

# Andras Fall

## Professional Summary

November 24, 2020

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### Professional Preparation

#### Academic Background

Ph.D. Geosciences, Virginia Tech, December 2008  
M.Sc. Geosciences, Virginia Tech, May 2005  
M.Sc. Geology, University of Bucharest, Romania, June 2002  
B.Sc. Geology-Geography, Babes-Bolyai University, Cluj-Napoca, Romania, June 2001

#### Professional Appointments

Present Position: Research Associate, Bureau of Economic Geology, The University of Texas at Austin (November 2011 - Present).

Postdoctoral Fellow, Bureau of Economic Geology, The University of Texas at Austin (December 2008 - November 2011). Evaluate fracture opening history and regional and temporal fluid distribution trends in the Piceance Basin, CO.

Teaching/Research Assistant, Department of Geosciences, Virginia Tech (August 2003 - December 2008). Teaching assistant in physical geology.

Laboratory Manager, Department of Petrology and Geochemistry, Eötvös Loránd University, Budapest (September 2002 - June 2003). Managing the microtechnical and sample preparatory laboratory of the department.

#### Theses

Fluid evolution in the nepheline syenites of the Ditrau Alkaline Massif, Transylvania, Romania

#### Dissertations

Applications of fluid inclusions in geological thermometry

#### Continuing Education Courses Taken

Fluid Inclusions Applied in Petroleum Geology: Siena, Italy, July 4-5, 2005

4th Summer School of the European Mineralogical Union on Energy Modeling in Minerals: Budapest, Hungary, June 29-July 7, 2002

2nd Summer School of the European Mineralogical Union on Environmental Mineralogy: Budapest, Hungary, May 14-20, 2000

### Areas of Expertise

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Fluid inclusion techniques

Fluids in hydrothermal systems, diagenetic systems

Fracture analysis, cathodoluminescence studies

Raman spectroscopy

## Awards

### Awards and Honorary Societies

2016 Tinker Family BEG Publication Award In recognition of Exemplary Publication of Scientific or Economic Impact for the 2015 paper "Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado" published in the Geological Society of America Bulletin, v. 127, no. 1-2, p. 61-75. (Andras Fall and co-authors Peter Eichhubl, Bob Bodnar, S. E. Laubach, and Steve Davis)

Certificate of Recognition for Excellence in Presentation (co-author), Society for Sedimentary Geology (SEPM), 2011

President's Certificate for Excellence in Presentation (co-author), American Association of Petroleum Geologists Energy Minerals Division, 2011

PI: Structural Diagenesis Fellowship, The GDL Foundation, 2010

Geosciences Graduate Research Fellowship, Department of Geosciences, Virginia Tech, Blacksburg, Virginia, 2008

C.G. Tillman Teaching Excellence Endowed Award, Department of Geosciences, Virginia Tech, Blacksburg, Virginia, 2006

Visiting Student Scholarship at the Eötvös Loránd University, Budapest, Hungary, Department of Petrology and Geochemistry, sponsored by the Departments of Education of Hungary and Romania, 2000 - 2001

2nd Place, 2nd National Scientific Conference of Geology Students from Romania, Cluj-Napoca by the Departments of Education of Hungary and Romania, 2001

1st Place, National Scientific Conference for Geology Students from Transylvania, Cluj-Napoca, Romania, 2000

## Teaching and Advising

### Student Committee Supervision

Undergraduate Senior Honors Thesis, Committee Member, Colin Sturrock, Geochemical constraints from calcite veins on the source and interactions of fluids in fracture networks along the North Anatolian Fault, N. Turkey, Jackson School of Geosciences, The University of Texas at Austin, Austin, Texas, 2015

## Presentations

### Invited Presentations

Natural hydraulic fracturing: processes and timing of fracture opening and cementation in deeply buried sandstones: presented to Royal School of Mines, Imperial College, London, United Kingdom, June 25, 2015.

Timing and processes of fracture formation in tight-gas sandstone reservoirs: presented to BHP Billiton, Houston, Texas, May 13, 2014.

