

Dr. GINA H. MOHAMMED

66 Millwood Street,
Sault Ste. Marie, Ontario
CANADA P6A 6S7

Tel: 705-946-2882
E-mail: g-m@pmttech.ca
Website: www.GinaMohammed.com

Education

- **Ph.D.** (1990) – Plant Physiology – Simon Fraser University, Canada
- **B.Sc.** (1981) – Biology – University of Toronto, Canada

Career Summary

- **Research Director & Co-Owner**
P & M Technologies, Sault Ste. Marie, Ontario, Canada
2000 – Present
- **Research Scientist**
Ontario Forest Research Institute, Ontario Ministry of Natural Resources,
Sault Ste. Marie, Ontario, Canada
1990 – 2000
- **Research Scientist**
AgriForest Technologies / Kelowna Nurseries, Kelowna, British Columbia, Canada
1982 – 1990
- **Science & Health Writer**
Magazines, newspapers, online sources.
1999 – Present
Topics: natural health approaches, herbs & nutrition, botanical medicine,
non-traditional forest products, eco-friendly products, gardening, business ideas
from plants & forests, inspirational.

Some Recent Activities

- Science advisor to European Space Agency's *Fluorescence Explorer (FLEX)* Mission Advisory Group (MAG)
- Study Manager (Principal Investigator) for various ESA FLEX Study Projects
- Science Committee member for ESA's conference on *Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status* (January 2017)
- Lead author on a retrospective review of solar-induced chlorophyll fluorescence

Science Projects

- Bioenergy & biofuel business opportunities and sustainable use
 - Bioindicators of forest condition and sustainability
 - Canopy fluorescence model development and testing
 - Chlorophyll fluorescence for stress evaluation of agricultural crops
 - Chlorophyll fluorescence for stress evaluation of aquatic plants
 - Chlorophyll fluorescence for stress evaluation of forest vegetation
 - Commercialization of plant micropropagation methods
 - Database of non-timber forest products (NTFPs) from Canadian forest species
 - Fluorescence Explorer (FLEX) satellite mission (*aka* Earth Explorer 8)
 - FLEX/Sentinel-3 Tandem Mission Photosynthesis Study for ESA
 - FLEX Bridge Study for ESA
 - Foliar spectral reflectance signatures in Canadian plant species (unstressed/stressed)
 - Forest condition rating using remote and ground-based physiological methods
 - Hyperspectral remote sensing of terrestrial vegetation
 - Improved stress resistance and field performance in Canadian conifers
 - Medicinals and natural health products from Canadian plants
 - New industrial uses for renewable resources in agriculture
 - Non-timber forest products – sustainable approaches
 - Non-timber forest products, Canada – business opportunities, commercial approaches
 - Non-timber forest products in Ontario – overview
 - Non-timber forest products in Alaska
 - Northern Ontario Biotechnology Innovation Plan
 - Novel seed viability test development – fluorescein diacetate
 - Pharmaceutical prospects for Ontario weed species
 - Physiological & structural requirements for stress acclimation of tissue-culture plants
 - Physiological aspects of competition tolerance in forest tree species
 - Physiological indicators of tree genetic improvement
 - Physiological techniques for plant quality assessment
 - Practical applications of chlorophyll fluorescence in research and industry
 - Remote sensing of chlorophyll fluorescence – methods development
 - Space-based technologies for remote sensing of terrestrial vegetation condition
 - Stress development and resistance in plants – structural and functional aspects
 - Sustainable use of forest biomass for bioproducts and bioenergy
 - Tissue culture and micropropagation techniques development for forest tree species
 - Traditional and novel uses of Canadian forest species
 - Wood fibre opportunities for northern tree species
-

Clients & Collaborators

- Academy of Sciences, Czech Republic – Global Change Research Centre (CzechGlobe), Czech Republic
 - Applied Physics Institute "Nello Carrara", Italy
 - British Columbia Ministry of Forests, Canada
 - Centre for Research in Earth and Space Technology, Canada
 - European Space Agency (ESA), ESTEC, The Netherlands
 - Forschungszentrum Jülich, Germany
 - Great Lakes Forestry Centre, Canadian Forest Service
 - Institute for Sustainable Agriculture, National Research Council, Spain
 - Laboratoire de Météorologie Dynamique (CNRS-LMD), France
 - Lakehead University, Canada
 - Mikro-Tek, Canada
 - National Aeronautics & Space Administration (NASA), USA
 - National Aerospace Laboratory, The Netherlands
 - National Research Council, Industrial Research Assistance Program, Canada
 - Noveltis, France
 - Ogden Publications (Herbs For Health Magazine), USA
 - Ontario Forest Research Institute, Canada
 - Ontario Ministry of Agriculture and Food, Canada
 - Ontario Ministry of Natural Resources, Canada
 - Organization for Economic Cooperation and Development, International
 - Queen's University (Dept of Geography), Canada
 - Plant Biotechnology Institute, National Research Council, Canada
 - Sault College, GIS Specialist Program, Canada
 - Shaw Development Consultants, Canada
 - SHI Consulting, Canada
 - United States Department of Agriculture, USA
 - University College London (Dept of Geography), England
 - University of Bologna (Dept of Fruit Tree and Woody Plant Science), Italy
 - University of Calgary (Dept of Biological Sciences), Canada
 - University of Milano-Bicocca (Dept of Earth & Environmental Sciences), Italy
 - University of Paris (LURE), France
 - University of Toronto (Dept of Forestry), Canada
 - University of Twente (Geo-Information Science & Earth Observation), Netherlands
 - University of Valencia (Dept of Earth Sciences and Thermodynamics), Spain
 - University of Waterloo (Dept of Biology), Canada
 - University of Zurich (Dept of Geography Remote Sensing Laboratories), Switzerland
 - Weyerhaeuser, USA
 - York University (Dept of Physics and Astronomy), Canada
-

Career Highlights & Accomplishments

Keynote addresses

- Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status (ESA) – Frascati, Italy, January 17-19, 2017
- Non-Timber Forest Products in Alaska – Hidden Forest Values Conference, Anchorage, Alaska, November 8-9, 2001
- Making the Grade (IUFRO) – An international symposium on planting stock performance and quality assessment, Sault Ste. Marie, Ontario, September 11-15, 1994

Peer reviews for scientific journals

- Remote Sensing of Environment
- New Forests
- Canadian Journal of Forest Research
- Plant Cell Reports
- Biotechnic & Histochemistry
- Plant Cell, Tissue and Organ Culture
- In Vitro Cellular and Developmental Biology - Plant
- Photochemical and Photobiological Sciences
- Journal of Photochemistry and Photobiology
- Sensors

Authorships and Publications

- Over 40 peer-reviewed journal papers
- Over 100 conference presentations, publications, and posters
- Over 25 technical reports (and a few non-refereed publications)
- Several reference & textbook chapters
- More than 25 magazine articles
- Lead author of a major review paper on solar-induced chlorophyll fluorescence
- Author of inspirational books and guides
- Author of *The Canadian NTFP Business Companion*

Participant in new & emerging technologies

- Satellite-based fluorescence in terrestrial vegetation
- Remote sensing of chlorophyll fluorescence
- Hyperspectral remote sensing
- Bioenergy & biofuels
- Applications of chlorophyll fluorescence in forestry and agriculture
- Plant physiological stress testing
- Seed viability testing (co-inventor of a novel seed viability test, FDA)
- Approaches for pre-visual plant stress testing

Committees and chairs (past)

- Fluorescence Explorer Mission Advisory Group – European Space Agency
- Past Chair, Board of Governors, Sault College
- Past Chair, Building & Finance Committee, Sault College
- Member, Nominating and Audit Committees, Sault College
- Member, GIS Specialist Program Advisory Committee, Sault College (1999-2000)
- Past Chair, Canadian Tree Physiology Award Committee – Canadian Society of Plant Physiologists
- Board of Directors, Lakehead University Seedling Technology Research Cooperative
- Founder & Chair, Chlorophyll Fluorescence Working Group (International)
- Member, Ontario New Industrial Uses for Renewable Resources Committee
- Member, organizing committee, 12th North American Forest Biology Workshop
- Member, organizing committee, Non-Timber Forest Products Conference (Algoma)
- Member, graduate student committees – *See Academic Affiliations (below)*
- Member, OMNR Science Soundness and Relevance Committee
- Member, science committee, 5th International Workshop on Remote Sensing of Vegetation Fluorescence
- Member, science committee, Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status (Italy)

Conference session chairs

- 5th International Workshop on Remote Sensing of Vegetation Fluorescence – Session 1: Relationship Between Fluorescence and Photosynthesis, Paris, April 2014
- Non-Timber Forest Products in Alaska – Hidden Forest Values Conference, Anchorage, Alaska, November 2001
- Forest Management Impacts on Ecosystem Processes – 14th North American Forest Biology Workshop, Québec City, Québec, June 1996
- Making the Grade (IUFRO) – An international symposium on planting stock performance and quality assessment, Sault Ste. Marie, Ontario, September 1994
- The Role of Physiology and Genetics in Forest Ecosystem Research and Monitoring – 12th North American Forest Biology Workshop, Sault Ste. Marie, Ontario, August 1992

