Scientific Program

Overview

Paper and Poster Sessions

In all, 173 papers were approved for the program, but unfortunately last-minute cancellations (largely related to visa issues) reduced the number presented to 155. The program featured 25 general oral paper sessions and 12 special oral paper sessions, each containing three or four papers, and typically with either three or four running concurrently. Twenty poster papers were presented, in three sessions.

Special Sessions

The following special paper sessions were conducted (organizers in parenthesis):

- Topographic-Bathymetric LiDAR (Webster)
- Global Scale Modeling and EO Data Analysis (Guoqing and Song)
- Marine Traffic and Risk Analysis: 2 paper sessions (Fournier)
- Massive Mobility Data Analysis and Mining (Stefanakis)
- Discrete Global Grid Systems: 3 paper sessions (Purrs)
- Digital Earth Education (Moorman)
- GEOGLAM: 2 paper sessions (Justice and Wu)
- Digital Globes (Woodgate and Chrisman)

Panel Discussions

The following plenary panel discussions were conducted (organizers/moderators in parenthesis):

- Digital Globes (Woodgate and Chrisman)
- DGGS: Why all the Hype? (Gibb)
- Astronauts' Perspectives (McLean/Werle)
- DE Ethics in Daily Life (Georgiadou)
- Wrap-up Panel (Millward)

Workshops

The following pre-conference workshops were offered (organizers in parenthesis):

- RADARSAT-2 Images: Theory and Applications (Brigitte Leblon)
- Topo-Bathymetric LiDAR (Tim Webster)
- COIN Atlantic Geospatial Tools Training (Jeff McKenna)
- Next Generation of Spatial Data Infrastructures (David Coleman)
- Geospatial Thinking and Digital Earth (Lynn Moorman)

All workshops were scheduled as half-day sessions on Sunday, October 4.

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Proceedings of ISDE9

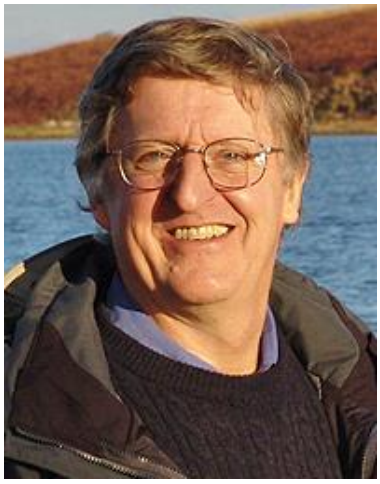
The LOC contracted with IOP Publishing, of Great Britain, to publish the Proceedings of the conference online, as an open access volume of IOP Conference Series: Earth and Environmental Science. The three editors are Hugh Millward, Dirk Werle, and Danika van Proosdij. All papers submitted for the Proceedings were presented at the conference, and were peer-reviewed by two reviewers. Accepted papers have been prepared in full accordance with the IOP *Author Guidelines* and *Peer Review Policy,* and supplied to the Publisher using the procedures in the IOP *Submission Guidelines for Conference Organisers*.

The following is a list of peer-reviewers who generously provided their expertise and time to assist in selection and editing of papers submitted for publication in the Proceedings.

Al-Tahir, Raid	Hoefle, Bernard	Pohl, Christine
Brisco, Brian	Janzen, Darren	Schade, Sven
Bush, Peter	Lieske, David	Sherin, Andrew
Colville, David	Lukowski, Tom	Silver, Danny
Dean, Andy	Mahdavi-Amari, Ali	Terashima, Mikiko
Delaney, Conor	MacLean, David	van Proosdij, Danika
Dramowicz, Konrad	Melelli, Laura	Webster, Tim
Fennel, Katja	Millward, Hugh	Werle, Dirk
Georgiadou, Yola	Novak, Mathew	White, Peter

Keynote Speakers

Michael Goodchild



Michael F. Goodchild (Ph.D. Geography, McMaster University) is Professor Emeritus of Geography and former Director of the Center for Spatial Studies at the University of California, Santa Barbara. He has served as Director of the National Center for Geographic Information and Analysis (NCGIA).

Dr. Goodchild's research publications include more than 400 scientific papers and a dozen books. He is an elected member of the National Academy of Sciences and the American Academy of Arts and Sciences, and is a Foreign Fellow of the Royal Society of Canada. He has received honorary doctorates from Laval University, Keele University, Ryerson University, and McMaster University.

Guo Huadong

Guo Huadong is Director-General of the Chinese Academy of Sciences (CAS) Institute of Remote Sensing and Digital Earth (RADI). He serves as President of the International Council for Science (ICSU) Committee on Data for Science and Technology (CODATA), President of the International Society for Digital Earth (ISDE), and Editor-in-Chief of the International Journal of Digital Earth (IJDE). He is also Director of the International Center on Space Technologies for Natural and Cultural Heritage under the Auspices of UNESCO.