Natural hydraulic fracturing of tight-gas sandstone reservoirs: presented to Workshop on Unconventional Energy, The University of Texas at Austin, Austin, Texas, September 4, 2013.

Opening-mode fracturing and cementation during hydrocarbon generation in mudrocks: an example from the Barnett Shale, West Texas: presented at Goldschmidt Conference, Montréal, Québec, Canada, June 24-29, 2012.

## Presentations

Dauphiné twin planes in quartz trap fluid inclusions and indicate paleostress in deeply buried sandstones: presented at 23rd European Current Research on Fluid Inclusions, Leeds, United Kingdom, June 29, 2015.

Propagation rate and timing of natural fractures in deep reservoirs: presented at GSA Annual Meeting, Vancouver, British Columbia, Canada, October 20, 2014.

Timing and processes of fracture formation in tight-gas sandstone reservoirs using fluid inclusions: presented at Unconventional Resources Technology Conference (URTeC), Denver, Colorado, August 12-14, 2013.

A history of natural fracture propagation in deep gas reservoirs using fluid inclusions: presented at 22nd European Current Research on Fluid Inclusions, Antalya, Turkey, June 4-9, 2013.

A 48 m.y. history of fracture propagation: presented at AAPG Annual Convention and Exhibition, Pittsburgh, Pennsylvania, May 19-22, 2013.

A chronicle of natural fracture propagation using fluid inclusions: presented at 47th South-Central Section Annual GSA Meeting, Austin, Texas, April 4-5, 2013.

Timing and duration of gas charge-driven fracturing in tight-gas sandstone reservoirs based on fluid inclusion observations: Piceance Basin, Colorado: presented at 2012 AGU Meeting, The University of Texas at Austin, Austin, Texas, December 4, 2012.

Testing the basin-centered gas accumulation model using fluid inclusion observations, Piceance Basin, Colorado: presented at 2012 GSA Annual Meeting & Exposition, Charlotte, North Carolina, November 7, 2012.

Opening-mode fracturing and cementation during hydrocarbon generation in mudrocks: an example from the Barnett Shale, West Texas: invited talk presented at Goldschmidt Conference, Montreal, Quebec, Canada, June 24-29, 2012.

Diagenetic controls on carbonate fracture cementation in tight-gas sandstones: presented at 11th Pan-American Current Research on Fluid Inclusions, Ontario, Canada, June 18-20, 2012.

Assessment of pore fluid pressure history in basin-centered gas accumulations using fluid inclusions: presented at Goldschmidt 2011 Conference, Prague, Czech Republic, August 14-19, 2011.

Coupled pore fluid pressure oscillation and natural fracture opening in tight-gas sandstone reservoirs: Piceance Basin, Colorado, USA: presented at 21st European Current Research on Fluid Inclusions Conference, Leoben, Austria, August 9-11, 2011.

Natural fracture opening and cementation in tight-gas reservoirs: invited talk presented at ConocoPhillips-Schlumberger Unconventional Resources Conference, Houston, Texas, May 10, 2011.

Crack-seal cementation of natural fractures recording pore fluid evolution in tight gas sandstones and shales: presented at the FRAC Annual Meeting, Austin, Texas, September 23, 2010.

Crack-seal cementation of natural fractures recording pore fluid evolution in tight gas sandstones and shales: presented at the 20th General Meeting of the International Mineralogical Associations, Budapest, Hungary, August 23, 2010.

Pore fluid evolution in tight-gas sandstone reservoirs based on crack-seal cementation of natural fractures: presented at the Pan-American Current Research on Fluid Inclusions X (PACROFI X) Conference, Las Vegas, Nevada, June 10, 2010.

Fluid inclusion insights into the opening history of synkinematically cemented fractures: Mamm Creek results: presented to EnCana Oil & Gas, Denver, Colorado, January 21, 2010.

Fluid inclusion insights into the opening history of synkinematically cemented fractures: Piceance Basin results: presented to FRAC Annual Meeting, Austin, Texas, November 17, 2009.

Tracking fluid evolution using fluid inclusions in synkinematic fracture cements: Piceance Basin, Colorado: presented at GSA Annual Meeting, Portland, Oregon, October 19, 2009.