Science advisories

- European Space Agency – Fluorescence Explorer (FLEX) Mission Advisory Group
- FLEX panel member at ESA's *Earth Explorer 8 (EE8)* User Consultation Meeting
- Ontario Forest Research Institute (OFRI) Science Advisory Team
- OFRI Core Team for Sustainable Forestry II Cabinet Submission
- OFRI Management Team
- IRAP Project – Chlorophyll Fluorescence and Performance of Northern Ontario Trees
- OMNR Nursery Problem Advisory Team
- Forest Research Advisory Council of Canada
- Canadian Space Agency (CSA), European Space Agency (ESA), and NASA
- Ontario Renewable Resource Research Grants Program
- Reviewer of Ontario and Canadian research grant proposals
- Reviewer of U.S. federal grant proposals
- Reviewer of earth science research proposals for NASA

Awards and honours

- Certificates of Recognition for Scientific Achievement – Ontario Forest Research Institute
- 'Best All-Around Scientist' Award – Ontario Forest Research Institute
- British Columbia Chamber of Commerce Award “Best new made-in-BC product”, awarded to our research group at AgriForest Technologies Ltd.
- Fellowship – Organization for Economic Cooperation & Development

Media exposure

- Plant physiology expert on CBC Radio's *Quirks & Quarks* science program
- Featured scientist in the British Columbia Pavilion movie “*Our BC*” at EXPO '86
- National & local TV, radio, and newspaper interviews

Academic affiliations

- Adjunct Professor at University of Waterloo (Biology) (1993-2000)
 - Member of graduate student committees at University of Waterloo, York University, and Royal Roads University
 - External examiner for Lakehead University
-

Summary of Publications

- Peer-reviewed journal papers: 41
 - Reference & business guides: 1
 - Textbook chapters: 6
 - Technical reports: 26
 - Technical response letters: 1
 - Conference presentations: 104
 - Keynote presentations: 3
 - Consumer magazine articles: 27
-

Journal Papers

- Mohammed, G.H., Colombo, R., Middleton, E.M., Rascher, U., van der Tol, C., Nedbal, L., Goulas, Y., Pérez-Priego, O., Damm, A., Meroni, M., Joiner, J., Cogliati, S., Verhoef, W., Malenovský, Z., Gastellu-Etchegorry, J., Miller, J.R., Guanter, L., Moreno, J., Moya, I., Berry, J.A., Frankenberg, C., and Zarco-Tejada, P.J. 2019. Remote sensing of solar-induced chlorophyll fluorescence (SIF) in vegetation: 50 years of progress. *Remote Sensing of Environment*. Vol 231. (Part of RSE's Special Issue "50 Years of Environmental Remote Sensing Research: 1969 – 2019")
- Drusch, M., Moreno, J., Del Bello, U., Franco, R., Goulas, Y., Huth, A., Kraft, S., Middleton, E., Miglietta, F., Mohammed, G., Nedbal, L., Rascher, U., Schuttemeyer, D. and Verhoef, W. 2017. The FLUorescence EXplorer (FLEX) mission concept – ESA's Earth Explorer 8 (EE8). *IEEE Transactions on Geoscience and Remote Sensing*. 55(3): 1273-1284.
- Van der Tol, C., Rossini, M., Cogliati, S., Verhoef, W., Colombo, R., Rascher, U., Mohammed, G. 2016. A model and measurement comparison of diurnal cycles of sun induced chlorophyll fluorescence of crops. *Remote Sensing of Environment*. 186: 663-677.
- Verrelst, J., Van der Tol, C., Magnani, F., Sabater, N., Rivera, J.P., Mohammed, G., and Moreno, J. 2016. Evaluating the predictive power of sun-induced chlorophyll fluorescence to estimate net photosynthesis of vegetation canopies: A SCOPE modelling study. *Remote Sensing of Environment*. 176: 139-151.
- Ač, A., Malenovský, Z., Olejníčková, J., Gallé, A., Rascher, U. and Mohammed, G. 2015. Meta-analysis assessing potential of steady-state chlorophyll fluorescence for remote sensing detection of plant water, temperature and nitrogen stress. *Rem. Sen. Environ*. 168: 420-436.
- Verrelst, J., Rivera, J.P., Van der Tol, C., Magnani, F., Mohammed, G. and Moreno, J. 2015. Global sensitivity analysis of SCOPE v1.53 model: What drives canopy-leaving sun-induced fluorescence? *Rem. Sen. Environ*. 166: 8-21.
- Zarco-Tejada, P.J., Miller, J.R., Harron, J., Hu, B., Noland, T.L., Goel, N., Mohammed, G.H. and Sampson, P.H. 2004. Needle chlorophyll content estimation through model inversion using hyperspectral data from Boreal Conifer Forest Canopies. *Rem. Sen. Environ. (BOREAS Special Issue III)* 89: 189-199.
- Sampson, P.H., Zarco-Tejada, P.J., Mohammed, G.H., Miller, J.R., and Noland, T.L. 2003. Hyperspectral remote sensing of forest condition: Estimation of chlorophyll content in tolerant hardwoods. *For. Sci.* 49(3): 381-391.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2002. Vegetation stress detection through Chlorophyll a+b estimation and fluorescence effects on hyperspectral imagery. *J. Environ. Qual.* 31: 1433-1441.
- Noland, T.L., Mohammed, G.H. and Seymour N.H. 2001. An improved fluorescein diacetate seed viability test for jack pine, black spruce, and white spruce. *Seed Sci. Technol.* 29: 509-516.
- Noland, T.L., Mohammed, G.H. and Wagner R.G. 2001. Morphological characteristics associated with tolerance to competition from herbaceous vegetation for seedlings of jack pine, black spruce, and white pine. *New For.* 21: 199-215.
- Sampson, P.H., Treitz, P.M. and Mohammed G.H. 2001. Remote sensing of forest condition in tolerant hardwoods: An examination of spatial scale, structure, and function. *Can J. Remote Sensing* 27(3): 232-246.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2001. Estimation of chlorophyll fluorescence under natural illumination from hyperspectral data. *International Journal of Applied Earth Observation and Geoinformation (JAG) (Special Issue on Applications of Imaging Spectroscopy)* 3(4): 321-327.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2001. Scaling-up and model inversion methods with narrow-band optical indices for chlorophyll content estimation in closed forest canopies with hyperspectral data. *IEEE Transactions on Geoscience and Remote Sensing (Special Issue on Hyperspectral Remote Sensing)* 39(7): 1491-1507.
- Parker, W.C. and Mohammed, G.H. 2000. Photosynthetic acclimation of shade-grown red pine (*Pinus resinosa* Ait.) seedlings to a high light environment. *New Forests* 19(1): 1-11.
- Sampson, P.H., Mohammed, G.H., Zarco-Tejada, P.J., Miller, J.R., Noland, T.L., Irving, D., Treitz, P.M., Colombo S.J., Freemantle, J. 2000. The Bioindicators of Forest Condition Project: A physiological, remote sensing approach. *For. Chron.* 76(6): 941-952.

- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H. and Noland, T.L. 2000. Chlorophyll fluorescence effects on vegetation apparent reflectance: I. Leaf-level measurements and model simulation. *Rem. Sens. Environ.* 74(3): 582-595.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2000. Chlorophyll fluorescence effects on vegetation apparent reflectance: II. Laboratory and airborne canopy-level measurements with hyperspectral data. *Rem. Sens. Environ.* 74(3): 596-608.
- Mohammed, G.H. and Parker, W.C. 1999. Photosynthetic acclimation in eastern hemlock (*Tsuga canadensis* (L.) Carr.) seedlings following transfer of shade-grown seedlings to high light. *Trees - Structure and Function* 13 (3): 117-124.
- Wagner, R.G., Mohammed, G.H. and Noland, T.L. 1999. Critical period of interspecific competition for northern conifers associated with herbaceous vegetation. *Can. J. For. Res.* 29(7): 890-897.
- Mohammed, G.H., Noland, T.L. and Wagner, R.G. 1998. Physiological perturbation in jack pine (*Pinus banksiana* Lamb.) in the presence of competing herbaceous vegetation. *For. Ecol. Manage.* 103: 77-85.
- Binder, W.D., Fielder, P. and Mohammed, G.H. 1997. Applications of chlorophyll fluorescence for stock quality assessment using different types of fluorometers. *New Forests* 13(1-3): 63-89.
- Mohammed, G.H. 1997. Making the grade: a synopsis. *New Forests* 13(1-3): 3-6.
- Mohammed, G.H. 1997. The status and future of stock quality assessment. *New Forests* 13(1-3): 491-514.
- Mohammed, G.H., Noland, T.L., Parker, W.C. and Wagner, R.G. 1997. Pre-planting physiological stress assessment to forecast field growth performance of jack pine and black spruce seedlings with stress-testing and physiological assessment. *For. Ecol. Manage.* 92: 107-117.
- Noland, T.L. and Mohammed, G.H. 1997. Fluorescein diacetate as a viability stain for tree roots and seeds. *New Forests* 14: 221-232.
- Noland, T.L., Mohammed, G.H. and Scott, M. 1997. The dependence of root growth potential on photosynthetic rate and root starch content in jack pine seedlings. *New Forests* 13(1-3): 105-119.
- Wagner, R.G., Noland, T.L. and Mohammed, G.H. 1996. Timing and duration of herbaceous vegetation control around four northern coniferous species. *N. Z. J. For. Sci.* 26 (1-2): 39-52.
- Menes, P.A. and Mohammed, G.H. 1995. Identifying the root collar on forest tree seedlings. *For. Chron.* 71(3): 304-310.
- Mohammed, G.H. 1995. Making the Grade – the keynote speaker's synopsis. *Seedling Physiol. Rep.* Winter 1995. pp.2-3.
- Mohammed, G.H., Binder, W.D. and Gillies, S.L. 1995. Chlorophyll fluorescence: a review of its practical forestry applications and instrumentation. *Scand. J. For. Res.* 10: 383-410.
- Mohammed, G.H., Gillies, S.L. and Vidaver, W.E. 1992. Ex vitro photosynthetic activity in plantlets of tissue-cultured Douglas-fir. *Tree Physiology* 10: 403-410.
- Mohammed, G.H. and Vidaver, W.E. 1991. Early development of Douglas-fir plantlets following transfer to the greenhouse. *Plant Science* 76: 259-265.
- Mohammed, G.H. and Vidaver, W.E. 1991. Plantlet morphology and the regulation of net water loss in tissue-cultured Douglas-fir. *Physiol. Plant.* 83: 117-121.
- Mohammed, G.H. and Vidaver, W.E. 1990. The influence of acclimatization treatment and plantlet morphology on early greenhouse-performance of tissue-cultured Douglas-fir [*Pseudotsuga menziesii* (Mirb.) Franco]. *Plant Cell, Tissue and Organ Culture* 21: 111-117.
- Mohammed, G.H., Patel, K.R. and Vidaver, W.E. 1989. The control of adventitious root production in tissue-cultured Douglas-fir. *Can. J. For. Res.* 19: 1322-1329.
- Mohammed, G.H. and Patel, K.R. 1989. Tissue culture micropropagation of Douglas fir. *New Forests* 3: 125-139.
- Mohammed, G.H. and Vidaver, W.E. 1988. Root production and plantlet development in tissue-cultured conifers. *Plant Cell, Tissue and Organ Culture* 14: 137-160.
- Dunstan, D.I., Mohammed, G.H. and Thorpe, T.A. 1987. Morphogenetic response of vegetative bud explants of adolescent and mature *Picea glauca* (Moench) Voss in vitro. *New Phytologist* 106: 225-236.
- Mohammed, G.H., Dunstan, D.I. and Thorpe, T.A. 1986. Influence of nutrient medium upon shoot initiation on vegetative explants excised from 15 to 18 year old *Picea glauca*. *N. Z. J. For. Sci.* 16(3): 297-305.
- Dunstan, D.I., Mohammed, G.H. and Thorpe, T.A. 1986. Shoot production and elongation on explants from vegetative buds excised from 17 to 20 year old *Pseudotsuga menziesii*. *N. Z. J. For. Sci.* 16(3): 269-282.
-

Reference & Business Guides

Mohammed, Gina H. 2011. *The Canadian NTFP Business Companion: Ideas, Techniques and Resources for Small Businesses in Non-Timber Forest Products & Services*. Sault Ste. Marie (Ontario): Candlenut Books. 867 pages. ISBN: 978-0-9731097-2-6 (CD-ROM).

Textbook Chapters

- Mohammed, G.H., Zarco-Tejada, P.J. and Miller, J.R. 2003. Applications of chlorophyll fluorescence in forestry and ecophysiology. Chapter 3, In: J.R. DeEll and P.M.A. Toivonen (Eds.) *Practical Applications of Chlorophyll Fluorescence in Plant Biology*. Dordrecht: Kluwer Academic Publishers, ISBN 1-4020-7440-9, pp. 79-124.
- Zarco-Tejada, P.J., Miller, J.R. and Mohammed, G.H. 2002. Remote sensing of solar-induced chlorophyll fluorescence from vegetation hyperspectral reflectance and radiative transfer simulation. Chapter 11, In: R.S. Muttiah (Ed.) *From Laboratory Spectroscopy to Remotely Sensed Spectra of Terrestrial Ecosystems*. Dordrecht: Kluwer Academic Publishers, ISBN 1-4020-0753-1, pp. 233-269.
- Mohammed, G.H., McLeod, G.R., Menes, P.A. and Timmer, V. 2001. Bareroot stock production. In: R.G. Wagner and S.J. Colombo (Eds.) *Regenerating the Canadian Forest: Principles and Practice for Ontario*. Markham: Fitzhenry & Whiteside, pp. 265-279.
- Mohammed, G.H., McLeod, G.R., Menes, P.A. and Timmer, V. 2001. A comparison of bareroot and container stock. In: R.G. Wagner and S.J. Colombo (Eds.) *Regenerating Ontario's Forests*. Markham: Fitzhenry & Whiteside, pp. 343-348.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T., and Sampson, P.H. 2000. Optical Indices as Bioindicators of Forest Condition from Hyperspectral CASI data. Chapter 10, In: J.L. Casanova (Ed.) *Remote Sensing in the 21st Century: Economic and Environmental Applications*. Rotterdam: Balkema.
- Dunstan, D.I., Mohammed, G.H. and Thorpe, T.A. 1986. Shoot primordia induction on bud explants from 12-15 year old Douglas fir: the requirement for BA and NH₄NO₃ in dormant collections. In: Moo-Young, M., Hasnain, S. and Lamptey, J. (eds.) *Biotechnology and Renewable Energy*. London, New York: Elsevier Applied Science Publishers, pp. 12-19.
-

Technical Reports

- Mohammed, G.H., Colombo, R., Moreno, J., van der Tol, C., Rascher, U.; Ač, A., Alonso, L., Celesti, M., Cogliati, S., Damm, A., Fawcett, D., Gomez-Dans, J., Henry, C., Lewis, P., MacBean, N., Magnani, F., Malaprade, J., Matveeva, M., Olejníčková, J., Pernokis, D., Pinto, F., Raddi, S., Rajh Vilfan, N., Rivera, J.P., Rossini, M., Sabater, N., Schickling, A., Tenjo, C., Verhoef, W., Verrelst, J., Servera, J.V.; and Drusch, M. 2016. FLEX/Sentinel-3 Tandem Mission FLEX Bridge Study. European Space Agency. ESTEC Contract No. 000112341/14/NL/FF/gp, Final Report, January 2016. 187 p. + CD/DVD.
- ESA. 2015. Report for Mission Selection: FLEX. ESA SP-1330/2 (2-volume series), European Space Agency, Noordwijk, The Netherlands. ISBN: 978-92-9221-428-9, July 2015. 197 p.
This report is based on contributions from the FLEX Mission Advisory Group (MAG): José Moreno (Chair), Yves Goulas, Andreas Huth, Elizabeth Middleton, Franco Miglietta, Gina Mohammed, Ladislav Nedbal, Uwe Rascher, and Wout Verhoef. Scientific content was compiled by Matthias Drusch, with additional contributions from Roberto Colombo, Micol Rossini, Dirk Schüttemeyer, and Remo Bianchi. Technical content was compiled by Umberto Del Bello and Antonio Gabriele, with contributions from Stefan Kraft, Jean-Loup Bezy, Pedro Jurado, and Raffaella Franco.
- Mohammed, G.H., Goulas, Y., Magnani, F., Moreno, J., Olejníčková, J., Rascher, U., van der Tol, C., Verhoef, W.; Ac, A., Daumard, F., Gallé, A., Malenovský, Z., Pernokis, D., Rivera, J.P., Verrelst, J.; Drusch, M. 2014. 2012 FLEX/Sentinel-3 Tandem Mission Photosynthesis Study. European Space Agency. ESTEC Contract No. 4000106396/12/NL/AF, Final Report, July 2014. 159 p. + CD/DVD.
- Mohammed, G. 2014. Potential Application of Solar-Induced Fluorescence for Food Security and Early Stress Detection. Supplementary report for the 2012 FLEX/Sentinel-3 Tandem Mission Photosynthesis Study, European Space Agency, July 2014. 14 p.
- Magnani, F., Olioso, A., Demarty, J., Germain, V., Verhoef, W., Moya, I., Goulas, Y., Cecchi, G., Agati, G., Zarco-Tejada, P., Mohammed, G., van der Tol, C. 2009. Assessment of Vegetation Photosynthesis through Observation of Solar Induced Fluorescence from Space. ESA Contract No. 20678/07/NL/HE, Final Report. October 2009. 256 p.
- Miller, J.R., Berger, M., Goulas, Y., Jacquemoud, S., Louis, J., Mohammed, G., Moise, N., Moreno, J., Moya, I., Pedrós, R., Verhoef, W., and Zarco-Tejada, P.J. 2005. Development of a Vegetation Fluorescence Canopy Model. European Space Agency. ESTEC Contract No. 16365/02/NL/FF, Final Report, April 2005. 138 p. + CD.
- Mohammed, G.H. 2002. Forest Genetics and Tree Improvement in Ontario: Synopsis of a Science Workshop. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 151. 13 p.
- Noland, T.L. and Mohammed, G.H. 2002. Competition Tolerance of Bareroot and Container Seedlings of Jack Pine, White Pine, and Black Spruce Ten Years After Planting. Forest Research Partnership, Mattawa, Ontario. On-line publication (www.forestresearch.ca).
- Mohammed, G.H., Noland, T.L., Irving, D., Sampson, P.H., Zarco-Tejada, P.J. and Miller, J.R. 2000. Natural and stress-induced effects on leaf spectral reflectance in Ontario species. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Report No. 156. 34 p. ISBN 0-7778-9387-8, ISSN 0381-3924.
- Mohammed, G.H. 1999. Non-timber forest products in Ontario: An overview. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 145. 64 p.**
- Noland, T.L., Mohammed, G.H. and Seymour, N.H. 1999. Using the fluorescein diacetate staining method to estimate seed viability of jack pine, black spruce, and white spruce. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Note No. 58. 4 p.
- Sampson, P.H., Mohammed, G.H., Colombo, S.J., Noland, T.L., Miller, J.R. and Zarco-Tejada, P.J. 1998. Bioindicators of forest sustainability: Progress report. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 142. 18 p.

