Ocean Surface, *IEEE Geoscience and Remote Sensing Letters*, Vol. 5, No. 2, pp. 143-146, 2008.
- [13] **Gill, E.W.**, W. Huang, and J. Walsh, On the Development of a Second-order Bistatic Radar Cross Section of the Ocean Surface – A High Frequency Result for a Finite Scattering Patch, *IEEE J. Oceanic Eng. Special Issue on HF/VHF Sea Surface Radar*, Vol.31, No. 4, pp. 740-750, 2006. (Invited paper).
- [14] Zhang, J., and **E. Gill**, Extraction of Ocean Wave Information from Simulated Noisy High Frequency Bistatic Radar Data, *IEEE J. Oceanic Eng. Special Issue on HF/VHF Sea Surface Radar*, Vol.31, No. 4, pp. 779-796, 2006. (Invited paper).
- [15] Huang, W., **E.W. Gill**, S. Wu, B. Wen, Z. Yang, and J. Hou, Measuring Surface Wind Direction over the Eastern China Sea by Monostatic HF Ground-wave Radar, *IEEE J. Oceanic Eng.*, Vol.29, No. 4, pp. 1032-1037, 2004.
- [16] Huang, W., S. Wu, **E.W. Gill**, B. Wen, and J. Hou, HF Radar Wave and Wind Measurement over the Eastern China Sea, *IEEE Trans. on Geoscience and Remote Sensing*, Vol.40, No. 9, pp. 1950-1955, 2002.
- [17] **Gill, E.W.**, and J. Walsh, J., High Frequency Bistatic Cross Sections of the Ocean Surface, *Radio Science*, Vol.36, No. 6, pp. 1459-1476, 2001.
- [18] **Gill, E.W.**, and J. Walsh, The Bistatic Form of the Electric Field Equations for the Scattering of Vertically Polarized High Frequency Ground Wave Radiation from Slightly Rough, Good Conducting Surfaces, *Radio Science*, Vol. 35, No. 6, pp. 1323-1335, 2000.
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- [20] **Gill, E.W.**, M. Khandekar, R. Howell, and J. Walsh, Ocean Surface Wave Measurement Using a Steerable High-Frequency Narrow-Beam Ground Wave Radar, *J. of Atmos. and Ocean. Tech.*, Vol. 13, No. 3, pp. 703-713, 1996.
- [21] Hickey, K., **E.W. Gill**, J. Helbig, and J. Walsh, Measurement of Ocean Surface Currents Using a Long-range FMICW Steerable Radar, *IEEE J. of Oceanic Eng., Special Issue on Advanced Control and Signal Processing for Ocean Applications*, Vol. 19, No. 4, pp. 549-554, 1994.

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- [23] **Gill, E.W.**, and J. Walsh, Extraction of Ocean Wave Parameters from HF Backscatter Received by a Four-element Array: Analysis and Application, *IEEE J. of Oceanic Eng.*, Vol. 17, No. 4, pp. 376-386, 1992.

#### **Submitted or In Preparation for Submission to Refereed Journals**

- [24] Huang, W., **E. Gill**, and J. An, “An Iterative Least-squares Algorithm for Wave Measurement Using X-band Nautical Radar”, *IET Radar, Sonar and Navigation*. (Under revision)
- [25] Shen, C., **W. Huang**, **E. W. Gill**, “Retrieval of Surface Current Information from X-band Marine Radar Images based on a Polar Sinusoidal Curve Fitting”, *IEEE*, 2013. (to be submitted)
- [26] An, J., **W. Huang**, **E. W. Gill**, “A Self-Adaptive Wavelet-Based Algorithm for Wave Measurement Using Nautical Radar”, *IEEE*, 2013. (submitted)