Prof. Guo has been awarded many national and CAS prizes, including National Outstanding Expert (State Council of China), Outstanding Scientist (CAS), and the Natural Science Award (CAS). He holds an honorary doctorate from Curtin University, Australia.

Dawn Wright

Dawn Wright (PhD Geography and Marine Geology, University of California, Santa Barbara) is Professor of Geography and Oceanography at Oregon State University, and Chief Scientist of the Environmental Systems Research Institute (ESRI).

Dr. Wright has published eight books and over 100 refereed papers. She serves on the NOAA Science Advisory Board, and on the editorial boards of eight scientific journals. She is the recipient of the Association of American Geographers Presidential Achievement Award, and its Distinguished Teaching award. She is a fellow of the American Association for the Advancement of Science.

Rob Kitchin

Rob Kitchin is Professor at the National University of Ireland, Maynooth. He is principal investigator of the Programmable City project, the Dublin Dashboard, the All-Island Research Observatory, and the Digital Repository of Ireland.

Dr. Kitchin has published 23 books and over 150 articles and book chapters. He is editor of *Dialogues in Human Geography*, and was the editor-in-chief of the 12 volume *International Encyclopedia of Human Geography*. He was awarded the Royal Irish Academy's 'Gold Medal for the Social Sciences' and the Association of American Geographers 'Meridian Book Award' for the outstanding book in the discipline.

Rebecca Moore

Rebecca Moore is an Engineering Manager at Google, where she initiated and leads the development of Google Earth Engine. Rebecca also conceived and leads the Google Earth Outreach program, which supports nonprofits, communities and indigenous peoples around the world in applying Google's mapping tools to the world's pressing problems in areas such as environmental conservation, human rights and cultural preservation.

In 2013, Rebecca Moore was recognized by the White House as a Champion of Change for Open Science.

Rear-Admiral John Newton

Rear-Admiral John Newton, OMM, MSM, CD, was appointed Commander of Maritime Forces Atlantic and Joint Task Force Atlantic in July 2013. He has developed a specialty in Canadian maritime sovereignty, gained through countless fishery patrols and three Arctic sovereignty missions. He patrolled the fabled Northwest Passage as Commanding Officer of HMCS *Fredericton* from 2003 until 2006.

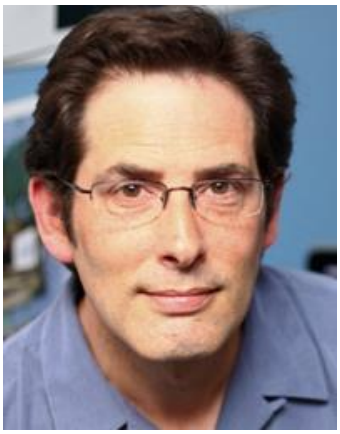
Rear-Admiral Newton has deployed on many NATO missions and UN peace support operations, including the Gulf War in 1991, Haiti in 1993, and the maritime embargo of the former Yugoslavia in 1995.

Dr. Douglas Wallace

Dr. Wallace is Canada Excellence Research Chair in Ocean Science and Technology at Dalhousie University, Canada. He is Scientific Director for both the Marine Environmental Observation Prediction and Response Network (MEOPAR) and the Institute for Ocean Research Enterprise (IORE). Dr. Wallace holds a PhD in chemical oceanography, and was professor of marine chemistry at the Helmholtz Centre for Ocean Research, Kiel (GEOMAR).

Dr. Wallace has made significant scientific contributions to his field through the Intergovernmental Panel on Climate Change, and the US Department of Energy.

James Boxall



James Boxall teaches geography and GIS at Dalhousie University. He was on the National Science Foundation Review Panel of the Alexandria Digital Geolibrary project, and is past-president of the Canadian Cartographic Association, the Association of Canadian Map Libraries and Archives, and the Geomatics Association of Nova Scotia.

James Boxall is a Governor and Fellow of the Royal Canadian Geographical Society. He received the Society's Education Medal in 2012 and the Franklin Expedition Erebus Medal in 2015. He is also a Fellow of the Royal Geographical Society (UK), co-chairs the International Network for Learning and Teaching Geography, and is past co-chair of the Canadian Round Table on Geomatics (NRCan).

Lynn Moorman

Lynn Moorman (PhD in Geography) is an Associate Professor at Mount Royal University, in Calgary, Canada. Lynn is a Fellow of the Royal Canadian Geographical Society. She contributed to the Declaration for Advancing Geographic Education for Canadians, and serves as the Post-Secondary Representative for CGEd (Canadian Geographic Education).

Lynn sits on the interim Board of Canadian GeoAlliance. She is a regional representative for the International Geographical Union Commission for Geographical Education, and a recipient of the Salvatore J. Natoli Dissertation Award from the National Council on Geographic Education.

