

## David Dalton

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### Highlights

- Applied mathematician, geophysicist, acoustical physicist, computer resource person
- Proofreader for English and Math
- Tutor for math or earth sciences
- Library and internet researcher
- Adaptive, flexible problem solver and able to generate creative ideas
- Fast learner in new areas of learning, including new software packages
- Excellent technical writing and editing skills
- 35 years of experience on a variety of computer systems, such as Macintosh, Windows, Sun Workstations (Unix), DOS, Vax/VMS mainframe and MTS/Amdahl mainframe and a Redhat Linux box with KDE window manager.

### Education and Awards

- **2018: Ph.D. in Earth Sciences (Geophysics) at MUN** (Memorial University of Newfoundland), granted May, 2018, with a thesis entitled “On Backus average in modelling guided waves”.
- **1988: M.Sc. in Geophysics at UBC** (The University of British Columbia), granted May, 1988, with a thesis on “Derivation and Practical Application of Exact Time-Domain Solutions for Diffraction of Acoustic Waves by a Half Plane”.
- **1985: B.Sc. (Hons.) in Earth Sciences (Geophysics) at MUN** (Memorial University of Newfoundland), granted May 1985, with a thesis on “Geomagnetic Core-Mantle Coupling and the Associated Decade Fluctuations in the Length of the Day”.
- **2002—2004: Ph.D. Residency Geophysics Program**  
Memorial University of Newfoundland  
Successfully defended a thesis proposal and candidacy examination.  
Proposal title "Seismic propagation in elastic media: A study of equations of motion by method of characteristics, principal symbols and Fourier-integral operators".
- **1988—1995: Ph.D. Residency Geophysics**  
University of British Columbia  
Conducted and presented a research project on “Integral Equation Modeling of Acoustic Diffraction From Cylindrical Shapes”.
- **1980---1992 Scholarships and Awards** total approximate value \$127,000, including the NSERC 1967 Scholarship, the Newfoundland Offshore Development Fund Career

Graduate Fellowship, the Petro-Canada Graduate Fellowship, and the 1985 MUN graduating class Earth Sciences Gold Medal.

### Computer-Related Skills

- Knowledgeable in Fortran, TeX, Maple, Mathematica programming.
- Adept in the installation and troubleshooting of software after acting as a volunteer resource person for other students and faculty in computer software, operating system and some hardware questions.
- Compiled, installed and maintained the scientific document processing and other packages TeX, LaTeX, MetaFont, dvips, xdvi, gnuplot, AucTeX, international ispell, gnus, zsh and other public domain programs for users on the UBC G&A Sun network.
- Experienced with much software, including word processors such as TeX, LaTeX, Scribe, MS-Word, Word Perfect, ArborText's Publisher, SunWrite (later named IslandWrite), MacWrite, WordPad; editors such as GNU emacs, NotePad, MTS edit, DEC EDT; graphic editors such as xfig, IslandDraw; mathematical packages Maple, Mathematica.
- Proficient with Internet navigation, information retrieval and online promotion and publicity, including Usenet newsgroups, mailing lists, web pages, web forums, telnet, file transfer protocol sites, gopher, Facebook, Twitter, and LinkedIn.

### Scientific Related Skills

- Geophysical training includes seismic diffraction and seismic anisotropy and other aspects of geophysics, physics, geology, applied mathematics, computer programming, electrical engineering, acoustics, digital signal processing, oceanography, technical writing and more.

### Publications

- 2018: Bogacz, A., Dalton, D.R., Danek, T., Miernik, K., and Slawinski, M.A. (2018) “On Pareto Joint Inversion of guided waves”, arXiv:1712.09850v4 [physics.geo-ph]. Submitted to *Journal of Applied Geophysics*, April, 2018.
- 2018: Dalton, D.R., Meehan, T.B., and Slawinski, M.A. (2018) “On Backus average in modelling guided waves”, arXiv:1801.05464v2 [physics.geo-ph]. Submitted to *Journal of Applied Geophysics*, March, 2018.
- 2018: Bos, L., Dalton, D.R., and Slawinski, M.A. (2018) “On commutativity and near commutativity of translational and rotational averages: Analytical proofs and numerical examinations” arXiv: 1704.05541v3 [physics.geo-ph], accepted by *Journal of Elasticity* fall 2018.
- 2017: Dalton, D.R., Slawinski, M.A., Stachura, P., and Stanoev, T. (2017) “Sensitivity of Love and quasi-Rayleigh waves to model parameters”, *The Quarterly Journal of Mechanics and Applied Mathematics*, 70(2): 103—130.

- 2017: Bos, L., Dalton, D.R., Slawinski, M.A., and Stanoev, T. (2017) “On Backus average for generally anisotropic layers”, *Journal of Elasticity*, 127(2): 179—196.
- **1990:** Dalton, D.R. and Yedlin, M.J. (1990) “ARMA Implementation of Diffraction Operators with Inverse-root Singularities”, *IEEE Trans. AP* 38, 831-837.
- **1989:** Dalton, D.R. and Yedlin, M.J. (1989) “Exact Time-Domain Solutions for Acoustic Diffraction by a Half Plane”, *Surveys in Geophysics* 10, 305-330. This was also published in the book: *Aspects of Seismic Reflection Data Processing*, ed. R. Marschall (Prakla-Seismos)., and in the SEG book: *Seismic Diffraction*.
- **1989:** Yedlin, M.J. and Dalton, D.R. (1989) “Diffraction Coefficient Formulation of an Exact Solution for Acoustic Diffraction by a Half Plane”, In: Malik, S.K. and Graham, G.A.C. (eds.), *Continuum Mechanics and its Applications*, 99-107, Hemisphere Publishing Corporation, N.Y.

#### Conference Presentations

- **1991:** “Integral Equation Techniques Applied to Grid Construction in Acoustic Diffraction Modeling”, presented at the 1991 CGU (Canadian Geophysical Union) Annual Meeting in Banff, Alberta.
- **1988:** Dalton, D.R. and Yedlin, M.J. “Exact Time-Domain Solutions for Acoustic Diffraction by a Half Plane”, presented at the 58<sup>th</sup> Annual (1988) SEG (Society of Exploration Geophysicists) meeting in Anaheim.

#### Employment History

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|--------------------------------------|-------------------------|-------------|
| • Research Assistant (part-time)     | MUN Earth Sciences      | 2019--2022  |
| • Graduate Research                  | MUN Earth Sciences      | 2015--2018  |
| • Teaching Assistant (part-time)     | MUN Earth Sciences      | 2015--2017  |
| • Research Assistant (part-time)     | MUN Earth Sciences      | 2013--2015  |
| • Research Assistant (part-time)     | MUN Earth Sciences      | 2006--2011  |
| • Teaching Assistant (part-time)     | MUN Earth Sciences      | 2002--2004  |
| • Graduate Research                  | MUN Earth Sciences      | 2002--2004  |
| • Graduate Research                  | UBC Geophysics          | 1985--1995  |
| • Live Music Coordinator (part-time) | UBC Grad Student Centre | 1991--1994  |
| • Teaching Assistant (part-time)     | UBC Geophysics          | 1988--1989  |
| • Seismic Field Crew Surveyor        | MUN Earth Sciences      | summer 1985 |
| • Seismic Reflection Modeller        | Chevron Canada, Calgary | summer 1984 |
| • Aeromagnetic Researcher            | MUN Earth Sciences      | summer 1983 |