#### **Refereed International and National Conferences**

- [27] C. Shen, W. Huang, **E. W. Gill**, “The derivation of high frequency radar cross sections for swell contaminated seas”, *IEEE International Geoscience and Remote Sensing Symposium*, Melbourne, Australia, pp. 1278--1281, 2013.
- [28] Walsh, J., W. Huang, **E. W. Gill**, “An analytical model for HF radar ionospheric clutter”, *IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting*, Lake Buena Vista, USA, pp. 1974-1975, 2013.
- [29] Wang, W. and **E.W. Gill**, Evaluation of Beamforming and Direction Finding for a Phased Array HF Ocean Current Radar, *International Radar Symposium (IRS)*, Dresden, Germany, 2013.
- [30] Al-Habashneh, A., C. Moloney, **E. Gill**, Towards ocean wave spectrum estimation from marine radar data by the Polar Fourier Transform, *Oceans 2013 MTS/IEEE*, Bergen, Nor., 2013.
- [31] Shen, C., **E. W. Gill**, and W. Huang, “Extraction of Swell Parameters from Simulated Noisy HF Radar Signals”, *IEEE RadarCon'13*, Ottawa, Canada, 2013.

- [32] An, J., W. Huang, **E. W. Gill**, “2-D Continuous Wavelet Based Algorithm for Extracting Wave Information from Nautical Radar Images”, *IEEE RadarCon'13*, Ottawa, Canada, 2013. (Best Student Paper Award)
- [33] Huang W., **E. W. Gill**, “An Alternative Algorithm for Wave Information Extraction from X-band Nautical Radar Images”, *IET International Radar Conference*, Xi'an, Shanxi, China, 2013.
- [34] C. Shen, **E. W. Gill**, and W. Huang, “Simulation of HF Radar Cross Sections for Swell Contaminated Seas”, *Oceans'12 MTS/IEEE*, Hampton Roads, USA, 2012.
- [35] W. Huang, **E. W. Gill**, and Z. Zhong, “Enhancement of the Normalized Scalar Product Method for Surface Current Measurement Using Nautical Radar”, *Oceans'12 MTS/IEEE*, Hampton Roads, USA, 2012.
- [36] An, J., W. Huang, **E. W. Gill**, “An enhanced Algorithm for Wave Information Extraction from X-band Nautical Radar Images”, *Oceans'12 MTS/IEEE*, Hampton Roads, USA, 2012.
- [37] Huang, W. and **E. Gill**, “Simulation Analysis of Sea Surface Current Extraction from Microwave Nautical Radar Images”, *IEEE International Conference on Image Processing*, Orlando, Florida, USA, pp. 2673-2676, 2012.
- [38] Walsh, J., W. Huang, W., and **E.W. Gill**, Further Analysis of the Second-order High Frequency Radar Ocean Surface Cross Section for an Antenna on a Floating Platform, *IEEE-AESS RadarCon*, Atlanta, USA, 2012. (Full paper review)
- [39] Huang, W. and **E. Gill**, Extraction of Sea Surface Wind Direction from Bistatic High-Frequency Radar Doppler Spectra, *Oceans'11, IEEE Conference and Exhibition*, Hawaii, USA, 2011. (Extended abstract review)
- [40] Huang, W. and **E. Gill**, Sea Surface Current Measurements at Long Range using Lower-band High-Frequency Radar, *Oceans'11, IEEE Conference and Exhibition*, Santander, Spain, 2011. (Extended abstract review)
- [41] Walsh, J., B. Ryan, **E. Gill**, and Jacques El Khoury, Further Analysis of the Modulation of High Frequency Radar Spectra due to Sea-induced Antenna Platform Motion, *Oceans'10, IEEE Conference and Exhibition*, Sydney, Australia, 2010. (Extended abstract review)
- [42] Zhang, J., **E.W. Gill**, and J. Walsh, High Frequency (HF) Radar Cross Sections of the Ocean Surface Incorporating a Continuous Wave Frequency Modulated Source *Oceans'08, MTS/IEEE Conference and Exhibition*, Quebec City, Canada, 2008. (Extended abstract review)