- Mohammed, G.H. and Noland, T.L. 1997. Influence of time of day and sampling methodology on chlorophyll fluorescence in jack pine (*Pinus banksiana* Lamb.), black spruce (*Picea mariana* (Mill.) B.S.P.) and eastern white pine (*Pinus strobus* L.). Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Report No. 142. 14 p.
- Mohammed, G.H., Sampson, P.H., Colombo, S.J., Noland, T.L. and Miller, J.R. 1997. Bioindicators of forest sustainability: Development of a forest condition rating system for Ontario. Project strategy. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 137. 22 p.
- Noland, T.L. and Mohammed, G.H. 1997. Fluorescein diacetate: a new viability stain for tree seeds. Canadian Tree Improvement Association – Tree Seed Working Group News Bulletin 26: 4-6.
- Smith, W. and Mohammed, G.H. 1997. Inoculation with mycorrhizal fungi (*Hebeloma* spp.) can increase drought stress resistance and improve field performance for jack pine, black spruce and white spruce. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Report No. 145. 10 p.
- Noland, T.L. and Mohammed, G.H. 1994. Development of a competition tolerance index for black spruce, jack pine, and eastern white pine. Annual report – year 2, 1993-1994. 35 p.
- Harvey, E.M., Mohammed, G.H. and Noland, T. 1993. A bibliography on competition, tree seedling characteristics, and related topics. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 108. 120 p.
- Mohammed, G.H., Noland, T.L. and Parker, W.C. 1993. Development of a competition tolerance index for black spruce, jack pine and eastern white pine. Annual report for year 1, 1992-93.
- Noland, T.L. and Mohammed, G.H. 1993. Competition tolerance index for tree seedlings. In: Wagner et al. VMAP Annual Report 1992-93. Ontario Forest Research Institute, Sault Ste. Marie, Ontario. pp. 32-33.
- Noland, T.L. and Mohammed, G.H. 1993. Rating seedling competitiveness. Ontario Nursery News 3(1): 14-18.
- Noland, T.L. and Mohammed, G.H. 1993. Building a more competitive seedling. The VMAP Report 1(3): 5-6.
- Mohammed, G.H. and Menes, P. 1992. Stem swelling and lesions on seedlings of black spruce and white spruce – a possible result of chemical injury? Ontario Ministry of Natural Resources, Sault Ste. Marie, Ontario. Forest Research Note No. 49. 4 p.
- Mohammed, G.H., Reese, K. and Greifenhagen, S. 1992. Flattened root form in red pine transplants: an example of fasciation? Ontario Ministry of Natural Resources, Sault Ste. Marie, Ontario. Nursery Notes No. 124. 5 p.
- Mohammed, G.H. 1991. Forest renewal research and development needs survey. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 105. 20 p.
- Mohammed, G.H. 1990. The importance of morphological and physiological properties for the acclimatization of tissue-cultured Douglas-fir [*Pseudotsuga menziesii* (Mirb.) Franco]. Ph.D. thesis, Simon Fraser University, Burnaby, B.C. 125 p.
-

Conference Presentations

- Mohammed G.H, Moreno J., Rascher U., Van der Tol C., Colombo R., Damm A., Verrelst J., Ac A., Cogliati S., Magnani F., Verhoef W., Goulas Y., Lewis P., Drusch M., and all FLEX study team colleagues. 2017. Advances from FLuorescence EXplorer (FLEX) science studies and recommendations for future research. Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status – Frascati, Italy, 17-19 January 2017. (*Keynote address*)
- Cogliati S., Verhoef W., Sabater N., Alonso L., Moreno J., Rascher U., Middleton E.M., Mohammed G., Drusch M., Schuettemeyer D., Tagliabue G., Celesti M., Rossini M., Panigada C., and Colombo R. 2017. Updates on fluorescence retrieval algorithm based on spectral fitting approach and results on high-resolution radiance observations. Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status – Frascati, Italy, 17-19 January 2017.
- Rascher U., Burkart A., Cendrero M.P., Matveeva M., Schickling A., Alonso L., Cogliati S., Colombo R., Damm A., Drusch M., Goulas Y., Hanus J., Huth A., Middleton E., Miglietta F., Mohammed G., Moreno J., Rossini M., Schüttemeyer D., Van der Tol C., Verhoef W., and Zemek F.. 2017. Imaging and understanding the spatio-temporal dynamics of sun-induced fluorescence using the airborne demonstrator HyPlant. Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status – Frascati, Italy, 17-19 January 2017.
- Damm A., Speckert T., Colombo R., Rossini M., Panigada C., Alonso L., Miglietta F., Schüttemeyer D., Mohammed G., Schickling A., and Rascher U. 2017. Combined observations of red and far-red fluorescence to disentangle the impact of different environmental stress effects on plant photosynthesis. Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status – Frascati, Italy, 17-19 January 2017.
- Van der Tol C., Verhoef W., Yang P., Vilfan N., Rossini M., Cogliati S., Colombo R., Rascher U., and Mohammed G. 2017. Using the SCOPE Model to retrieve photosynthesis from reflectance and chlorophyll fluorescence. Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status – Frascati, Italy, 17-19 January 2017.
- Rascher, U., Alonso, L., Burkart, A., Cogliati, S., Colombo, R., Damm, A., Guanter, L., Hanus, J., Julitta, T., Middleton, E., Mohammed, G., Moreno, J., Panigada, C., Pinto, F., Rossini, M., Schickling, A., Schüttemeyer, D., and Zemek, F. 2016. Measuring and understanding the dynamics of sun-induced fluorescence – Results from the FLEX airborne demonstrator *HyPlant*. 2016 ESA Living Planet Symposium, Prague, Czech Republic, 9-13 May 2016.
- Moreno, J., Goulas, Y., Huth, A., Middleton, E., Miglietta, F., Mohammed, G., Nedbal, L., Rascher, U., Verhoef, W., and Drusch, M. 2016. Global mapping of terrestrial vegetation photosynthesis: the Fluorescence Explorer (FLEX) mission. 2016 ESA Living Planet Symposium, Prague, Czech Republic, 9-13 May 2016.
- Verrelst, J., Van der Tol, C., Magnani, F., Sabater, N., Rivera, J.P., Mohammed, G., and Moreno, J. 2016. The Earth Explorer 8 FLEX mission for the retrieval of the full fluorescence signal to estimate photosynthetic activity of terrestrial vegetation. 2016 ESA Living Planet Symposium, Prague, Czech Republic, 9-13 May 2016. (Poster)
- Ač, A., Malenovský, Z., Olejníčková, J., Gallé, A., Rascher, U., Mohammed, G., and Drusch, M. 2016. Potential of steady-state chlorophyll fluorescence for satellite-based stress detection in terrestrial ecosystems: Strategies for application. Prague, Czech Republic, 9-13 May 2016. (Poster)
- Wieneke, S., Rascher, U., Schickling, A., Pinto, F., Rademske, P., Matveeva, M., Cendrero, P., Van der Tol, C., Damm, A., Rossini, M., Julitta, T., Colombo, R., Cogliati, S., Miglietta, F., Moreno, J., Alonso, L., Mohammed, G., Schüttemeyer, D. and Graf, A. 2015. Using plant chlorophyll fluorescence for a better prediction of GPP and canopy carbon exchange. 9th EARSeL SIG Imaging Spectroscopy Workshop, Luxembourg, Belgium, 14-16 April 2015.
- Verrelst, J., Rivera, J.P., Van der Tol, C., Magnani, F., Mohammed, G., and Moreno, J. 2015. On the relationships between solar-induced fluorescence and net photosynthesis of the canopy: a SCOPE modeling study. 9th EARSeL SIG Imaging Spectroscopy Workshop, Luxembourg, Belgium, 14-16 April 2015.
- Matveeva, M., Schickling, A., Rascher, U., Pinto, F., Cendrero-Mateo, M.P., Rademske, P., Colombo, R., Celesti, M., Panigada, C., Cogliati, S., Miglietta, F., Alonso, L., Moreno, J., Damm, A., Mohammed, G. and Schüttemeyer, D. 2015. Early indication of plant stresses by changes in vegetation indices and fluorescence. 9th EARSeL SIG Imaging Spectroscopy Workshop, Luxembourg, Belgium, 14-16 April 2015.

