

**Proposal for a Special Issue of the
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing**

Special Issue Title

“RADARSAT-2 Special Issue - Applications“

Guest Editors

Prof. Brigitte Leblon (UNB)
Professor of Remote Sensing
Faculty of Forestry and Environmental Management
University of New Brunswick (UNB)
Fredericton, NB E3B 3A7
Canada
(Tel) +1-506-453-4924 (Fax) +1-506-453-3538
Email: bleblon@unb.ca

Mr. Gordon C. Staples (MDA)
Senior Research Analyst/Manager, Maritime Services
MacDonald, Dettwiler and Associates Ltd.
13800 Commerce Parkway
Richmond, B.C., CANADA
V6V 2J3
(Tel) +1-604-231-4950 (Fax) +1-604-231-4900
Email: gstaples@mdacorporation.com

Prof. Woil M. Moon (UM)
Satellite Geophysics
Faculty of Environment, Earth, and Resources
The University of Manitoba
Winnipeg, MB R3T 2N2, CANADA
Tel): +1-204-474-9833 (Fax): +1-204-474-7623
Email: wmoon@ad.umanitoba.ca

Reasons for the Special Issue Proposal

With state-of-the-art technology, RADARSAT-2 is one of the world's most advanced commercially available Earth observation radar image providers and offers users around the world an expanded range of high-quality data products for hundreds of applications. For managing natural resources and monitoring the environment in the 21st century, RADARSAT-2 is an indispensable tool. Scientific and commercial users in agriculture, cartography, hydrology, forestry, oceanography, and ice studies are greatly benefiting from more readily accessible radar data. RADARSAT-2 products also provide valuable information for major application areas in coastal and marine surveillance, and security and foreign policy.

A special issue of *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* is timely as there is currently the development of hundreds applications of these

advanced SAR data. The issue will focus particularly on the polarimetric capabilities of RADARSAT-2 that allow sophisticated data analysis and provide a powerful tool in many applications. While we are expected many contributions from the Canadian Earth Observation science community, we hope to have also a good contribution from outside Canada as these RADARSAT-2 data are currently made available through various programs to the whole international scientific community

Description of the Technical Content

Currently, RADARSAT-2 is one of the technically most advanced microwave remote sensing C-band SAR (imaging radar) systems with nominal spatial swath from 20 km to 500 km, incidence angles from 10^0 to 60^0 , and with fully polarimetric imaging capability. Based on this types of advanced technical flexibility, it is expected that the papers to be submitted to this special issue will discuss and include the original research in traditional radar remote sensing problems and various new technically leading edge research topics in polarimetric SAR data decomposition approaches, polarimetric SAR interferometry (polInSAR), and many new applications in various science and engineering disciplines.

Topics

Agricultural applications
Environmental applications
Forestry applications
Geology and geophysics applications
Ocean, hydrosphere, coastal applications
Monitoring of natural disaster and mitigation
Urban studies and applications
Land use applications
Anthropological applications
Remote sensing education applications
Cryosphere applications

Number of invited and contributed papers

We are planning up to 1/ ~ 1/3 invited papers and the rest will be contributed papers. The normal IEEE technical journal review process will be applied to both invited and contributed papers of this special issue. The rejection rate of the total submitted paper is expected to be similar to JSTARS.

Resume of Guest Editors

Prof. Brigitte Leblon

Dr. Leblon is professor of remote sensing at the Faculty of Forestry and Environmental Management, University of New Brunswick (UNB), Canada. She holds an Agricultural Engineer degree of the Catholic University of Leuven (Belgium) and a PhD in remote sensing of the École Supérieure Agronomique de Montpellier (France) in 1990. She has engaged in geoinformatics and remote sensing research for more than twenty five years and has published over 100 refereed publications. With her students, she won several prestigious awards. Dr. Leblon's research and teaching offerings proliferated in short order, with course offerings not only in airphoto

interpretation, but also in remote sensing, including optical, thermal infrared, radar and radar polarimetry. Dr. Leblon's current research activities are mainly in the following areas: mapping fuel moisture and Arctic environments using remote sensing and development of imaging systems for the wood industry. Dr. Leblon pioneered the development of online courses in geoinformatics. Dr. Leblon's online courses are offered not only in English, but also in French and in Spanish. The courses attract dozens of students from across Canada and around the world, from Japan to France and from USA to Australia providing UNB a distinguished presence in distance education at UNB and around the world. Dr. Leblon is also very active in university affairs, having served as Associate Director of the Wood Science and Technology Centre, as well as Faculty's representative in the Senate and the International Advisory Committee. Her other international activities include the direction of TRANSFOR-M, a dual degree Master's program in forest and environmental management between Europe and Canada and coordination of the university European strategy. She was also visiting professor at U of Cape Town, South Africa and principal investigators in several international research projects. Finally she served as guest editor for several international journals.