- [43] Heron, M.L., **E.W. Gill**, and A. Prytz, An investigation of double-peaked HF radar spectra via a convolution/de-convolution algorithm, *Oceans'08, MTS/IEEE Conference and Exhibition*, Kobe, Japan, pp. 1-4, 2008. (Extended abstract review)
- [44] Walsh, J., **E. Gill**, and W. Huang, A Monostatic Ocean Scattering Cross Section for the Case of Surface Wave Radar Operating from a Floating Barge, *Oceans'08, MTS/IEEE Conference and Exhibition*, Kobe, Japan, pp. 1-4, 2008. (Extended abstract review)
- [45] Walsh, J., **E.W. Gill**, and W. Huang, On the Problem of Antenna Platform Motion for High Frequency Surface Wave Radar Applications, *Canadian Conference on Electrical and Computer Engineering*, Niagara Falls, Ontario, pp. 471-474, 2008. (Full-paper review)
- [46] Zhang, J., **E.W. Gill**, J. Walsh, and W. Huang, Inherent Limitations in High Frequency Surface Wave Radar Remote Sensing Based on Bragg Scattering from Gaussian Rough Surfaces. *Proc. 12<sup>th</sup> International Symposium on Antenna Technology and Applied Electromagnetics [ANTEM] and Canadian Radio Sciences [URSI/CNC]*, Montreal, Quebec, Jul. 16-19, 2006. (Full-paper review)
- [47] Churchill, S., C. Randell, **E. Gill**, and D. Power, Data Fusion: Cumulative Effects of Discrete Fusion on Target Detection Probability. *Proc. International Geoscience and Remote Sensing Symposium (IGARSS'06)*, Denver, Colorado, 2006. (Extended abstract review)
- [48] Zhang, J., **E.W. Gill**, and J. Walsh, Variability of High Frequency Sea Echo Based on the Random Phase Content of the Electric Field Equations for a Pulsed Dipole Source, *Proc. AGU Ocean Sciences Mtg.*, Honolulu, USA, 2006. (Refereed Abstract)
- [49] Green, D.W. and **E.W. Gill**, Extracting Wind Parameters from High Frequency Ground Wave Radar Backscatter, *IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting*, Washington, DC, 2005.
- [50] Churchill, S., Randell, C., D. Power, and **E. Gill**, Data Fusion: Remote Sensing for Target Detection and Tracking, *Proc. International Geoscience and Remote Sensing Symposium (IGARSS'04)*, Anchorage, Alaska, 2004. (Extended abstract review)
- [51] Sircar, S., D. Power, C. Randell, J. Youden, J. and **E. Gill**, Lateral and Subsidence Movement Estimation Using INSAR, *Proc. International Geoscience and Remote Sensing Symposium (IGARSS'04)*, Anchorage, Alaska, 2004.
- [52] **Gill, E.W.**, W. Huang, and J. Zhang, An Alternate Analysis for the Second-Order High Frequency Bistatic Radar Cross Section of the Ocean Surface – Patch Scatter and its Inversion, *Proc. Oceans 2003*, San Diego, Calif., 2003. (Invited Paper).