David S Green

David Green (PhD. Physical Chemistry) is the Program Manager for Disaster Applications at the National Aeronautics and Space Administration (NASA), based in Washington, DC. He has held a variety of positions related to the use of earth observation data in weather forecasting, monitoring of natural and technological disasters, and disaster risk reduction.

Dr. Green is a member of the American Geophysical Union Geo-hazards Working Group and several committees of the American Meteorological Society. He serves on the Community of Earth Observing Satellites (CEOS) Disaster Working Group, and contributes to the Group on Earth Observations (GEO).

Deren Li

Prof. Dr.-Ing Li Deren, is a Professor at Wuhan University, China, with dual membership of both the Chinese Academy of Sciences and the Chinese Academy of Engineering. He is Vice-President of the Chinese Society of Geodesy, Photogrammetry and Cartography, Chairman of the Academic Commission of Wuhan University and the National Laboratory for Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS). His specific interests are analytic and digital photogrammetry, and spatial data mining in GIS, as well as mobile mapping systems, etc.

Prof. Li served as Comm. III and Comm. VI president of ISPRS in 1988-1992 and 1992-1996, and as President of the Asia GIS Association in 2003-2006. In 2010 and 2012 he was elected ISPRS fellow and Honorary member.

Full Scientific Program *(as presented)*

Legend: S = Special Session, G = General Session, ∗ = Presenter

Monday, October 5

Keynote 1: Michael Goodchild, Keeping the Dream Alive

S1: Global Modelling & Earth Observation Analysis (Session Chair: SONG, C)

1. Broadening access to geospatial data, computation, and visualization. ∗SONG, C
2. QUT cube visualisation and Big Data analytics facility: new paradigm for Digital Earth governance, trade, and commerce. ∗FORESMAN, T, WINTER, G
3. Remixing reality: performing 3D virtual experimentation in real space. ∗HEDLEY, N

G1: Earth Observation & Image Fusion (Session Chair: POHL, C)

1. Multisensor image fusion guidelines in remote sensing. ∗POHL, C
2. Building change detection using multi-sensor and multi-view-angle imagery. ∗JABARI, SJ, ZHANG, YZ
3. Integration of a spatial-temporal-spectral blending model using satellite images. ∗ZHANG, L, FU, D, SUN, X, CHEN, H, SHE, X
4. Fusing real-time geo-information for a raster-based least cost navigation in an SDI. HILLEN, F, ∗EHLERS, M, MEYNBERG, O, HÖFLE, B, REINARTZ, P

G2: Digital Earth Theory & Techniques 1 (Session Chair: SUTEANU, CS)

1. Augmenting geographic space: an exploration of methodological opportunities and new conceptual constructs. ∗HEDLEY, N

2. Streamlining geospatial metadata in the semantic web. FUGAZZA, C, ∗CARRARA, P, PEPE, M, OGGIONI, A, TAGLIOLATO, P
3. A dynamic systems approach to streaming natural time series: boosting the effectiveness of data handling in the framework of Digital Earth. ∗SUTEANU, CS
4. Symmetry in big data: a new methodology and its theoretical and practical implications for Digital Earth. ∗SUTEANU, CS

Keynote 2: Lynn Moorman & James Boxall, Digital Earth for the Next Generation

S2: Digital Globes (Session Co-chairs: WOODGATE, P and ∗CHRISMAN, N)

1. Aligning emerging Digital Earth capability with global challenges – a vision of the new Open Digital Earth Foundation. ∗MUMMERY, J, JACOBY, S, KEYSERS, J, WOODGATE, P
2. A next generation Globe for supporting vulnerable communities in the South Pacific. QUADROS, N, ∗MOHAMED GHOUSE, ZS
3. The Semantic Web and its relevance to advanced globe processing. ∗WEST, AW

G3: Digital Earth Theory & Techniques 2 (Session Chair: DRAMOWICZ, K)

1. Sensor metadata blueprints and computer-aided editing for disciplined SensorML. OGGIONI, A, ∗FUGAZZA, C, CARRARA, P, PEPE, M, TAGLIOLATO, P
2. Geovisualization and analysis of the Good Country Index. TAN, C, ∗DRAMOWICZ, K
3. Comparison of assigning color techniques to point clouds obtained by mobile and terrestrial laser scanning. ∗ALTYNTSEV, MA, POPOV, RA, GOROKHOVA, EI
4. Assessing the evolution and application of Digital Earth technologies for Tidal Wetland Restoration in Nova Scotia. ∗GRAHAM, J, VAN PROOSDIJ, D, BOWRON, T, NEATT, N

G4: Land Cover Applications (Session Chair: JANZEN, D)

