

CURRICULUM VITAE

Name: Jared Dale Abraham, jabraham@aquageoframeworks.com ; +1-303-905-6240

Address: 10848 Ridge Road, Fort Laramie, WY 82212-7614

Date and Place of Birth: December 31st, 1971; Eugene, Oregon, USA

Citizenship: United States of America

Professional Licensure: Wyoming Professional Geologist PG-3971
Nebraska Professional Geologist G-0422
Utah Professional Geologist 9717100-2250
Arizona Registered Geologist 61940
Kansas Professional Geologist 895
Florida Professional Geologist PG2915
Arkansas Professional Geologist 2040
Texas Professional Geologist 12508
California Professional Geophysicist 1089

I. Education:

Master of Science in Geophysics, 1999; Colorado School of Mines, Golden, CO.

Thesis Title: Physical Modeling of a Prototype Time-Domain Dielectric Logging Tool

Bachelors of Science in Geology, 1994; Mesa State College, Grand Junction, CO.

Undergraduate research project investigated the use of geophysics for detection of nuclear waste at the Idaho National Engineering and Environmental Laboratory

Internship, Summer 1994; Geophysical Institute University of Alaska, Fairbanks, AK.

Intern project included the collection, preparation, and measurement of the paleomagnetic signature in sediment cores for geochronology analysis.

II. Brief Chronology of Employment:

Nov2015-Present: *Geophysicist/Geologist*, Aqua Geo Frameworks, LLC.

Fort Laramie, Wyoming (2020-Present); Mitchell, Nebraska (2015-2020)

- Application of Airborne Electromagnetics (AEM) to hydrogeological studies
 - o Projects totaling >60,000 line-km of AEM acquisition, processing, and interpretation
 - o Projects in Nebraska, Wyoming, California, Colorado, North Dakota, Arizona, Indiana, Iowa, and Florida
- Airborne geophysical project development
- Nuclear Magnetic Resonance (NMR) application to hydrogeological studies –Co-investigator on a DoE Small Business Grant
- Advisor to U.S. Bureau of Reclamation on geophysical methods for groundwater investigations

Jan 2013-Nov 2015: *Senior Research Geophysicist*, Exploration Resources International (XRI), LLC. Golden, Colorado

- XRI EM/Potential Field Division manager and supervisor of a team of nine geologist and geophysicists
- Airborne geophysical project development and technical lead
 - o Projects totaling >22,000 line-km of AEM acquisition, processing and interpretation
 - o Projects in Nebraska, Texas, Oklahoma, North Dakota, Montana, California, Colorado, and the Commonwealth of Northern Marianna Islands
 - o Eastern Nebraska Water Resources Assessment Project
<http://www.enwra.org/aem%20data%20download.html>

- Lower Platte Natural Resources District Dwight-Valparaiso-Brainard
<http://www.enwra.org/projects.html>
- Lower Elkhorn Natural Resources District Recon Grid Project
- Lower Elkhorn Natural Resources District Clarkson
- Hydrogeophysics project development and technical lead
 - Managed and successfully implemented \$10 M worth of geophysical projects
- Nuclear Magnetic Resonance project development and technical lead

1997- 2013: *GS-1313-14, Supervisory Geophysicist*, U.S. Geological Survey (USGS), Crustal Geophysics and Geochemistry Science Center, Denver, Colorado

- Co-project chief of the USGS portion of the Danish Research Council HyGEM Project
- International advisor and co-investigator on the Geoscience Australia, Broken Hill Managed Aquifer Research Project
- Chief Geophysicist for the USGS Western and Eastern Nebraska Airborne Geophysical Projects
- Project Chief for the USGS Climate Effects Network, Airborne Geophysical Permafrost Mapping
- Project Chief for the Afghanistan Reconstruction Airborne Geophysical Project
- Project Chief for the DOD Task Force for Business Stability Operations Afghanistan, Geophysical Mapping and Capacity Building Project
- Project Chief for the DOD Task Force for Business Stability Operations Iraq Geophysical Data Recovery and Capacity Building Project
- Project chief for the USGS BLM Intra Governmental Order for Geophysical Support Subject-matter expert for many U.S. Government Agencies (DoI, DoD, DoA, DoS, EPA)
- Worked with many research groups in
 - Europe: Geological Survey of Germany (BGR), Geological Survey of Denmark and Greenland (GEUS), Irish Geological Survey (IGS), HydroGeophysics Group (HGG) University of Aarhus, Geological Survey of France (BRGM), Netherlands Organization for Applied Scientific Research (TNO), Technical University of Denmark (TUD)
 - Australia: Commonwealth Scientific and Industrial Research Organization and Geoscience Australia
 - Asia: Afghanistan Geological Survey, Indian National Geophysical Research Institute, Indian Ministry of Water
 - Middle East: Iraq State Company of Geological Survey and Mining, Kuwait Scientific Research Institute, Abu Dhabi National Drilling Company
 - Africa: Kenyan Ministry of Groundwater, Ethiopian Geological Survey, and The University of Djibouti
 - US Universities: Colorado School of Mines, Stanford University, University of Alaska Fairbanks, University of Nebraska Lincoln

1993-1996: *Physical Scientist*, Rust Geotech Inc., Prime contractor for the DOE's Grand Junction Project Office Grand Junction, Colorado

- Acquisition processing and interpretation of many types of near-surface geophysical data for contaminate studies within the DOE
- Conducted research on the application of Pb210 and Cs137 geochronology to sedimentation rate studies

1992: *Physical Scientist Internship*, Chem-Nuclear Geotech, Prime contractor for the DOE's Grand Junction Project Office Grand Junction Grand Junction, Colorado

- Acquisition, processing, and interpretation of Time-Domain electromagnetic data for characterization of nuclear waste

1991: *Technician*, Northern Geophysical of America, Englewood, Colorado

- Acquisition of 2D seismic data for the petroleum industry

1988-1991: Volunteer, Museum of Western Colorado

- Collection and preparation of fossil specimens

III. Societies:

- Environmental and Engineering Geophysical Society (EEGS)
- Geological Society of America (GSA)
- National Ground Water Association (NGWA)
- Society of Exploration Geophysicists (SEG)
- European Association of Geoscientists and Engineers (EAGE)

IV Awards:

- 2015 Best Non-Petroleum Presentation ASEG and PESA International Geophysical Conference and Exhibition (Co-author)
- 2012 U.S. Department of Interior Meritorious Service Award –Development and Management of Airborne Geophysical Programs of the U.S. Geological Survey
- 2011 Best Paper Symposium on the Application of Geophysics to Engineering and Environmental Problems (Co-author)
- 2010 Best Non-Petroleum Presentation ASEG and PESA International Geophysical Conference and Exhibition (Lead author)
- 2007 U.S. Department of Interior Environmental Achievement Award –Exell Helium Plant Remediation and Regulatory Closure Team
- 2006 U.S. Department of Interior Superior Service Award –Afghanistan Reconstruction Airborne Geophysics Project
- 2005 USGS Award for Largest Reimbursable Project – Afghanistan Reconstruction Airborne Geophysical Project

V. Research Interests:

The application of geophysical techniques for mapping mineral, energy, and water resources as well as engineering and environmental problems is a primary goal. Research focus includes the use of airborne geophysical survey techniques to construct 3-D geological and hydrological framework models for the application of resource management. This includes magnetic, radiometric, gravity, gravity gradiometer, and electromagnetic techniques. An additional research focus is the application of Nuclear Magnetic Resonance (NMR) measurements for groundwater exploration both surface and borehole.