- [53] Bobby, P. and **E. Gill**, Evaluation of Vector Current Measuring Techniques using Long-Range HF GWR Radar, *Proc. IEEE Canadian Conference on Electrical and Computer Engineering*, Montreal, Canada, 2003.
- [54] **Gill, E.W.**, A. Ponsford, and J. Zhang, High Frequency Surface Wave Radar Operating in Regions of Shallow Water, *Proc. Canadian Meteorological and Oceanic Society Symp.*, Ottawa, Canada, 2003.
- [55] Bobby, P., K. Hickey, and **E.W. Gill**, Techniques for Surface Current Measurement on the Grand Banks Using High Frequency Surface Wave Radar, *Proc. Canadian Meteorological and Oceanic Society Symp.*, Ottawa, Canada, 2003.
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- [57] Churchill, S., C. Randell, **E. Gill**, and D. Power, An Outline of Fusion and Sensor Combinational Methodologies for Disparate, Sparse Multi-Sensor Networks, *Proc. International Geoscience and Remote Sensing Symposium (IGARSS'02) and the 24<sup>th</sup> Canadian Symposium on Remote Sensing*, Toronto, 2002. (Invited Paper).
- [58] **Gill, E.**, and J. Walsh, A Perspective on Two Decades of Fundamental and Applied Research in Electromagnetic Scattering and High Frequency Ground Wave Radar on the Canadian East Coast, *Proc. International Geoscience and Remote Sensing Symposium (IGARSS'02) and the 24th Canadian Symposium on Remote Sensing*, Toronto, 2002. (Invited Paper).
- [59] Hickey, K., **E. Gill**, and J. Walsh, Some Fundamental Statistics associated with the Estimation of Ocean Surface Currents Using a Dual Station, Long-range, High Frequency Ground Wave Radar, *Proc. International Geoscience and Remote Sensing Symposium (IGARSS'02) and the 24th Canadian Symposium on Remote Sensing*, Toronto, 2002. (Invited paper).
- [60] **Gill, E.W.**, and J. Walsh, High Frequency Cross Sections of the Ocean Surface – Comparisons and Recent Enhancements, *Proc. XXVIIth URSI General Assembly*, Maastricht, Netherlands, 2002.
- [61] **Gill, E.W.**, and J. Walsh, A Relationship Between External Noise and the Ocean Clutter Models for Bistatic Operation of Pulsed High-Frequency Radar, *Proc. IEEE Canadian Conference on Electrical and Computer Engineering*, Toronto, ON, Canada, 2001.
- [62] **Gill, E.W.**, and J. Walsh, The Scattering of High Frequency Ground Wave Radiation from Highly Conducting Surfaces with Emphasis on Bistatic Reception, *Proc. of the XXVIth General Assembly of the International Union of Radio Science*, Toronto, Ontario, Canada, J., 1999.

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- [69] **Gill, E.W.**, and J. Walsh, Extraction of Ocean Wave Parameters from Wide Beam HF Radar (CODAR) Backscatter: Application at Lumsden, *Proc. Ports and Oceans under Arctic Conditions (POAC '91)*, St. John's, Canada, pp. 997-998, 1991.

#### **Radiowave Oceanography Workshop Contributions**

This is an international 4-day workshop of 35 to 40 HF radar experts and users (mainly physicists and engineers) where the latest models and applications of the science and technology associated with the remote sensing of the oceans via HF radar, as well as required research directions, are discussed. While it is **not a 'refereed'** workshop, it is probably the single most important venue for the dissemination of research expertise in this field and input is invited from a small group of experts. Our group at Memorial University is among a minority of participants who are deeply involved with the basic and applied science underlying the technology.

- [70] Norga, M., C. Shen, **E. Gill**, and W. Huang, Scattering of High Frequency Electromagnetic Radiation in a Noisy Environment and Simulation of HF Radar Cross Sections for Swell Contaminated Seas, *Radiowave Oceanography 11<sup>th</sup> International Workshop*, Toulon, France, 2012 (Invited Presentation).

