

IMAGERY TO MAP

37TH CANADIAN SYMPOSIUM ON REMOTE SENSING
37E SYMPOSIUM CANADIEN SUR LA TÉLÉDETECTION

41ST CCA CONFERENCE & ANNUAL GENERAL MEETING
41E CONFERENCE ANNUELLE ET ASSEMBLÉE GÉNÉRALE DE L'ACC

Conference Program

JUNE 7-9 2016

THE UNIVERSITY OF WINNIPEG

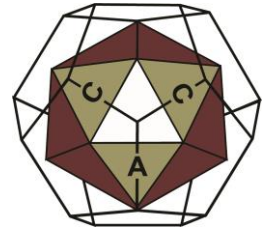
RICHARDSON COLLEGE FOR THE ENVIRONMENT AND SCIENCE COMPLEX

WINNIPEG, MANITOBA, CANADA

WIFI Access Name: **UW-CONFERENCE** | Password: **16epluwinnipeg**



Presidents' Welcome Letter



As Presidents of the Canadian Remote Sensing Society (CRSS-SCT) and the Canadian Cartographic Association (CCA-ACC), it is our pleasure and honour to welcome you all to Winnipeg for the 37th Canadian Symposium on Remote Sensing and the 41st CCA Conference. This is the second time our two organizations have been involved in presenting a joint national event, and we are delighted to see this partnership continue and grow.

This year's theme "*Imagery to Map*" reflects that spirit of cooperation and collaboration. The conference is filled with 4 days that will bring to light the state of the art in digital remote sensing and mapping technologies. Modern-day advances and conveniences bring Earth Observation and Maps into our daily routine unlike any time in the past. We invite you to partake in all the different events and activities outlined in the Conference Program, and in particular for members from both organizations to meet and discover new synergies.

We are most grateful to the leaders and Executives from both organizations, and their Conference Committees and volunteers who together have dedicated their valuable time and energy towards staging this partnered event. We also very much appreciate the Exhibitors, authors, keynote speakers, special session organizers, and all delegates as well as on-site staff who have brought their varied expertise together.

We also invite you to explore Winnipeg and experience its rich culture of history, peoples, traditions and the many attractions that make this a popular tourist destination located in the heart of the country.

This is a truly exciting era for Earth Observation and Mapping. We look forward to meeting you, and we invite you to renew old acquaintances, and meet new people and build new partnerships.

Best Regards



Anne Smith
President, CRSS-SCT



Chris Storie
President, CCA-ACC

Campus Map



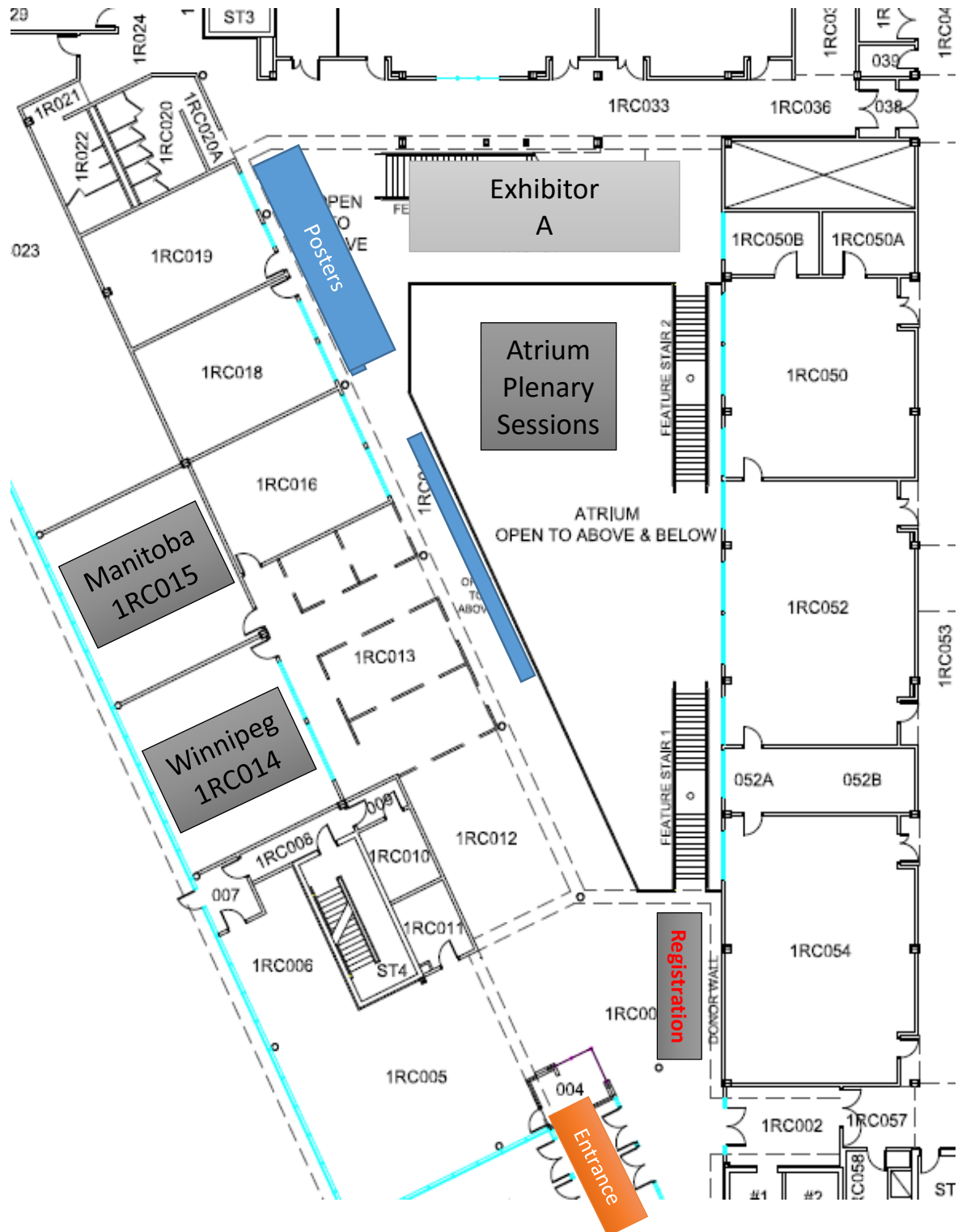
THE UNIVERSITY OF
WINNIPEG

- STUDENT CENTRAL
- SECURITY
- ESCALATORS
- WHEELCHAIR ACCESSIBLE
- RAPID TRANSIT
- BLUELIGHT PHONES
(Direct link to security)