Mr. Gordon Staples

Gordon Staples received the M.Sc. degree in physical oceanography and the B.Sc. degree in honours physics from the University of British Columbia. He joined MDA in 1993 and is currently Senior Research Analyst/Manager, Maritime Services for the Geospatial Group. In this role, he oversees the geospatial services group, manages research projects, develops and delivers radar training, and business development. He has extensive experience in radar polarimetry and the development of radar applications. Mr. Staples has over 80 technical publications and reports, and has delivered over 60 technical presentations and training sessions. Mr. Staples was the Program Manager for the RADARSAT-2 Science and Operational Applications Research Program. He was the one of the Guest Editors for the Canadian Journal of Remote Sensing special issue on RADARSAT-2 and for the special issue on the RADARSAT-2 SOAR program. Mr. Staples is currently on the Executive Committee of the Canadian Remote Sensing Society. He is the Exhibits Chair for the IGARSS'14. Mr. Staples served on the Canadian National Committee of the International Radio Science Union (1999-2007). He is a member of the IEEE, AGU, and the CRSS.

Prof. Wooil M. Moon

Dr. Wooil M. Moon (M'71-SM'86-F'03-LF'10) received the B.ASc. degree in electrical engineering from the University of Toronto, Toronto, ON, Canada, in 1970, the M.Sc. degree from Columbia University, New York, in 1972, and the Ph.D. degree in theoretical geophysics from the University of British Columbia, Vancouver, BC, Canada, in 1976. In 1979, he joined the Faculty of Science, University of Manitoba, Winnipeg, MB, Canada, where he is currently a Professor Emeritus in Residence (Geophysics) and a University Senior Scholar. He has participated in the SEASAT (Altimeter) research as a part of the NASA Geodynamics program and has worked as a PI for numerous science verification projects including ERS-1/2, JERS-1, RADARSAT-1, NASA (JPL) AIRSAR, ENVISAT, ALOS, TerraSAR-X, and now RADARSAT-2 missions. His research interests include radar altimetry, synthetic aperture radar (SAR), polarimetric SAR theory and applications, and spatial data fusion and spatial reasoning in Earth Science applications. Dr. Moon is a member of the American Geophysical Union (AGU), Canadian Geophysical Union (CGU), American Institute of Physics (AIP), Canadian Association

of Physicists (CAP), IEEE (USA) and Society of Exploration Geophysicists (SEG, USA). He is an elected Council member of the International Union of Geodesy and Geophysics (IUGG), the Founding Member of CGU and a Fellow of the Korean Academy of Science and Technology (KAST) and a Life Fellow of Institute of Electrical and Electronics Engineers (IEEE) (USA).

Number of pages requested for the special issue

Each accepted papers is expected to be in the range of 6 ~ 10 pages and the total page budget for this special issue should be in the range of 120 ~ 200 pages. However, this page budget can be adjusted in consultation with the JSTARS Editor-in-Chief, depending on the total number of submitted papers to this special issue.

Page charges:

Each invited and contributed authors will pay the page charges through the agency to which they belong or through their research grant(s) that supported the research.

Review Process and possible Reviewer List

Guest Editors will choose and invite the reviewers from international experts in each of the application specializations. The review of both invited and contributed papers will strictly follow the IEEE technical journal guidelines.

A sample of reviewers includes:

Dr. Paris Vachon, Defence Research and Development Canada, Canada,
Dr. Vern Singhroy, Canada Centre of Remote Sensing, Canada
Dr. David Goodenough, Canadian Forestry Service, Canada
Prof. Eric Pottier, Université de Rennes 1, France
Prof. Irena Hajnsek, DLR, Germany
Prof. Alberto Moreira, DLR, Germany
Prof. Leung Tseng, ECE, Washington University, Seattle, USA
Dr. Scott Hensley, NASA JPL, USA
Dr. Anthony Freeman, NASA JPL, USA
Dr. J. Van Zyl, NASA-JPL, USA
Dr. S.H. Nam, Scripps Institute, Univ. of California, USA
Dr. Jong-Sen Lee, US Navy Laboratory, USA
Prof. Yosio Yamaguchi, Niigata University, Japan
Prof. Duk-Jin Kim, Seoul National University, Korea
Prof. Monique Bernier, INRS-Eau, Canada
Dr. François Charbonneau, Canada Centre of Remote Sensing, Canada
Dr. Ridha Touzi, Canada Centre of Remote Sensing, Canada
Dr. Joost Van der Sanden, Canada Centre of Remote Sensing, Canada

Overall Review and Publication Schedule

The following schedule is proposed, subject to adjustments by JSTARS:

Submission deadline: July 31, 2013

End of review process and revisions: December 31, 2013

Publication: April 2014