1. Exploiting three decades of continuous satellite data with the Canada Centre for Remote Sensing Long Term Satellite Data Records. ∗JANZEN, D, TRISHCHENKO, A, LATIFOVIC, R, WANG, S, FERNANDES, R, POULIOT, D, ZHOU, F, LI, J, SCHWARZ, J, SUN, L
2. Monitoring the topographic and land cover change on Sable Island, Nova Scotia. ∗COLVILLE, D, REEVES, B, URE, D
3. Building Virtual Geographic Environments (VGEs) for a better understanding of the planet. ∗CHEN, M, LIN, H
4. Assessment of winter wheat loss risk impacted by climate change from 1982 to 2011. ∗LI, Q, DU, X, WANG, H

G5: Sensors & Maps (Session Chair: JAHNCKE, R)

1. Latest generation remote sensing systems: real world applications. ∗KIDMAN, B
2. CCD camera boresight calibration of a LiDAR system with virtual ground control points. ∗MA, HC, WANG, N

3. DigitalGlobe's Global Basemap in the context of Canada's national and regional baseline map. ∗ROOS, J, WU, V
4. Submeter Deimos-2 and its operational 24/7 Services. LÓPEZ, J, WU, V,∗ BIANCO, D

Panel Discussion 1: Digital Globes
Moderators: WOODGATE, and ∗CHRISMAN, N
Panelists: MUMMERY, J, MOHAMED GHOUSE, ZS and WEST, AW

Tuesday, October 6

Keynote 3: Guo Huadong, Digital Earth in the Big Data Era

S3A: An Introduction to Discrete Global Grid Systems (Session Chair: PURSS, M)
1. The Making of the Global Grid. ∗DUTTON, G
2. A taxonomy of Discrete Global Grid Systems. ∗SAMAVATI, F, MAHDAVI-AMIRI, A, ALDERSON, T
3. The rHEALPix Discrete Global Grid System. ∗GIBB, G

S4A: GEOGLAM 1 (Session Co-chairs: WU, BF and JUSTICE, C)
1. The GEO Global Agricultural Monitoring (GEOGLAM) initiative: overview and prospective. ∗JUSTICE, C, BECKER-RESHEF, I, WHITCRAFT, AK
2. Stimulating innovation for global monitoring of agriculture and its impact on the environment in support of GEOGLAM. ∗GILLIAMS, S, SIGMA
3. The Joint Experiment for Crop Assessment and Monitoring (JECAM) initiative: developing methods and best practices for global agricultural monitoring. ∗CHAMPAGNE, C, JARVIS, I, DEFOURNE, P, DAVIDSON, A

G6: Pastures Grasslands (Session Chair: HILL, MJ)
1. Remote sensing for grassland monitoring – a case study in the Alberta mixed grass sub-region. SMITH, AM, YANG, X, ∗HILL, MJ
2. Geospatial analysis for long-term changes of net primary productivity in Inner Mongolian Desert steppe region, China. ∗WULIANGHA, B, HAN, W, SUN, G, CHEN, J
3. A study of indicative methods applied to microrelief mapping. ∗PANIDI, E, TROFIMETZ, L, SOKOLOVA, J

G7: Earth Observation for Agriculture 1 (Session Chair: COLVILLE, D)
1. Agriculture and water pollution monitoring: integration of the Open Farm Management Information System into the Global Earth Observation System of Systems and Digital Earth. ∗ŘEZNÍK, T, KEPKA, M, CHARVÁT, K, CHARVÁT JUNIOR, K, HORÁKOVÁ, Š, LUKAS, V
2. Spectral error assessment of airborne imaging spectroscopy data – A case study of Atihau, New Zealand. ∗KERESZTURI, G, PULLANAGARI, PR, YULE, IJ, IRWIN, ME

S3B: Discrete Global Grid Systems: Theory & Practice (Session Chair: PETERSON, P)

1. Rapid geospatial data integration using a Discrete Global Grid System. ∗GOODCHILD, M, PETERSON, P
2. Data transmission in discrete global grid systems. ∗MAHDAVI-AMIRI, A, SHATZ, I, MOLTAJI, A, SAMAVATI, F
3. Mathematical properties of the aperture 4 hexagonal discrete grid system. ∗BEN, J, TONG, X, ZHOU, C, LI, Y
4. Areal distortion in mappings between spherical and ellipsoidal Discrete Global Grid Systems. ∗SIEMONS, J, ALDERSON, T, SAMAVATI, F

S4B: GEOGLAM 2 (Session Co-chairs: WU, BF and JUSTICE, C)

1. Update of CropWatch: a global crop monitoring system. ∗WU, BF, ZHANG, M, YAN, NN, ZENG, HW, ZHANG, X, GOMMES, R, ZHENG, Y
2. Asian rice crop monitoring for GEO-GLAM. ∗SOBUE, S, OYOSHI, K, OKUMURA, T, SAMARAKOON, L
3. Monitoring Canada's agricultural productivity using earth observation data: operational activities at Agriculture and Agri-Food Canada. ∗CHAMPAGNE, C, JARVIS, I, DAVIDSON, A, FISETTE, T, DANESHFAR, B