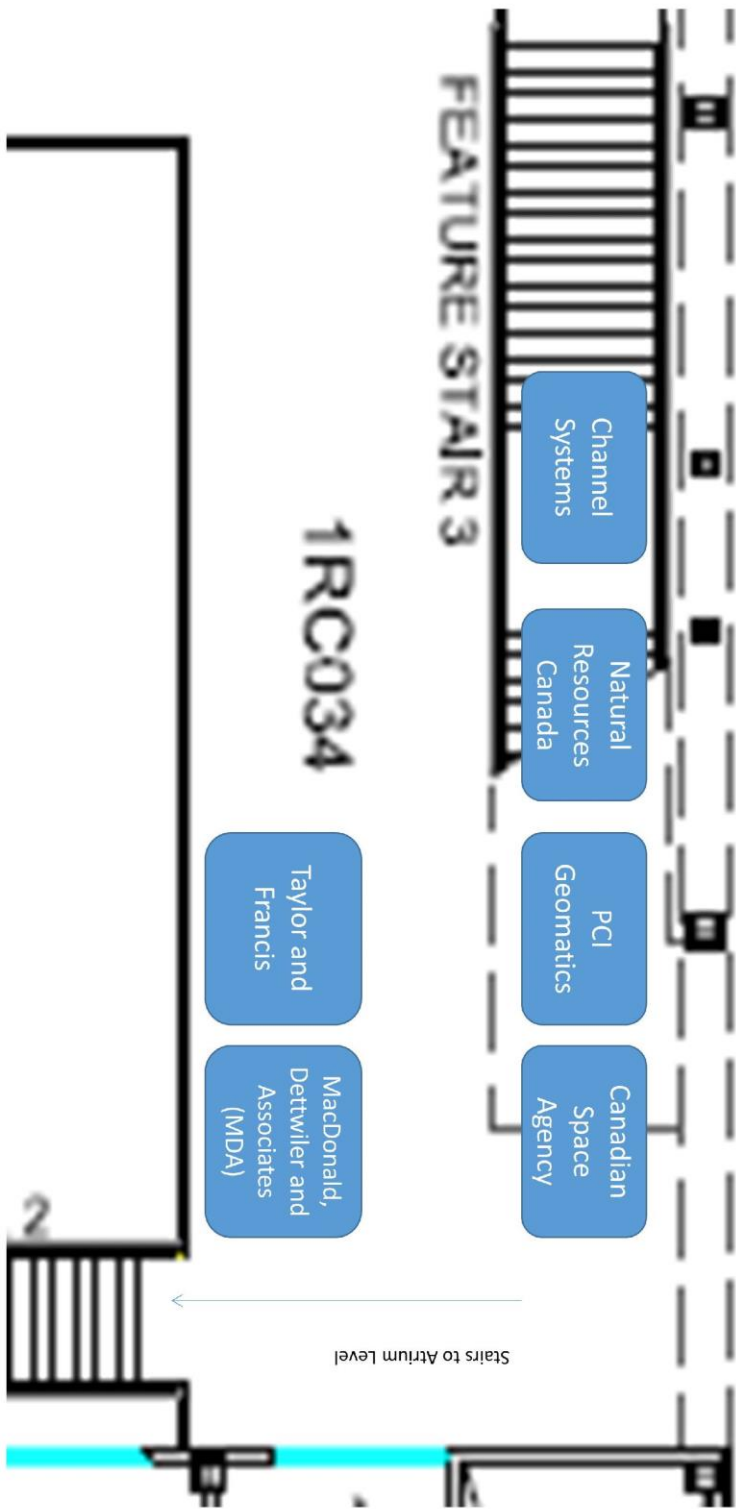


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| A ASHDOWN HALL | BL BIKE LAB | L LOCKHART HALL | RI RICE CENTRE |
| AN ANX | C CENTENNIAL HALL | M MANITOBA HALL | S SPARLING HALL |
| AS AXWORTHY COMMUNITY STAGE | D DUCKWORTH CENTRE | MF MCFEETERS HALL STUDENT RESIDENCE | T ASPER CENTRE FOR THEATRE & FILM |
| AX AXWORTHY HEALTH & RECPLX | DY UWSA DAYCARE | MS MENNO SIMONS COLLEGE | UC UWINNIPEG COMMONS (Opening Fall 2016) |
| B BRYCE HALL | E HELEN BETTY OSBORNE | R RIDDELL HALL | W WESLEY HALL |
| BC BUHLER CENTRE | ED EDUCATION CLASSROOMS | RC RICHARDSON COLLEGE FOR THE ENVIRONMENT & SCIENCE COMPLEX | |
| | G GRAHAM HALL | | |

Conference Floor Plan



Exhibitors



Conference Committees

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Mryka	Hall-Beyer	University of Calgary
Brigitte	Leblon	University of New Brunswick
Martin	Bergeron	Canadian Space Agency
Derek	Peddle	University of Lethbridge
Joe	Piwowar	University of Regina
Ahmed	Shaker	Ryerson University
Julia	Siemer	University of Regina
Anne	Smith	Agriculture and Agri-Foods Canada
Gordon	Staples	MDA Corporation
Chris	Storie	University of Winnipeg
Joni	Storie	University of Winnipeg
Dion	Wiseman	Brandon University

Keynote Speakers



David Henry – Director Canada Centre for Remote Sensing (Canada Centre for Mapping and Earth Observation)

David Henry is the new Director for the Canada Centre for Remote Sensing. He is giving the opening keynote for the conference. His talk focuses on the direction the federal government is taking with regards to bringing spatial data down to the citizen's handheld device.



Ed Cloutis – Professor of Geography at the University of Winnipeg.

Dr. Cloutis will be giving the opening keynote during the second day of the conference (June 8). His talk will be on remote sensing for planetary exploration with a particular focus on the planet Mars.



Prasad S. Thenkabail – Research Geographer, United States Geological Survey.

