

Laura Elizabeth Chasmer

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Curriculum Vitae

Education

- Ph.D. (2008) Geography, Queen's University, Kingston Ontario Canada
Thesis title: Assessment of meteorological and vegetation structural influences on carbon fluxes in a boreal jack pine chronosequence: Scaling to MODIS
Supervisors: Dr. Harry McCaughey; Dr. Paul Treitz
- M.E.S. (2001) Geography, University of Waterloo, Waterloo Ontario Canada
Thesis Title: Examining the influence of the North Atlantic Oscillation on the Odden sea ice peninsula, Greenland Sea
Supervisor: Dr. Ellsworth LeDrew
- B.E.S. (1999) Honours Geography, Distinction, University of Waterloo, Waterloo Ontario Canada
Thesis Title: Impacts of El Nino on Arctic Sea Ice
Supervisor: Dr. Joseph Piwowar

Research Interests

Forest and wetland ecosystems; permafrost; climate change; remote sensing (LiDAR, optical, change detection, methods development); meteorology; greenhouse gas exchanges; hydrology; geographic information systems; modelling

Summary of Academic Activities

Refereed Publications in International Journals: 48 (+ 17 refereed proceedings); h index = 23; i10 index = 37; 1845 citations
Papers in Review for International Journals: 2
Non-Refereed Proceedings Papers and Contributions to Conferences: 90+
Graduate Student Committees: 14; (+8 independent study students)
Teaching: Hydrology; Intro. Physical Geography; Intro. Geographic Information Science; Environment and Resources Management; Remote Sensing

Awards

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| 2015 | Canadian Remote Sensing Society Bronze Medal Award for Outstanding Early Career Achievements |
| 2009 | Best Ph.D. thesis award. Canadian Remote Sensing Society. |
| 2007 | Advanced Study in Regional Biogeochemistry: National Center for Atmospheric Research, Boulder CO. |
| 2004 – 2007 | Ontario Graduate Scholarship for Science and Technology - \$15,000 per year. |
| 2005 | Queen's Graduate Field Scholarship - \$5000. |
| 2003 – 2005 | Natural Science and Engineering Research Council Scholarship: PGSB - \$42,000. |
| 2000, 2001 | University of Waterloo internal scholarship in Geography - \$5000 |
| 2000 | Natural Science and Engineering Research Council Scholarship: PGSA - \$25,000. |

Recent Funding

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| 2017 | G. of Alberta Oil Sands Monitoring (\$900,988) Remote Sensing Wetland Ecosystem Change Detection Method Development (PI – Chasmer) (unofficially accepted). |
| 2013 | CFI (\$600,837): An Integrated System for High Resolution Terradynamic Imaging (PI – Dr. C. Hopkinson; Chasmer – CoI) (Funded: 2013-2018) |

Pending Funding Applications

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| 2017 | NSERC Strategic Partnership Grant (~\$200,000) Changes in wetland extent, classes and ecological condition: Implications for First Nations quality of life and access to resources (PI – Chasmer; LOI stage, pending). |
| 2017 | NSERC Discovery Grant (\$194,114) Investigating Environmental Risk from Climate Change in Canada: Fire Fuel Consumption, Severity and Ecosystem Response Indicators using LiDAR (FISIL) (PI – Chasmer) (pending) |

2017 CFI (\$2,112,935 + \$874,125 in kind) Democratizing 3D Data for Earth and Environmental Sciences Research: Ecosystems Diagnostic Imaging (PI – Dr. C. Hopkinson, Chasmer + 7 others as CoI) (pending).

Career

- 2016 – present *Assistant Professor, University of Lethbridge, Lethbridge Alberta.*
- 2014 – 2016 *Alberta Innovates and Technology Futures Post-Doctoral Fellow, Dept. of Geography, University of Lethbridge, Lethbridge Alberta.* Developing methods for observation and scaling of hydro-meteorological (peatland and forest) processes within a changing climate. Supervisor: C. Hopkinson
- 2013 – 2014 *Visiting Assistant Professor, Dept. of Geography, University of Lethbridge, Lethbridge Alberta*
Lectured courses in Physical Geography, Hydrology, and Geographic Information Science.
- 2011 – 2013 *Research Associate, Dept. of Geography, University of Waterloo, Waterloo Ontario*
Quantify influences of forest harvest on water and carbon balance within Western Boreal Plain, Alberta. Examine mass and energy exchanges at a reclaimed fen, post oil extraction, northern Alberta. Supervisor: R. Petrone
- 2008 - 2011 *Post-Doctoral Fellow, Cold Regions Research Centre, Wilfrid Laurier University, Waterloo Ontario*
Examine influences of vegetation structure on permafrost thaw; scaling of mass and energy exchanges from land cover type to region using eddy covariance, soil chambers, photogrammetry, and plateau morphology. Supervisor: W. Quinton
- 2004 – 2008 *Part-time Research Associate, Applied Geomatics Research Group, Nova Scotia*
Airborne and terrestrial LiDAR survey operations, planning, and workshops.
- 2001 – 2004 *Part-time Consulting, Ontario.*
Hydro-meteorological instrument deployment.
- 2003 – 2004 *Teaching Assistant, Queen's University.*
Geographic Information Systems; Remote sensing; Hydro-meteorology.
- 2001 – 2002 *Research Assistant and Teaching Assistant, McMaster University.*
Designed, programmed, calibrated, and installed meteorological eddy covariance flux station with numerous meteorological instruments.
- 2000 *Lecturer, University of Waterloo.*
Remote sensing and GIS – special course to visiting scientists from Indonesia.
- 2000 *Research and Teaching Assistant, University of Waterloo/NASA.*
Climatology of urban heat islands and impacts on health in US and Canada.
- 1999 *Research Assistant, University of Waterloo.*
Climate influences on Arctic sea ice concentrations.
- 1998 *Solar Car Terrain Modeling, University of Waterloo.*
3-D terrain analysis and solar load modeling using ArcINFO for international SunRayce
- 1998 *Research Assistant, University of Waterloo.*
Examined the influence of scale on the accuracy of climate normals from the local to regional level using general circulation models.

Submitted Papers in Review (2) (*student)

- Chasmer, L., C. Hopkinson, R. Petrone, K. Devito. Differences between hydrological sensitivity and ecosystem response to climate anomalies within Boreal Plains watersheds, Alberta Canada. *Remote Sensing of Environment* (submitted).
- Houghton*, E.R., W. L. Quinton, O. Sonnentag, and L. Chasmer. Implications of permafrost thaw on snow cover and melt in a forested peat-plateau-wetland landscape in northwestern Canada. *Hydrological Processes* (submitted).
- Warren*, R. K., C. Pappas, M. Helbig, L. Chasmer, R. Patankar, A. Berg, J. Baltzer, W. Quinton, and O. Sonnentag, Minor contribution of black spruce transpiration to evapotranspiration of boreal permafrost peatlands. *In prep to be submitted to Geophysical Research Letters*. In prep, March 2017.

Chasmer, L., C. Mahoney, A. Paluck*, C. Hopkinson, R. Connon and W. Quinton. Morphological and tree structure influences on permafrost thaw using a spatio-temporal random forest predictive model. *Permafrost and Periglacial Processes*. In prep, April 2017.

Chasmer, L., K. Hokanson, K. Devito, R. Petrone, C. Mendoza, C. Hopkinson. Are Boreal Plains wetlands becoming more xeric? Quantifying feedbacks between atmospheric drying, vegetation encroachment and pond terrestrialization. *Geophysical Research Letters*. In prep.

Peer Reviewed Journal Publications (48)

Thompson, D., R. Petrone, **L. Chasmer**, N. Kljun, M. Flanagan, K. Devito, J. M. Waddington, 2017. Regional wildfire smoke impacts on boreal forest carbon exchange. *Geophysical Research Letters*. (accepted pending revisions).

Devito, K.J., K. J. Hokanson, P. Moore, A. Anderson, **L. Chasmer**, C. Hopkinson, N. Kettridge, C. A. Mendoza, D. L. Peters, R. Petrone, U. Silins, B. Smerdon, J. Morissette, J. M. Waddington, 2017. Landscape controls of long-term runoff in sub-humid heterogeneous Boreal catchments. *J. of Hydrology* (accepted pending revisions).