- Verrelst, J., Rivera, J.P., Van der Tol, C., Magnani, F., Mohammed, G., and Moreno, J. 2014. Sensitivity analysis of the A-SCOPE model in support of future FLEX fluorescence retrievals. 4th International Symposium on Recent Advances in Quantitative Remote Sensing (RAQRS IV), Valencia, Spain, 22-26 September 2014.
- Van der Tol, C., Verhoef, W., Verrelst, J., Magnani, F., Mohammed, G., Moreno, J. and Berry, J. 2014. Sensitivity of SCOPE modelled GPP and fluorescence for different Plant Functional Types. 6th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Lausanne, Switzerland, 25-27 June 2014.
- Verrelst, J., Rivera, J.P., van der Tol, C., Magnani, F., Mohammed G. and Moreno, J. 2014. Global sensitivity analysis of the A-SCOPE model in support of future FLEX fluorescence retrievals. 6th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Lausanne, Switzerland, 25-27 June 2014.
- Mohammed, G., Ač, A., Daumard, F., Drusch, M., Gallé, A., Goulas, Y., Magnani, F., Malenovský, Z., Moreno, J., Olejníčková, J., Pernokis, D., Rascher, U., Rivera, J.P., van der Tol, C., Verhoef, W., Verrelst, J. and Volta, A. 2014. FLEX/Sentinel-3 Tandem Mission Photosynthesis Study – An investigation of steady-state chlorophyll fluorescence and photosynthesis in terrestrial vegetation. 5th International Workshop on Remote Sensing of Vegetation Fluorescence, Paris, France, 22-24 April 2014.
- Malenovský, Z., Ač, A., Olejníčková, J., Gallé, A., Rascher, U. and Mohammed, G. 2014. Knowledge gap analysis assessing steady-state chlorophyll fluorescence as an indicator of plant stress status. 5th International Workshop on Remote Sensing of Vegetation Fluorescence, Paris, France, 22-24 April 2014.
- Van der Tol, C., Verhoef, W., Berry, J., Rascher, U., Campbell, P., Verhoef, A., Timmermans, J., Mohammed, G., Su, B. and Rajh Vilfan, N. 2014. SCOPE Model: Overview and Sensitivity. 5th International Workshop on Remote Sensing of Vegetation Fluorescence, Paris, France, 22-24 April 2014.
- Verrelst, J., Rivera, J.P., van der Tol, C., Magnani, F., Mohammed, G. and Moreno, J. 2014. A-SCOPE: Automating fluorescence modeling in support of FLEX. 5th International Workshop on Remote Sensing of Vegetation Fluorescence, Paris, France, 22-24 April 2014.
- Mohammed, G.H., Moreno, J., Goulas, Y., Huth, A., Middleton, E., Miglietta, F., Nedbal, L., Rascher, U., Verhoef, W., and Drusch, M. 2012. The European Space Agency's Fluorescence Explorer Mission: Concept and Applications. Invited oral presentation given to AGU Fall Meeting, San Francisco, California, 3-7 December 2012.
- Mohammed, G. 2012. The FLEX/Sentinel-3 Tandem Mission Photosynthesis Study. Presentation to FLEX Mission Advisory Group at European Space Agency, ESA/ESTEC, Noordwijk, The Netherlands, 13 July 2012.
- Zarco-Tejada, P.J. and Mohammed, G.H. 2009. Correction of fluorescence for chlorophyll content effects. Presentation at European Space Agency, ESA/ESTEC, Noordwijk, The Netherlands, 03 April 2009.
- Goulas, Y., Zarco-Tejada, P.J. and Mohammed, G.H. 2009. Chlorophyll fluorescence: its estimation and past experimental evidence on its variability. Presentation at European Space Agency, ESA/ESTEC, Noordwijk, The Netherlands, 03 April 2009.
- Mohammed, G. 2009. Non-Timber Forest Products – The Creative Edge. Presentation at *Today's Forests – Tomorrow's Markets* (a joint meeting hosted by The Michigan Society of American Foresters and The Canadian Institute of Forestry Central Ontario Section), Sault Ste Marie, Michigan, 31 March - 01 April 2009.
- Moreno, J.F., Asner, G.P., Bach, H., Belenguer, T., Bell, A., Buschmann, C., Calera, A., Calpe, J., Campbell, P., Cecchi, G., Colombo, R., Corp, L.A., Court, A., Cutter, M.A., Disney, M., Dudenzak, A., D'Urso, G., Fernandes, R., Flexas, J., Gege, P., Gielen, B., Gitelson, A., Gloor, E.U., Gower, J., Green, R.O., Hill, J., Jacquemoud, S., Jia, L., Kneubühler, M., Laurila, T., Lewis, P., Lobb, D., Magnani, F., Maier, S.W., Martinez, A., Marek, M.V., Martinez Cobo, P., Mazinghi, P., Menenti, M., Merton, R., Middleton, E., De Miguel, E., Miller, J., Mohammed, G., Milton, E.J., Morales, F., Moya, I., Nedbal, L., Knorr, W., Oettle, C., Olivoso, A., Pace, S., Palucci, A., Pedros, R., Peltoniemi, J., Penuelas, J., Plaza, A.J., Polcher, J., Rascher, U., Reuter, R., Rosema, A., Roujean, J.L., Saito, Y., Saugier, B., Schaepman, M.E., Serrano, J.B., Settle, J.J., Sierra, M., Sobrino, J., Stoll, M.P., Su, Z., Tobehn, C., Tremblay, N., Valcke, R., Verhoef, W., Veroustraete, F., Verstraete, M. and Zarco-Tejada, P. 2006. Fluorescence explorer (FLEX): An optimised payload to map vegetation photosynthesis from space. Proceedings, AIAA 57th International Astronautical Congress, Valencia, Spain, 2-6 October, 2006.