VI. Committee and Consultant Appointments, Professional Society Elected Appointments, Adjunct Faculty Appointments, Advisory and Editorial Appointments:

Advisory and Editorial Appointments

- Organizer for EEGS SAGEEP Short Course Geophysics for Watershed Management March, 2013
- Reviewer for the World Bank, India Hydrology Program 2012
- Reviewer for the FY 2008-2012 Department of Energy, Office of Science Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program Funding Opportunity
- Reviewer for: Geophysics, Exploration Geophysics, Near Surface Geophysics, Water Resources Research, and Applied Geophysics.
- Speaker at Colorado School of Mines Hieland Lecture and University of Colorado Boulder Geophysics Class.
- Instructor at the Colorado Bar Association Continuing Legal Education CLE 2017 Groundwater 101 Update
- Instructor at the WWQ & PCA Wyoming Water Operators annual training and meeting October Casper Wyoming 2020-2021

VII. Selected Publications and Presentations

- Abraham, J.D., Asch, T., and Ivancie, P. (2022) Airborne EM frameworks for managed aquifer recharge along the South Platte River: in abstracts from SAGEEP 2022, Denver, Colorado March 19-24, 2022.
- Abraham, J.D., and Ivancie, P. (2022) Airborne geophysical program to evaluate the Tertiary Ogallala and White River Groups Hydrostratigraphy, Laramie County, Wyoming, May monthly meeting of the Colorado Groundwater Association: January 19, 2022, Denver, CO
- Korus, J.T, Joeckle, R.M., Abraham, J.D., Høyer, A.-S., and Flemming, J. (2021) Reconstruction of pre-Illinoian ice margins and glaciotectionic structures from airborne ElectroMagnetic (AEM) surveys at the western limit of Laurentide glaciation Midcontinent U.S.A., Quaternary Science Advances, Vol 4, October 2021, <https://doi.org/10.1016/j.qsa.2021.100026>
- Gottschalk, I, Knight, R., Asch, T., Abraham, J., and Cannia, J. (2020) Using an airborne electromagnetic method to map saltwater intrusion in the northern Salinas Valley, California: Geophysics, Vol 85., Issue 4, B119-B131. <https://doi.org/10.1190/geo2019-0272.1>
- Legault, J.M., Asch, T.H., Abraham, J.D., Hisz, D., Parkin, H.S., and Honeyman, R.P. (2019) Further Characterization of the Spiritwood Valley Aquifer in North Dakota using Helicopter Time Domain Electromagnetics, Fast Times Vol, 25 no 5, p 102-110, November 2019, <https://app.box.com/s/zdrtsfin713zdk32aka2cpmi8hkitjs9>
- Abraham, J.D., Cannia, J.C., Asch, T.H., and Cameron, K. (2019) Comparison of a decade of examples of AEM vs drilling results for groundwater exploration: The Good, the Bad and the Ugly: in abstracts from the AGU-SEG Airborne Geophysics Workshop, Fort Lauderdale, FL June 10-13, 2019 <https://www.youtube.com/playlist?list=PL7Ihm2Mh3MZ5p6-aallmWUu-gMuw3qs0C>
- Asch, T.H., Abraham, J.D., and Cannia, J.C. (2019) Airborne electromagnetic for characterizing water quality due to saltwater intrusion: in abstracts from the AGU-SEG Airborne Geophysics Workshop, Fort Lauderdale, FL June 10-13, 2019 <https://www.youtube.com/playlist?list=PL7Ihm2Mh3MZ5p6-aallmWUu-gMuw3qs0C>
- Abraham, J.D., (2019) Airborne electromagnetic surveys: Applications with the Platte River corridor: May monthly meeting of the Colorado Groundwater Association: May 15, 2019, Denver, CO
- Abraham, J.D., Asch, T.H., Cannia, J.C., and Ivanice, P.G. (2019) Colorado South Platte River alluvial aquifer characterization with airborne electromagnetics: in abstracts from SAGEEP 2019, Portland, Oregon, March 17-21, 2019. <https://library.seg.org/doi/pdf/10.4133/sageep.32-023>
- Legault, J.M., Asch, T.H., Hisz, D., Khaled, K., Abraham, J.D., Parkin, S., and Honeyman, R. (2019) Further characterization of the Spiritwood Valley Aquifer in North Dakota using helicopter time domain electromagnetics: in abstracts from SAGEEP 2019, Portland, Oregon, March 17-21, 2019. <https://library.seg.org/doi/pdf/10.4133/sageep.32-014>
- Asch, T.H., Abraham, J.D., and Cannia, J.C., 2019, Airborne Geophysical Investigations of Saltwater Intrusion Along Coastal California: presented at AGWA-AGWT Annual Meeting on February 12, 2019 in Ontario, California.
- Bournas, N., Legault, J., Plastow, G., Prikhodko, A., Abraham, J.D., Asch, T.H., Hisz, D., and Parkin, H.S., (2018) Helicopter time-domain EM results over the Wahpeton Aquifer, Fargo, North Dakota: in abstracts from AEM 2018, Kolding, Denmark, June 16-20, 2018

- Asch, T.H., Abraham, J.D., and Cannia, J.C., (2018) A case study on the application of system response inversion for higher resolution of the near-surface: in abstracts from AEM 2018, Kolding, Denmark, June 16-20, 2018
- Abraham, J.D., Asch, T.H., and Cannia, J.C., (2018) Ten years of AEM in Nebraska: Stitching surveys together: in abstracts from AEM 2018, Kolding, Denmark, June 16-20, 2018
- Abraham, J.D., Asch, T.H., Cannia, J.C., and Ivancie, P. (2018) Groundwater characterization with airborne electromagnetics: 2018 AWRA Colorado, Colorado Water 2018, Golden, CO April 27, 2018
- Ivancie, P, and Abraham, J.D. (2018) Airborne Geophysical program to evaluate the Tertiary Ogallala and White River Groups hydrostratigraphy Laramie County Wyoming, Proceeding's from the 11th International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs, CA April 8-12, 2018.
- Abraham, J.D., Asch, T.H., and Cannia, J.C. (2018) Geological mapping with airborne electromagnetics: in abstracts from Geological Mapping Forum, Minnesota Geological Survey, Minneapolis, MN March 27-29.
- Asch, T., Gottschalk, I, Knight, R., Abraham, J.D., and Cannia, J.C. (2018) An airborne electromagnetic investigation of the Marina, CA hydrogeologic framework: in abstracts from EEGS SAGEEP Nashville, TN March 25-28
- Legault, J, Plastow, G., Abraham, J.D, Asch, T.H., Hisz, D., and Parkin, S.H. (2018) Helicopter time-domain EM results over the Wahpeton aquifer system, Fargo, North Dakota: in abstracts from EEGS SAGEEP Nashville, TN March 25-28
- Knight, R., Smith, R., Asch, T., Abraham, J., Cannia, J., Viezzoli, A., and Fogg, G. (2018) Mapping aquifer systems with airborne electromagnetics in the Central Valley of California: Groundwater, doi: 10.1111/gwat.12656
- Abraham, J.D., Ehrman, R.L., Cannia, J.C., Asch, T.H (2018) Impact of airborne electromagnetic (AEM) surveys in groundwater management in the Lower Platte South Natural Resources District, Nebraska, USA: in Abstracts from the AEGC 2018, Sydney Australia, Feb 18-21.
- Asch, T.H., Abraham, J.D., Cannia, J.C. (2017) AEM-Based hydrogeological frameworks in the Owens and Central Valleys of California, Fast Times Vol, 22, no, 3, p 47-56, December 2017, <http://www.eegs.org/past-issues>
- Abraham, J.D., Cameron, K., Cannia, J.C., and Asch, T.H (2017) Planning and implementing a multi-year AEM survey framework study: Example from the Eastern Nebraska Water Resource Assessment (ENWRA): in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Denver, CO, USA, March 19-23.
- Asch, T.H, Abraham, J.D., and Cannia, J.C. (2017) AEM-based Hydrogeological Frameworks in the Central Valley of California: in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Denver, CO, USA, March 19-23.
- Knight, R, Smith, R., Asch, T, Abraham, J, Cannia, J, Fogg, G E, and Viezzoli, A. (2016) Mapping Aquifer Systems with Airborne Electromagnetics in the Central Valley of California: American Geophysical Union Fall Meeting, December 11-16, San Francisco, CA.