Helbig*, M., **L. Chasmer**, A. Desai, N. Kljun, W. Quinton and O. Sonnentag, 2017. Direct and indirect climate change effects on carbon dioxide fluxes in a thawing boreal forest-wetland landscape. *Global Change Biology*. (in press).

Sutherland*, G., **L. Chasmer**, N. Kljun, K. Devito, and R. Petrone, 2017. Using high resolution LiDAR data and a flux footprint parameterization to scale evapotranspiration estimates to lower pixel resolutions. *Canadian Journal of Remote Sensing*. DOI: 10.1080/07038992.2017.1291338.

Merchant, M.*, J. Adams, A. Berg, J. Baltzer, W. Quinton and **L. Chasmer**, 2016. The contributions of C-band SAR multipolarization data and polarimetric decompositions to subarctic boreal peatland mapping. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. 10(4):1467-1482.

Bye*, I. J., P. R. J. North, S. O. Los, N. Kljun, J. A. B. Rosette, C. Hopkinson, **L. Chasmer** and C. Mahoney, 2016. Estimating forest canopy parameters from satellite waveform LiDAR by inversion of the FLIGHT three-dimensional radiative transfer model. *Remote Sensing of Environment*. 188:177-189.

Chasmer, L. and C. Hopkinson, 2016. Threshold loss of discontinuous permafrost and landscape evolution. *Global Change Biology*. Doi:10.1111/gcb.13537.

Helbig, M.*, **L. Chasmer**, N. Kljun, W. Quinton, C. Treat, and O. Sonnentag, 2016. The positive net radiative greenhouse gas forcing of increasing methane emissions from a thawing boreal forest-wetland landscape. *Global Change Biology*. Doi:10.1111/gcb.13520.

Xi, Z.*, C. Hopkinson, and **L. Chasmer**, 2016. Automating plot-level stem analysis from TLS scans. *Forests*. 7(11):252. Doi:10.3390/f7110252.

Helbig*, M., K. Wischniewski, N. Kljun, **L. Chasmer**, W. Quinton, M. Detto, and O. Sonnentag, 2016. Regional atmospheric cooling and wetting effect of permafrost thaw-induced boreal forest loss. *Global Change Biology*. 12(2):4048-4066.

Chasmer, L., C. Hopkinson, J. Montgomery*, R. Petrone, 2016. A Physically-based terrain morphology and vegetation structural classification for wetlands of the Boreal Plains, Alberta Canada. *Canadian Journal of Remote Sensing*. Special Issue on Advanced Forest Inventory. 42(5):521-540 . <http://dx.doi.org/10.1080/07038992.2016.1196583>

Hopkinson, C., **L. Chasmer**, C. Gynan, C. Mahoney, and M. Sitar, 2016. Multi-sensor and multi-spectral lidar characterization and classification of a forest environment. *Canadian Journal of Remote Sensing*. Special Issue on Advanced Forest Inventory. 42(5):501-520.

Hopkinson, **Chasmer, L.**, A. Barr, N. Kljun, T. A. Black and J. H. McCaughey, 2016. Monitoring forest biomass and carbon storage change by integrating airborne laser scanning and eddy covariance data. *Remote Sensing of Environment*. 181:82-95.

- Sundqvist*, E., A. Oersson, N. Kljun, P. Vestin, **L. Chasmer**, C. Hopkinson, and A. Lindroth, 2015. Upscaling of methane exchange in a boreal forest using soil chamber measurements and high-resolution LiDAR elevation data. *Agricultural and Forest Meteorology*. 214:393-401.
- Wasser*, L., **L. Chasmer**, R. Day, and A. Taylor, 2015. Quantifying land use effects on forested riparian buffer vegetation structure. *Ecosphere*. 6(1):1-17.
- Petrone, R., **L. Chasmer**, C. Hopkinson, U. Silins, S. Landhausser, N. Kljun, K. J. Devito, 2014. Effects of harvesting and drought on CO₂ and H₂O fluxes in an aspen-dominated western boreal plain forest: Early chronosequence recovery. *Canadian Journal of Forest Research*. 45 (1):87-100.
- Mahoney, C., N. Kljun, S. O. Los, **L. Chasmer**, J. M. Hacker, C. Hopkinson, P. R. J. North, J. Rosette, E. van Gorsel, 2014. Slope estimation from ICESat/GLAS. *Remote Sensing*. 6(10):10051-10069.
- Sutherland*, G., **L. E. Chasmer**, R. M. Petrone, S. M. Brown, N. Kljun, and K. Devito, 2014. Evaluating the use of spatially varying vs. bulk average 3D vegetation structural inputs to modeled evapotranspiration within heterogeneous land cover types. *Ecohydrology*. 7(6):1545-1559. DOI: 10.1002/eco.1477.
- Chasmer, L.**, C. Hopkinson, W. Quinton, T. Veness*, and J. Baltzer, 2014. A decision-tree classification for low-lying complex land cover types within the zone of discontinuous permafrost. *Remote Sensing of Environment*. 143:73-84.
- Brown, S.M., R. Petrone, **L. Chasmer**, C. Mendoza, M. Lazerjan, and D. Devito, 2014. Atmospheric and soil moisture controls on evapotranspiration above and within a Western Boreal Plain aspen forest. *Hydrological Processes*. 28(15):4449-4462 DOI_10.1002/hyp.9879.
- Baltzer, J.L., T. Veness*, **L. E. Chasmer**, A. Sniderham, W. L. Quinton, 2014. Forests on thawing permafrost: fragmentation, edge effects and net forest loss. *Global Change Biology*. 20(3):824-834.
- van Gorsel, E., A.J.A. Berni, P. Briggs, A. Cabello-Leblic, **L. Chasmer**, H.A. Cleugh, J. Hacker, S. Hantson, V. Haverd, D. Hughes, C. Hopkinson, H. Keith, N. Kljun, R. Leuning, M. Yebra, and S. Zegelin, 2013. Primary and secondary effects of climate variability on carbon and water exchange in an evergreen Eucalyptus forest. *Agricultural and Forest Meteorology, Special Issue on Carbon and Water Coupling*. 182-183:248-256.
- Hopkinson, C., J. Lovell, **L. Chasmer**, D. Jupp, N. Kljun, and E. van Gorsel, 2013. Integrating terrestrial and airborne lidar to calibrate a 3D canopy model of effective leaf area index. *Remote Sensing of Environment*. 136:301-314.
- Wasser*, L., R. Day, **L. Chasmer**, and A. Taylor, 2013. Influence of vegetation structure on lidar-derived canopy height and fractional cover in forested riparian buffers during leaf-off and leaf-on conditions. *PLoS ONE*. 8(1):e54776. Doi:10.1371/journal.pone.0054776.
- Hopkinson, C., **L. Chasmer**, D. Colville, R. Fournier, R. Hall, J. Luther, T. Milne, R. Petrone, and B. St.-Onge, 2013. Moving towards consistent ALS monitoring of forest attributes across Canada; the 'C-CLEAR' approach. *Photogrammetric Engineering and Remote Sensing – National LiDAR special issue*. 79(2):159-173.
- Chasmer, L.**, Kenward*, A., W. Quinton, and R. Petrone, 2012. CO₂ exchanges within zones of rapid conversion from permafrost plateau to bog and fen land cover types. *Arctic, Antarctic, and Alpine Research*. 44(4):399-411.
- Los, S.O., Rosette, J.A.B., Kljun, N., North, P.R.J., **Chasmer, L.**, Suarez, J.C., Hopkinson, C., Hill, R.A., van Gorsel, E., Mahoney, C., Berni, J.A.J. 2011. Vegetation height products between 60° S and 60° N from ICESat and GLAS data. *Geoscientific Model Development*. 5:413-432.
- Chasmer, L.**, N. Kljun, C. Hopkinson, S. Brown, T. Milne, K. Giroux*, A. Barr, K. Devito, I. Creed, and R. Petrone 2011a. Characterizing vegetation structural and topographic characteristics sampled by eddy covariance within two mature aspen stands using lidar and a flux footprint model: Scaling to MODIS, *Invited for Special Issue on Scaling Fluxes. J. Geophys. Res. - Biogeosciences*, 116, G02026, doi:10.1029/2010JG001567.
- Chasmer, L.**, W. Quinton, C. Hopkinson, R. Petrone, and P. Whittington*, 2011b. Vegetation canopy and radiation controls on permafrost plateau evolution within the discontinuous permafrost zone, Northwest Territories, Canada. *Permafrost and Periglacial Processes*. DOI: 10.1002/ppp.724.