G8: Coastal Management (Session Chair: SHERIN, A)

1. Coastal web atlases for coastal policy and decision-making: a study of four operational atlases. ∗MCLEAN, S, MACDONALD, B
2. Understanding risk of petroleum contamination to coastal habitats on the island of Newfoundland. SHERIN, A, ∗BACCARDAX WESTCOTT, A, CATTO, N, DUNCAN, K, BRANTON, R
3. Community responses to marine and coastal hazards – a meta-approach. ∗PATERSON, B, CHARLES, A
4. Smart sensor-based geospatial architecture for dike monitoring. ∗HERLE, S, BECKER, R, BLANKENBACH, J, SCHÜTTRUMPF, H, QUADFLIEG, T

G9: Earth Observation for Oceans (Session Chair: BOXALL, J)

1. Open data and a new biological earth observing system – the Ocean Tracking Network. ∗PYE, JD
2. Use of IRS-P4 ocean color monitor (OCM) images for determining the red edge position of vegetation reflectance spectrum. ∗RAYCHAUDHURI, B
3. Monitoring the North Atlantic using ocean colour data. ∗FUENTES-YACO, C, CAVERHILL, C, MAASS, H, PORTER, C, WHITE III, G
4. Hydrographic processing considerations in the "Big Data" age – a focus on technology trends in ocean and coastal surveys. HOLLAND, M, HOGGARTH, A, ∗NICHOLSON, J

Keynote 4: Dawn Wright, Toward Digital Resilience for the Coast and Ocean

S3C: Discrete Global Grid Systems & the Digital World (Session Chair: SAMAVATI, F)

1. Watershed-based inquiry: Integrating earth observations on the WorldView DGGS. ∗PETERSON, P, SHATZ, I
2. Multilevel focus+context visualization leveraging a Discrete Global Grid System. ∗SHERLOCK, M, HASAN, M, SAMAVATI, F
3. Indexing and Searching Text on a Discrete Global Grid. ∗ADAMS, B
4. The role of Discrete Global Grid Systems in national data infrastructures. ∗PURSS, MBJ, GIBB, R

S5: Advances in Image Processing at the University of New Brunswick (Session Chair: JABARI, S)

1. Modeling land cover dynamics to assess the sustainability of wetland services; a case study of the Grand Lake Meadows, Canada. AL-TAHIR, R, ∗SHODIMU, O
2. A novel registration-based technique for mapping off-terrain objects' disparity. ∗SULIMAN, A, ZHANG, Y, AL-TAHIR, R
3. Rasterizing vector data for 3D visualization. ∗ABOUHAMZEH, A, ZHANG, Z
4. Using locality-constrained linear coding in automatic target detection of HRS images. ∗REZAEE, M, MIRIKHARAJI, Z, ZHANG, Y

G10: Digital Earth Technology (Session Chair: COLEMAN, D)

1. Naïve (Commonsense) geography and geobrowser usability after ten years of Google Earth. ∗HAMERLINCK, D
2. COINAtlantic philosophy and tools for accessing geospatial information online. ∗SHERIN, A, BACCARDAX WESTCOTT, A, BOUDREAU, P, MCKENNA, J
3. From global to personal spatial data infrastructures. ∗COLEMAN, DJ, RAJABIFARD, A
4. Building a spatial data infrastructure in Province of Nova Scotia. ∗MACDONALD, C

G11: Land-Atmosphere Interaction (Session Chair: LAPPALAINEN, H (TBC))

1. Connecting ground based in-situ observations, ground-based remote sensing, and satellite data within the Pan Eurasian Experiment (PEEX) program ∗LAPPALAINEN, HK, PETÄJÄ, T, KUJANSUU, J, DE LEEUW, G, MOISSEEV, D, O'CONNOR, E, BONDUR, V, KASIMOV, N, KOTLYAKOV, N, GUO, H, ZHANG, J, MATVIENKO, G, BAKLANOV, A, ZILITINKEVICH, S, KULMALA, M
2. Application of the GlobalLand30 landcover dataset in the BCC-CSM climate model. ∗SHI, X, JU, W, NIE, S, YU, L
3. Weather monitoring and modeling to support agricultural production in southwestern Nova Scotia. ∗COLVILLE, D, ROBICHAUD, P, REIGER, W

Panel Discussion 2: Discrete Global Grid Systems – Why All the Hype?