- Knight, R., Smith, R., Asch, T., Abraham, J., Cannia, J., and Viezzoli, A. (2016) Subsurface mapping with airborne electromagnetics in the central valley of California: Society of Exploration Geophysicists Technical Program Expanded Abstracts 2016, Dallas, TX, USA, October 16-21.
- Korus, J.T., Joekel, R.M., Divine, D.P., and Abraham, J.D. (2016) Cross-cutting buried valleys at the eastern margin of the northern high plains aquifer: genesis, evolution, and geohydrologic behavior: in Abstracts of the American Geological Society Annual Meeting, Denver Colorado, USA, September 25-28.
- Korus, J. T., Joeckel, R. M., Divine, D. P. and Abraham, J. D. (2016), Three-dimensional architecture and hydrostratigraphy of cross-cutting buried valleys using airborne electromagnetics, glaciated Central Lowlands, Nebraska, USA. *Sedimentology*. doi:10.1111/sed.12314
- Asch, T., Abraham, J., Cannia, J., Carney, C., Genco, A., and Pierce, K. (2016) An AEM survey over Owens Valley, California: in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Denver, CO, USA, March 20-24.
- Smith, D.V., Drenth, B.J, Abraham, J.D., Wussow, M.D., and Saffo, J.K. (2016) Restoring a National Treasure—Recovery and Reprocessing of Legacy Airborne Data from the Tape Archives of the State Company of Geological Survey and Mining (GEOSURV-IRAQ), in Smith, K.S., Phillips, J.D., McCafferty, A.E., and Clark, R.N., eds., 2016, Developing integrated methods to address complex resource and environmental issues: U.S. Geological Survey Circular 1413, p. 157-158.
- Asch, T.H, Abraham, J.D., and Irons, T.P. (2015) A Discussion on Depth of Investigation in Geophysics and AEM Inversion Results. SEG Technical Program Expanded Abstracts 2015: pp. 2072-2076. doi: 10.1190/segam2015-5915199.1
- Meglich, T.M., Abraham, J.D., and Genco, A. (2015) Mapping Sediment thickness using airborne electromagnetics, First European Airborne Electromagnetic Conference, Turin, Italy, Sep 6-10.
- Asch, T.H., Abraham, J.D., and Irons, T.P. (2015) Geophysical Characterization of Pagan Island. Near-Surface Asia Pacific Conference, Waikoloa, Hawaii, 7-10 July 2015: pp. 138-142. doi: 10.1190/nsapc2015-036
- Abraham, J.D., Cannia, J.C., Cameron, K., and Asch T.H. (2015) Watershed scale characterization of glacial and bedrock aquifers in eastern Nebraska, NovCare 2015, Lawrence, KS, May 19-21.
- Irons, T.P., Abraham, J.D., Asch, T.H., Woolf, R., and Foks, L. (2015) Curie depth and inversion of aeromagnetic data with implications for Hazards on Pagan Island, Commonwealth of the Northern Mariana Islands. International Workshop and Gravity, Electrical & Magnetic Methods and their Applications, Chenghu, China, 19-22 April 2015: pp. 193-196. doi: 10.1190/GEM2015-050
- Abraham, J.D., Carney, C., Pierce, K., Genco, A., Woolf, R., Asch, T. (2015) AEM surveys for water exploration in petroleum field of the Permian Basin: in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Austin, TX, USA, March 22-26.
- Abraham, J.D., Cannia, J.C., Gisselø, P (2015) Mapping surface and groundwater relationships with AEM along the Elkhorn river, Nebraska: in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Austin, TX, USA, March 22-26.
- Asch, T., Abraham, J., and Meglich, T. (2015) A case study on the determination of the depth of investigation in a DC resistivity survey: in Proceedings of the Symposium on the Application of Geophysics to Engineering

and Environmental Problems (SAGEEP) 2015 as Part of the Environmental and Engineering Geophysical Society (EEGS), Austin, TX, USA, March 22-26.

Lawrie, K., Christensen, N.B., Brodie, R.S., Abraham, J., Halas, L., Tan, K.P., Brodie, R.C., and Magee, J. (2015) Optimizing Airborne Electromagnetic (AEM) Inversions for Hydrogeological Investigations using a Transdisciplinary Approach. ASEG Extended Abstracts 2015: 24th International Geophysical Conference and Exhibition: pp. 1-4. **(Best Non-Petroleum Paper ASEG and PESA 2015)**

Irons, T. P., Martin, K., Abraham, J.D. (2014) An experimental investigation of the relationship between borehole-NMR derived effective diffusion in unconsolidated media and hydraulic conductivity. NS44A-07AGU Fall Meeting San Francisco, CA Dec 15-19.

Hobza, C.M., Abraham, J.D., Cannia, J.C., Johnson, M.R., and Sibray, S.S. (2014) Base of principal aquifer for parts of the North Platte, South Platte, and Twin Platte Natural Resources Districts, western Nebraska: U.S. Geological Survey Scientific Investigations Map 3310, 2 sheets, <http://pubs.usgs.gov/sim/3310/>

Kass, M. A., B. R. Bloss, T. P. Irons, J. C. Cannia, and J. D. Abraham (2014) Magnetic resonance sounding survey data collected in the North Platte, Twin Platte, and South Platte Natural Resource Districts, western Nebraska, fall 2012: Open File Report 2014-1138, U.S. Geological Survey. <http://pubs.er.usgs.gov/publication/ofr20141138>

Abraham, J.D., Carney, C., and Cannia, J. (2014) AEM mapping of groundwater resources within the glacial deposits and Cretaceous Dakota Formation of eastern Nebraska: in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Boston, Massachusetts, USA, March 16-20.

Tan, K.P., Lawrie, K., Brodie, R., and Abraham, J.D. (2014) Validating NMR derived effective and total porosities for groundwater resource evaluation in near surface (<100 m depth) sediments: in Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Boston, Massachusetts, USA, March 16-20.

Asch, T., Abraham, J.D., and Rose, S., (2014) Geophysical Characterization of Pagan Island, Commonwealth of the Northern Marianas Islands (CNMI): Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Boston, Massachusetts, USA, March 16-20.