Dr. Thenkabail will be giving the afternoon keynote on June 8. This keynote will also kick off our agricultural themed afternoon. His keynote will centre around the remote sensing of global agriculture with advances in technologies being routinely used to secure global food and water resources.



Olaf Niemann – Professor and BC Leadership Chair in Hyperspectral Remote Sensing, Department of Geography, The University of Victoria.

Dr. Niemann will give the final keynote on the morning of June 9. His talk will examine the historical evolution of hyperspectral remote sensing as seen through his eyes culminating with the emergence and prevalence of UAV based remote sensing technologies

Sessions at a Glance

Tuesday June 7, 2016

7:30 – 17:00		
Registration Desk Open		
8:20-8:40 (Atrium Floor)		
Welcome and Opening Remarks		
8:40 – 9:40 (Atrium Floor)		
Keynote (K1) David Henry (Canada Centre for Remote Sensing)		
Title: Maximizing Innovation Potential and Impact “From Satellite to Handheld”		
9:40-9:50 Move to Sessions		
Session 1 - 9:50-10:50		
Atrium Floor (S1A)	Winnipeg Room (S1B)	Manitoba Room
Geoanalytics Earth Observation Data Environment (SS)	Ecology Applications in Remote Sensing (1)	
10:50 – 11:10 Health Break (Elements Restaurant)		
Exhibitors, Posters		
Session 2 - 11:10 – 12:30		
Atrium Floor (S2A)	Winnipeg Room (S2B)	Manitoba Room
Satellite Missions	Q/A Industry	
12:30 – 13:40 Lunch (Elements Restaurant)		
Exhibitors, Posters		
Session 3 - 13:40 – 15:00		
Atrium Floor (S3A)	Winnipeg Room (S3B)	Manitoba Room
Land Management and Environmental Applications on Aboriginal Lands (SS)	Soil Moisture, Water and Ice	
15:00 – 15:30 Health Break (Elements Restaurant)		
Exhibitors, Posters		
Session 4 - 15:30 – 17:10		
Atrium Floor (S4A)	Winnipeg Room (S4B)	Manitoba Room
Land Cover	Wetlands and Water	
17:10-17:20 (Atrium Floor)		
Closing Remarks		
18:30 – 21:30 Qualico Family Centre		
CRSS-SCT Awards Reception		
Shuttles Depart Starting at 17:45; Return Shuttles to Campus start at 21:00		

Wednesday June 8, 2016

7:30 – 17:00 Registration Desk Open		
8:20-8:40 (Atrium Floor) Welcome and Opening Remarks		
8:40 – 9:40 (Atrium Floor) Keynote (K2) Ed Cloutis (University of Winnipeg) “Remote Sensing Exploration of Mars”		
9:40-9:50 Move to Sessions		
Session 5 - 9:50-10:50		
Atrium Floor (S5A) Ecology Applications in Remote Sensing (2)	Winnipeg Room (S5B) Integrated Mapping	Manitoba Room (S5C) Decision Support
10:50 – 11:10 Health Break (Elements Restaurant) Exhibitors, Posters		
Session 6 - 11:10 – 12:30		
Atrium Floor (S6A) UAV (1)	Winnipeg Room (S6B) Geology and Oil/Gas	Manitoba Room (S6C) GIS and Mapping
12:30 – 13:40 Lunch (Elements Restaurant) Exhibitors, Posters Canadian Cartographic Association AGM (Winnipeg Room)		
13:40 – 14:40 (Atrium Floor) Keynote (K3) Prasad S. Thenkabail (United States Geological Survey) “Remote Sensing and Mapping in Global Agriculture”		
14:40 – 15:10 Health Break (Elements Restaurant) Exhibitors, Posters		
Session 7 - 15:10 – 16:50		
Atrium Floor (S7A) Geospatial Education (SS)	Winnipeg Room (S7B) Agricultural Applications in Remote Sensing	Manitoba Room
17:10-17:20 (Atrium Floor) Closing Remarks		
Informal Reception (Peg City Brewing) For those who wish to attend (6:00 pm – whenever)		

Thursday June 9, 2016

7:30 – 17:00 Registration Desk Open			
8:30-8:40 (Atrium Floor) Welcome and Opening Remarks			
8:40 – 9:40 (Atrium Floor) Keynote (K4) Olaf Niemann (University of Victoria) “Transformative Technologies and the Impacts on (Hyperspectral) Remote Sensing: A 30 Year Perspective”			
9:40-9:50 Move to Sessions			
Session 8 - 9:50-11:10			
Atrium Floor (S8A) SAR Applications (1)	Winnipeg Room (S8B) UAV (2)	Manitoba Room (S8C) Big Data	(S8D) Manitoba Archives Tour (see program entry for details)
11:10 – 11:40 Health Break (Elements Restaurant) Exhibitors, Posters			
Session 9 - 11:40 – 13:00			
Atrium Floor (S9A) SAR Applications (2)	Winnipeg Room (S9B) Terrain Analysis / LiDAR	Manitoba Room (S9C) Historical Cartography and GIS	
13:00 – 14:20 Lunch (Elements Restaurant) Exhibitors, Posters Canadian Remote Sensing Society AGM (Atrium Floor)			
Session 10 – 14:20 - 15:40			
Atrium Floor (S10A) SAR Applications (3)	Winnipeg Room (S10B) LiDAR (Forestry)	Manitoba Room	
15:40 – 16:00 (Atrium Floor) Closing Remarks Presentation of the best student oral presentations (gold, silver and bronze) and of the best student poster (gold, silver and bronze) awards.			

Full Conference Program

Tuesday June 7, 2016

8:20-8:40 Atrium Floor

Welcome and Opening Remarks

Keynote 1 (8:40-9:40) Atrium Floor

David Henry – Director, Canada Centre for Remote Sensing

Title: Maximizing Innovation Potential and Impact “From Satellite to Handheld”.