Moderator: GIBB, R

Panelists: GOODCHILD, M, DUTTON, G, PETERSON, P, PURSS, M

Wednesday, October 7

Keynote 5: Rebecca Moore, Google Earth and Earth Engine: Democratizing and Scaling the Digital Earth Vision

G12: Earth Observation Sensors and Programs (Session Chair: ESCH, T)

1. The RADARSAT Program. ∗DE LISLE, D
2. Use of ALOS-PALSAR and RADARSAT-2 images in various environmental applications. ∗LARAQUE, AL, LEBLON, BL
3. Enabling technologies for large-scale environmental monitoring – exploring new opportunities for mass Earth observation data exploitation based on integrative services and platforms. ∗ESCH, T; HIRNER, AJ; ASAMER, h; RECK, C; METZ, A; SCHNEIDER, M; BRITO, F; MATHOT, E; SOUKUP, T; STANEK, F; VONDRAK, V

G13: Digital Earth Technology for GIS (Session Chair: BOXALL, J)

1. On-the-fly anaysis of multidimensional rasters in a GIS. ∗ABDUL-KADAR, F; XU, H; GAO, P
2. Information model for managing multidimensional gridded data in a GIS. ABDUL-KADAR, F, GAO, P, ∗XU, H
3. Evaluating image segmentation quality through automated shape comparison from high spatial resolution images. ∗CHEN, D

G14: Urban Health Issues (Session Chair: MILLWARD, H)

1. ‘Sense of Urban’: A new perspective on understanding the physical and dynamic structures of urban space. ∗ZHANG, F, LIN, H, HU, M
2. A wireless Sensor network for urban environmental monitoring: UrbanSense. ∗RAINHAM, D
3. Road pavement condition mapping and assessment using remote sensing based on MESMA. ∗PAN, YF, ZHANG, XF

Keynote 6: David Green, Viewing the Earth’s Global Environment from Space: from Scientific Knowledge to Societal Benefits

Panel Discussion 3: A View from Above: Astronauts’ Perspectives
Moderator: MACLEAN, D
Panelists: Jeremy HANSEN (Astronaut, Canadian Space Agency) & Reid WISEMAN (Astronaut, NASA)

Afternoon: Education and Outreach events, and Tours

Thursday, October 8

Keynote 7: Rear-Admiral John Newton, The Use of Earth Observation Technologies by Canada’s East Coast Navy

S6A: Marine Traffic and Risk 1 (Session Chair: FOURNIER, M)

1. Marine traffic risk management in the North. ∗DORCAS, P, PELOT, R, FOURNIER, M, ETIENNE, L, STODDARD, M, BEVERIDGE, L
2. Re-imagining the Arctic: geo-visualization as a tool for cross-cultural knowledge mobilization. ∗APORTA, C
3. Satellite-based AIS: trafficability studies and monitoring for the Canadian Arctic.. ∗PELOT, R, ETIENNE, L, FOURNIER, M, STODDARD, M

G15: Human Dimensions of Digital Earth (Session Chair: DRAMOWICZ, E)

1. Modeling the distribution of global human population. ∗YETMAN, G
2. Rural water supply and Digital Earth technologies in Sub-Saharan Africa. ∗GEORGIADOU, Y, LUNGO, J, VERPLANKE, J
3. Geographical aspects of geo-arbitrage: Work in Canada and live in countries with low cost of living. PENNEY, J, ∗DRAMOWICZ, K

G16: Earth Observation for Agriculture 2 (Session Chair: POHL, C)

1. Estimation of rice biophysical parameters using multi-temporal RADARSAT-2 images. ∗LI, S; NI,P
2. The role of rasar remote sensing in oil palm plantation monitoring. ∗POHL, C
3. A SAR knowledge-base system and its application. ∗LI,Z; ZHANG, P; CHEN, Q; TIAN, BS; XU, J; ZHANG, M

G26: Digital Earth Web Applications (Session Chair: DRAMOWICZ, K)

1. Case study of lightweight geospatial web servers' implementation. ∗PANIDI, E, TEREKHOV, A, KAPRALOV, E, KAZAKOV, E
2. Acquiring geographical data with web harvesting. ∗DRAMOWICZ, K
3. Newspaper archives + text mining = rich sources of historical geospatial data: a flood database case study. ∗YZAGUIRRE, A, SMIT, M, WARREN, RH

S6B: Marine Traffic and Risk 2 (Session Chair: FOURNIER, M)

1. Multi-sensor data fusion. BATTISTELLO, G, ∗ULMKE, M, GONZALEZ, J, MOHRDIECK, C
2. Using message brokering and data mediation to query distributed data networks of earth science data to enhance global maritime situational awareness.. ∗DELANEY, CD, GREIDANUS, HG, ALESSANDRINI, AA
3. Route planning and evaluation for polar ship operations: a multi-criteria risk analysis approach. ∗STODDARD, M, ETIENNE, L
4. Maritime surveillance: from stakeholders' requirements to system support. ∗GHALLAGHER, J, FOURNIER, M, BEVERIDGE, L, PELOT, R, MOHRDIECK, C

G17: Nova Scotia Geomatics (Session Chair: MACDONALD, C (TBC))