Abraham, J.D. (2013) Airborne Electromagnetic Surveys for 3D Geological Frameworks: Standards, Calibration, Forward Modeling, Inversion, and Pitfalls: in Thorleifson, L. H., R. C. Berg, H. A. J. Russell, conveners, 2013, Three-Dimensional Geological Mapping: workshop extended abstracts; Geological Society of America Annual Meeting, Denver, Colorado, October 26, 2013, Minnesota Geological Survey Open File Report OFR-13-2, 84 p. **(Invited)** <http://isgs.illinois.edu/sites/isgs/files/files/abstracts/Abraham.pdf>

Abraham, J.D., Cannia, J., Minsley, B.K., and Esfahani, A. (2013) Comparing/Contrasting Manual and Stochastic Interpretations of AEM Data, AEM 2013, Kruger National Park, South Africa, Oct 10-11.

Lawrie, K., Christensen, N.B., Brodie, R.S., Gibson, D., Abraham, J.D., Tan, K.P., Halas, L., Magee, J., Gow, L., and Clarke, J. (2013) Optimizing Airborne Electromagnetic (AEM) Inversions Through Integrating Hydrogeophysical, Hydrogeological, Hydrochemical and Hydrodynamic Data AEM 2013, Kurger National Park, South Africa, Oct 10-11.

Abraham, J.D. (2013) Is Nuclear Magnetic Resonance the Future of Hydrogeophysics?, Australian Society of Exploration Geophysicists 22nd International Conference and Exhibition, Aug 4-7, Melbourne, Australia. **(Invited Keynote)**

- Pastnik, N.J., Wylie, B.K., Minsley, Jorgenson, T.M., Ji, L., Walvoord, M.A., Smith, B.D., Abraham, J.D., and Rose, J.R. (2013) Extending airborne electromagnetic resistivity surveys for regional permafrost interpretation and active layer thickness mapping with remote sensing and ancillary data; *Periglacial Processes*. 1099-1530 DOI:10.1002/ppp.1775
- Abraham, J.D., Irons, T., Bloss, B.R, Kass, M., Ailes, C., and Cannia, J.C. (2013) Surface NMR Aquifer Property Mapping in The High Plains Aquifer: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Denver, Colorado, USA, March 17-20.
- Tan, K.P., Abraham, J.D., Lawrie, K., Brodie, R.S., Brodie, R.C., Clarke, J., Schoning, G., Halas, V., and Halas, L. (2013) Using Borehole Nuclear Magnetic Resonance (NMR) as part of an Integrated Approach to Determine the Hydraulic Conductivity and Water Contents of Near-surface (<100m) Aquifers and Aquitards: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Denver, Colorado, USA, March 17-20.
- Lawrie, K., Christensen, N.B., Brodie, R.S., Abraham, J.D., Tan, K.P, and Brodie, R.C. (2013) Optimizing AEM Surveys and Inversions to Rapidly Identify and Assess Potential MAR Targets and Groundwater Resources: a Case Study from the Darling River Floodplain, New South Wales, Australia: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) as Part of the Environmental and Engineering Geophysical Society (EEGS), Denver, Colorado, USA, March 17-20.
- Drenth, B.D., Abraham, J.D., Grauch, V.F., Labson, V.F., Hodges, G. (2013) Digital data from the Great Sand Dunes airborne gravity gradient survey, south-central Colorado, USGS Open File Report 2013-1011, p. 8. <http://pubs.er.usgs.gov/publication/ofr20131011>
- Abraham, J.D., Cannia, J.C., and Lawrie, K. (2012) AEM and NMR: Tools for the Future of Groundwater Management: American Geophysical Union Fall Meeting, December 3-7, San Francisco, CA.
- Cannia, J.C, Abraham, J.D., Peterson, S.M., and Sibray, S.S. (2012) Integrating Advanced 3D Mapping into Improved Hydrogeologic Frameworks, a Future path for Groundwater Modeling? Results from Western Nebraska: American Geophysical Union Fall Meeting, December 3-7, San Francisco, CA.
- Minsley, B. J., Kass, M. A., Bloss, B., Pastick, N., Panda, S.K., Smith, B.D., Abraham, J.D., and Burns, L.F. (2012) A multi-scale permafrost investigation along the Alaska Highway Corridor based on airborne electromagnetic and auxiliary geophysical data: American Geophysical Union Fall Meeting, December 3-7, San Francisco, CA.
- Smith, B.D., Minsley, B.J., Kass, M.A., Abraham, J.D., Sams, J.I., Veloski, G.A., Esfahani, A., and Hodges, G. (2012) Estimation of Resolution of Shallow Layers by Frequency Domain Airborne Electromagnetic Measurements: American Geophysical Union Fall Meeting, December 3-7, San Francisco, CA.
- Friedel, M.J., Esfahani, A., and Abraham, J.D. (2012) Application of machine-learning to characterize an alluvial aquifer in western Nebraska: American Geophysical Union Fall Meeting, December 3-7, San Francisco, CA.
- Lawrie, K.C., Brodie R.S., Tan, K.P., Gibson, D., Magee, J., Clarke, J.D.A., Halas, L., Gow, L., Somerville, P., Apps, H.E., Christensen, N.B., Brodie, R.C., Abraham, J.D., Smith, M., Page, D., Dillon, P., Vanderzalm, J., Miotlinski, K., Hostetler, S., Davis, A., Ley-Cooper, A.Y., Schoning, G., Barry, K. and Levett, K., (2012) Securing Broken Hill's water supply: Assessment of conjunctive water supply options involving managed aquifer recharge and/or groundwater extraction at Menindee Lakes data acquisition, processing, analysis and interpretation methods: *Geoscience Australia Record* 2012/11, 510 p.