Session 1 (9:50-10:50)

1A Geoanalytics Earth Observation Data Environment (GEODE)

Atrium Floor

Session Chair: David Henry

9:50-10:10	The Vision for the Geoanalytics Earth Observation Data Environment (GEODE) <i>David Henry and Darren Janzen (53)</i>
10:10-10:30	Canadian Geoanalytics Earth Observation Data Environment <i>Jeff Clark, Bob Ryerson, Andy Dean, Brian Maloney, Doug Bancroft and Cedric Seynat (77)</i>
10:30-10:50	An evaluation of international earth observation data cubes in the context of a proposed Canadian Geoanalytics Earth Observation Data Environment <i>Andy Dean, Jeff Clark, Cedric Seynat, Jason Suwala, Robert Ryerson, Doug Bancroft and Marc-Elia Bégin (66)</i>

(#) Number denotes paper number in list of abstracts

* denotes student presenters

Tuesday June 7, 2016

1B Ecology Applications in Remote Sensing (1)

Winnipeg Room

Session Chair: Xulin Guo

9:50-10:10	Can Radarsat-2 images be used for quantifying Non-photosynthetic vegetation in northern mixed prairie? <i>Zhaoqin Li* and Xulin Guo (15)</i>
10:10-10:30	Development of Long-term Remote Monitoring Strategy to Evaluate Endemic Plant Populations and Ecosystem Changes in Athabasca Sand Dunes <i>Anjika U. Attanayake*, Eric G. Lamb and Xulin Guo (72)</i>

10:50-11:10

Health Break (Elements Restaurant)

Exhibitors

Poster Session [author(s) optional]

Session 2 (11:10-12:30)

2A Satellite Missions

Atrium Floor

Session Chair: Martin Bergeron

11:10-11:30	Imaging the Entire Earth Every Day: An Overview of the Planet Labs "Mission 1" Constellation <i>Matt Wirzba (13)</i>
11:30-11:50	A Canadian Coastal and Inland Water Hyperspectral Imager <i>Martin Bergeron, Shen-En Qian, Michael Ott, Gary Buttner, Louis Moreau, Jean-Pierre Ardouin, Georges Fournier, Caren Binding, Stéphanie Brazeau, Emmanuel Devred, H. Peter White, Susanne E. Craig, Simon Bélanger and Jennifer Busler (73)</i>
11:50-12:10	Moving to the Radarsat Constellation Mission: comparing synthesized compact polarimetry data with fully polarimetric Radarsat-2 data for image classification of wetlands <i>Lori White, Koreen Millard*, Sarah Banks, Jon Pasher, Murray Richardson and Jason Duffy (28)</i>
12:10-12:30	National SAR Winds Operational System Readiness for New & Future SAR Missions <i>Shahid Khurshid, Kerri Warner, Filipe Botelho and Shannon Kaya (47)</i>

Tuesday June 7, 2016

2B Q/A Industry

Manitoba Room

Session Chair: Dr. Brigitte Leblon
 Panelists: Gordon Staples (MDA), Dr Bob Ryerson (Kim Geomatics) and
 Martin Bergeron (Canadian Space Agency)

12:30-13:40**Lunch Break (Elements Restaurant)****Exhibitors****Poster Session [author(s) optional]****Session 3 (13:40-15:00)**

3A Land Management & Environmental Applications on Aboriginal Lands

Atrium Floor

Session Chair: Khaleel Khan

13:40-14:00	Testing efficacy of UAV's for Surveying & Mapping on First Nations and National Park lands <i>Robert Fligg, Mark Hatcher and Khaleel Khan (84)</i>
14:00-14:20	UAV Applications on First Nations Lands: A Lands Manager's Perspective <i>James Shannacappo (85)</i>
14:20-14:40	Incorporating UAV mapping into hydrological assessment: Identifying flood boundaries and assessing risk at Pine Creek First Nation <i>Mark Lowdon (93)</i>
14:40-15:00	First Nations as Earth Observation Citizen-Scientists <i>Genevieve Marquis, George Choma, Vincent Decker and Matthew Maloley (78)</i>

Tuesday June 7, 2016

3B **Soil Moisture, Water and Ice****Winnipeg Room**

Session Chair: Monique Bernier

13:40-14:00	Surface soil moisture monitoring in an Argentinean agricultural plain from different active microwave satellite sources <i>Hector Salgado, Federico Carballo and Monique Bernier (69)</i>
14:00-14:20	Integration of space-borne and air-borne data in monitoring river ice processes in the Slave River, Canada <i>Thuan Chu and Karl-Erich Lindenschmidt (70)</i>
14:20-14:40	Investigating the response of spring greenup to the climate variability over the Prairie Ecozone using MODIS NDVI time series <i>Tengfei Cui* and Xulin Guo (76)</i>

Tuesday June 7, 2016

15:00-15:30

Health Break (Elements Restaurant) Exhibitors
Poster Session [P1-P8: author(s) present]

P1	Automatic Land-Water Delineation from Multispectral Airborne LiDAR Data Using Normalized Difference Water Indexes <i>Salem Morsy*, Ahmed El-Rabbany and Ahmed Shaker (8)</i>
P2	Discrimination of Deciduous Tree Species Using UAV Multispectral Imagery, OBIA and Machine Learning <i>Oumer Ahmed and Steven E. Franklin (25)</i>
P3	Statistical Distributions of Sea Ice Types in L-band SAR Data Imagery <i>Mohammed Dabboor, Stephen Howell (27)</i>
P4	Enabling Emergency Response in Canada through Earth Observation and Crowd Sourcing Initiatives <i>Alice Deschamps and Geneviève Marquis (29)</i>
P5	Geohistory-Géohistoire Canada: Canadian Historical GIS Partnership Development Project <i>Byron Moldofsky (#113)</i>
P6	Speckle Noise Reduction and Automatic Segmentation of High Spatial Resolution of SAR Images <i>Seyed Mokhtar Dashti, Abdol Azim Qezel and Ali Esmaeily (40)</i>
P7	Modified SLIC Superpixels Algorithm for Speckle Noise Reduction of High Resolution SAR Images <i>Abdol Azim Qezel, Seyed Mokhtar Dashti and Ali Esmaeily (41)</i>
P8	Exploring the Coal Deposit Sites Using Aster Images <i>Mohammad Dehdast and Ali Esmaeily (42)</i>

Tuesday June 7, 2016

Session 4 (15:30-17:10)

