Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

Conferences and workshop abstracts:

2022

Alumbaugh D., Wilt M., Nichols E., Um E., Macquet M., Lawton D., Rippe D., Key K., Myer D., 2022, ERT and Crosswell EM imaging of CO2: Examples from a shallow injection experiment at the Carbon Management Canada CaMI FRS in Southeast Alberta, Canada: *SEG-AAPG IMAGE annual conference.*

Amundaray N. and Innanen K., 2022, Elastic full waveform inversion for time-lapse analysis of a CO2 injection at CaMI.FRS using synthetic VSP: *GeoConvention conference abstract.*

Butcher A., Zhou W., Vandeweijer V., Lapins S., Kendal M., Boullenger B., Paap B., Broman B., Stork A., Macquet M., and Lawton D., 2022, Monitoring CO2 injection at CaMI FRS using Distributed Acoustic Sensing networks: *16th International Conference on Greenhouse Gas Control Technologies, GHGT-16.*

Ceras P., Huijsles T., de Borst K., Opedal N., Todorovic J., Wollenweber J., Behmanesh H., Amro M., and Bartosek M., 2022, RETURN - Re-use of depleted oil and gas fields for CO2 sequestration, a new ACT project: *16th International Conference on Greenhouse Gas Control Technologies, GHGT-16.*

Cooper J., Lawton D., and McCoy S., 2022, Methodology for reanalysis of CO2 storage resources in Alberta: *GeoConvention conference abstract.*

Hall K.W., Lawton D.C., and Innanen K, 2022, Estimation of helical fiber pitch angle and trace spacing from co-located DAS, accelerometers and geophone datasets: *SEG-AAPG IMAGE annual conference.*

Hall K.W., Lawton D.C., and Innanen, 2022, Estimation of unknown trace spacings and pitch andles for helical fibre DAS data: *GeoConvention, Conference Abstracts*.

Hu Q. Innanen K, Macquet M., and Lawton D., 2022, Rock physics analysis of CaMI.FRS well-log data: *GeoConvention, Conference Abstracts*.

Kolkman-Quinn B., Lawton D., and Macquet M., 2022, Time lapse VSP detection of a simulated shallow CO2 leak at the CaMI Field Research Station: *GeoConvention, Conference Abstracts*.

Kolkman-Quinn B. and Lawton D., 2022, Detection threshold of a shallow CO2 plume with VSP data from the CaMI Field Research Station: *SEG-AAPG IMAGE annual conference.*

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

Kolkman-Quinn B. and Lawton D., 2022, DAS and geophone field comparison from VSP monitoring at the CaMI Field Research Station: *SEG-AAPG IMAGE annual conference, post convention DAS workshop.*

Lawton D., Hunter T., Kolkman-Quinn B., Monsegny J., Bertram M., and Maidment G., 2022, Spare Optimum-offset seismic surveys for monitoring gigatonne-scale CCS project: *SEG Worksop – toward gigatonnes CO2 storage - grand geophysical challenge.*

Macquet M., Kolkman-Quinn B., and Lawton D., 2022, Overview of the Carbon Management Canada (CMC) CaMI Field Research Station: a test site for developing and testing monitoring technologies for CCS: *AAPG CCUS conference, An Emerging Field for Energy Professionals.*

Macquet M., Kolkman-Quinn B., and Lawton D., 2022, Carbon Management Canada CaMI Field Research Station: advancing monitoring technologies for CCS: *EAGE Geotech.*

Maidment G., Ourabah A., Chatenay A., Macquet M., 2022, Ultra-high density seismic survey at Carbon Management Canada's Field Research Station: *GeoConvention, Conference Abstracts.*

Stork A., Butcher A., Zhou W., Kendall M., Vandeweijer V., Macquet M., and Lawton D, 2022, Near-surface monitoring of CO2 storage sites: Case study from CaMI.FRS: *EAGE Asia Pacific Workshop on CO2 geological storage.*