- Lawrie, K.C., Brodie R.S., Tan, K.P., Gibson, D., Magee, J., Clarke, J.D.A., Halas, L., Gow, L., Somerville, P., Apps, H.E., Smith, M., Christensen, N.B., Abraham, J.D., Hostetler, S. and Brodie, R.C. (2012) Broken Hill managed aquifer recharge (BHMAR) project: Geological and hydrogeological framework and conceptual model: Geoscience Australia Record 2012/12, 543 p.
- Lawrie, K.C., Brodie R.S., Dillon, P., Tan, K.P., Gibson, D., Magee, J., Clarke, J.D.A., Somerville, P., Gow, L., Halas, L., Apps, H.E., Page, D., Vanderzalm, J., Abraham, J.D., Hostetler, S., Christensen, N.B., Miotlinski, K., Brodie, R.C., Smith, M., Schoning, G., Barry, K. and Levett, K. (2012) Broken Hill Managed Aquifer Recharge (BHMAR) Project Securing Broken Hill's Water Supply: Assessment of conjunctive water supply options involving managed aquifer recharge options at Menindee Lakes: Geoscience Australia Record 2012/13, 344 p.
- Lawrie, K.C., Brodie R.S., Tan, K.P., Somerville, P., Gibson, D., Magee, J., Clarke, J.D.A., Gow, L., Halas, L., Apps, H.E., Christensen, N.B., Hostetler, S., Abraham, J.D., Smith, M., Brodie, R.C. and Schoning, G. (2012) Broken Hill Managed Aquifer Recharge (BHMAR) Project: Assessment of potential groundwater resources and underground storage options in the Darling Floodplain: Geoscience Australia Record 2012/14, 674 p.
- Lawrie, K.C., Brodie R.S., Dillon, P., Tan, K.P., Gibson, D., Magee, J., Clarke, J.D.A., Somerville, P., Gow, L., Halas, L., Apps, H.E., Page, D., Vanderzalm, J., Abraham, J.D., Hostetler, S., Christensen, N.B., Miotlinski, K., Brodie, R.C., Smith, M. and Schoning, G. (2012) BHMAR Project: Assessment of Conjunctive Water Supply Options to Enhance the Drought Security of Broken Hill, Regional Communities and Industries- Summary Report: Geoscience Australia Record 2012/15. 213P
- Abraham, J.D., Irons, T.P., Cannia, J.C., Hobza, C.M., Steele, G.V., Woodward, D.D. (2012) Surface NMR applied to determining aquifer properties in the Central Platte River, central Nebraska: Magnetic Resonance in the Subsurface - 5th International Workshop on Magnetic Resonance, September 25-27, Hannover, Germany.
- Irons, T.P., Li, Y., Abraham, J.D., McKenna, J.R. (2012) The case for comprehensive frequency-domain inversion of the surface NMR data: Magnetic Resonance in the Subsurface - 5th International Workshop on Magnetic Resonance, September 25-27, Hannover, Germany.
- Abraham, J.D., Tan, K.P., Lawrie, K., Brodie, R.S., Clarke, J., Halas, L. (2012) NMR Logging: A tool for quantifying effective porosity and hydraulic conductivity within the Murray Darling Basin of Australia: International Association of Hydrologists, 39th Congress, September 16-21, Niagara Falls, Canada.
- Lawrie, K., Brodie, R.C., Brodie, R.S., Tan, K.P., Christensen, N.B., Abraham, J.D. (2012) Optimizing airborne electromagnetic surveys to identify potential managed aquifer targets and groundwater resources: a case study from the Darling River floodplain, New South Wales, Australia: International Association of Hydrologists, 39th Congress, September 16-21, Niagara Falls, Canada.
- Voss, C. I., Abraham, J.D., Day-Lewis, F.D. Jepsen, S.M., Minsley, B.J., Pastick, N., Rover, J., Smith, B.D., Walvoord, M. A., Wellman, T.P., Wylie, B.K., McKenzie, J.M., and Nolan, J. (2012) Geophysical permafrost mapping and permafrost-hydrology interaction - U.S. Geological Survey studies in Yukon Flats, Alaska, USA: International Association of Hydrologists, 39th Congress, September 16-21, Niagara Falls, Canada.
- Gibson, D., Smith, M., Lawrie, K., Tan, K.P., Halas, L., Abraham, J.D. (2012), Mapping and assessing variably saturated clay aquifers beneath the water table in the Darling River floodplain, Murray-Darling Basin, S.E. Australia: International Association of Hydrologists, 39th Congress, September 16-21, Niagara Falls, Canada.
- Smith, B.D., Abraham, J.D., Watts, K.R., Nicholas, A.J., Breit, G.R., Bloss, B.R., and Bedrosian, P.A. (2012) A Helicopter Time Domain Survey for Hydrogeologic Mapping, Northwest Paradox Valley, Colorado and

- Utah: American Association of Petroleum Geologists, Rocky Mountain Section Meeting, September 9-12, Grand Junction, CO.
- Sibray, S.S., Smith, B.D., Abraham, J.D., and Cannia, J.C. (2012) Exploring for Roll Front Uranium Deposits and Groundwater Using Airborne Electromagnetic Surveys in the Nebraska Panhandle: American Association of Petroleum Geologists, Rocky Mountain Section Meeting, September 9-12, Grand Junction, CO.
- Bedrosian, P.A., Grauch, V.J.S., Bloss, B.R., Fitterman, D.V., Abraham, J.D., Drenth, B.J., (2012) Mapping lacustrine deposits and faults within the east-central San Luis Basin, Rio Grande Rift, using airborne electromagnetic surveys: 21st EM Induction Workshop, July 25-31, Darwin, Australia.
- Tan, K.P., Abraham, J.D., Brodie, R.C., Lawrie, K., Brodie, R.S., Clarke, J., Schoning, G., Halas, V., and Halas, L. (2012) An integrated approach using new borehole nuclear magnetic resonance (NMR) technology to determine the hydraulic conductivity of near-surface (<100m) sediments, 34th International Geological Congress August 5-10, Brisbane, Australia.
- Gibson, D.L., Magee, J.W., Tan, K.P., Lawrie, K., Clarke, J., Brodie, R.S., Abraham, J.D. (2012) Mapping shallow aquitards using a multi-scale geophysical and hydrogeological approach: the Pleistocene Blanchetown clay, Darling floodplain, western NSW, Australia: 34th International Geological Congress August 5-10, Brisbane, Australia.
- Lawrie, K., Brodie, R.S., Dillon, P., Tan, K.P., Gibson, D.L., Clarke, J., Magee, J., Christensen, N.B., Halas, L., Somerville, P., Gow, L., Apps, H., Vanderzalm, J., Page, D., Brodie, R.C., Hostetler, S., Abraham, J.D., and Miotlinski, K. (2012) An integrated systems approach to identifying and assessing managed aquifer recharge options in the Darling floodplain, NSW, Australia: 34th International Geological Congress August 5-10, Brisbane, Australia.
- Abraham, J.D., Tan, K.P., Lawrie, K., Brodie, R.S., Clarke, J., Schoning, G. (2012) NMR Logging: A tool for quantifying effective porosity and hydraulic conductivity within the Murray Darling Basin of Australia: SEG-AGU Hydrogeophysics Workshop, July 8-11, Boise, ID.
- Abraham, J.D., Minsley, B.J., Smith, B.D., Ball, L.B., and Cannia, J.C. (2012) Airborne electromagnetic mapping of the 3-D distribution of permafrost in the Yukon Basin, Alaska: 10th International Conference on Permafrost, June 25-29, Salekhard, Russia. 8p.
- Bedrosian, P.A., Grauch, V.J.S., Bloss, B.R., Fitterman, D.V., Abraham, J.D., Drenth, B.J. (2012) Mapping lacustrine deposits and faults within the east-central San Luis Basin, Rio Grande Rift, using airborne electromagnetic surveys: GSA Rocky Mountain Section Meeting, May 9-11, Albuquerque, NM.
- Irons, T.P., Hobza, C.M., Steele, G.V., Abraham, J.D., Cannia, J.C., Woodward, D.D. (2012) Quantification of aquifer properties with surface nuclear magnetic resonance in the Platte River valley, central Nebraska, using a novel inversion method: U.S. Geological Survey Scientific Investigations Report 2012-5189, 50 p. <http://pubs.usgs.gov/sir/2012/5189/>
- Cannia, J.C., Abraham, J.D., Irons, T.P., Hobza, C. M., Steele, G.V. (2012) Aquifer Characterization within Dawson County, Nebraska Using Surface Nuclear Magnetic Resonance and Additional Supporting Data: International Association of Hydrologists, 39th Congress, September 16-21, Niagara Falls, Canada.
- Cannia, J.C., Abraham, J.D., Minsley, B.J., and Smith, B.D. (2012) Using Geophysical Data to Improve an Optimization Groundwater Model Evaluating the Effectiveness of Intentional Recharge in the North Platte River Valley, Western Nebraska, U.S.A: International Association of Hydrologists, 39th Congress, September 16-21, Niagara Falls, Canada.