4A Land Cover

Atrium Floor

Session Chair: Darren Pouliot

15:30-15:50	Use of RADARSAT-2 Polarimetric SAR Images for Drought Code Mapping over Canadian Grasslands <i>Duncan Rand, Brigitte Leblon, Joseph Buckley, Laura Bourgeau-Chavez (98)</i>
15:50-16:10	Landsat Time Series Modeling in Canada Following the Harmonic Analysis Approach <i>Darren Pouliot and Rasim Latifovic (63)</i>
16:10-16:30	Characterization and Prediction of Sample Distribution and Prior Probability Effects on Land Cover Classifier Extension <i>Darren Pouliot, Rasim Latifovic and William Parkinson (62)</i>
16:30-16:50	Wall-to-Wall Mapping of Canopy Gap Fraction from Refined GLAS Waveforms <i>Craig Mahoney, Chris Hopkinson and Alex Held (14)</i>

4B Wetlands and Water

Winnipeg Room

Session Chair: Jahangir Khan

15:30-15:50	The Evaluation of speckle reduction effects on wetland classification of PolSAR images: with introducing a new adaptive method for despeckling based on Gaussian Markov Random Field (GMRF) <i>Masoud Mahdianpari, Bahram Salehi and Fariba Mohammadimanesh (17)</i>
15:50-16:10	Mapping wetlands in New Brunswick with RADARSAT-2 and ALOS-PALSAR images <i>Armand Larocque, Brigitte Leblon, Renata Woodward, Laura Bourgeau-Chavez and Nancy French (60)</i>
16:10-16:30	Mer Bleue Arctic Surrogate Simulation Study (MBASSS) <i>Raymond Soffer, H. Peter White, Margaret Kalacska, George Leblanc, Pablo Arroya-Mora, Dennis Nazarenko, Gabriela Ifimov and Matthew Maloley (82)</i>
16:30-16:50	Mapping MODIS LST NDVI Imagery for Drought Monitoring in Great Plain of Punjab Pakistan <i>Jahangir Khan* and Wang Pengxin (34)</i>

Tuesday June 7, 2016

17:10-17:20

Atrium Floor

Closing Remarks

18:30-21:30

CRSS-SCT Awards Reception

Qualico Family Centre (Assiniboine Park)

****Shuttles depart starting 17:45 from Parking Lot of Richardson College and
will run approximately every 15 minutes until 19:00.**

Return shuttles depart starting at 21:00.

Wednesday June 8, 2016

8:30-8:40 Atrium Floor
Welcome and Opening Remarks

Keynote 2 (8:40-9:40) Atrium Floor
Dr. Ed Cloutis – Professor of Geography, The University of Winnipeg
“Remote Sensing Exploration of Mars”

Session 5 (9:50-10:50)

5A **Ecology Applications in Remote Sensing (2)**

Atrium Floor

Session Chair: Xulin Guo

9:50-10:10	Mapping Permafrost Changes in Northern Ontario through Remote Sensing <i>Zlatka Pironkova (9)</i>
10:10-10:30	Analysis of temporal and spatial characteristics of ecological risk in loess plateau watershed based on remote sensing approach <i>Qingxia Guo and Xulin Guo (50)</i>
10:30-10:50	Grassland moisture extraction using Landsat and Radarsat2 data <i>Carmen Finnigan and Xulin Guo (74)</i>

Wednesday June 8, 2016

5B Mapping Environmental Change

Winnipeg Room

Session Chair: Roger Wheate

9:50-10:10	Improving Urban Land Cover Classification Combining Landsat Imagery with Multi-temporal PolSAR Imagery <i>Weikai Tan*, Jonathan Li, Linlin Xu (#102)</i>
10:10-10:30	Examining Urban Expansion in the Montreal Census Metropolitan Area Using Landsat Images from 1975 to 2015 <i>Lingfei Ma*, He Zhao, Jonathan Li (#103)</i>
10:30-10:50	Mapping and updating glacier extents in western Canada using Landsat 5 TM and 8 OLI multispectral imagery <i>Roger Wheate (#104)</i>

5C Decision Support

Manitoba Room

Session Chair: H. Peter White

9:50-10:10	Integrated Use of Remote Sensing and GIS techniques to develop an efficient management system for Wakamow Valley, Moose Jaw <i>Abdul Raouf and Mirva Travland (3)</i>
10:10-10:30	Improvements And Validation Of Earth Observation Based Geomatics Products For Emergency Decision-Support <i>Jean-Samuel Proulx-Bourque, Alice Deschamps, Simon Tolszczuk-Leclerc, Mario Beauchemin and Joost Van der Sanden (33)</i>
10:30-10:50	Validating targets detected by SAR ship detection engines <i>Nicholas Sandirasegaram and Paris W. Vachon (18)</i>

10:50-11:10

Health Break (Elements Restaurant)

Exhibitors, Poster Session [author(s) optional]

Wednesday June 8, 2016

Session 6 (11:10-12:30)

6A Unmanned Aerial Vehicle Applications for Remote Sensing (1)

Atrium Floor

Session Chair: Chuiqing Zeng

11:10-11:30	Assessment of Unmanned Aerial Vehicle (UAV)-acquired imagery for creation of point clouds, Digital Elevation and Surface Models (DEM and DSM) and orthophotos: case study within vegetated peatland environments <i>Koreen Millard*, Lindsay Armstrong, Fernanda Moreira Amaral, Doug Stiff and Murray Richardson (5)</i>
11:30-11:50	Map the inherent optical properties (IOP) of water using multi-spectral sensors mounted on UAV <i>Chuiqing Zeng, Murray Richardson, Douglas King and Stephen Bird (36)</i>
11:50-12:10	UAV Campaigns over the Mer Bleue Bog – Preliminary report <i>Matthew Maloley, H. Peter White and Sarah Oakes (83)</i>
12:10-12:30	Modelling residual stand volume using unmanned aerial vehicles and digital aerial photogrammetry <i>Tristan Goodbody*, Nicholas Coops, Piotr Tompalski, Patrick Crawford and Ken Day (20)</i>

6B Geology and Oil/Gas

Winnipeg Room

Session Chair: Jeff Harris

11:10-11:30	Predictive lithological mapping of Canada's North using Random Forest classification applied to geophysical and geochemical data] <i>Jeff Harris (54)</i>
11:30-11:50	Remote Predictive Mapping of surficial materials in Canada's North <i>Jeff Harris (65)</i>
11:50-12:10	Detection of Emulsified oil in the Gulf of Mexico using RADARSAT-2 Quad-Polarized Imagery <i>Gordon Staples, Oscar Garcia (95)</i>
12:10-12:30	Remediation Performance Assessment of Pipeline Spill Sites with Landsat Data <i>Subir Chowdhury, Todd Shipman, Catherine Evans, Annie Jian and Dennis Chao (21)</i>