- Chasmer, L.**, C. Hopkinson, and W. Quinton, 2011c. Quantifying errors in permafrost plateau change from optical data, Northwest Territories, Canada: 1947 to 2008. *Canadian Journal of Remote Sensing – CRSS Special Issue*. 36(2):S211-S223.
- Hilker, T., F.G. Hall, N.C. Coops, A. Lyapustin, Y. Wang, N. Grant, Z. Nestic, T. A. Black, M. Wulder, N. Kljun, **L. Chasmer**, C. Hopkinson, 2010. Remote sensing of photosynthetic light use efficiency across two forested biomes (1): spatial scaling. *Remote Sensing of Environment*. 114:2863-2874.
- Quinton, W., M. Hayashi, and **L. Chasmer**. 2010. Permafrost thaw in the Canadian sub-arctic: Some implications for water resources. *Hydrological Processes Scientific Briefing*. DOI: 10.1002/hyp.7894.
- Hopkinson, C., **L. Chasmer**, S. Munro, and M. Demuth, 2010. The influence of DEM resolution on simulated solar radiation-induced glacier melt. *Hydrological Processes*. 24:774-788.
- Quinton, W., M. Hayashi, and **L. Chasmer**, 2009. Peatland hydrology of discontinuous permafrost in the Northwest Territories: Overview and synthesis. *Canadian Journal of Water Resources*. 34(4):311-328.
- Wharton, S., **L. Chasmer**, M. Falk, K.T. Paw U, 2009. Strong links between teleconnections and ecosystem exchange found at a Pacific Northwest old growth forest from flux tower and MODIS EVI data. *Global Change Biology*. 15:2187-2205, doi: 10.1111/j.1365-2486.2009.01952.x.
- Chasmer, L.**, C. Hopkinson, A. Barr, A. Black, H. McCaughey, and P. Treitz, 2009. Scaling and assessment of GPP from MODIS using a combination of airborne lidar and eddy covariance measurements over jack pine forests. *Remote Sensing of Environment*, 113(1):82-93.
- Hopkinson, C. and **L. Chasmer**, 2009. Testing LiDAR models of canopy fractional cover across multiple forest ecozones. *Remote Sensing of Environment*, 113:275-288.
- Chasmer, L.**, N. Kljun, A. Barr, A. Black, C. Hopkinson, H. McCaughey, and P. Treitz, 2008a. Influences of vegetation structure and elevation on CO₂ uptake within a mature jack pine forest in Saskatchewan, Canada. *Canadian Journal of Forest Research*. 38:2746-2761.
- Chasmer, L.**, C. Hopkinson, P. Treitz, H. McCaughey, A. Barr, and A. Black, 2008b. A lidar-based hierarchical approach to assessing MODIS fPAR *Remote Sensing of Environment*. 112:4344-4357.
- Chasmer, L.**, A. Barr, A. Black, H. McCaughey, A. Shashkov, and P. Treitz, 2008c. Investigating light use efficiency (LUE) across a jack pine chronosequence during dry and wet years. *Tree Physiology*. 28:1395-1406.
- Hopkinson, C., **L. Chasmer**, and R. Hall, 2008. The uncertainty in conifer plantation growth prediction from multi-temporal lidar datasets. *Remote Sensing of Environment*. 112(3):1168-1180.
- Hopkinson, C. and **L. Chasmer**, 2007. Using discrete laser pulse return intensity to model canopy gap fraction. *Finnish Journal of Photogrammetry*. 20(2):16-26.
- Chasmer, L.**, C. Hopkinson, B. Smith, and P. Treitz, 2006a. Examining the influence of changing laser pulse repetition frequencies on conifer forest canopy returns. *Photogrammetric Engineering and Remote Sensing*. 17(12):1359-1367.
- Chasmer, L.**, C. Hopkinson, and P. Treitz, 2006b. Investigating laser pulse penetration of a conifer canopy through the integration of airborne and terrestrial lidar. *Canadian Journal of Remote Sensing*. 32(2):116-125.
- Hopkinson, C., **L. Chasmer**, K. Lim, P. Treitz, and I. Creed, 2006. Towards a universal lidar canopy height indicator. *Canadian Journal of Remote Sensing*. 32(2):139-152.
- Hopkinson, C., **L. Chasmer**, G. Sass, I. Creed, M. Sitar, W. Kalbfleisch, and P. Treitz, 2005. Vegetation class dependent errors in lidar ground elevation and canopy height estimates in a boreal wetland environment. *Canadian Journal of Remote Sensing*. 31(2):191-206.
- Hopkinson, C., M. Sitar, **L. Chasmer**, and P. Treitz, 2004. Mapping snowpack depth beneath forest canopies using airborne LiDAR. *Photogrammetric Engineering and Remote Sensing*. 70(3):323-330.

Hopkinson, C., **L. Chasmer**, C. Young-Pow, and P. Treitz, 2004. Assessing forest metrics with a ground-based scanning LiDAR. *Canadian Journal of Forest Research*. 34:573-583.

Refereed Proceedings Papers (17)

Hopkinson, C., L. Chasmer, N. Kljun, E. van Gorsel, H. McCaughey, A. Barr, and A. Black, 2012. ALS monitoring of changes in forest biomass and carbon storage. *SilviLaser peer reviewed proceedings*, September, Vancouver BC, Canada.

Lovell, J.L., D.L.B. Jupp, E. van Gorsel, J. Jimenez-Berni, C. Hopkinson, and **L. Chasmer**, 2011. Foliage profiles from ground based waveform and discrete point lidar. *SilviLaser peer reviewed proceedings*, Oct. 16-20, Hobart, Australia.

Fox*, A., C. Hopkinson, **L. Chasmer**, and A. Wile, 2011. Stability of LiDAR-derived raster canopy attributes with changing pulse repetition frequency. *SilviLaser peer reviewed proceedings*, Oct. 16-20, Hobart, Australia.

Chasmer, L., C. Hopkinson, R. Petrone, and W. Quinton, 2011. Fusion of airborne LiDAR and WorldView-2 MS data for classification of depth to permafrost within Canada's sub-Arctic. *SilviLaser peer reviewed proceedings*, Oct. 16-20, Hobart, Australia.

Chasmer, L., N. Kljun, C. Hopkinson, S. Brown, T. Milne, K. Giroux, A. Barr, K. Devito, I. Creed, and R. Petrone 2011. Using a flux footprint model and airborne LiDAR to characterize vegetation structure and topography frequently sampled by eddy covariance: Implications for MODIS product validation. *SilviLaser peer reviewed proceedings*, Oct. 16-20, Hobart, Australia.

Berni, A.J., N. Kljun, E. Van Gorsel, V. Haverd, R. Leuning, A. Cabello-Leblic, A. Held, C. Hopkinson, **L. Chasmer**, 2011. 3D spatial distribution of biophysical parameters derived from hyperspectral and lidar remote sensing. Improving the constraints in land surface modelling. *34th International Symposium on Remote Sensing of Environment*. Sydney Australia. April 10-15.

Van Gorsel, E., N. Kljun, R. Leuning, A.J. Berni, A. Cabello-Leblic, A. Held, V. Haverd, C. Hopkinson, **L. Chasmer**, and K. Youngentob, 2011. Use of high resolution lidar and hyperspectral data to evaluate the sensitivity of net ecosystem exchange to stand structural and plant chemical properties. *34th International Symposium on Remote Sensing of Environment*. Sydney Australia. April 10-15.

Quinton, W., **L. Chasmer**, and R. Petrone, 2011. Permafrost loss and a new approach to the study of subarctic ecosystems in transition. *IUGG Conference, IAHS Red Book*, 4pgs.

Fox*, A., C. Hopkinson, and **L. Chasmer**, 2010. Simulating canopy transmittance using LiDAR echo classification, vertical intensity and spatial point density distributions. *IAHS Red Book*, September 25 2010. Jackson Hole, WY. 4pgs.