Wang Y and Lawton D., 2022, Attenuation measurement for monitoring injected CO2 at the CaMI Field Research Station, Alberta, Canada: *EAGE Geotech.*

Wang Y. and Lawton D., 2022, Accuracy and temporal resolution of attenuation estimation from DAS VSP at CaMI Field Research Station, Alberta: *GeoConvention, Conference Abstracts.*

Wang Y. and Lawton D., 2022, Time-lapse attenuation variations during CO2 injection using DAS VSP data from the CaMI Field Research Station, Alberta, Canada: *SEG-AAPG IMAGE annual conference* .

2021

Hall K.W., Innanen K.A., and Lawton D.C., 2021, Field testing of multicomponent DAS sensing: *GeoConvention, Conference Abstracts*.

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

Hall K.W., Innanen K.A., and Lawton D.C., 221, Multicomponent DAS sensing: times-series strain-rate tensor estimation from fiber data: *SEG-AAPG IMAGE annual conference.*

Khadangi L., Gilbert H. J., Savard G., Macquet M., and Lawton D.C, 2021, Horizontal-to-vertical spectral ratio (HVSR) seasonal variations at a shallow CO_2 injection site, the CaMI Field Research Station in Alberta, Canada: *AGU fall meeting abstract.*

Kolkman-Quinn, B., and Lawton, D. C., 2021, Time-lapse VSP monitoring of shallow CO_2 sequestration at the CaMI Field Research Station: *GeoConvention, Conference Abstracts*.

Macquet, M., Lawton, D. C., Rippe, D., and Schmidt-Hattenberger, C., 2021, Semi-continuous Electrical Resistivity Tomography monitoring for CO_2 injection at the CaMI Field Research Station, Newell County, Alberta, Canada: *GeoConvention, Conference Abstracts*.

Monsegny, J. E., Hall, K. W., Trad, D. O., and Lawton, D. C., 2021a, Least Squares DAS to geophone transform: *GeoConvention, Conference Abstracts*.

Monsegny, J. E., Lawton, D. C., and Trad, D. O., 2021b, A comparative study of data from different DAS interrogators: *GeoConvention, Conference Abstracts*.

Qu, L., Dettmer, J., Innanen, K. A. H., Hall, K. W., Macquet, M., and Lawton, D. C., 2021a, Trans-dimensional multimode surface wave dispersion inversion of seismic data recorded on trench-deployed Distributed Acoustic Sensing fiber: *First International Meeting for Applied Geoscience & Energy.*

Qu, L., Pan, W., Innanen, K. A. H., Dettmer, J., Macquet, M., and Lawton, D. C., 2021b, Near-surface S-wave velocity and attenuation structure from full-waveform inversion of distributed acoustic sensing data: *First International Meeting for Applied Geoscience & Energy.*

Wang Y., & Lawton D.C., 2021, Time-lapse DAS monitoring at the CaMI Field Research Station, Newell County, Alberta: *GeoConvention*, *Conference Abstracts*.

2020

Hall, K. W., Innanen, K. A. H., and Lawton, D. C., 2020a, Comparison of multi-component seismic data to fibre-optic (DAS) data: *90th Annual International Meeting, SEG, Expanded Abstracts*.

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

Hall, K. W., Innanen, K. A. H., and Lawton, D. C., 2020b, Multi-component accelerometer and geophone comparison to fibre-optic (DAS) data: *GeoConvention, Conference Abstracts*.

Lawton D., Osadetz K., Macquet M., and Maidment G., 2020, CO2 sequestration – Geophysicists are needed: *GeoConvention, Conference Abstracts*.

Macquet, M., Lawton, D. C., Savard, G., and Gilbert, H., 2020a, Ambient noise correlation study at the CaMI Field Research Station, Newell County, Alberta: *GeoConvention, Conference Abstracts*.