- [71] Walsh, J., J. Zhang, and **E. Gill**, Ocean Cross Section Characteristics for FMCW Waveforms, *Radiowave Oceanography 10<sup>th</sup> International Workshop*, Mount Hood, Oregon, USA, 2010. (Invited Paper).
- [72] Walsh, J., **E. Gill**, and W. Huang, Further Analysis of Antenna Platform Motion, *Radiowave Oceanography 9<sup>th</sup> International Workshop*, Split, Croatia, 2009. (Invited Paper).
- [73] Zhang, J., **E.W. Gill**, and J. Walsh, A Consideration of Bragg Fluctuations in High Bandwidth FMCW Spectra and Other Recent Results, *Radiowave Oceanography 8<sup>th</sup> International Workshop*, Honolulu, Hawaii, 2008. (Invited Paper).
- [74] Zhang, J., **E.W. Gill**, and J. Walsh, The Effect of Transmitter Pulse Width on Bragg Positions in Pulsed Doppler Radar, *Radiowave Oceanography 6<sup>th</sup> International Workshop*, Hamburg, Germany, 2006. (Invited Paper).
- [75] Zhang, J., **E. Gill**, D. Green, and J. Walsh, 2005. Examination of Fluctuations in the Bragg Peaks Under the Assumption of a Stationary Gaussian Process and Other Recent Developments, *Radiowave Oceanography 5<sup>th</sup> International Workshop*, Costanoa, California, May, 2005. (Invited Paper).
- [76] **Gill, E.W.**, W. Huang, and J. Walsh, HF Surface Wave Radar in the Eastern Canada Context – Toward Bistatic Operation, *Radiowave Oceanography 4<sup>th</sup> International Workshop*, Magnetic Island, Townsville, Australia, 2004. (Invited Paper).
- [77] **Gill, E.W.**, and J. Walsh, A Note on Near-forward Scattering in the Context of HF Bistatic Radar Operating in a Marine Environment. *Radiowave Oceanography 2<sup>th</sup> International Workshop*, Landeda, France, 2003. (Invited Paper).

#### **Other Conference/Workshop Contributions**

(All, but one, of the following were presentations at the local yearly Newfoundland Electrical and Computer Engineering Conference (*NECEC*) and appear in the Proceedings.)

- [78] Al-Habashneh, C. Moloney, **E. Gill**, Marine Radar Image Processing Using Polar Fourier Transform, *IEEE NECEC Conference*, Newfoundland, Canada, 2012.
- [79] M. Norga, **E. Gill**, The Scattering of High Frequency Electromagnetic Radiation From the Ocean Surface-A Time Domain Model Incorporating Additive White Gaussian Noise Model and a Pulse Signal *IEEE NECEC Conference*, Newfoundland, Canada, 2012.
- [80] J. An, W. Huang, **E. Gill**, Extraction of Fundamental Wave Components Information from X-band Nautical Radar Images, *IEEE NECEC Conference*, Newfoundland, Canada, 2012.
- [81] C. Shen, **E. W. Gill**, W. Huang, “The shallow water HF radar cross sections for swell contaminated seas”, *IEEE NECEC Conference*, Newfoundland, Canada, 2012.