Wednesday June 8, 2016

6C GIS and Mapping

Manitoba Room

Session Chair: Dion Wiseman

11:10-11:30	Accuracy of GIS Data with Smartphone GPS <i>Jackie O'Neal (106)</i>
11:30-11:50	Sun Glare Road Hazard Mapping: An Integrated DEM, Road Network, GIS and Solar Positioning GeoApp <i>Derek Peddle and Ryan Selk (116)</i>
11:50-12:10	Modeling 3D building rooftops for solar energy estimation using LiDAR: a case study in the City of Woodstock <i>Shishuo Xu, Songnian Li, Xintao Liu (100)</i>
12:10-12:30	The Widening Gap Between Image and Map <i>Dion Wiseman (92)</i>

12:30-13:40

Lunch Break (Elements Restaurant)

Canadian Cartographic Association Annual General Meeting (Winnipeg Room)

Exhibitors

Poster Session [author(s) optional]

Keynote 3 (13:40-14:40)

Atrium Floor

Dr. Prasad S. Thenkabail – Research Geographer, U. S. Geological Survey (USGS)

“Remote Sensing and Mapping in Global Agriculture”

Wednesday June 8, 2016

14:40-15:10

Health Break (Elements Restaurant)

Exhibitors

Poster Session [P9-P16: author(s) present]

P11	Using A Mobile Device Remote Sensing Technology And Application To Assess Residue Cover On Southern Ontario Agricultural Fields <i>Ahmed Laamrani, Pamela Joosse, Natalie Feisthauer and Christine Tan (68)</i>
P12	The Sensitivity Of RADARSAT-2 Polarimetric Components To Air Pocket Density In River Ice Cover <i>Karl-Erich Lindenschmidt and Thuan Chu (71)</i>
P13	Monitoring The Change Of Water Area Due To Mining Subsidence Of Based On RS <i>Qiuji Chen (75)</i>
P14	Étude De La Répartition Et Du Dégel Du Pergélisol Dans Deux Bassins Subarctiques Par Télédétection <i>Chaima Touati*, Monique Bernier, Ralf Ludwig, Lingxiao Wang, Jimmy Poulin, Andres Jacome (86)</i>
P15	Mapping Active NDVI From Multi-Spectral Lidar Image Channels <i>Maxim Okhrimenko and Chris Hopkinson (89)</i>
P16	The Use of Image Fusion, Object-based Image Analysis and Machine Learning with Landsat and Radarsat-2 Data for Wetland Classification in Northern Ontario <i>Erik Skeries, Michael Stefanuk, Dr. Oumer Ahmed and Steven E. Franklin (39)</i>
P17	Developing an online water portal for near-real-time monitoring of remotely-sensed surface water attributes <i>Hossein Naseri, Christopher Hopkinson and Reed Parsons (31)</i>

Wednesday June 8, 2016

Session 7 (15:10-16:50)

7A Geospatial Education

Atrium Floor

Session Chair: Derek Peddle

15:10-15:30	Bringing Reality to Remote Sensing Education <i>Bob Ryerson (55)</i>
15:30-15:50	The importance of complementing technical skills with softer skills – remote sensing in consulting <i>Andy Dean, Jeff Clark (94)</i>
15:50-16:10	Geospatial Education: Examining Trends and Drivers in Our Knowledge Supply Chain <i>Deb Grieco (97)</i>
16:10-16:30	GeoSpatial Education at the University of Lethbridge: The NSERC CREATE AMETHYST Experience and Next Pathways <i>Derek Peddle, Craig Coburn, Karl Staenz, Adriana Pedro-Cross, Chris Hopkinson (96)</i>
16:30-16:50	New Ways of Teaching Remote Sensing and High School Curricula: Online Delivery of Courses <i>Brigitte Leblon, Armand Larocque and María De La Luz Gil Docampo (61)</i>

7B Agricultural Applications in Remote Sensing

Winnipeg Room

Session Chair: Craig Coburn

15:10-15:30	BRDF Effects on Vegetation Indexes and Resultant LAI Derivations in Agricultural Crops <i>Jason Beaver and Craig Coburn (35)</i>
15:30-15:50	A Cloud Computing System Development for Agricultural Crop Monitoring Using Multi-Source Remotely Sensed Data from Google Earth Engine <i>Craig Coburn and Yuchu Qin (80)</i>
15:50-16:10	Remote sensing data to measure and monitor crop residue in southwestern Ontario: What is the optimal number of field measurements required to estimate residue? <i>Ahmed Laamrani, Pamela Joosse and Natalie Feisthauer (67)</i>

Wednesday June 8, 2016

7C Integrated Mapping

Manitoba Room

Session Chair: Roger Wheate

15:10-15:30	Geospatial Standards Enabling Geographic Information Sharing and Interoperability <i>Anna Jasiak (101)</i>
15:30-15:50	Resource dependent communities: Impact of Randall & Ironside (1996) <i>Joni Storie, Ryan Bullock, Jeremy Leathers and Julia Lawler (#110)</i>
15:50-16:10	Cartographic Enhancement Of The National Topographic Database In Mountain Environments <i>Roger Wheate (#105)</i>
16:10-16:30	The Impact of Multi-Criteria Decision Analysis Parameters on an Urban Deprivation Index <i>Meghan McHenry, Claus Rinner (112)</i>

16:50-17:00

Atrium Floor

Closing Remarks

Thursday June 9, 2016

8:30-8:40 Atrium Floor
Welcome and Opening Remarks

Keynote 4 (8:40-9:40) Atrium Floor

Dr. Olaf Niemann – Professor of Geography, The University of Victoria

**“Transformative Technologies and the Impacts on (Hyperspectral) Remote Sensing:
 A 30 Year Perspective”**

Session 8 (9:50-11:10)

8A SAR Applications (1)