Morrison*, H., C. Hopkinson, **L. Chasmer**, and N. Kljun, 2010. A GIS modeling routine to optimize LiDAR-based effective leaf area index values in a boreal forest watershed. *IAHS Red Book*, September 25 2010. Jackson Hole, WY. 4pgs.

Chasmer, L., R. Petrone, S. Brown, C. Hopkinson, C. Mendoza, J. Diiwu, W. Quinton, and K. Devito, 2011. Sensitivity of modeled evapotranspiration to canopy characteristics within the Western Boreal Plain, Alberta. C. Neale and R. Gerber (eds.) *IAHS Red Book*, September 25 2010. Jackson Hole, WY. 4pgs.

Kljun, N., **L. Chasmer**, A. Barr, A. Black, C. Hopkinson, H. McCaughey, M.W. Rotach, and H.P. Schmid, 2009. Footprint application to long-term CO₂ flux observations. *NCAS Special Issue In Memory of Tony Slingo*.

Chasmer, L., and V. Thomas, 2008. Integrating airborne lidar with eddy covariance and beyond: New research within the Canadian Carbon Program. *Fluxletter*, 1(2):9-13.

Chasmer, L., A. Barr, A. Black, C. Hopkinson, N. Kljun, H. McCaughey, and P. Treitz, 2007. Using airborne lidar for the assessment of canopy structure influences on CO₂ fluxes. *ISPRS Laser Scanning 2007 and Silvilaser*. September 12 – 14. Espoo, Finland.

Hopkinson, C., and **L. Chasmer**, 2007. Modelling canopy gap fraction from lidar intensity. *ISPRS Laser Scanning 2007 and Silvilaser*. September 12 – 14. Espoo, Finland.

- Chasmer, L.**, C. Hopkinson, and P. Treitz, 2004: Assessing the three-dimensional frequency distribution of airborne and ground-based LiDAR data for red pine and mixed deciduous forest plots. *Proceedings of the Laser Scanners for Forest and Landscape Assessment* (ISPRS archived proceedings Vol XXXVI Part 8/W2 pgs 66-70). Freiburg, Germany. October 2 – 6.
- Hopkinson, C., K. Lim, **L. Chasmer**, P. Treitz, I. Creed, and C. Gynan, 2004: Wetland grass to plantation forest - estimating vegetation height from the standard deviation of lidar frequency distributions. *Proceedings of the Laser Scanners for Forest and Landscape Assessment* (ISPRS archived proceedings Vol XXXVI Part 8/W2 pgs 288-294). Freiburg, Germany. October 2 – 6.
- Hopkinson, C., **L. Chasmer**, G. Zsigovics, I. Creed, M. Sitar, P. Treitz, R. Maher, 2004: Errors in LiDAR ground elevation and wetland vegetation height estimates. *Proceedings of the Laser Scanners for Forest and Landscape Assessment* (ISPRS archived proceedings Vol XXXVI Part 8/W2 pgs 108-113). Freiburg, Germany. October 2 - 6.
- Chasmer, L.**, and C. Hopkinson, 2001: Using airborne laser altimetry and GIS to assess scale induced radiation loading errors in a glacierised basin. *Eastern Snow Conference Proceedings*. Ottawa, Ontario. May 17-18.

Non Refereed Contributions (Reports, Presentations, Proceedings papers, and posters) (>90)

- Chasmer, L.**, C. Hopkinson, K. Devito, K. Hokanson, R. Petrone, C. Mendoza, 2017. Monitoring water level changes and wetland shrubification using a hydrological/LiDAR data fusion approach. *Alberta Soil Science Workshop*. Feb 8-9, Lethbridge AB.
- Chasmer, L.** C. Hopkinson, J. Montgomery, R. Petrone, 2017. A remote sensing-based vegetation structural and terrain classification for Boreal Plains wetlands in Alberta. *Alberta Soil Science Workshop*. Feb 8-9, Lethbridge AB.
- Chasmer, L.** R. Virk, J. Montgomery, C. Hopkinson and R. Petrone, 2017. Spatial variability of loss of peat/duff layer following wildfire at Slave Lake and Fort McMurray using a data fusion approach. *Alberta Soil Science Workshop*. Feb 8-9, Lethbridge AB.
- Chasmer, L.**, K. Hokanson, K. Devito, C. Hopkinson, C. Mendoza and R. Petrone, 2016. Pulsing wetlands: Monitoring feedbacks between hydro-climatic regimes, wetland vegetation changes and pond terrestrialisation using multi-temporal LiDAR/optical and *in situ* data fusion. *Canadian Remote Sensing Symposium*, June 6-10, Winnipeg Manitoba.
- Haughton*, E., W. L. Quinton, O. Sonnentag, **L. Chasmer**. 2016. Snow cover characteristics and melt on a peat plateau-bog complex, southern NWT, Canada. *Canadian Geophysical Union Conference*. May 29-June 2 Fredericton, New Brunswick.
- Chasmer, L.**, C. Hopkinson, R. Petrone and K. Devito, 2016. LiDAR for wetland classification and change research. *Invited* presentation at Ducks Unlimited Canada, Edmonton.
- Chasmer, L.**, C. Hopkinson 2016. Stem to forest: Multi-scale LiDAR forestry innovations at the ARTeMiS Lab. *Invited - Atelier LiDAR 2016*. May 4-5, Quebec City, Quebec.
- Chasmer, L.**, C. Hopkinson, M. Sitar, C. Mahoney, D. McCaffrey, C. Gynan. 2016. Cutting-edge LiDAR and forestry research ARTeMiS Lab, University of Lethbridge. *Invited – GeoForest 2016*. March 1, Edmonton Alberta.
- Sonnentag, O., M. Helbig*, F. Payette, K. Wischnewski, N. Kljun, **L. Chasmer**, C. Pappas, M. Detto, J. Baltzer, W. Quinton, P. Marsh, 2016. Permafrost thaw and fire history: implications of boreal tree cover changes on land surface characteristics and turbulent energy fluxes in the Taiga Plains, Canada. *European Geophysical Union General Assembly*. April 17-22 Vienna Austria.
- Chasmer, L.**, R. Petrone and C. Hopkinson, 2016. Vegetation biodiversity assessment using LiDAR/optical fusion of a boreal saline fen within the oil sands region of Western Canada. *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium 2016*. July 10-15, Beijing China.