- [82] Al-Habashneh, A., C. Moloney, **E. Gill**, 3D Fourier transform methods for estimating sea state from marine radar signals, *IEEE NECEC*, St. John's, Newfoundland, 2011.
- [83] An, J., W. Huang, and E. Gill, Numerical Simulation of X-Band Marine Radar Imaging, *IEEE NECEC*, St. John's, Newfoundland, 2011. (**Oceanic Eng. Soc. Paper First Prize Award**)
- [84] **Gill, E.W.**, High Frequency Radar Ocean Surface Operations in Placentia Bay and Beyond, *IEEE NECEC*, St. John's, Newfoundland, 2010.
- [85] Walsh, J., W. Huang, Andrew Myrden, and **E.W. Gill**, The Second-order HF Radar Cross Section for an Antenna with Barge Motion, *IEEE NECEC*, St. John's, Newfoundland, 2008.
- [86] Zhang, J., E. W. Gill, J. Walsh, and K. Gurgel Comparison of Simulated HF Radar Data with Field Data for a Frequency Modulated Continuous Wave (FMCW) Source, *IEEE NECEC*, St. John's, Newfoundland, 2008. (**Best Student Paper Award**)
- [87] Zhang, J., **E.W. Gill**, and J. Walsh, HF Radar Remote Sensing with Frequency Modulated Sources, *IEEE NECEC*, St. John's, Newfoundland, 2007.
- [88] Walsh, J., **E.W. Gill**, and W. Huang, Analytical Considerations for High Frequency Surface Wave Radar Operating from a Moving Ocean Platform, *IEEE NECEC*, St. John's, Newfoundland, 2007. (**Best Industry Paper Award**)
- [89] Hickey, K., **E.W. Gill**, and J. Walsh, Modeling the Ocean Clutter for Ship Detection Purposes Using a Narrow-beam High Frequency Ground Wave Radar System: A Heuristic Approach, *IEEE NECEC*, St. John's, Newfoundland, 2007.
- [90] Zhang, J., **E.W. Gill**, and J. Walsh, J., The Fluctuations of the First-order Peaks When HF Radar is Used in Ocean Surface Current Measurement, *IEEE NECEC*, St. John's, Newfoundland, St. John's, Newfoundland, Canada, 2006.
- [91] Jin, Q., and **E.W. Gill**, Extraction of Ocean Surface Current Velocity from Simulated Bistatic Radar Data, *IEEE NECEC*, St. John's, Newfoundland, Canada, 2005.
- [92] Hickey, K., **E. Gill**, and J. Walsh, J., A Spectral Estimation Technique for the Extraction of Small Ocean Surface Currents Using a Narrow-beam High-Frequency Ground Wave Radar, *IEEE NECEC*, St. John's, Newfoundland, 2005.
- [93] Green, D., and **E.W. Gill**, Extracting Wind Information from HFGWR Oceanic Backscatter (Part 2), *IEEE NECEC*, St. John's, Newfoundland, 2004.
- [94] Zhang, J., and **E.W. Gill**, Time Series of a Backscattered Vertically Polarized HF Electric Field from the Ocean Surface, *IEEE NECEC*, St. John's, Newfoundland, 2004.

- [95] Zhang, J., and **E.W. Gill**, Extraction of Ocean Wave Information from Simulated Noisy Bistatic High Frequency Radar Spectra, *IEEE NECEC*, St. John's, Newfoundland, 2003.
- [96] Sircar, S., D. Power, C. Randell, J. Youden, and **E. Gill**, Fusion of Ascending and Descending Pass D-InSAR Pairs for Lateral Ground Movement Measurements: Technique and Validation with Synthetic Data, *IEEE NECEC*, St. John's, Newfoundland, 2003.
- [97] Churchill, S., C. Randell, D. Power, and **E. Gill**, Data Fusion: Associations of Detections for Multiple Hypothesis Tracking using Remote Sensing, *IEEE NECEC*, St. John's, Newfoundland, 2003.
- [98] Huang, W., **E.W. Gill**, and J. Walsh, Verification of the Second-Order HF Bistatic Radar Cross Section of "Patch Scatter" on Ocean Surface, *IEEE NECEC*, St. John's, Newfoundland, 2003.
- [99] Green, D.W., and **E. Gill**, Extraction of Wind Speed from High Frequency Ground Wave Radar Second Order Cross Section, *IEEE NECEC*, St. John's, Newfoundland, 2003.
- [100] Bobby, P. and **E. Gill**, On the Use of the Continuity Equation for Vector Current Extrapolation using HF Radar, *IEEE NECEC*, St. John's, Newfoundland, 2002.
- [101] Hickey, K., **E. Gill**, and J. Walsh, Vector Surface Currents Using a Long-Range, High-Frequency Radar Station: A Practical Approach, *IEEE NECEC*, St. John's, Newfoundland, 2002.
- [102] Sircar, S., D. Power, J. Youden, **E. Gill**, and P. Han, Lateral Movement Estimation from Space-borne Radar by Differential Interferometry, *IEEE NECEC*, St. John's, Newfoundland, 2002.
- [103] Zhang, J., and **E. Gill**, Extraction of Ocean Wave Information from Simulated High Frequency Bistatic Radar Data, *IEEE NECEC*, St. John's, Newfoundland, 2002.
- [104] Churchill, S., C. Randell, D. Power, and **E. Gill**, Toward Fusion of Satellite SAR and other Remotely Sensed Marine Data for Wide-Area Operational Monitoring, *IEEE NECEC*, St. John's, Newfoundland, 2001.
- [105] Hickey, K., **E. Gill**, and J. Walsh, Ocean Surface Current Mapping Using a Dual, Long-Range, High-Frequency Ground Wave Radar System, *IEEE NECEC*, St. John's, Newfoundland, 2001.