Atrium Floor

Session Chair: Yun Shao

9:50-10:10	The relationship of roughness measured by microwave remote sensing data and the air pollution diffusion resistance <i>Yun Shao, Fengli Zhang, Zhikun Li and Guojun Wang (24)</i>
10:10-10:30	Land Cover Classification from Multi-temporal and Multi-frequency Coherence Analysis <i>Kevin Murnaghan, Brian Brisco, Andreas Schmitt, Valentin Poncos and Sasha Chichagov (90)</i>
10:30-10:50	Object-based multi-temporal SAR analysis for wetland classification in Newfoundland and Labrador <i>Sahel Mahdavi, Bahram Salehi, Brian Brisco, Jean Granger, Meisam Amani and Weimin Huang (22)</i>
10:50-11:10	Recognition of salt crust types by means of PolSAR to reflect the fluctuation processes of an ancient lake in Lop Nur <i>Huaze Gong, Yun Shao, Changan Liu, Zhi Yang, Long Liu and Yuyang Geng (1)</i>

Thursday June 9, 2016

8B Unmanned Aerial Vehicle Applications for Remote Sensing (2)**Winnipeg Room**

Session Chair: Kongwen (Frank) Zhang

9:50-10:10	UAV Imagery Quality Assessment - A case study of West Kootenay, British Columbia, Canada <i>Kongwen Zhang, Victory Sticha and Genevieve Lepage (88)</i>
10:10-10:30	UAV-derived DEM quality: a comparison with high density LiDAR data <i>Cydne Potter, K. Olaf Niemann, Geoff Quinn and Roger Stephen (99)</i>
10:30-10:50	Utilizing unmanned aerial vehicles in crop research <i>Steve Shirtliffe and Hema Duddu (81)</i>
10:50-11:10	Implementation and Evaluation of a High-Accuracy UAV-Photogrammetry System: Concurrent Hardware/Software Development <i>Mozhdeh Shahbazi*, Gunho Sohn, Jerome Theau and Patrick Ménard (38)</i>

8C Big Data**Manitoba Room**

Session Chair: Cedric Seynat

9:50-10:10	Applications of Moderate Remote Sensing Time Series (Big Data) Analysis in Canada <i>Darren Pouliot and Rasim Latifovic (64)</i>
10:10-10:30	The Fundamentals of Information as a Service (InfoaaS) for Earth Observation <i>Cedric Seynat and Marc-Eliañ Begin (79)</i>

8D Archives Tour**11:00 a.m. (departs Registration Desk at 10:40a.m.)**

The tour will highlight a variety of maps in the Hudson's Bay Company Archives and will allow participants a close look at the archives. Participants will also tour the Archives of Manitoba reading room and information on the holdings of the Hudson's Bay Company Archives. Participants are asked to meet at the registration desk before 10:40 a.m. to walk over to the archives. The tour starts at the Archives promptly at 11:00 a.m. and will last for approximately 1 hour. There is no extra charge for this tour. There is room for 15 people. A signup sheet will be available at the registration desk. The group will walk over, leaving from the registration desk at 10:40 a.m. Anyone with mobility issues or any other questions should contact the General Conference Chair in advance: Chris Storie (c.storie@uwinnipeg.ca).

Thursday June 9, 2016

11:10-11:40

Health Break (Elements Restaurant)
Exhibitors, Poster Session [author(s) optional]

Session 9 (11:40-13:00)**9A SAR Applications (2)****Atrium Floor**

Session Chair: Brian Brisco

11:40-12:00	Rice Phenology Estimation Using RADARSAT-2 Polarimetric Data and a Feature Optimization Strategy <i>Zhi Yang, Kun Li, Yun Shao, Qingbo Liu, Brian Brisco, Long Liu and Huaze Gong (19)</i>
12:00-12:20	Evaluation of SAR Techniques for Flooded Vegetation Mapping <i>Brian Brisco, Kevin Murnaghan, Josh Montgomery, Christopher Hopkinson, Valentin Poncas, Charles Papasodoro and Alice Deschamps (3)</i>
12:20-12:40	Development of methods to monitor peatland hydrological conditions using RADARSAT-2 Synthetic Aperture Radar Data <i>Koreen Millard* and Murray Richardson (4)</i>
12:40-13:00	Wetland Identification and Change Detection using a Multi-sensor, Multi-frequency Remote Sensing Approach <i>Brian Huberty, Lori White, Brian Brisco, Kevin Murnaghan, Jason Duffe, Jon Pasher and Sarah Banks (2)</i>

9B Terrain Analysis / LiDAR - Water**Winnipeg Room**

Session Chair: H. Peter White

11:40-12:00	The ArcticDEM <i>Brian Huberty and Paul Morin (26)</i>
12:00-12:20	Pulsing wetlands: Monitoring feedbacks between hydro-climatic regimes, wetland vegetation changes and pond terrestrialisation using multi-temporal LiDAR/optical and in situ data fusion <i>Laura Chasmer, Kevin Devito, Chris Hopkinson, Carl Mendoza and Rich Petrone (87)</i>
12:20-12:40	3D Land-Water Discrimination from Multispectral Airborne LiDAR Data Using Geometric and Radiometric Attributes <i>Salem Morsy*, Ahmed Shaker and Ahmed El-Rabbany (7)</i>

Thursday June 9, 2016

9C Historical Cartography and GIS

Manitoba Room

Session Chair: Byron Moldofsky

9:50-10:10	BC Mines and their historical landscape: From imagery to map to imagery <i>Daniel Brendle-Moczuk (#108)</i>
10:10-10:30	GIS in Historical Geography: Using schools and railways to explain the process and pattern of European agricultural settlement on the Canadian Prairies <i>Brian McGregor, John C. Lehr (#109)</i>
10:30-10:50	The Canadian Historical GIS Partnership Development Project: Learning from the Community <i>Byron Moldofsky (#113)</i>
10:50-11:10	Historical GIS and the Postcards of the Prairies <i>Larry Laliberte, Sandra Schwab (#111)</i>

13:00-14:20

Lunch Break (Elements Restaurant)

Exhibitors, Poster Session [author(s) optional]

Canadian Remote Sensing Society Annual General Meeting (Atrium Floor)

Session 10 (14:20 – 15:40)

10A SAR Applications (3)