- Mohammed, G. 2005. FluorMOD fluorescence overview: Challenges, choices, benefits. Presentation at European Space Agency, ESA/ESTEC, Noordwijk, The Netherlands, 17 March 2005.
- Miller, J.R., Berger, M., Jacquemoud, S., Moreno, J., Mohammed, G., Moya, I., Pedrós, S., Verhoef, W., Zarco-Tejada, P.J., Alonso, L., Goulas, Y., and Louis, J. 2004. Overview of FluorMOD: A Project to Develop an Integrated Leaf-Canopy Fluorescence Simulation Model. Presentation at 2nd International Workshop on Remote Sensing of Vegetation Fluorescence, Montreal, Québec, 17-19 November 2004.
- Mohammed, G.H. 2004. Non-Timber Forest Product Approaches. Presentation at Respecting the Resources: Sharing the Opportunities, Union of Ontario Indians – 1st Annual Forestry Conference, Sault Ste. Marie, Ontario, 5-6 May 2004.
- Mohammed, G.H. 2003. Physiological drivers underlying chlorophyll fluorescence. Presentation at European Space Agency, ESA/ESTEC, Noordwijk, The Netherlands, 31 October 2003.
- Miller, J.R., Berger, M., Alonso, L., Cerovic, Z., Goulas, Y., Jacquemoud, S., Louis, J., Mohammed, G., Moya, I., Pedros, R., Moreno, J.F., Verhoef, W. and Zarco-Tejada, P.J. 2003. Progress on the development of an integrated canopy fluorescence model. Proceedings, International Geoscience & Remote Sensing Symposium (IGARSS '03), Toulouse, France, 21-25 July 2003. ISBN 0-7803-7929-2 Vol.1 pp. 601-603.
- Noland, T.L., Miller, J.R., Zarco-Tejada, P.J., Moorthy, I., Panigada, C., Mohammed, G.H., and Sampson, P.H. 2003. Bioindicators of forest sustainability: Using remote sensing to monitor forest condition. XII World Forestry Congress, Québec City, Canada. 21-28 September 2003.
- Noland, T.L., Miller, J.R., Moorthy, I., Panigada, C., Zarco-Tejada, P.J., Mohammed, G., and Sampson, P.H. 2003. Bioindicators of forest sustainability: Using remote sensing to measure forest condition. Proceedings, Meeting emerging ecological, economic and social challenges in the Great Lakes region: Popular Summaries (L.J. Buse & A.H. Perera, comp). Great Lakes Forest Alliance 2003 Summit, Sault Ste. Marie, ON, June 9-11, 2003. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. No. 155: 75-77.
- Noland, T.L., Miller, J.R., Zarco-Tejada, P.J., Moorthy, I., Panigada, C., Mohammed, G., and Sampson, P.H. 2003. Bioindicators of forest sustainability: Using remote sensing to monitor forest condition. Ontario Forest Research Institute, Sault Ste. Marie, ON, 15 October 2003, Presentation to Forestry Delegation from People's Republic of China.
- Mohammed, G.H. 2002. Practical perspectives on fluorescence science. Presentation at European Space Agency, ESA/ESTEC, Noordwijk, The Netherlands, 4-5 December 2002.
- Zarco-Tejada, P.J., Miller, J.R., and Mohammed, G.H. 2002. Chlorophyll fluorescence effects on leaf and canopy reflectance: Experimental results and model simulation. First Workshop on Remote Sensing of Solar Induced Fluorescence, ESA/ESTEC, Noordwijk, The Netherlands, 19-20 June 2002. In: R.A. Harris (Ed.) Proceedings of the FLEX Workshop, European Space Agency (ESA), 19-20 June 2002, ESTEC, Noordwijk, The Netherlands. ISBN 92-9092-837-9, ISSN 1609-042X.
- Noland, T.L., Sampson, P.H., Mohammed, G.H., Zarco-Tejada, P.J. and Miller, J.R. 2001. Bioindicators of forest sustainability: Using remote sensing to monitor forest conditions by estimating chlorophyll content. National Forestry Remote Sensing Advisory Group meeting, Sault Ste. Marie, Ontario, 13 Dec 2001.
- Mohammed, G.H. 2001. The hidden face of the forest: Non-timber products and values. Proc. Non-Timber Forest Products in Alaska – Hidden Forest Values, Anchorage, Alaska, 8-9 November 2001. (*Keynote address*)
- Sampson, P.H., Zarco-Tejada, P.J., Mohammed, G.H., Miller, J.R., Noland, T.L. and Treitz, P.M. 2001. From leaf to canopy: Estimation of chlorophyll content using remote sensing to monitor forest conditions. Proc. Third North American Forest Ecology Workshop, Duluth, Minnesota, 24-27 June 2001.
- Zarco-Tejada, P.J., Miller, J.R., Harron, J., Hu, B., Noland, T.L., Goel, N., Mohammed, G.H. and Sampson, P.H. 2001. Chlorophyll a+b content estimation through turbid-medium and Monte-Carlo RT model inversion for forest canopies using hyperspectral data. Proc. 2001 AVIRIS Earth Science and Applications Workshop, JPL-NASA, Pasadena, California, 27 February - 2 March 2001.
- Mohammed, G.H. 2001. Recommendations for sustainable development of non-timber forest products. In: Forest Communities in the Third Millenium: Linking Research, Business, and Policy Toward a Sustainable Non-timber Forest Product Sector – Kenora, Ontario, 1-4 October 1999. USDA For. Serv., North Central Res. Stn., Gen. Tech. Rep. NC-217.

- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2001. Estimación del contenido clorofílico en coberturas con estructura caducifolia y conífera mediante inversión de modelos de Transferencia Radiativa y datos Hiperespectrales. IX Congreso Nacional de Teledetección, Asociación Española de Teledetección, Lerida, Spain, 19-21 September, 2001.
- Mohammed, G.H. 2000. Non-timber forest products: Innovations in sustainable forest management. Forest Sustainability Beyond 2000, Thunder Bay, Ontario, 14-18 May 2000.
- Mohammed, G.H. 2000. Welcome to the Conference. Non-Timber Forest Products Conference 2000. A Focus On Sustaining Renewable Resources: Development of Non-Timber Forest Products in the Algoma District, Garden River, Ontario, January 2000.
- Noland, T.L., Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Sampson, P.H., Colombo, S.J., Irving, D., Treitz, P. and Freemantle, J. 2000. Bioindicators of Sustainable Forestry: Scaling up physiological indicators using remote sensing. Forest Sustainability Beyond 2000, Sault Ste. Marie, ON, Canada, May 14-18, 2000.
- Noland, T.L., Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Sampson, P.H., Irving, D. and Treitz, P. 2000. Bioindicators of Forest Sustainability: Validation of a physiological remote sensing approach. Ice Storm Research Conference, Sault Ste. Marie, ON, Canada, October 2000. (Published as OFRI Forest Research Report No. 156. 34 p.)
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H. and Noland, T.L. 2000. Simulation of radiative transfer in a single leaf: Estimation of chlorophyll fluorescence measures by inversion of a coupled FRT and PROSPECT model. Remote Sensing 2000: From Laboratory Spectroscopy to Remotely Sensed Spectral Observation, Corpus Christi, Texas, 22-25 October 2000.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2000. Utilización de modelos de reflectancia como nexo entre muestras foliares y la cobertura forestal: aplicación a datos hiperespectrales. Revista de Teledetección, 12, pp. 21-32, Enero 2000.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 2000. Estimation of chlorophyll fluorescence under natural illumination from hyperspectral data. Second EARSeL Workshop on Imaging Spectroscopy, Enschede, The Netherlands, 11-13 July 2000.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 1999. Optical indices as bioindicators of forest condition from hyperspectral CASI data. In: Casanova (Ed.) Remote Sensing in the 21st Century: Economic and Environmental Applications, Proc. of the 19th (EARSeL) Symposium on Remote Sensing in the 21st Century, Valladolid, Spain, May 31-June 2, 1999. Balkema, Rotterdam, ISBN 9058090965, pp. 517-522.
- Mohammed, G.H. 1999. Recommendations for sustainable development of non-timber forest products. Proc. First International Conference on Non-Timber Forest Products in Cold Temperate and Boreal Forests, Kenora, Ontario, October 1-4, 1999.
- Mohammed, G.H. 1999. Research and applications of chlorophyll fluorescence in plant crop systems. Seminar presented to United States Department of Agriculture (Lincoln, Nebraska, March 8) and Pioneer-HiBred International/DuPont (Des Moines, Iowa, March 15), as part of a visiting fellowship from the Organization for Economic Cooperation and Development.
- Noland, T.L., Mohammed, G.H. and Packalen, M. 1999. Improved FDA seed viability test workshop. Ontario Tree Seed Plant. Aug. 24-25, 1999. Angus, ON. Oral presentation and training workshop.
- Noland, T.L., Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H. and Sampson, P. 1999. Detection of sugar maple condition using ground-based indicators and hyperspectral remote sensing. Fourth International Airborne Remote Sensing Conference and Exhibition, Ottawa, Ontario, June 21-24, 1999.
- Noland, T.L. Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H. and Sampson, P. 1999. Remote sensing applications in forestry. Space Technologies Transfer Opportunities in Environmental Monitoring Workshop, Sudbury 99 Conference on Mining and the Environment II. Sudbury, Ontario, Sept. 14, 1999.
- Treitz, P., Miller, J.R., Mohammed, G., Noland, T., Colombo, S., Zarco, P.J., Sampson, P. and Shepherd, P. 1999. Optical indices for estimating biophysical/physiological parameters. Annual Meeting of the Canadian Association of Geographers (CAG), Special Session on Remote Sensing. Lethbridge, Alberta, June 1-5, 1999.
- Wagner, R.G., Mohammed, G.H. and Noland, T.L. 1999. Temporal effects of interspecific competition between herbaceous vegetation and northern conifers. In: 2nd North American Forest Ecology Workshop - Forest Ecology into the Next Millennium: Putting the Long View into Practice. ed., J.D. Eckhoff. University of Maine, Orono, ME, June 27-30, 1999. p. 12.

- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 1999. Canopy optical indices from infinite reflectance and canopy reflectance models for forest condition monitoring: application to hyperspectral CASI data. In: Tammy I. Stein (Ed.) Proc. IEEE 1999 International Geoscience and Remote Sensing Symposium (IGARSS '99), Hamburg, Germany, June 28-July 2, 1999. ISBN 0-7803-5207-6 Vol.3 pp. 1878-1881.
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L. and Sampson, P.H. 1999. Indices Ópticos obtenidos mediante datos Hiperspectrales del sensor CASI como Indicadores de Estrés en Zonas Forestales. VIII Congreso Nacional de Teledetección, Asociación Española de Teledetección, Albacete, Spain, 22-24 September, 1999.
- Mohammed, G.H. and Noland, T.L. 1998. Weeds aren't all bad! Pharmaceutical prospects for common Ontario species. Proc. Third International Conference on Forest Vegetation Management (R.G. Wagner & D.G. Thompson, comp). Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141: 448-450.
- Mohammed, G.H., Noland, T.L. and Wagner, R.G. 1998. Physiological competitive tolerance in jack pine in the presence of herbaceous vegetation. Proc. Third International Conference on Forest Vegetation Management (R.G. Wagner & D.G. Thompson, comp). Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141: 208-210.
- Mohammed, G.H., Sampson, P.H., Colombo, S.J., Noland, T.L. and Miller, J.R. 1998. Physiological bioindicators: Scaling up from tree to stand (D.G. Pitt & F.W. Bell, comp). Proc. Third International Conference on Forest Vegetation Management. Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141A: 35-38.
- Noland, T.L., Mohammed, G.H. and Seymour, N.H. 1998. Improved FDA seed viability test workshop. Millson's Forestry Service. Oct. 26-27, 1998, Timmins, ON. Oral presentation and training workshop.
- Noland, T.L., Mohammed, G.H. and Wagner, R.G. 1998. Competition tolerance of bareroot and container seedlings of jack pine, eastern white pine, and black spruce: Fifth year results. Proc. Third International Conference on Forest Vegetation Management (R.G. Wagner & D.G. Thompson, comp). Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141: 233-235.
- Noland, T.L., Mohammed, G.H. and Wagner, R.G. 1998. Competition tolerance of bareroot and container seedlings of jack pine, white pine, and black spruce. Proc. Third International Conference on Forest Vegetation Management (D.G. Pitt & F.W. Bell, comp). Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141A: 49-52. (*Field tour presentation*)
- Noland, T.L., Mohammed, G.H. and Seymour, N. 1998. An improved fluorescein diacetate viability test for tree seeds. Proc. XVth North American Forest Biology (NAFB) Workshop and Western Forest Genetics Association (WFGA). University of Victoria, Victoria, B.C., June 21-26, 1988.
- Noland, T.L., Mohammed, G.H., Sampson, P.H., Colombo, S.J. and Miller, J.R. 1998. Development of a forest condition rating system using remote sensing: A potential indicator of sustainable forest management. Proc. XVth North American Forest Biology (NAFB) Workshop and Western Forest Genetics Association (WFGA). University of Victoria, Victoria, B.C., June 21-26, 1988.
- Wagner, R.G., Noland, T.L. and Mohammed, G.H. 1998. Critical-period thresholds for northern conifers associated with herbaceous vegetation: 5th year results. Proc. Third International Conference on Forest Vegetation Management (R.G. Wagner & D.G. Thompson, comp). Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141: 348-350.
- Wagner, R.G., Noland, T.L. and Mohammed, G.H. 1998. Critical period for herbaceous vegetation control for northern conifer species. Proc. Third International Conference on Forest Vegetation Management (D.G. Pitt & F.W. Bell, comp). Sault Ste. Marie, ON, August 24-28, 1998. Ont. Min. Nat. Resour., Ont. For. Res. Inst., For. Res. Inf. Pap. 141A: 45-48.
- Mohammed, G.H. and Parker, W.C. 1997. Photosynthetic acclimation to increased light intensity in eastern hemlock seedlings. Plant Biology '97: Joint Annual Meetings of the American Society of Plant Physiologists and the Canadian Society of Plant Physiologists. Vancouver, British Columbia, August 2-6, 1997.
- Mohammed, G.H., Noland, T.L., Parker, W.C. and Wagner, R.G. 1997. Pre-planting physiological stress assessment to forecast field performance of jack pine and black spruce. LUSTR Co-op AGM and Workshop '97. Sault Ste. Marie, Ontario, January 8-10, 1997.
- Mohammed, G.H. and Parker, W.C. 1997. Photosynthetic acclimation to increased light intensity in eastern hemlock seedlings. Proceedings, Sustainable Site Productivity in Canadian Forests Workshop. Sault Ste. Marie, Ontario, February 18-20, 1997.

- Noland, T.L. and Mohammed, G.H. 1997. Fluorescein diacetate: a stain for seed viability. LUSTR Co-op AGM and Workshop '97. Sault Ste. Marie, Ontario, January 8-10, 1997.
- Noland, T.L., Mohammed, G.H. and R.G. Wagner. 1997. Competition tolerance of bareroot and container seedlings of jack pine, eastern white pine, and black spruce: Productivity during establishment on a sandy site. Proceedings, Sustainable Site Productivity in Canadian Forests Workshop. Sault Ste. Marie, Ontario, February 18-20, 1997.
- Mohammed, G.H., Noland, T.L. and Wagner, R.G. 1996. Photosynthetic effects of competing vegetation in jack pine (*Pinus banksiana* Lamb.). Proc. 14th North American Forest Biology Workshop. Quebec City, Quebec, June 16-20, 1996.
- Noland, T.L. and Mohammed, G.H. 1996. Fluorescein diacetate: a new viability stain for tree roots and seeds? Proc. 14th North American Forest Biology Workshop. Quebec City, Quebec, June 16-20, 1996.
- Wagner, R.G., Noland, T.L. and Mohammed, G.H. 1996. Timing and duration of herbaceous vegetation control around four northern coniferous species. In: C.R. Smith and G.W. Crook (Compilers) Advancing Boreal Mixedwood Management in Ontario: Proceedings of a Workshop. Sault Ste. Marie, Ontario, October 17-19, 1995. Canadian Forest Service and Ontario Ministry of Natural Resources. pp. 138-140.
- Mohammed, G.H. and Noland, T.L. 1995. Influence of time of day, growing environment, and sample storage method on variable chlorophyll a fluorescence in *Pinus banksiana* Lamb. Proc. Canadian Society of Plant Physiologists & the Canadian Botanical Association 1995 Annual Meeting. Guelph, Ontario, June 24-27, 1995. ISSN 0842-0602.
- Noland, T.L., Mohammed, G.H. and Wagner, R.G. 1995. Early indicators of herbaceous competition effects on jack pine, eastern white pine, and black spruce. Proc. Second Int'l Conference on Forest Vegetation Management. Rotorua, New Zealand, March 20-24, 1995.
- Wagner, R.G., Noland, T.L. and Mohammed, G.H. 1995. Critical-period thresholds for four northern conifers. Proc. 49th Annual Meeting of the Northeastern Weed Science Society. Boston, January 2-5, 1995.
- Wagner, R.G., Noland, T.L. and Mohammed, G.H. 1995. Critical-period thresholds of herbaceous vegetation removal for four northern conifers. Proc. Second Int'l Conference on Forest Vegetation Management. Rotorua, New Zealand, March 20-24, 1995.
- Binder, W.D., Fielder, P. and Mohammed, G.H. 1994. Some practical applications of chlorophyll fluorescence for conifer tree stock quality assessment using different types of fluorometers. Proc. Making the Grade: An International Symposium on Planting Stock Performance and Quality Assessment. Sault Ste. Marie, Ontario, September 11-15, 1994.
- Mohammed, G.H. 1994. The status and future of plant quality assessment. Proc. Making the Grade: An International Symposium on Planting Stock Performance and Quality Assessment, Sault Ste. Marie, Ontario, September 11-15, 1994. (*Keynote address*)
- Noland, T.L., Mohammed, G.H. and Scott, M. 1994. Light levels and container type affect root growth potential in jack pine seedlings. Proc. Making the Grade: An International Symposium on Planting Stock Performance and Quality Assessment. Sault Ste. Marie, Ontario, September 11-15, 1994.
- Mohammed, G.H., Noland, T., Parker, W., Paterson, J. and Kim, Y.T. 1993. Establishment physiology program at OFRI. White and Red Pine Symposium. Chalk River, Ontario, October 6-9, 1993.
- Mohammed, G.H. 1992. Basic tree physiology. Ontario Ministry of Natural Resources Stock Handling Workshop. London, Ontario, March 3, 1992.
- Mohammed, G.H. 1992. Research needs and priorities for forest renewal in Ontario. Proceedings, The Ontario Tree Seedling Growers Association 1992 Conference and Annual Meeting: Toward 2000: The Forest Environment. Thunder Bay, Ontario, September 21-24, 1992.
- Mohammed, G.H. 1992. Seedling physiology and quality assessment. Ontario Ministry of Natural Resources Stock Handling Workshop. Waterloo and Kingston, January 20-24, 1992.
- Mohammed, G.H. and Noland, T. 1992. Towards a more competitive seedling. Seminar on Research and Development in Seedling Production and Establishment. Dryden (November 3), Thunder Bay (November 4), Timmins (November 10), Sault Ste. Marie (December 11).
- Mohammed, G.H., Noland, T., Templeton, C. and Harvey, E. 1992. Evaluation and application of variable chlorophyll a fluorescence in seedling physiological assessment. Proceedings, 12th North American Forest Biology Workshop. Sault Ste. Marie, Ontario, August 17-20, 1992.