Macquet, M., Lawton, D. C., Savard, G., and Gilbert, H., 2020b, Ambient noise correlation study at the CaMI Field Research Station, Newell County, Alberta: *90th Annual International Meeting, SEG, Expanded Abstracts*.

Rippe D., Jordan M., Macquet M., Lawton D., Romdhane A., and Eliasson P., 2020, Quantitative CO2 monitoring at the CaMI Field Research Station (CaMI. FRS), Canada, using a hybrid structural-petrophysical joint inversion: *EGU General Assembly.*

Savard, G., Gilbert, H. J., Macquet, M., & Lawton, D., 2020, Microseismic monitoring at a shallow CO_2 injection site, the CaMI Field Research Station in Alberta, Canada. *In AGU Fall Meeting Abstracts (Vol. 2020, pp. S009-0007).*

Savard G., Gilbert H., Macquet M., Lawton D., and Gu J., 2020, Microseismic monitoring at a shallow CO2 injection site, the CaMI Field Research Station in Newell County, AB: *GeoConvention, Conference Abstracts*.

Utley, R, Utting, N, Johnson G, Zurakowski, M, Gyore D, Stuart, F, Osadetz K, Darrah, T, Haszeldine, R.S., Gilfillan, S (2020) Constraining the Subsurface Geochemical Baseline of CMC Research Institutes' Field Research Station (FRS), Alberta*:* *Proceedings of the 2020 Goldschmidt Conference*, June 21-26th, 2020, Honolulu (virtual).

Utley R., Utting N., Johnson G., Gyore D., Zurakowska M., Stuart F., Boyce A., Darrah T., Gulliver P., Osadetz, Haszeldine S., Lawton D., and Gilfillan, 2020, A multi-isotope geochemical approach to baseline monitoring at the Carbon Management Canada's CCS Field Research Station, prior to CO_2 injection: *AGU Fall Meeting Abstracts.*

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

2019

Goodarzi S., Osadetz K., and Lawton D., 2019, Coupled Fluid Flow Modeling in the Wellbore and Reservoir for CO2 Injection at the CaMI Field Research Station: *Proceedings of the 4th World Congress on Momentum, Heat and Mass Transfer.*

Goodarzi S., Lawton D., and Osadetz K., 2019, Coupled Fluid Flow Modeling in the Wellbore and Reservoir for CO2 Injection at the CaMI Field Research Station: *Global Petroleum Show.*

Gordon, A., Lawton, D. C., Hall, K. W., and Daley, T., 2019, Processing of walk-away DAS and geophone VSP data from the CaMI Field Research Station, Newell County, Alberta: *GeoConvention, Conference Abstracts*.

Hall, K. W., Bertram, K. L., Bertram, M. B., Innanen, K. A. H., and Lawton, D. C., 2019, Simultaneous accelerometer and optical fibre multi-azimuth walk-away VSP experiment, Newell County, Alberta, Canada: *89th Annual International Meeting, SEG, Expanded Abstracts*.

Jordan M., Rippe D., Romdhane A., Macquet M., and Lawton D., 2019, CO2 monitoring using hybrid structural-petrophysical joint inversion at the CaMI Field Research, Canada: *AGU Fall meeting.*

Lawton D. and Macquet M., Advances in new monitoring technologies for CO2 storage, 2019, *IEAGHG Monitoring and environmental Research – Combined Networks meeting, Calgary, Canada.*

Macquet, M., and Lawton, D. C., 2019a, Exploring continuous seismic data for monitoring CO_2 injection at the CaMI Field Research Station, Alberta, Canada: *89th Annual International Meeting, SEG, Expanded Abstracts*.

Macquet, M., and Lawton, D. C., 2019b, Using passive seismic data at the CaMI Field Research Station, Newell County, Alberta Canada: *GeoConvention, Conference Abstracts*.