- Xi*, Z., C. Hopkinson, and **L. Chasmer**. 2016. A novel algorithm for reconstructing 3-D branches from point clouds. *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium 2016*. July 10-15, Beijing China.
- Paluck*, A., **L. Chasmer**, C. Hopkinson and C. Mahoney, 2016. Identifying vegetation and topographic characteristics associated with permafrost conditions in the Northwest Territories. *WDCAG meeting*, University of Northern British Columbia. March 11-12.
- Beland, M., G. Parker, D. Harding, C. Hopkinson, **L. Chasmer**, A. Antonarakis. 2015. White paper – On the use of LiDAR data at AmeriFlux sites. http://ameriflux.lbl.gov/wp-content/uploads/2014/06/mbeland-et-al_lidar-ameriflux-white-paper_final.pdf
- Chasmer, L.** and C. Hopkinson, 2015. Accelerating rates of discontinuous permafrost thaw associated with ground surface morphology and changing vegetation structures determined from multi-temporal LiDAR data. *AGU Fall Meeting*. San Francisco Dec 14-18.
- Xi*, Z., C. Hopkinson and **L. Chasmer**, 2015. Improving forest attribute estimation of airborne LiDAR based on profile assimilation from terrestrial LiDAR. *AGU Fall Meeting*. San Francisco Dec 14-18.
- Helbig*, M., Wischniewski, K., Kljun, N., **Chasmer, L.**, Quinton, W., Detto, M., and Sonnentag, O., 2015. Land cover change in the zone of sporadic permafrost causes shift in landscape-scale turbulent energy fluxes. *AGU Fall Meeting*. San Francisco Dec 14-18.
- Hopkinson, C., **L. Chasmer**, C. Gynan, C. Mahoney, and M. Sitar, 2015. Systematic variations in multi-spectral lidar representations of canopy height profiles and gap probability. *AGU Fall Meeting*. San Francisco Dec 14-18.
- Chasmer, L.**, C. Hopkinson, J. Montgomery, K. Noble*, and R. Petrone, 2015. LiDAR-based monitoring of forest and wetland change in Alberta's Boreal region. *Invited - ATIC Hyperspectral Workshop*, University of Lethbridge, September.
- Chasmer, L.**, and C. Hopkinson, 2015. Wetlands may reduce the impacts of climate anomalies on upland forests in the arid central boreal plains zone of western Canada. *International Union of Geodesy and Geophysics: International Association of Hydrological Sciences*. Prague, Czechoslovakia June 22 – July 2.
- Chasmer, L.**, C. Fuss*, Z. Xi, and Geog. 1000 students, 2015. Weather forecasting and uncertainty across Canada: Involving students in spatio-temporal research questions in a large classroom environment. *International Union of Geodesy and Geophysics: International Association of Hydrological Sciences*. Prague, Czechoslovakia June 22 – July 2.
- Chasmer, L.**, C. Hopkinson and R. Petrone, 2015. Quantifying the impacts of 23-years of warming and drying trends on peatland/upland succession in central Alberta. *Canadian Geophysical Conference*. Montreal Quebec, May 3-7.
- Wischniewski, K., M. Helbig*, N. Kljun, **L. Chasmer**, P. Marsh, and W. Quinton, 2015. From 10 Hz to 30 minutes: standardized procedures for (post)-processing eddy covariance measurements of the Taiga Plains flux tower meso-network in Northwestern Canada. *Canadian Geophysical Conference*. Montreal Quebec, May 3-7.
- Quinton, W., J. Baltzer, O. Sonnentag, A. Berg, **L. Chasmer**, 2015. Multi-scale studies of permafrost thaw impacts on eco-hydrology in the southern fringe of permafrost, Northwestern Canada. Invited. *Canadian Geophysical Conference*. Montreal Quebec, May 3-7.
- Chasmer, L.** and C. Hopkinson, 2015. Long-term trends in and interrelationships between central boreal plains ecosystem succession and hydro-climatic conditions. *Canadian Remote Sensing Symposium*. St. John's Newfoundland. June 8-11.
- Berg, A., W. Quinton, J. Huang, **L. Chasmer**, J. Ambadan, R. Connon*, and L. Stone, 2014. The relationship of increasing trends in GRACE observed total water storage to landscape changes in the Southern Taiga Plains. *American Geophysical Union Fall Meeting*, San Francisco, CA.
- Chasmer, L.**, C. Hopkinson, and R. Petrone, 2014. Assessing rates of biological and morphological change in northern ecosystems using gridded climate records and remote sensing time series data. *American Geophysical Union Fall Meeting*, San Francisco, CA.

- Helbig*, M., K. Wischnewski, **L. Chasmer**, W. Quinton, N. Kljun, M. Detto, and O. Sonnentag, 2014. Seasonal dynamics of the land surface energy balance of a boreal forest-peatland landscape affected by degrading permafrost in the Taiga Plains, Canada.
- Sonnentag, O., M. Helbig*, J. Baltzer, **L. Chasmer**, M. Detto, N. Kljun, P. Marsh, F. Payette, W. Quinton, and K. Wischnewski, 2014. The Taiga Plains Research Network: Observing net carbon, water and heat exchanges across a latitudinal permafrost gradient in northwestern Canada for improved understanding of high latitude ecosystem responses to climate change. *Arctic Change 2014 Conference*. Dec. 8-12. Ottawa Ontario.
- Helbig*, M., K. Wischnewski, **L. Chasmer**, W. Quinton, N. Kljun, P. Marsh, and O. Sonnentag. 2014. Monitoring carbon, water and heat fluxes in northwestern Canada under the influence of changing land cover and permafrost conditions. *1st International Integrated Carbon Observation System Conference*. September 23-25. Brussels, Belgium.
- Helbig*, M., M. Detto, K. Wischnewski, **L. Chasmer**, W. Quinton, N. Kljun, F. Payette, K. Higgins, and O. Sonnentag, 2014. The influence of rapidly degrading discontinuous permafrost in the Northwest Territories, Canada on atmospheric CO₂ and CH₄ fluxes. *4th European Conference on Permafrost (EUCOP)*. June 18-21. Portugal.
- Higgins*, K., O. Sonnentag, E. Levesque, and **L. Chasmer**, 2013. Plant species distribution in a patchy boreal forest-peatland landscape, Northwest Territories, Canada. Poster presented at *The Geography of Species Associations: Special Meeting of the International Biogeography Society*, November 15-17, Montréal, QC, Canada
- Quinton, W., O. Sonnentag, R. Connon*, and **L. Chasmer**, 2013. The growth of permafrost-free bogs at the southern margin of permafrost, 1947-2010 Poster presented at the *AGU Fall Meeting*, San Francisco CA.
- Kljun, N., **L. Chasmer**, C. Hopkinson, A. Lindroth, C. Mahoney, Molder, Meelis, and A. Soudant, 2013. LiDAR derived canopy structure and footprint modelling for interpretation of eddy-flux tower measurements at Norunda, Sweden. Invited presentation at the *AGU Fall Meeting*, San Francisco CA.
- Hopkinson, C., **L. Chasmer**, N. Kljun, and E. van Gorsel, 2013. Elements of systematic sensitivity and propagated uncertainty in LiDAR-based forest attribute maps. Invited presentation at the *AGU Fall Meeting*, San Francisco CA.
- Sonnentag, O., M. Helbig*, M. Detto, K. Wischnewski, **L. Chasmer**, P. Marsh, and W. L. Quinton, 2013. Establishment of a Meso-network of eddy covariance towers to quantify carbon, water and heat fluxes along a permafrost and climate gradient in the Taiga Plains, Northwest Territories. Poster presented at the *AGU Fall Meeting*, San Francisco CA.
- Phillips*, T., R. Petrone, **L. Chasmer**, S. Brown, and J. S. Price, 2013. Quantifying and characterizing evapotranspiration in a saline fen within the Western Boreal Plain, (WBP) in Fort McMurray, Alberta. Poster presented at the *AGU Fall Meeting*, San Francisco CA.
- Sutherland*, G., **L. Chasmer**, R. Petrone, S. Brown, N. Kljun, and K. Devito, 2013. Using high resolution LiDAR data and a flux footprint parameterization to scale evapotranspiration estimates to lower pixel resolutions. Poster presented at the *AGU Fall Meeting*, San Francisco CA.
- Helbig*, M., M. Detto, K. Higgins, K. Wischnewski, **L. Chasmer**, W. L. Quinton, and O. Sonnentag, 2013. Quantifying carbon, water, and energy fluxes under the influence of rapidly degrading discontinuous permafrost in the Northwest Territories, Canada. Poster presented at the *AGU Fall Meeting*, San Francisco CA.
- Chasmer, L.**, K. Giroux*, R. M. Petrone, C. Hopkinson, S. Brown, N. Kljun, and K.J. Devito, 2013. Strong links between vegetation growth, SVI's, and stomatal conductance at two boreal regeneration sites. *MultiTemp 2013*. Banff, Alberta. June 26-28, 2013.
- Chasmer, L.**, C. Hopkinson, W. Quinton, T. Veness*, and J. Baltzer, 2013. The importance of a good land cover classification in the zone of discontinuous permafrost. *WHIS&T Workshop – Invited presentation*. Lethbridge Alberta, June 13, 2013.
- Rahimzadeh-Bajgiran, P., A. Berg, **L. Chasmer**, and E. Roshani, 2013. Satellite-based change detection over southern parts of the Taiga Plains, Northwest Territories (NWT). *CGU Conference*. Saskatoon, Saskatchewan. May 26-30.