- [106] **Gill, E.W.**, J. Walsh, and P. Bobby, Characterization of External Noise Limitations in the Operation of Pulsed HF Ground Wave Radar, *IEEE NECEC*, St. John's, Newfoundland, 2000.
- [107] **Gill, E.W.**, and J. Walsh, An Investigation of the Significant Portions of the High Frequency Bistatic Ground Wave Radar Cross Sections of a Highly Conducting, Slightly Rough Time Varying Surface, *IEEE NECEC*, St. John's, Newfoundland, 1998.
- [108] Walsh, J., B.J. Dawe, and **E.W. Gill**, An Investigation of the First-order Bistatic Radar Cross Section of the Ocean Surface, *IEEE NECEC*, St. John's, Newfoundland, 1996.
- [109] **Gill, E.W.**, K. Hickey, J. Helbig, and J. Walsh, Radial Surface Current Measurement Using an FMICW Ground Wave Radar: Validation Against Current Drifters on the Grand Banks, *IEEE NECEC*, St. John's, Newfoundland, 1994.
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- [112] **Gill, E.W.**, Measurement of Ocean Waves and Surface Currents with HF Radar. Radar Workshop (Radar and Remote Sensing), Institute for Aerospace Studies, Toronto 1992. (Invited Paper).
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**In Preparation for Submission or Submitted to International Conferences:**

**Other Publications**

- [115] Hart, D., D. Power, D. Green, A. Macneill, E.W. Gill, B. Kidney, **M. Norga** Assessment of HF Radar for Significant Wave Height Determination, C-CORE Report R-13-109-1037, 2013. [\$50k]
- [116] **Zhang, J.**, E.W. Gill, Application of High Frequency Radar Models to the Problem of Early Warning for Tsunamis, prepared for Helzel, Messtechnik GmbH, Kaltenkirchen, Germany, 2009. [\$26.6k]

- [117] **Gill, E.W.**, The Scattering of High Frequency Electromagnetic Radiation from the Ocean Surface: An Analysis Based on a Bistatic Ground Wave Radar Configuration. Ph.D. thesis, Memorial University of Newfoundland, St. John's Newfoundland, Canada. (Received the **\*Governor-General's Gold Medal in Graduate Studies** and the **\*\*Dunsiger Award for Thesis Excellence** (Engineering and Applied Science)), 1999.
- [118] Hickey, K., **E.W. Gill**, J. Walsh, and R. Khan, Ocean Surface Parameter Data from the Northern Radar Cape Race Ground Wave Radar System, Contract Report, Northern Radar Systems Limited, 93-C5, 1993.
- [119] Hickey, K., **E.W. Gill**, J. Walsh, and B.J. Dawe, Results of the Surface Current and Waves Measurement Program Using the Northern Radar Cape Race Ground Wave Radar System, Contract Report for Dept. of Fisheries and Oceans, Northwest Atlantic Fisheries Centre, St. John's, Canada, 1992.
- [120] **Gill, E.W.**, An Algorithm for the Extraction of Ocean Wave Parameters from Wide Beam HF Radar (CODAR) Backscatter. M.Eng. thesis, Memorial University of Newfoundland, St. John's Newfoundland, Canada. (Received the **Dunsiger Award for Thesis Excellence** (Engineering and Applied Science)), 1990.