Macquet M., Lawton D., Savard G., and Gilbert H., 2019, Exploring ambient noise correlation technique for monitoring CO_2 injection at the CaMI Field Research Station: *AGU Fall Meeting Abstracts.*

Spackman T., Lawton D., and Bertram M, 2019, Seismic data acquired with a novel, permanently-installed borehole seismic source: *89th Annual International Meeting, SEG, Expanded Abstracts*.

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

2018

Gordon, A., Lawton, D. C., Hall, K. W., Freifeld, B., Daley, T., and Cook, P., 2018, Depth registration of VSP DAS fibre: *88th Annual International Meeting, SEG, Expanded Abstracts*.

Gordon, A., and Lawton, D. C., 2018, VSP processing of Distributed Acoustic Sensing and geophone data at CaMI Field Research Station, Newell County, Alberta: *GeoConvention, Conference Abstracts*.

Hall, K. W., Lawton, D. C., Daley, T., Freifeld, B., and Cook, P., 2018a, Effect of source effort and source distance on DAS data at CaMI.FRS, Newell County, Alberta: *GeoConvention, Conference Abstracts*.

Hall, K. W., Lawton, D. C., Daley, T., Freifeld, B., Marchesini, P., and Cook, P., 2018b, Effect of source effort and source distance on optical fibre data at CaMI.FRS, Newell County, Alberta: *88th Annual International Meeting, SEG, Expanded Abstracts*.

Lawton D., Macquet M., Innanen K., Trad D., Feasibility study of time-laspe seismic monitoring of CO2 sequestration at the CaMI Field Research Station, 2018, *Global Petroleum Show, Calgary, Canada.*

Lawton D., Hall K., and Gordon A., 2018, Advances in DAS seismic monitoring for CO2 storage: *SEG Technical Program Expanded Abstract.*

Macquet M. and Lawton D., 2018, Reservoir simulation and feasibility study for seismic monitoring at CaMI. FRS, Newell County, Alberta: *Fifth CO2 Geological Storage Workshop 2018*

Rippe D., Jordan M., Romdhane A., Schnidt-Hattenberger C., and Macquet. M, 2018, Accurate CO2 monitoring using quantitative joint inversion at the CaMI Field Research Station (FRS), Canada: *14th International Conference on Greenhouse Gas Control Technologies-GHGT-14.*

Spackman T. and Lawton D., 2018, Seismic monitoring with continuous seismic sources: *GeoConvention, Conference Abstracts.*

Spackman T., and Lawton D., 2018, Analysis of distributed acoustic sensing and geophone VSP data for continuous seismic source studies: *88th Annual International Meeting, SEG, Expanded Abstracts*.

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

2017

Cheung T., Parker B. L., Cherry J.A., and Halwa L., 2017, Establishing chemical and isotopic baseline conditions in a shallow bedrock aquifer at a gas migration field research station in south-eastern Alberta, Canada: *IAH conference.*

Daley T., Marchesini P., Wilt M., Cook P., Freifeld B.M , and Lawton D., 2017, Containment and Monitoring Institute-Baseline Geophysics for CO2 Monitoring with Crosswell Seismic and Electromagnetics: *EAGE/SEG Research Workshop 2017.*

Gordon, A., Lawton, D. C., and Eaton, D. W. S., 2017, VSP azimuthal travel time analysis at the Field Research Station near Brooks, AB: *GeoConvention, Conference Abstracts*.

Gordon A., Lawton D., and Eaton D., 2017, VSP azimuthal travel time analysis at the Field Research Station near Brooks, AB: *EAGE/SEG Research Workshop 2017.*

Lawton D., Osadetz K., and Saeedfar A., 2017, CCS monitoring technology innovation at the CaMI field research station, Alberta, Canada: *EAGE/SEG Research Workshop.*

Macquet M., Lawton D., Dongas J., and Barraza J, 2017Feasibility study of time-lapse seismic monitoring of CO2 sequestration: *EAGE/SEG Research Workshop*.

Macquet M., Lawton D., Dongas J., and Barraza J, 2017, Feasibility study of time-lapse seismic monitoring of CO2 sequestration: *GeoConvention, Conference Abstracts*.