- Abraham, J.D., Cannia, J.C., Peterson, S.M. (2012) Does geophysics have a role in Groundwater models? An example from western Nebraska, USA: 34th International Geological Congress August 5-10, Brisbane, Australia (**Invited Keynote**)
- Cannia, J.C., Abraham, J.D., Peterson, S.M. (2012) Using geophysical data to improve and optimization groundwater model evaluating the effectiveness of internal recharge in the North Platte River Valley, western Nebraska, USA: SEG-AGU Hydrogeophysics Workshop, July 8-11, Boise, ID.
- Abraham, J.D., and Cannia, J.C. (2012) Electromagnetic and Nuclear Magnetic Resonance: Examples of geophysics for water management form the United States, Australia, and the world, Water in the West - An Uncommon Dialog, April 20, Stanford University, CA. (**Invited**)
- Abraham, J.D., Watts, K.R., Bloss, B.J., Smith, B.D., Nicholas, A.J., Bedrosian, P.A., and Breit, G.R. (2012) A Helicopter Time Domain Survey of a Portion of the Paradox Valley, Colorado and Utah: Symposium on Environmental and Engineering Geophysics, March 25-29, Tucson, AZ.
- Abraham, J.D., Minsley, B.J., Bedorsian, P.A., Smith, B.D., and Cannia, J.C. (2012) Airborne Electromagnetic survey for groundwater characterization: Symposium on Environmental and Engineering Geophysics, March 25-29, Tucson, AZ.
- Irons, T., Abraham, J.D., Cannia, J.C., Li, Y., McKenna, J. (2012) Incorporating dephasing dynamics into SNMR FID inversions in the High Plains Aquifer, Symposium on Environmental and Engineering Geophysics, March 25-29, Tucson, AZ.
- Voss, C.I., Abraham J.D., Day-Lewis, F.D., Jepsen, S.M., McKenzie, J.M., Minsley, B.J., Nolan, J., Rover, J., Smith, B.D., Walvoord, M.A., Wellman, T.P., Wylie, B.K. (2012) Geophysical permafrost mapping and permafrost-hydrology interaction – U.S. Geological Survey studies in Yukon Flats, Alaska: American Water Resources Association, Alaska Section Annual Conference, March 5-9, Juneau, Alaska.
- Abraham, J.D., Minsley, B.J., Bedorsian, P.A., Smith, B.D., and Cannia, J.C. (2012) Airborne Electromagnetic survey for groundwater characterization, Australian Society of Exploration Geophysicists 22nd International Conference and Exhibition, February 26-29, Brisbane, Australia.
- Minsley, B.J., Irving, J., Abraham, J.D., Smith, B.D. (2012) Stochastic methods for model assessment of airborne frequency-domain electromagnetic: Australian Society of Exploration Geophysicists 22nd International Conference and Exhibition, February 26-29, Brisbane, Australia.
- Abraham, J.D., Irons, T.P., Cannia, J.C., Lane, J.W. (2012) NMR in groundwater investigation – the US experience: CSIRO Workshop, The use of Nuclear Magnetic Resonance (NMR) for groundwater detection, exploration and management, February 23, Perth, Australia. (**Invited**)
- Abraham, J.D. (2012) AEM in groundwater investigations – the USGS experience: CSIRO Workshop, Groundwater Resource Assessment in Western Australia – The Role of Airborne Hydrogeophysical Methods, February 22, Perth, Australia. (**Invited**)
- Smith, B.D., Abraham, J.D., Minsley, B.J., Deszcz-Pan, M., Bedrosian, P.A., Cannia, J.C., Ball, L.B., Bloss, B.R., and Fitterman, D.V. (2012) Airborne Electromagnetic Surveys for the U.S. Geologic Survey applied to Geologic Mapping and Hydrologic Investigations: Alberta Geologic Survey Groundwater Workshop, January 19, Edmonton, Alberta, (**Invited**).
- Knight, R., Grunewald, E., Irons, T., Dlubac, K., Song, Y., Bachman, H.N., Grau, B., Walsh, D., Abraham, J.D., and Cannia, J. (2012) Field experiment provides ground truth for surface nuclear magnetic resonance measurement, *Geophysical Research Letters*, Vol. 39, L03304, doi:10.1029/2011GL050167.

- Minsley, B., Abraham, J.D., Smith, B.D., Cannia, J.C., Voss, C.I., Jorgenson, M., Walvoord, M.A., Wylie, B., Anderson, L., Ball, L.B., Deszcz-Pan, M., Wellman, T., Ager, T. (2012) Airborne electromagnetic imaging of discontinuous permafrost: *Geophysical Research Letters*. VOL. 39, L02503, doi:10.1029/2011GL050079
- Abraham, J.D., Bedrosian, Asch, T.H., Ball, L.B., Cannia, J.C., Philips, J.D., and Lackey, S. (2011) Evaluation of Geophysical Techniques for the Detection of Paleochannels in the Oakland Area of Eastern Nebraska as Part of the Eastern Nebraska Water Resource Assessment: U.S. Geological Survey Scientific Investigations Report 2011-5228, p. 40. <http://pubs.usgs.gov/sir/2011/5228/>
- Abraham, J.D., Cannia, J.C., Bedrosian, P.A., Johnson, M.R., Ball, L.B., and Sibray, S.S. (2011) Airborne Electromagnetic Mapping of the Base of the Aquifer in Areas of Western Nebraska: U.S. Geological Survey Scientific Investigations Report 2011-5219. <http://pubs.usgs.gov/sir/2011/5219/>
- Abraham, J.D. (2011) A Promising Tool for Subsurface Permafrost Mapping: An Application of Airborne Geophysics from the Yukon River Basin, Alaska, 2011: U.S. Geological Survey Fact Sheet 2011-3133. <http://pubs.usgs.gov/fs/2011/3133/>
- Ball, L.B., Smith, B.D., Minsley, B.J., Abraham, J.D., Voss, C.I., Deszcz-Pan, M., and Cannia, J.C. (2011) Airborne electromagnetic and magnetic survey data of the Yukon Flats and Ft. Wainwright areas, central Alaska, June 2010: U.S. Geological Survey Open-File Report 2011-1304. <http://pubs.usgs.gov/of/2011/1304/>
- Abraham, J.D., Minsley, B.J., Cannia, J.C., Smith, B.D., Walvoord, M.A., Voss, C.I., Jorgenson, M., Wylie, B.K., and Anderson, L. (2011) Airborne Electromagnetic Mapping of Subsurface Permafrost: American Geophysical Union Fall Meeting, December 5-9, San Francisco, CA. **Invited**
- Irons, T., Abraham, J.D., Cannia, J.C., Steele, G., Hobza, C., Li, Y., McKenna, J. (2011) Comparing Flowmeter, Aquifer Test, and Surface Nuclear Magnetic Resonance Data in Central Nebraska: American Geophysical Union Fall Meeting, December 5-9, San Francisco, CA.
- Smith, B.D., M.A. Walvoord, B.K. Wylie, C.I. Voss, N. Pastick, B.J. Minsley, S.M. Jepsen, M.T. Jorgenson, J.C. Cannia, J.D. Abraham, L. Anderson (2011) New Perspectives of Permafrost Distribution and its Influence on Groundwater Flow and Ecosystem Performance for the Yukon Flats Area, Northern Alaska, American Geophysical Union Fall Meeting, December 5-9, San Francisco, CA.
- Wylie, B.K. Minsely, B.J., Pastic, N.J., Jorgenson, M., Walvoord, M.A., Smith, B.D., Abraham, J.D., and Rose, J. (2011) Developing landscape permafrost mapping models using airborne electromagnetic resistivity surveys for model development: American Geophysical Union Fall Meeting, December 5-9, San Francisco, CA.
- Cannia, J.C., Abraham, J.D., Sibray, S.S., Johnson, M.J., Ball, L.B. (2011) Results from advanced 3-D mapping for improving Hydrogeologic frameworks in the North and South Platte River Basin, western Nebraska: American Geophysical Union Fall Meeting, December 5-9, San Francisco, CA.
- Abraham, J.D., Cannia, J.C., and Minsley, B.J. (2011) Airborne electromagnetic surveys: A quantitative tool for groundwater management: in the abstracts from the International Workshop on Gravity, Electrical, and Magnetic Methods and their Application, October 10-13, Beijing, China. **Invited Keynote Speaker**
- Cannia, J.C., Smith, B.D., and Abraham, J.D. (2011) Hydrogeological frameworks based upon geophysical studies of the Sand Hills of western Nebraska: GSA Annual Meeting, October 9-12, Minneapolis, MN.
- Lundstrom, S., Abraham, J.D., Smith, B.D. (2011) Geologic and geomorphic relations between drumlin fields and tunnel valley networks: constraints on formative subglacial processes: GSA Annual Meeting, October 9-12, Minneapolis, MN.