- Chasmer, L.**, C. Hopkinson, S. Brown, and R. Petrone, 2013. Characterizing vegetation structural influences on forest fire burn severity using LiDAR, spectral, and thermal remote sensing. *CGU Conference*. Saskatoon, Saskatchewan. May 26-30.
- Chasmer, L.**, A. Berg, C. Hopkinson, W. Quinton, T. Veness, and J. Baltzer, 2013. The importance of a good land cover classification in the zone of discontinuous permafrost. *CGU Conference*. Saskatoon, Saskatchewan. May 26-30.
- van Gorsel, E., J. A. J. Berni, P. Briggs, A. Cabello-Leblic, **L. Chasmer**, H. A. Cleugh, J. Hacker, S. Hantson, V. Haverd, D. Hughes, C. Hopkinson, H. Keith, N. Kljun, R. Leuning, M. Yebra, and S. Zeglin, 2013. Primary and secondary effects of climate variability on carbon and water exchange in a managed subalpine Eucalyptus forest. *EGU Meeting*. Vienna Austria. April 7-12.
- Kljun, N., E. van Gorsel, V. Haverd, A. Cabello-Leblic, **L. Chasmer**, J. Hacker, C. Hopkinson, and J. Jimenez-Berni, 2013. Improving GPP estimates using high-resolution remote sensing maps. *EGU Meeting*. Vienna Austria. April 7-12.
- Mahoney, C., N. Kljun, S. O. Los, P. R. J. North, **L. Chasmer**, C. Hopkinson, E. van Gorsel, J. Hacker, and J. A. B. Rosette, 2013. Predicting slope from full waveform LiDAR. 2013. *EGU Meeting*. Vienna Austria. April 7-12.
- Sonnentag, O., J. Baltzer, **L. Chasmer**, M. Detto, P. Marsh, and W. Quinton, 2012. Influence of increasing active-layer depth and continued permafrost degradation on carbon, water and energy fluxes over two contrasting, forested permafrost landscapes in the Taiga Plains, Northwest Territories. Canada. *AGU Fall Meeting*, San Francisco CA.
- Petrone, R., **L. Chasmer**, K. Devito, N. Kljun, and J.M. Waddington, 2012. Real-time CO₂ and energy exchange during the Utikuma complex forest fire, Alberta, Canada. *AGU Fall Meeting*, San Francisco CA.
- Sutherland, G.*, **L. Chasmer**, R. Petrone, and K. Devito, 2012. Using lidar data to spatially scale and examine the accuracy of satellite-resolution estimates of evapotranspiration in the Western Boreal Plains. *AGU Fall Meeting*, San Francisco CA.
- Chasmer, L.**, K. Giroux*, R. Petrone, N. Kljun, and K. Devito, 2012 Influences of species composition, distribution, and structure on leaf to footprint H₂O and CO₂ fluxes at two boreal regeneration sites. *AGU Fall Meeting*, San Francisco CA.
- Mahoney, C., N. Kljun, S.O. Los, P.R.J. North, **L. Chasmer**, E. van Gorsel, J.M. Hacker, C. Hopkinson, J. Rosette, 2012: 'Predicting Slope from Full Waveform LiDAR'. *SilviLaser Conference*, Vancouver, Canada, 16-19 September 2012.
- Baltzer, J., W. Quinton, and **L. Chasmer**, 2012. Permafrost thaw as a mechanism for widespread boreal forest loss. *Ecological Society of America conference*. Portland OR. August 7-9.
- Van Gorsel, E., N. Kljun, R. Leuning, J.A.J. Berni, A. Cabello-Leblic, V. Haverd, A. Held, C. Hopkinson, **L. Chasmer**. 2011. Use of high resolution LiDAR and hyperspectral data to evaluate the sensitivity of net ecosystem exchange to stand structural and plant chemical properties. *ISRSE Conference*, 2011.
- Berni, J.A.J., N. Kljun, E. Van Gorsel, V. Haverd, R. Leuning, A. Cabello-Leblic, A. Held, C. Hopkinson, and **L. Chasmer**. 2011. *ISRSE Conference*, 2011.
- Quinton, W., M. Hayashi, **L. Chasmer** 2011. Permafrost thaw induced land cover change in the Canadian subarctic: Implications for land cover change. Invited presentation *IUGG conference*.
- Petrone, R., **L. Chasmer**, S. Brown, C. Mendoza, J. Diiwu, W. Quinton, C. Hopkinson, and K. Devito, 2010. Sensitivity of modeled evapotranspiration to canopy characteristics from LiDAR within the Western Boreal Plain, Alberta. *American Geophysical Union conference*, San Francisco CA. Dec. 13-17.
- Wasser*, L., **L. Chasmer**, A. Tayler, and R. Day, 2010. Validating LiDAR derived estimates of canopy height, structure and fractional cover in Riparian areas: A comparison of leaf-on and leaf-off LiDAR data. *American Geophysical Union conference*, San Francisco CA. Dec. 13-17.

- Chasmer, L.**, N. Kljun, C. Hopkinson, S. Brown, K. Giroux, T. Milne, A. Barr, K. Devito, and R. Petrone, 2010. Quantification of NEP sampling within two mature boreal aspen stands using airborne LiDAR and a flux footprint model: Scaling to MODIS. *American Geophysical Union conference*, San Francisco CA. Dec. 13-17.
- Jingfeng Xiao, Kenneth J. Davis, Jiquan Chen, Markus Reichstein, Dennis D. Baldocchi, Christian Beer, **Laura Chasmer**, Jing M. Chen, Ankur R. Desai, Kazuhito Ichii, Akihiko Ito, Ranjeet John, Martin Jung, Tomomichi Kato, Wolfgang Knorr, Beverly E. Law, Shuguang Liu, Yiqi Luo, Migliavacca Mirco, Qiaozhen Mu, Kusum Naithani, Dario Papale, Steven W. Running, Youngryel Ryu, Kevin M. Schaefer, Christopher R. Schwalm, Ge Sun, Hanqin Tian, Enrico Tomelleri, Christopher A. Williams, Bruce Wylie, Wenping Yuan, Li Zhang. 2011. Advances in Upscaling of Carbon and Water Fluxes from Towers to Regional, Continental and Global Scales. *Ameriflux Science Meeting and 3rd Annual North American Carbon Program- Investigators Meeting*. January 31 – February 4, New Orleans.
- Kljun, N., **L. Chasmer**, C. Hopkinson, A.G. Barr, T.A. Black, and J.H. McCaughey, T. Milne, 2010. BERMS Sites Revisited: Footprint Climatology and 3D-LiDAR Data. *29th Conference on Agricultural and Forest Meteorology*, Keystone, CO, USA, 2-6 August 2010.
- Kljun, N., **L. Chasmer**, C. Hopkinson, A.G. Barr, T.A. Black, and J.H. McCaughey, T. Milne, 2010. Representative Ecosystem Characteristics for Flux Tower Sites Defined by Footprint Climatology and Airborne Remote Sensing Observations. Invited presentation at *MetStröm Workshop 'Deriving Model Parameters from Field Data with Special Focus on Tall Vegetation'*, Technische Universität Dresden, Tharandt, Germany, 9-10 September 2010.
- Kljun, N., **L. Chasmer**, C. Hopkinson, A.G. Barr, T.A. Black, and J.H. McCaughey, T. Milne, 2010. Representative Ecosystem Characteristics for Flux Tower Sites Defined by Footprint Climatology and Airborne Remote Sensing Observations. Invited presentation at *Greenflux International Conference*, Mierzecin, Poland, 12-15 September 2010.
- Hopkinson, C., **L. Chasmer**, N. Kljun, and H. Morrison, 2010. Terrain morphology and stand age influences on the rate of above ground biomass growth within a jack pine boreal forest landscape. Presented at *the Canadian Geophysical Union Conference*, Ottawa. June 1-5.
- Christensen*, B., M. Hayashi, W. Quinton, and **L. Chasmer**, 2010. Runoff generation from aggregates of peat plateaus in the discontinuous permafrost zone of the NWT. Presented at *the Canadian Geophysical Union Conference*, Ottawa. June 1-5.
- Verma*, A.K., W. Quinton, **L. Chasmer**, and R. Petrone, 2010. Factors controlling the spatial variability of soil thaw on a permafrost plateau. Presented at *the Canadian Geophysical Union Conference*, Ottawa. June 1-5.
- Chasmer, L.**, R. Petrone, K. Devito, C. Mendoza and W. Quinton, 2010. Sensitivity of potential evapotranspiration to canopy characteristics within the Western Boreal Forest, Alberta. Presented at *the Canadian Geophysical Union Conference*, Ottawa. June 1-5.
- Kenward, A., W. Quinton, R. Petrone, and **L. Chasmer**, 2010. Carbon flux dynamics of a permafrost dominated boreal wetland in the Northwest Territories, Canada. Presented at *the Canadian Geophysical Union Conference*, Ottawa. June 1-5.
- Hayashi, M., W. Quinton, and **L. Chasmer**, 2009. Wetland-forest transition at the edge of permafrost: Roles of coupled water and energy transport process. Presented at the *Geological Society of America Annual Meeting*, Portland Oregon, October 18-21.
- Quinton, W, M. Hayashi and **L. Chasmer**. 2009. Tundra and wetland Hydrology in the context of climate change and catchment comparison. North-Watch Workshop I: Climatic drivers, hydrological regime and environmental change. Dorset, Canada, 30th August - 3rd September.
- Chasmer, L.**, R. Petrone, S. Brown, C. Hopkinson, N. Kljun, K. Devito, C. Mendoza, I. Creed, Spatial partitioning of CO₂ fluxes using airborne lidar: Examples from a heterogeneous boreal wetland ecosystem, 2009. *Proceedings from the Canadian Symposium on Remote Sensing*. June 22 - 25, Lethbridge Alberta.
- Quinton, W., M. Hayashi, and **L. Chasmer**, 2009. Basin runoff modeling in wetland-dominated, discontinuous permafrost: Important considerations. Presented at the *17th Annual NRB Symposium and Workshop: Canada*. August 12 – 18.
- Kljun, N., **L. Chasmer**, C. Hopkinson, A. Barr, A. Black, H. McCaughey, 2009. Flux sites revisited: New insights from 3D-LiDAR survey. Presented at the *European Geophysical Union conference*.