Stork A., Kendal J.M., Horleston A.C., and Lawton D., 2017, Baseline Microseismic Monitoring for CO2 Injection Sites: *EAGE/SEG Research Workshop 2017.*

2016

Dongas, J. M., and Lawton, D. C., 2016, Static characterization and dynamic simulated scenarios for monitoring a shallow CO_2 injection target: *GeoConvention, Conference Abstracts*.

Hall, K. W., Isaac, J. H., Wong, J., Bertram, K. L., Bertram, M. B., Lawton, D. C., Bao, X., and Eaton, D. W. S., 2016a, Initial 3C-2D surface seismic and walkaway VSP results from the 2015 Brooks SuperCable experiment: *GeoConvention, Conference Abstracts*.

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

Hall, K. W., Isaac, J. H., Wong, J., Bertram, K. L., Bertram, M. B., Lawton, D. C., Bao, X., and Eaton, D. W. S., 2016b, Initial 3C-2D surface seismic and walkaway VSP results from the 2015 Brooks SuperCable experiment: *86th Annual International Meeting, SEG, Expanded Abstracts*.

Montgomery B., Pedersen P., Lawton D., and Osadetz K., 2016, Sedimentology of the Upper Cretaceous Basal Foremost and Medicine Hat Formations southwest of Brooks, Alberta: Implications for a Carbon Capture and Sequestration Monitoring Program, *AAPG.*

Muravieva S., Osadetz, and Lawton D., 2016, Petrographic assessment of the Foremost Formation, Belly River Group prior to CO2 injection at Field Research Station (FRS), Newell County, Alberta*: Core conference CMI* .

Muravieva S., Osadetz, and Lawton D., 2016, Petrographic assessment of the Upper Cretaceous Foremost prior to CO2 injection at Field Research Station, Newell County, Alberta: *CSPG Core conference*.

Nowroozi D., Lawton D., and Khaniani H., 2016, A framework for full waveform modeling and imaging for CO2 injection at the FRS project, *GeoConvention, Conference Abstracts.*

Nowroozi D., Lawton D., and Khaniani H., 2016, Seismic modelling and imaging for a shallow CO2 injection project: *86th Annual International Meeting, SEG, Expanded Abstracts*.

Osadetz, K. G., Lawton, D. C., Larter, S., Mayer, B., Pederson, P. K., and Saaedfar A., 2016, CaMI's Countess well (10-22-17-16W4): Upper Cretaceous succession at a Unique Subsurface Laboratory and Technology Demonstration Site in Newell County, Alberta, *International Core conference, CSPG*.

Vocke, C.P., Clarkson, C.R., Aquino, S., Vahedian, A., Lawton, D.C., Osadetz, K., Ghanizadeh, A., 2016, Application of profile (probe) permeability and mechanical (rebound) hardness tests for characterization of fluid transport and geomechanical properties of selected formations in western Canada: *GeoConvention 2016, Canadian Society of Petroleum Geologists, conference proceedings and online*, extended abstract.

2015

Dongas, J. M., and Lawton, D. C., 2015, Development of a geostatic model for a geoscience field research site in Alberta: *GeoConvention, Conference Abstracts*.

Carbon Management Canada

#15, 3535 Research Road NW
Calgary, Alberta, Canada, T2L 2K8
(403)210-9784
www.cmcghg.com

Nowroozi D., Lawton D. and Cordsen A., 2015, Seismic parameter design for reservoir monitoring and improve PS fold distribution, Brooks, Alberta: *GeoConvention, Conference Abstracts*.

Osadetz, K. G., Lawton, D. C., Larter, S., Mayer, B., and Pedersen, P. K., 2015, CMC Research Institutes' Countess well (10-22-17-16W4): the Upper Cretaceous succession at a Unique Subsurface Laboratory and Technology Demonstration Site: *GeoConvention, Conference Abstracts*.