1. Delivering a modern geomatics program in the public sector. ∗MACDONALD, C
2. Laying the foundation for a digital Nova Scotia. ∗BOND, J

3. The evolution of a digital age at Halifax Water – developing data, apps, and people. ∗MACNEIL, H

G18: Hazards & Risks (Session Chair: SUTEANU, CS)

1. Remote Sensing Modelling and Analysis of Spatial and Temporal Dynamics of Gully Erosion in Anambra State, South East Nigeria.. ∗IGBOKWE, JI, IBE, UC, EJIKEME, JO, IGBOKWE, EC
2. Mapping the extension and intensity of natural disasters by using social media data. ∗WACHOWICZ, M, HUGHES, NE

G19: Coasts & Climate Change (Session Chair: CHARLES, T)

1. Climate change adaptation and coastal communities: a global assessment. ∗KHAN, S, CHARLES, T, ARMITAGE, R
2. The Community Adaptation Viewer (CAV): a web GIS tool to support community response to climate change. ∗LIESKE, D
3. The first 10 metres: Coastal flooding and the social vulnerability of populations in Nova Scotia. ∗MANUEL, P; RAPAPORT, E; BRYCE, D; KANG, BJ

Keynote 8: Doug Wallace, New Approaches to Observing the Ocean Frontier

S7: Topographic-Bathymetric LiDAR (Session Chair: WEBSTER, T)

1. Airborne Lidar Bathymetry (ALB) in the Canadian Hydrographic Service (CHS) and the Department of Fisheries and Oceans (DFO), Atlantic Region (2011-2015).. ∗PARSONS, S, COFFEN-SMOUT, S, CRAFT, A
2. Results from shallow water topo-bathymetric lidar surveys in Maritime Canada. ∗WEBSTER, TW, MCGUIGAN, KM, CROWELL, NC, COLLINS, KC, MACDONALD, CM
3. Assessment of airborne LIDAR bathymetry performance with Chiroptera I. ∗SAYLAM, KS, EKERCIN, SE

G20: Earth Observation Data Processing (Session Chair: DRAMOWICZ, E)

1. An unsupervised change detection procedure using luminance and saturation for multispectral remotely-sensed images. ∗CHEN, D, YE, S
2. Speckle reduction in SAR images using filters of adaptive window size. ∗MAHDAVI, S, SALEHI, B, MOLONEY, C, HUANG, W
3. Using 3D geovisual analysis to quantify the performance of tsunami risk communication. ∗HEDLEY, N; LONERGAN, CD

G21: Urban Applications 1 & 2 (Session Chairs: MILLWARD, H, WERLE, D)

1. EO-based indicator development for measuring sustainable urban transportation in the Great Lakes region. ∗ZHANG, Y, GUINDON, B
2. Early aerial photography and its contribution to Digital Earth – the case of the Halifax air survey mission in 1921. ∗WERLE, D

3. Monitoring of cultural heritage sites in China with high-resolution SAR images. ∗CHEN, F, TANG, P
4. Making a semi-convex focus area in a Focus+Glue+Context map in consideration of map visibility and the locations of transportation access points. ∗HIRAKO, Y, YAMAMOTO, D, TAKAHASHI, N

Friday, October 9

Keynote 9: Rob Kitchin, Big Data Open Data ans the Ethics of Data-Driven, Networked Urbanism

Keynote 10: Deren Li, Big Data in Smart City

Panel Discussion 4: What is right, what is wrong? Digital Earth ethics in daily life
Moderator: EHLERS, M
Panelists: GEORGIADOU, Y, GOODCHILD, M, KITCHIN, R, LI, D and CHRISMAN, N

S8: ISPRS Session – Massive Mobility Data Analysis and Mining (Session Chair: STEFANAKIS, E)

1. Aggregation and spatial analysis of walking activity in an urban area: results from the Halifax space-time activity survey.. ∗NEATT, K, MILLWARD, H, SPINNEY, J
2. Understanding human activity patterns from space-time-semantics. ∗HUANG, W, LI, S
3. ChoroChronos: a geoportal towards mobility data provenance. PELEKIS, N, ∗STEFANAKIS, E, KOPANAKIS, I, ZOTALI, C, VODAS, M, THEODORIDIS, Y
4. Contextual Line Simplification. ∗TIENAAH, T, STEFANAKIS, E, COLEMAN, D

G23: Quality of Life and the Web (Session Chair: GEORGIADOU, Y)

1. A comparison of in-person versus digital earth environmental scans for population health studies. ∗SCHUURMAN, N, WALKER, BB, WILSON, AF
2. Citizens, empowerment, and accountability on the World Wide Web 2.0. ∗GEORGIADOU, Y, LUNGO, J, MARTINEZ, J, LEMMENS, R, VERPLANKE, J
3. Pixels, plows & partnerships: Designing for food deserts. ∗SMITH, K
4. Digital collaboration around the globe: crowdsourcing of local experiences on community-based conservation. ∗CHARLES, T