- Chasmer, L.,** W. Quinton, C. Hopkinson, P. Whittington, and R. Petrone, 2008. The influence of vegetation canopy structure on soil frost dynamics within the sub-arctic discontinuous permafrost zone. Poster presented at the *American Geophysical Union Conference*, San Francisco, CA. December 15 – 19.
- Kljun, N., **L. Chasmer,** C. Hopkinson, A. Barr, A. Black, and H. McCaughey, 2008. Footprint modeling and its application to atmosphere-biosphere exchange processes. Poster presented at NCAS Atmospheric Science Conference, 8-10 December, Bristol, UK.
- Kljun, N., **L. Chasmer,** A. Barr, A. Black, C. Hopkinson, H. McCaughey, M.W. Rotach, and H. P. Schmid, 2008. Footprint application to long-term CO₂ flux observations. Proceedings of the *American Meteorological Society – Boundary Layers and Turbulence Conference*. Stockholm Sweden, June.
- Chasmer, L.,** N. Kljun, A. Barr, A. Black, C. Hopkinson, and H. McCaughey, 2008. Impact of vegetation structure and elevation on CO₂ fluxes detected by overlaying footprints onto lidar data. Presented at the *European Geophysical Union Conference*. Vienna.
- Chasmer, L.,** K. Devito, A. Fox, C. Hopkinson, N. Kljun, H. McCaughey, R. Petrone, and W. Quinton, 2008. Spatial parameterization of zero-plane displacement and surface roughness length using airborne lidar within three boreal ecosystems. Poster presented at the *Canadian Geophysical Union Conference*. Banff, AB. May 2008.
- Chasmer, L.,** H. McCaughey, P. Treitz, A. Barr, A. Black, C. Hopkinson, and A. Shashkov, 2007. Modelling fPAR and GPP from airborne lidar for local scaling and assessment of MODIS vegetation products. Poster presented at the *American Geophysical Union Fall Conference*. San Francisco, December 10 – 15.
- Wharton, S., **L. Chasmer,** M. Falk, and K. Paw U, 2007. Examining the influence of teleconnection patterns on CO₂ fluxes at an old-growth forest, Scaling from stand to region using MODIS, 2007. Poster presented at the *American Geophysical Union Fall Conference*. San Francisco, December 10 – 15.
- Chasmer, L.,** A. Barr, A. Black, C. Hopkinson, H. McCaughey, P. Treitz, A. Shashkov, and T. Zha, 2007. Using airborne lidar for the assessment of MODIS spectral vegetation indices across a boreal jack pine chronosequence and at the watershed scale (White Gull Creek). Presentation at the Fluxnet-Canada Annual General Meeting. March 5 – 10.
- Chasmer, L.,** A. Barr, A. Black, C. Hopkinson, N. Kljun, H. McCaughey, and P. Treitz, 2006. Variability in CO₂ fluxes with changes in vegetation structure and topography using a temporally changing flux footprint at the BERMS Old Jack Pine site. Poster presented at the *American Geophysical Union Conference*, San Francisco, CA November.
- Chasmer, L.,** A. Barr, A. Black, C. Hopkinson, H. McCaughey, P. Treitz, 2006. Lidar derived canopy structural influences on light use efficiency at a chronosequence of Fluxnet-Canada jack pine forest sites for MODIS product validation. *Proceedings of the International Geoscience and Remote Sensing Symposium (IGARSS)*. Denver Colorado. July 2006.
- Chasmer, L.,** H. McCaughey, A. Barr, A. Black, A. Shashkov, P. Treitz, 2006. Influences of wet and dry years on magnitudes of energy, water, and carbon exchanges in a jack pine chronosequence at BERMS. Poster presented at the *Fluxnet-Canada Research Network Annual General Meeting*, Victoria, B.C. Feb. 24-26.
- Chasmer, L.,** A. Barr, A. Black, C. Hopkinson, H. McCaughey, P. Treitz, and A. Shashkov, 2006. Do wet and dry years alter structural canopy characteristics as observed locally and by remote sensing? Results from a jack pine chronosequence at BERMS. Poster presented at the *Fluxnet-Canada Research Network Annual General Meeting*, Victoria, B.C. Feb. 24-26.
- Chasmer, L.** C. Hopkinson, M. Sitar, and P. Treitz, 2005. Integration of airborne and terrestrial lidar for assessing structural components of conifer trees. *Proceedings of the Canadian Society for Remote Sensing Conference*. Wolfville, NS. June.
- Chasmer, L.** H. McCaughey, and P. Treitz, 2004. An examination of climatic differences and associated driving mechanisms of above-ground vegetation productivity observed using remote sensing across the Fluxnet-Canada Network. Poster presented at the *Fluxnet-Canada Research Network Annual General Meeting*, Banff, Alberta.
- Chasmer, L.,** C. Hopkinson, and P. Treitz, 2003. Laser pulse return frequency distributions within tree canopies using airborne and ground-based LiDAR systems. *Proceedings of the Canadian Association of Geographers Ontario Conference*, Queen's University, Kingston Ontario.