- Noland, T.L., Mohammed, G. and Templeton, C. 1992. Monitoring stress levels of tree seedlings during establishment with infrared thermography. Proceedings, 12th North American Forest Biology Workshop. Sault Ste. Marie, Ontario, August 17-20, 1992.
- Gillies, S.L., Mohammed, G.H. and Vidaver, W.E. 1990. The effect of acclimatization on the water soluble thiol content of tissue-cultured Douglas-fir. Proc. of the Canadian Society of Plant Physiologists 32nd Annual Meeting. University of Quebec, Montreal, June 17-20, 1990.
- Mohammed, G.H., Patel, K.R. and Vidaver, W.E. 1988. The effects of sucrose levels, rooting substrate and shoot quality on root production in tissue-cultured Douglas-fir. Fourth Meeting of the International Conifer Tissue Culture Work Group. University of Saskatchewan, Saskatoon, August-8-12, 1988.
- Mohammed, G.H. and Patel, K.R. 1987. Commercialization of Douglas fir micropropagation. Twenty-first Meeting of the Canadian Tree Improvement Association. Truro, Nova Scotia, August 18-20, 1987.
- Patel, K.R. and Mohammed, G.H. 1986. In vitro regeneration of Douglas fir and white spruce. Sixth International Congress of Plant Tissue and Cell Culture. University of Minnesota, Minneapolis, August 3-8, 1986.
- Mohammed, G.H. and Patel, K.R. 1986. Micropropagation at AgriForest Technologies Ltd. Sixth International Congress of Plant Tissue and Cell Culture. University of Minnesota, Minneapolis, August 3-8, 1986.
- Dunstan, D.I., Mohammed, G.H. and Thorpe, T.A. 1986. Morphogenetic response of explants from *Picea glauca* relative to nutrient medium and source tree. Sixth International Congress of Plant Tissue and Cell Culture. University of Minnesota, Minneapolis, August 3-8, 1986.
- Mohammed, G.H. 1986. Tissue Culture in British Columbia. Speaking role in Our B.C. at EXPO '86. Province of British Columbia, BC Pavillion film, Vancouver, May 2 - October 13, 1986.
- Dunstan, D.I., Mohammed, G.H., Lawrence, S.D. and Thorpe, T.A. 1985. Clonal effects on the induction of shoot primordia from 12 to 15 year old Douglas fir. International Conifer Tissue Culture Work Group, 3rd Workshop. Forest Research Institute, Rotorua, New Zealand, August 12-16, 1985.
- Mohammed, G.H., Dunstan, D.I. and Thorpe, T.A. 1985. Age and clonal effects on morphogenesis in bud cultures of white spruce. Tissue Culture Association Annual Meeting, New Orleans, Louisiana, June 2-6, 1985.
- Mohammed, G.H. 1985. Conifer research at AgriForest Technologies Ltd. - Progress and problems. Inaugural Meeting of the Biotechnology Network for the Canadian Forest-Based Industries. Centre de Recherches Industrielle du Quebec, Quebec City, March 21-22, 1985.
- Dunstan, D.I., Mohammed, G.H. and Thorpe, T.A. 1984. Shoot primordia induction on bud explants from 12 to 15 year old Douglas fir: the requirement for BA and NH₄NO₃ in dormant collections. NRC Bioenergy Specialists' Meeting on Biotechnology. University of Waterloo, Ontario, October 14-17, 1984.
- Mohammed, G.H., Dunstan, D.I. and Thorpe, T.A. 1984. Shoot primordia induction in mature Douglas fir and white spruce: Seasonal requirement for benzyladenine. 41st Easter School Conference Series in Agricultural Science. University of Nottingham, England, September 17-21, 1984.
- Mohammed, G.H., Dunstan, D.I. and Thorpe, T.A. 1984. Shoot formation from bud explants of mature white spruce and Douglas fir. International Association of Plant Tissue and Cell Culture, Canada Section, Plant Genetic Engineering Workshop. University of Saskatchewan, Saskatoon, May 14-16, 1984.
- Mohammed, G.H. 1984. Tissue culture workshop on tree improvement. Kelowna, B.C., March 1984.
-

Keynote Presentations

Mohammed G.H, Moreno J., Rascher U., Van der Tol C., Colombo R., Damm A., Verrelst J., Ac A., Cogliati S., Magnani F., Verhoef W., Goulas Y., Lewis P., Drusch M., and all FLEX study team colleagues. 2017. **Advances from FLuorescence EXplorer (FLEX) science studies and recommendations for future research.** Remote Sensing of Fluorescence, Photosynthesis, and Vegetation Status — Frascati, Italy, 17-19 January 2017.

Mohammed, G.H. 2001. **The hidden face of the forest: Non-timber products and values.** Proc. Non-Timber Forest Products in Alaska – Hidden Forest Values, Anchorage, Alaska, 8-9 November 2001.

[Mohammed, G.H. 1995. **Making the Grade – the keynote speaker's synopsis.** Seedling Physiol. Rep., Winter 1995. pp.2-3]

Mohammed, G.H. 1994. **The status and future of plant quality assessment.** Proc. Making the Grade: An International Symposium on Planting Stock Performance and Quality Assessment, Sault Ste. Marie, Ontario, September 11-15, 1994.

Letters

Magnani, F., Raddi, S., Mohammed, G. and Middleton, E.M. 2014. Let's exploit available knowledge on vegetation fluorescence. Proceedings of the National Academy of Sciences of the USA, June 3, 2014. (www.pnas.org/cgi/doi/10.1073/pnas.1406600111)

Magazine Articles

[Many of these articles have been re-titled and/or reprinted by **Mother Earth Living** since their initial publication in the respective magazines under the titles shown here.]

- Sweeten Your Holidays Without Refined Sugar. *The Herb Companion*, Nov 2010.
 - Stealth Health: The Healing Power of Culinary Herbs. *The Herb Companion*, Sept 2010.
 - Powerful Herbal Pain Relief. *The Herb Companion*, Sept 2009.
 - Boost Your Immunity With Gourmet Mushrooms. *The Herb Companion*, Sept 2008.
 - Sample a Sea Vegetable. *Herbs for Health*, Jun 2008.
 - Barberry – A Shrub with Medicine in Its Makeup. *Herbs for Health*, Apr 2008.
 - Tea Time. *Herbs for Health*, Dec 2007.
 - Do Herbs Work for Hair Loss? *Herbs for Health*, Oct 2007.
 - Check Out Chicory. *Herbs for Health*, Jun 2007.
 - Naturally Sweet. *Herbs for Health*, Dec 2006.
 - Juice Up Those Joints! *Herbs for Health*, Oct 2006.
 - Aloe – The Healing Plant. *Herbs for Health*, Jun 2006.
 - The New Juices. *Herbs for Health*, Apr 2006.
 - Wise Weight Loss. *Herbs for Health*, Feb 2006.
 - Give Your Brain a Boost with Bacopa. *Herbs for Health*, Oct 2005.
 - Powerful Herbal Pain Relief. *Herbs for Health*, Feb 2005.
 - Green Tea Offers a Healthy Brew. *Herb Companion*, Jan 2005.
 - The Gourmet Healing Power of Medicinal Mushrooms. *Herbs for Health*, Dec 2004.
 - In Praise of Peppers. *Herbs for Health*, Aug 2004.
 - The Many Shades of Green Tea. *Herbs for Health*, Mar-Apr 2004.
 - Honey: Our Old Friend Keeps Getting Better. *Herbs for Health*, Nov-Dec 2003.
 - Bitter is Better – Befriending the Bitter Herbs. *Herbs for Health*, Mar-Apr 2003.
 - Sea Buckthorn – A Little-Known Plant With a Multitude of Uses. *Herbs for Health*, Nov-Dec 2002.
-
- Berries Blue Are Good for You. *Alive Magazine*, #226 – Aug 2001.
 - Hot and Healthy Wasabi. *Alive Magazine*, #208 – Feb 2000.
 - Know When to Harvest Antioxidant-Rich Herbs. *Alive Magazine*, #199 – May 1999.

Magazine Notes and Briefs

- Allergy-Proof Your Holiday Tree. *Canadian Living*, Dec 2009.
-