Atrium Floor

Session Chair: Brian Brisco

14:20-14:40	Integrating SAR and lidar for surface water monitoring in Alberta <i>Chris Hopkinson, Brian Brisco, David McCaffrey, Joshua Montgomery* and Shane Patterson (16)</i>
14:40-15:00	A wetland classification framework for Newfoundland and Labrador using multi-source SAR and optical data fusion <i>Meisam Amani, Bahram Salehi, Brian Brisco, Sahel Mahdavi and Jean Granger (23)</i>
15:00-15:20	Fusing LiDAR, SAR and optical data to monitor open water extent of wetlands in Alberta <i>Joshua Montgomery, Brian Brisco, Chris Hopkinson and Laura Chasmer (45)</i>
15:20-15:40	Use of LiDAR products for improving SAR derived surface water and flooded vegetation maps <i>Alexander Chichagov, Christopher Hopkinson, Joshua Montgomery, Matthew Maloley and Brian Brisco (52)</i>

Thursday June 9, 2016

10B LiDAR (Forestry)

Winnipeg Room

Session Chair: Ahmed Laamrani

14:20-14:40	Prediction of forest inventory attributes in different forest types in Ontario using a core set of stable ALS metrics <i>Karin van Ewijk, Jean-Romain Roussel, Paul Treitz, John Caspersen, Alexis Achim, Trevor Jones, Murray Woods and Douglas Pitt (43)</i>
14:40-15:00	A Comparison of Methods for Classifying Alpine Treeline Ecotone from Airborne Lidar Data <i>David McCaffrey and Chris Hopkinson (44)</i>
15:00-15:20	Ensemble classification approach for recognizing tree species from airborne multi-spectral LiDAR <i>Connie Ko and Gunho Sohn (48)</i>
15:20-15:40	Broad-scale mapping of vertical forest stand structure across Alberta's forested landscapes <i>Aria Guo*, Nicholas Coops, Christopher Bater, Barry White and Scott Nielsen (37)</i>

15:40-16:00

Atrium Floor

Symposium Closing Remarks

Presentation of Best Student Oral Presentations (Gold, Silver, Bronze) and Best Student Poster (Gold, Silver, Bronze) awards.



Call for Papers

Canadian Journal of Remote Sensing

Special Issue:

"37th Canadian Symposium on Remote Sensing / 37e Symposium canadien sur la télédétection"

7-9 June 2016: Winnipeg, Manitoba, Canada

The Canadian Remote Sensing Society/ Société canadienne de télédétection is holding its 37th conference in Winnipeg, Manitoba, Canada on 7-9 June 2016. The conference offers an opportunity for Canadian and international researchers to discuss and present their research related to remote sensing and geospatial science. The symposium will highlight the remote sensing process from initial image acquisition to final map production. From sensor, platform and algorithm development to applications and final report and map production, remote sensing and cartography play a vital role in the way society views the earth and its related systems. In addition to presentation of papers and posters, conference presenters are welcome to submit scientific papers for publication in the Canadian Journal of Remote Sensing.

This Special Symposium Issue is open to all papers presented at the conference, including those presented as part of a Special Session

All papers will be subjected to peer-review and standard page charges.

Submit your digital manuscript via the CJRS Manuscript Central website at: <http://mc.manuscriptcentral.com/cjrs-jct>

Deadline for Submission: September 1st 2016. (Targeted publication date will be mid 2017)

Prospective authors must follow the regular guidelines of the CJRS available at <http://www.tandfonline.com/r/cjrs>.

Regular page charges (\$400 USD for a research or review paper, \$300 for a research note) and the standard peer-review process will apply.

2016 CRSS-SCT Symposium CJRS Special Issue Guest Editors

Guest Editors

Dr. Brian Brisco Research Scientist Government of Canada	Dr. Yun Shao Director of Radar Remote Sensing Division Chinese Academy of Sciences, Beijing China
Dr. Bahram Salehi Remote Sensing Engineer C-Core St. John's, NL, Canada	Dr. Chris Hopkinson CAIP Research Chair in Terrestrial Ecosystem Remote Sensing University of Lethbridge, Alberta Canada

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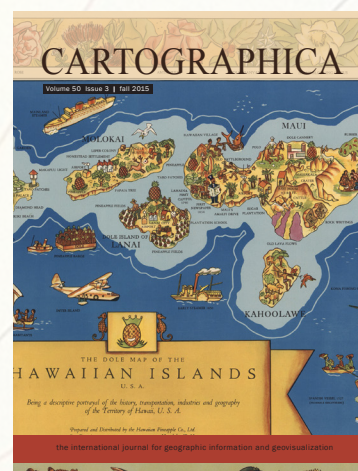
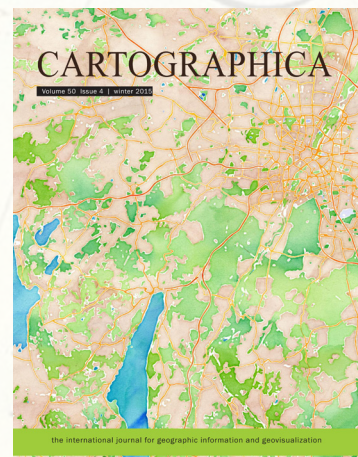
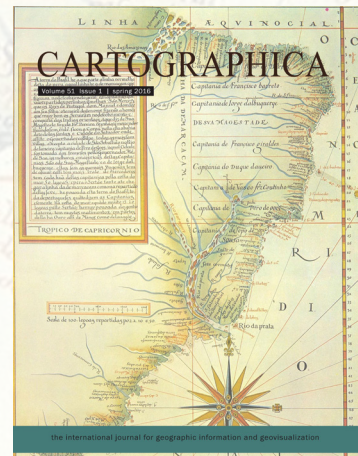
Special Issues proposals

Special Issues proposals are encouraged to be submitted and will be reviewed by the journal editors. A special issue should be organized by the special issue editor(s) around a specific content area or methodology that may represent a large scale international development; a single-topic monograph providing an extensive look at one particular area of cartography; or a collection of manuscripts presented at a conference or workshop. The monographs and all manuscripts will be double blind peer reviewed and the special issue editor(s) is/are expected to work with authors until the special issue meets the standards of manuscripts published in the journal. Content, timeliness of the topic, thoroughness of the proposal, relevance for the journal's readership, and production schedule are among the criteria used for selection. Please email the journal editors at monicawachowicz@gmail.com or estef@unb.ca to submit proposals for review. Submissions are accepted on a rolling basis.

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