- Chasmer, L.,** C. Hopkinson, and P. Treitz, 2003. Distribution of Laser pulse frequency distributions in red pine and mixed deciduous forests north of Toronto. *Poster presented at the 2nd Great Lakes Forestry Meeting*, Sault St. Marie Ontario.
- Chasmer, L.,** C. Hopkinson and P. Treitz, 2002. Quasi-waveform generation from small footprint LiDAR to investigate seasonally changing biomass in coniferous and deciduous forest stands. *Poster presented at the Centre for Research in Environment and Space Technology (CRESTech) Innovation Conference*. Toronto Ontario.
- Chasmer, L.,** C. Hopkinson, and P. Treitz, 2002. Using airborne LiDAR to examine changing seasonal forest biomass characteristics *Proceedings of IGARSS*. Toronto, Ontario. June 24-28.
- Chasmer, L.** and E. F. LeDrew, 2002. Examining the influence of local temperatures on sea ice development in the Greenland Sea. *Proceedings of the Canadian Geophysical Union Conference*, Banff, Alberta. May 19-24.
- Chasmer, L. M. A.** Arain, and N. Restrepo, 2002. Preliminary hydrometeorological observations within a mature white pine forest stand in Southern Ontario. *Poster presented at the Canadian Geophysical Union Conference*, Banff, Alberta. May 19-24.
- Chasmer, L.,** and E. LeDrew, 2001. Interactions between the Odden sea ice peninsula and the North Atlantic Oscillation. *Proceedings of the 6th Conference on Polar Meteorology and Oceanography*. San Diego, California.
- Chasmer, L.** and E. LeDrew, 2001. Seasonal interactions between sea ice concentrations and the North Atlantic Oscillation in the Odden sea ice peninsula. *Proceedings of IGARSS*, Sydney, Australia, July 7 – 12.
- Hopkinson, C. M. Sitar, M. Demuth, and **L. Chasmer**, 2001. Applications of airborne LiDAR mapping in glacierised mountainous terrain. *Proceedings of IGARSS*, Sydney, Australia, July 7 – 12.
- Chasmer, L.** and E. LeDrew, 2001. Using PCA to examine seasonal changes in the Odden sea ice peninsula, Greenland Sea. *Proceedings of the International Glaciology Symposium*, Maryland. June 4 – 8.
- Demuth, M., C. Hopkinson, M. Sitar, A. Pietroniro, and **L. Chasmer**, 2001. Airborne Scanning Laser Terrain Mapping of Peyto Glacier, Wapta and Waputik Icefields Canada: First Results and Future Prospects.” *International Glaciology Symposium*, Maryland. June 4 – 8.
- Chasmer, L.** and E. LeDrew, 2001. The use of Q-vector analysis to examine changes in the deepening of the Icelandic Low and the effect on sea ice in the Greenland Sea. *Eastern Snow Conference*, Ottawa, Ontario. May 14 – 18, 2001.
- Gutelius, B. C. Hopkinson, and **L. Chasmer**, 2000. Combining airborne Lidar and forest inventory data to investigate changing tree stand characteristics. Presented at the *American Geophysical Union Fall Meeting*. December 15-19, 2000. San Francisco.
- Chasmer, L.** and E. LeDrew, 2000. Daily variability of sea ice concentrations within the Odden sea ice peninsula. *Proceedings of the 22nd Annual Canadian Remote Sensing Symposium*. August 21-25. Victoria, B.C.
- Chasmer, L.,** E. LeDrew, and M. Sharp, 2000. Using wavelet analysis to determine the influence of Northern Hemisphere teleconnection patterns on sea ice concentrations in the Odden ice peninsula, Greenland Sea. *Proceedings of IGARSS*. July 24-28. Honolulu, Hawaii.
- Piowar, J., A. Walker, **L. Chasmer**, and B. Goodison, 1999. The derivation of snow-cover ‘normals’ over the Canadian Prairies from passive microwave satellite imagery. *Vol. 1 – 596. Proceedings of the 4th International Airborne Remote Sensing Conference and Exhibition/21st Symposium on Remote Sensing*. June 21 – 24, 1999. Ottawa.

Graduate Student Committees

Undergraduate Independent Study (U. Lethbridge) (8): Alissia Paluck (x2); Ike Allred; Scott Lamb; Pierre Dillon; Ethan Kutanzi; Katie Piet; Mark Claxton

Master Theses (9)

Wilfrid Laurier University: Tyler Veness; George Sutherland; Kayla Giroux; Andrea Kenward; Elise Gabrielli

Acadia University: Heather Morrison; Allyson Fox

University of Lethbridge: Joshua Montgomery; Courtney Rieger

Ph.D. Theses (5)

Pennsylvania State University: Leah Wasser

University of Lethbridge: Celeste Barnes; Zhouxin Xi; Robab Hashemi; Hussam Ali

Teaching

Teaching assistant for the following courses:

University of Waterloo – GIS, Remote Sensing, Civil and Mechanical Engineering

McMaster University – Introduction to Physical Geography, Hydro-Meteorology

Queen's University – Micrometeorology, GIS, Remote Sensing

Courses taught:

University of Lethbridge

- Introduction to Physical Geography (1st year course): Average quality (teaching evals.) 54:41% excellent:good
- Intro. Geographic Information Science (2nd year): Average quality (teaching evals.) = 53:47% excellent:good
- Hydrology I (3rd year course): Average quality (teaching evals.) = 100% excellent (2016); 50:50% excellent:good
- Environment and Resources Management (3rd year course) in progress

University of Waterloo

- Intensive Remote Sensing short course (graduate level)

Media Interviews

02/08/2016 *Lethbridge Herald*: “Taking a closer look”

<http://lethbridgeherald.com/news/lethbridge-news/2016/08/02/taking-a-closer-look/>

04/08/2016 *CBC News North*: “‘Kinda cool’ laser mapping a game changer for surveying northern landscape”

<http://www.cbc.ca/news/canada/north/research-laser-technology-climate-change-nwt-1.3706257>

21/01/2017 *Lethbridge Herald*: “Melting permafrost a concern”

<http://lethbridgeherald.com/news/lethbridge-news/2017/01/21/melting-permafrosta-concern/>

22/02/2017 *Interview with CBC News North*: *Forthcoming*

Organisation of Workshops and Meetings (Regional, National, International)

1. The Canadian Lidar Applied Research and Training Workshop, Halifax, Nova Scotia. February 2005.
2. Lidar Applications Workshop (as part of the Canadian Remote Sensing Symposium), Wolfville, Nova Scotia, June 2005.
3. The Airborne and Terrestrial Lidar Tutorial (as part of the International Geosciences and Remote Sensing Symposium), Denver, Colorado, July 2006.
4. HydroScan (using lidar in hydrology), Saskatoon Saskatchewan, September 2006.
5. Canadian Water Resources Association, Nova Scotia branch Symposium, August 2008.

Group Leadership

1. Directed and organized events for the Canadian Water Resources Association Students and Young Professionals group in Halifax Nova Scotia from 2006-2008.
2. Member of Scientists and Engineers in the Classroom, Lethbridge Alberta: 2013 to present.
3. Scientist teaching for the “Science Sizzle” 2016-ongoing. University of Lethbridge
4. Scouts Canada: 2016 to present (Scout leader for STEM)
5. Girl Guides of Canada: 2016 to present (Brownie leader for STEM)

Instrument Use and Operation

Campbell Scientific Meteorological and Hydrological Instrumentation

Programming, setup, calibration of a wide variety of instruments: data loggers, multiplexers, etc., open and closed path eddy covariance systems.

LiCOR LAI2000 Instrument and Digital Hemispherical Photography

Plot set up and processing for leaf area index estimation.

Global Positioning Systems

Handheld, survey-grade differential GPS, rapid static, differential, post-processed, etc. and when to use these.

Forest Mensuration

Forest mensuration and setup of permanent forest sample plots for remote sensing validation.

Airborne LiDAR, digitizers and aerial photography survey

Systems and software for 16 years. Planning of surveys, system installation into various aircraft, operation, troubleshooting, calibration and data processing. Most recent survey flying/operation in summer 2016 from Toronto to Norman Wells, NWT.

Terrestrial LiDAR

Optech Inc. ground-based LiDAR systems (ILRIS-3D) operation, troubleshooting and processing of data for 9 years. ECHIDNA (some processing).

Sensors and Software Ground Penetrating Radar

Use of various ground penetrating radar systems, data and software.

FLIR Thermal Cameras

Scientific use and processing of thermal imagery including atmospheric and temperature correction.

ASD Spectroradiometer

Measurement principals and theory during sunlit conditions at time of remote sensing sensor overpass, white reference measurements, ground and vegetation reflectance.

Reviewer for International Journals + others

Agricultural and Forest Meteorology
Arctic, Antarctic and Alpine Research
ASPRS Photogrammetric Engineering and Remote Sensing
Biogeosciences Discussions
Biosystems Engineering
Canadian Journal of Forest Research
Canadian Journal of Remote Sensing
Forestry Chronicle
ISPRS Journal of Remote Sensing
Journal of Geophysical Research- Biogeosciences
Journal of Hydro-meteorology
Permafrost and Periglacial Processes
PLOS ONE
Remote Sensing of Environment
Remote Sensing
Sensors

Affiliations

American Geophysical Union
Canadian Geophysical Union
Canadian Water Resources Association
Canadian Association of Geographers
cArbomap
Fluxnet-Canada Research Network and the Canadian Carbon Program
The Canadian Remote Sensing Society
International Union of Geodesy and Geophysics
Scouts Canada
Girl Guides of Canada