\* The **Governor-General's Gold Medal** is a University-wide honour awarded for the highest academic standing in the doctoral program.

\*\* The **Dunsiger Award for Thesis Excellence** is the highest honour of the Faculty of Engineering and Applied Science awarded for excellence in graduate studies.

## **GRADUATE STUDENTS SUPERVISED OR CO-SUPERVISED**

- [1] Liu, Y., 2012-present. Studies in Marine Radar Remote Sensing. (M.Eng.)
- [2] Chen, S., 2012-present. Ionospheric Clutter Investigations for High Frequency Radar. (Ph.D.)
- [3] Ryan, B., 2011-present. High Frequency Radar for Ice and Ice Berg Remote Sensing. (fast-track M.Eng.)
- [4] Norga, M., 2011-present. Further Studies in HF Radar as an Ocean Remote Sensor (M.Eng.).
- [5] Shen, C., 2011-present. Refinements to Ocean Surface Current Measurements with HF Radar.
- [6] An, J., 2010-present. Ocean Wave Directional Spectra Using Marine Radar (M.Eng.).

- [7] Hansen, N., 2010-present. Small Targets in the Presence of Marine Radar Ocean Clutter (Ph.D.).
- [8] Al-Habashneh, A., 2010-present. Image Processing of Marine Radar Data for Ocean Surface Applications (Ph.D.).
- [9] Hickey, K., 2001-present (on medical leave). Clutter Suppression Schemes for HF Radar Sea Echo (Ph.D.).
- [10] Churchill, S., 2002-2009. Multisensor Fusion for Ocean Target Detection (M.Eng.).
- [11] Power, C., 2002-2009. Emergency Personnel Locator Using RFID in Harsh Environments (M.Eng.). (withdrew from program)
- [12] Rowsell, D., 2002-2009. UHF Radar Detection of Small Ocean Targets (M.Eng.).
- [13] Pittman, M., 2003-2010. Rough Surface Scattering – Removal of the Slope Constraint (M.Eng.). (withdrew from program)
- [14] Zhang, J., 2004-2009. On the Variability of Doppler Spectra in HF Radar Remote Sensing over the Ocean Surface (Ph.D.).
- [15] Jin, Q., 2004-2007. Design of Models for Measuring Surface Currents Using Bistatic HF Radar (M.Eng.).
- [16] Crane, B., 2005-present. Ocean Parameter Analysis and Validation with HF Surface Wave Radar (M.Eng.).
- [17] Green, D., 2002-2005. Extraction of Wind Speed and Direction from HFGWR Data (M.Eng.). Winner of the David Dunsiger Award for Excellence in Graduate Studies (Engineering)
- [18] Huang, W., 2002-2004. The Second-order HF Bistatic RCS for Ocean Patch Scatter (M.Eng.).
- [19] Sircar, S., 2002-2004. Measuring Lateral Ground Movement with DIN-SAR (M.Eng.).
- [20] Zhang, J., 2001-2004. An Algorithm for the Extraction of Ocean Wave Information from Bistatic HF Groundwave Radar Data – A simulation (M.Eng.).

- [21] Bobby, P., 2000-2003. Estimation of Vector Surface Currents Beyond the Region of Overlap of Dual-Site HF Radar: An Implementation of the Continuity Equation (fast-track M.Eng.).

#### **POST-DOCTORAL FELLOWS SUPERVISED**

- [1] Weimin Huang, September 2004 - April 2007.
- [2] Jianjun Zhang, June 2010 - June 2011.
- [3] Wei Wang, May 2012 –

#### **NSERC UNDERGRADUATE STUDENTS SUPERVISED**

- [1] Nhac Nguyen, September 2013 – December 2013
- [2] Bernard Ryan, September 2010 – December 2010
- [3] Andrew Myrden, September 2008 – December 2008