- Abraham, J.D., Cannia, J.C. (2011) Airborne electromagnetic surveys for 3D geological Mapping: in Russell, H.A.J., Berg, R.C., and Thorlesifson, L.H. (compilers) (2011) Three Dimensional Geological mapping; Workshop Extended Abstracts: Minneapolis, Minnesota-October 8, 2011: Geological Survey of Canada, Open File 6998, p. 82. **Invited**
- Sibray, S.S., Abraham, J.D. Cannia, J.C., Smith, B.D (2011) The use of airborne electromagnetic surveys as an exploration tool for uranium deposits in the Nebraska panhandle, Society of Mining Engineers U2011 Uranium Symposium, September 18-21, Casper WY.
- Smith, B.D., Abraham, J.D., Sibray, S.S., Hall, S.M. and Van Gosen, B.S. (2011) Review of airborne electromagnetic survey methods applied to uranium exploration and resource assessment, with emphasis on sediment hosted unconformity-type, sandstone-hosted, and breccia pipe deposits, Society of Mining Engineers U2011 Uranium Symposium, September 18-21, Casper WY.
- Minsley, B.J., G. Hodges, B.D. Smith, and J.D. Abraham (2011) Multi-elevation calibration of frequency domain electromagnetic data, 17th European Meeting of Environmental and Engineering Geophysics of the Near Surface Geoscience Division of EAGE, September 12-14, Leicester, England. **Invited**
- Graham, G.E., Deszcz-Pan, M., Abraham, J.D., and Kelley, K.D. (2011) Investigation of the potential for concealed base-metal mineralization at the Drenchwater Creek Zn-Pb-Ag occurrence, northern Alaska, using geology, reconnaissance geochemistry, and airborne electromagnetic geophysics: U.S. Geological Survey Professional Paper 1784-B. <http://pubs.usgs.gov/pp/1784/b/>
- Abraham, J. D., Ball, L.B., Cannia, J.C., Jorgenson, T., Minsley, B.J., Smith, B.D., Walvoord, M.A., and Voss, C. I. (2011) Airborne electromagnetic mapping of subsurface permafrost: Quantifiable characterization for now and in the future: in abstracts from the 6th International Conference on Arctic Margins, May 31-June 3, Fairbanks, AK.
- Minsley, B.J., Abraham, J.D., Bedrosian, P.A., Cannia, J.C., and Smith, B.D. (2011) Hydrogeophysics at the watershed-scale using airborne electromagnetics: Novel Methods for Subsurface Characterization and Monitoring NovCare 2011, May 9-11, Cape Cod, MA.
- Abraham, J., Burton, B., Anderson, E., Lucius, J., Lewis, B. (2011) Geophysical Investigations of Selected Infrastructure Sites within the National Petroleum Reserve, Alaska: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Abraham, J., Cannia, J., Irons, T., Steele, G., Williams, G., Woodward, D. (2011) Magnetic Resonance Soundings in the Central Platter River Basin for Groundwater Models: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Abraham, J., Minsley, B., Smith, B., Walvoord, M., Cannia, J. (2011) Preliminary Results From An Airborne Electromagnetic Survey Of Permafrost In The Area Of Fort Yukon, AK: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Cannia, J., Abraham, J., Smith, B., Peterson, S. (2011) The Use of Geophysical Data for Evidence-Based Groundwater Management: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.

- Irons, T, Li, Y., Abraham, J. (2011) Using Data from Multiple Loop Sizes Simultaneously in a 1D Surface Nuclear Magnetic Resonance Inversion: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Minsley, B., Hodges, G., Smith, B., and Abraham, J. (2011) Multi-Elevation Calibration of Frequency Domain Electromagnetic Data: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC. **Best Paper 2011 SAGEEP**
- Smith, D., Drenth, B., Abraham, J., Saffo, J. (2011) Restoring a National Treasure: Recovering Airborne Geophysical Data from Antiquated Data Tapes for Geosurv Iraq: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Smith, B., Hodges, B., Minsley, B., Astley, B., Abraham, J., Snyder, C. (2011) Results from Two Helicopter Electromagnetic Test Lines to Map Permafrost, Ft. Wainwright, Fairbanks, Alaska: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Viezzoli, A., Abraham, J., Bedrosian, P., Cannia, J., Minsley, B., and Brown, B. (2011) Fast and Effective Groundwater Mapping from 10 to 300 m Depth with Accurate Processing and Inversion of SkyTEM Data: in abstracts from the Environmental Engineering Geophysical Society's Annual Symposium on the Application of Geophysics to Environmental and Engineering Problems April 10-14, Charleston, SC.
- Abraham, J.D., Drenth, B.J, Cannia, J.C., and Finn, C.A. (2011) Geophysical Prospecting in Support of Afghanistan Reconstruction, in abstracts from the Prospectors and Developers Association of Canada Annual Meeting, March 6-10, Toronto, Ontario. **Invited**
- Shenwary, G. S.; Kohistany, A.,H., Hussain, S.,Ashan, S., Mutty, A.I, Salam; Daud, M.,A. , Wussow,M.,D., Sweeney, R.,E., Phillips, J, D., Lindsay, C.,R., Kucks, R.,P.; Finn, C.,A.; Drenth, B.J., Anderson, E.,D., Abraham, J.D., Liang, R., T., Jarvis, J.,L., Gardner, J.,M., Childers, V.,A., Ball, .C., Brozena, J, M., (2011) Aeromagnetic surveys in Afghanistan: An updated website for distribution of data, U.S. Geological Survey Open-File Report 2011-1055. <http://pubs.usgs.gov/of/2011/1055/>
- Abraham, J.D., Viezzoli, A., Cannia, J.C., Smith, B.D., Peterson, S.M., and Brown, B. (2010) AEM surveys in support of groundwater models in western Nebraska, Abstracts from American Geophysical Union Fall Meeting, December 12-17, San Francisco, CA.
- Knight, R., Abraham, J.D., Cannia, J.C., Dlubac, K., Grau, B., Grunewald, E., Irons, T., Song, Y., Walsh, D.O., (2010) Field experiments provide ground truth for surface NMR measurements, Abstracts from American Geophysical Union Fall Meeting, December 12-17, San Francisco, CA.
- Astley, B., N., Smith, B.D., Hodges, G., Snyder, C., Abraham, J.D. (2010) Ft Wainwright: Preliminary results from two helicopter electromagnetic test lines in an integrated program to map permafrost, Fairbanks, Alaska, Abstracts from American Geophysical Union Fall Meeting, December 12-17, San Francisco, CA.
- Smith, B.D., Walvoord, M.A., Abraham, J.D., Cannia, J.C., and Voss, C. (2010) Airborne electromagnetic surveys for baseline permafrost mapping and potential long term status monitoring: Abstracts from American Geophysical Union Fall Meeting, December 12-17, San Francisco, CA.
- Abraham, J.D., Cannia, J.C., Peterson, S.M., Sibray, S.S. (2010) Quantitative hydrogeological interpretations using helicopter electromagnetic and ground capacitive-coupled resistivity surveys, in Abstracts from the