G24: Energy Applications (Session Chair: ZHANG, Y)

1. Mapping renewable potential to accelerate the transition to clean energy.. ∗MOBERLY, R
2. An online GIS decision making tool for tidal energy in Atlantic Canada. ∗SWANBURG, M, COVILL, R, CULINA, J, ROC, T, KARSTEN, R, REDDEN, A
3. The derivation of interactive solar energy registers: Identifying solar energy potentials and intensifying the climate-friendly use of photovoltaics within urban areas.. ∗DE LANGE, N

4. Star Schema database for demographic and renewable energy predictions. ∗MOBERLY, R, MEISEN, P, DEKKER, PM, ÁLVAREZ, J, ZONDLOWSKI, M, PHAM, L, TALWAR, A

G25: Earth Observation and Forestry (Session Chair: BUSH, P)

1. Remote sensing of spruce budworm defoliation using EO-1 Hyperion hyperspectral data: An example in Quebec, Canada. ∗HUANG, ZW, ZHANG, Y
2. TBA

Wrap-up Panel
Moderator: MILLWARD, H
Panelists: EHLERS, M, GEORGIADOU, Y, GOODCHILD, M, GUO, H

Posters

Monday, October 5

1. Mineral mapping in the West Kunlun Mountains area using Tiangong-1 hyperspectral imagery. GE, W, ∗JING, L, TIAN, S, CHEN, Y, GUO, X, DING, H, LIU, Q
2. A new PCA-based method for snow cap extraction in alpine mountain areas. ∗GUO, XF, TIAN, SF, LIU, QJ, DING, HF, LI, H, JING, LH
3. Remote sensing data application for pasture monitoring in Kazakhstan. ∗MURATOVA, N, BEKMUHAMEDOV, N, MALAKHOV, D, ISLAMGULOVA, A
4. NRCan Canadian Geodetic Survey: geodetic tools and services for high precision geodetic positioning applications. ∗HUOT, CH, HÉROUX, PH
5. A comparative mapping study of wetlands in Nova Scotia using polarimetric RADARSAT-2 combined with two different scales of optical imagery and elevation derivatives. ∗JAHNCKE, R, LEBLON, B, BUSH, P
6. Spectral error assessment of airborne imaging spectroscopy data – A case study of Atihau, New Zealand. ∗KERESZTURI, G, PULLANAGARI, PR, YULE, IJ, IRWIN, ME
7. Where ever you go, there you are: mapping psychogeography using GIS. ∗KAMPEN, A; GREK-MARTIN, JM

Tuesday, October 6

1. Urban land use change and ecological risk assessment in the middle reaches of the Yangtze River, China – A case study of Changzhutan metropolitan areas. ∗ZENG, YN, LIU, F, HUANG, W, LI, SN
2. Simulation of Future Urban Land Use Changes in Changzhutan Metropolitan Areas, Central China. ∗ZENG, YN, HUANG, W, LI, SN
3. Information system for evaluation of avalanche hazard in mountain regions of Czechia. ∗BLAHUT, J, PAVLASEK, J, KLIMES, J, JURAS, R, KLOSE, Z, ROUBINEK, J, BALEK, J, TABORIK, P
4. An improved k-NN method based on multiple-point statistics for classification of high-spatial resolution imagery. TANG, Y, JING, L, LI, H, ∗LIU, Q, DING, H

5. Investigation of self-organized criticality aspects of landslide dynamics through the use of cellular automata models. LIUCCI, L, ∗SUTEANU, C, MELELLI, L

Thursday, October 8

1. A novel image fusion method using auxiliary data. ∗XU, R, JING, L, LI, H, TANG, Y, LIU, Q
2. Timely retrieval of the leaf area density of a single tree using terrestrial LiDAR data. WANG, H, ∗LI, S
3. Bridging domains: A web-enabled interoperable groundwater research framework. ∗KMOCH, A
4. An image fusion method based on the un-mixing of mixed MS sub-pixels. ∗LI, H, JING, L, LIU, Q, TANG, Y, DING, H, LIN, Q
5. An effective modified water extraction method for Landsat-8 OLI imagery in mountainous plateau regions. GAO, H, ∗WANG, L, JING, L
6. Applying principles of ecological resilience theory to model bird habitat in a context of climate change. ∗BALE, S, BEAZLEY, K, FERRARI, C, WESTWOOD, A, BUSH, P, STACIER, C
7. A tree canopy height delineation method based on multi-scale morphological reconstruction opning decomposition. ∗LIU, Q; JIMG, L; TANG, Y; LI, H; WANG, L
8. Deforestation monitoring in the Amazon River estuary by multi-temporal ENVISAT ScanSAR data. ∗CHEN, F, ISHWARAN, N, PEZZUTI, JCB