Annual meeting of the Soil Science Society of America meeting in October 31 – November 4, Long Beach, CA. **Invited**

- Smith, B.D.; Abraham, J.D.; Cannia, J.C.; Minsley, B.J.; Ball, L.B.; Steele, G.V.; Deszcz-Pan, M. (2010) Helicopter electromagnetic and magnetic geophysical survey data, Swedeburg and Sprague study areas, eastern Nebraska, May 2009: US Geological Survey Open File Report 2010-1288. <http://pubs.usgs.gov/of/2010/1288/>
- Smith, B.D, Abraham, J.D., Cannia, J.C., Minsley, B.J., Deszcz-Pan, M., and Ball, L. B. (2010) Helicopter electromagnetic and magnetic geophysical survey data, portions of the North Platte and South Platte Natural Resources Districts western Nebraska, May 2009. US Geological Survey Open File Report 2010-1259. <http://pubs.usgs.gov/of/2010/1259/>
- Smith, B.D., Cannia, J.C., Abraham, J.D. (2010) Airborne Geophysical Surveys in Hydrogeologic Framework Mapping for Climate Change Studies, Sand Hills of Western Nebraska, in abstract from the Geological Society of America's Annual meeting, October 31-November 4, Denver, CO.
- Abraham, J.D., Smith, B.D., and Lundstrom, S.C. (2010) Defining subsurface hydrogeologic frameworks of glacial aquifers using airborne electromagnetic surveys, geologic mapping, and hydrogeologic characterization, in Abstracts from Geological Society of America Annual Meeting October 31-November 4, Denver, CO.
- Abraham, J.D., Cannia, J.C., Peterson, S.M., Smith, B.D., Minsely, B.J., and Bedrosian, P.A. (2010) Quantitative hydrogeological framework interpretations using helicopter electromagnetic surveys for the North Platte Valley western Nebraska groundwater model: South Platte River Forum, October 20-21, Longmont, CO.
- Abraham, J.D., Cannia, J.C., Peterson, S.M., Smith, B.D., Minsely, B.J., and Bedrosian, P.A. (2010) Quantitative hydrogeological framework interpretations using helicopter electromagnetic surveys for the North Platte Valley western Nebraska groundwater model: in Extended abstracts of the Australian Society of Exploration Geophysicists Annual meeting Aug 20-24, Sydney, Australia. **Best non-Petroleum Paper at the 2010 ASEG meeting in Sydney Australia** <http://www.publish.csiro.au/paper/ASEG2010ab113.htm>
- Walsh, D.O., and Abraham, J.D. (2009) Surface NMR: Recent advances in the technology and its applications to aquifer characterization in the USA, *Fast Times*, Vol 14, n. 4, EEGS, December 2009. p 19-25.
- Abraham, J.D., Ball, L.B., Bedrosian, P.A., Cannia, J.C., Deszcz-Pan, M., Minsley, B., Peterson, S.M., Sibray, S.S., Smith, B.D. (2009) Quantified hydrogeological framework interpretations from helicopter electromagnetic surveys at the Basin Scale: Abstracts from American Geophysical Union Fall Meeting, December 12-17, San Francisco, CA.
- Smith, B.D., Cannia, J.C., Abraham, J.A. (2009) Design of reconnaissance helicopter electromagnetic and magnetic geophysical surveys of the North Platte River and Lodgepole Creek, Nebraska Abstracts from American Geophysical Union Fall Meeting, December 12-17, San Francisco, CA.
- Irons, T., Li, Y., Abraham, J., McKenna, J. (2009) A new survey configuration for improved near surface resolution at high magnetic latitudes, 4th International Conference on Magnetic Resonance Sounding, October 22-24th, Grenoble, France.
- Cannia, J.C., Peterson, S., Abraham, J.D., Smith, B.D., Sibray, S. (2009) Improved Hydrogeologic Frameworks Using Helibourne Electromagnetic Surveys For The North Platte Valley, Western Nebraska Optimization Model, Geological Society of America Annual Meeting, October 18-21, Portland, OR.
- Lundstrom, S, Cowman, T., Holbrook, J., Paces, J., Hanson, P., Dillon, J., Sweeney, M., Jacobson, R., Heise, B., Abraham, J. (2009) geologic mapping and research along the Missouri national recreational river,

Nebraska and south Dakota: integration of results and significance to hydrogeologic and ecologic issues, Geological Society of America Annual Meeting, October 18-21, Portland, OR.

- Abraham, J.D., Smith, B.D., Hodges, G. (2009) Agricultural potential for airborne geophysical techniques, [Abs]: Bouyoucos Conference for the Advancement of Geophysical Technologies, September 8-10, Albuquerque, NM. **Invited**
- Smith, B.D., Abraham, J.D., Cannia, J.C., and Hill, P. (2009) Helicopter Electromagnetic and Magnetic Geophysical Survey Data for Portions of the North Platte River and Lodgepole Creek, Nebraska. June 2008, USGS OFR 2009-1110. <http://pubs.usgs.gov/of/2009/1110/>
- Abraham, J.D., Cannia, J.C., Smith, B.D., Lundstrom, S.C., (2009) Geophysical and geological mapping in support of hydrological framework studies for management of the Missouri River corridor, [Abs]: The Missouri River natural Resources Committee Conference 2009, March 24-27, Billings, MT.
- Abraham, J.D., Kress, W.H., Cannia, J.C., Steele, G.V., Smith, B.D., and Woodward, D. (2008) Examination of magnetic resonance soundings in the central Platte River Basin for groundwater model enhancements, Eos Trans. AGU 89(53), Fall Meeting Supplemental, Abstract NS43B-1194.
- Smith, B.D., Abraham, J.D., Cannia, J.C., Steele, G.V., and Peterson, S.M. (2008) Helicopter electromagnetic surveys for hydrogeological framework studies in Nebraska, Eos Trans. AGU 89(53), Fall Meeting Supplemental, Abstract NS43B-1190.
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