Combined microthermometric and Raman technique for determination of salinity of H<sub>2</sub>O-CO<sub>2</sub>-NaCl fluid inclusions: presented at 9th Pan-America Current Research on Fluid Inclusions, Reston, Virginia, June 2008.

How precisely can the temperature of a geological event be constrained using fluid inclusions?: presented at 9th Pan-America Current Research on Fluid Inclusions, Reston, Virginia, June 2008.

Precision of thermal history reconstruction with fluid inclusions: presented at 9th European Current Research on Fluid Inclusions, Bern, Switzerland, July 2007.

Nepheline syenites and related magmatic fluids in the Ditrau Alkaline Massif, Transylvania, Romania., Andover, NH: presented at Gordon Research Conference on Inorganic Geochemistry, Andover, New Hampshire, August 2005.

Fluid evolution in the nepheline syenites of the Ditrau Alkaline Massif, Transylvania, Romania: presented at 18th European Current Research on Fluid Inclusions, Siena, Italy, July 2005.

Fluid evolution in the nepheline syenites of the Ditrau Alkaline Massif, Transylvania, Romania: presented at American Geophysical Union Fall Meeting, San Francisco, California, December 2004.

The role of fluids in post-solidus transformation in the nepheline syenites of the Ditrau Alkaline Massif, Transylvania, Romania: presented at 17th European Current Research on Fluid Inclusions, Budapest, Hungary, June 2003.

Fluid inclusions in nepheline: the role of the fluids in the petrologic evolution of the nepheline syenites of the Ditrau Alkaline Massif: presented at GEO 2002 Conference, The University of Bucharest, Bucharest, Romania, October 2002.

The role of Antal Koch in understanding the Ditrau syenite massif: presented at In Memoriam Koch-Szentpétery Conference, organized by the Bolyai-Society, Cluj-Napoca, Romania, February 2002.

Fluid inclusions in apatite, quartz and nepheline of the Ditrau Alkaline Massif, Transylvania: presented at MINPET Conference - Annual Meeting of the Austrian Mineralogical Association (ÖMG), Vienna, Austria, September 2001.

Fluid inclusion study in apatite, quartz and nepheline from the Ditrau Alkaline Massif (Eastern Carpathians, Transylvania, Romania): presented at 17th Hungarian Young Earth Scientists Conference, organized by the Hungarian Geological and the Hungarian Geophysical Societies, Győr, Hungary, April 2001.

## Activities of a Professional Nature

### Professional Societies

American Association of Petroleum Geologists

American Geophysical Union

Geochemical Society

Society of Economic Geologists

## Funding

### Research Support

Principal Investigator: Fractures in Devonian sandstone reservoirs, Subandean fold and thrust belt, Northern Bolivia, TOTAL, France (January 1-July 31, 2015; \$45,470.00).

Principal Investigator: Publication support grant, BEG (March 2010 - August 2010).

Principal Investigator: Structural Diagenesis Fellowship, GDL Foundation (2010, \$9,000.00).

## Publications

### Peer Reviewed Journal Articles

Nicot, J.-P., Darvari, R., Eichhubl, P., Scanlon, B. R., Elliott, B. A., Bryndzia, T. L., Gale, J. F. W., and Fall, A., 2020, Origin of low salinity, high volume produced waters in the Wolfcamp Shale (Permian), Delaware Basin, USA: *Applied Geochemistry*, v. 122, no. 104771, 18 p., <http://doi.org/10.1016/j.apgeochem.2020.104771>.

Weisenberger, T. B., Eichhubl, P., Laubach, S. E., and Fall, A., 2019, Degradation of fracture porosity in sandstone by carbonate cement, Piceance Basin, Colorado, USA: *Petroleum Geoscience*, v. 25, no. 4, p. 354-370, <http://doi.org/10.1144/petgeo2018-162>.

Fall, A., and Bodnar, R. J., 2018, How precisely can the temperature of a fluid event be constrained using fluid inclusions?: *Economic Geology*, v. 113, no. 8, p. 1817-1843, <http://doi.org/10.5382/econgeo.2018.4614>.

Jiang, L., Hu, S., Zhao, W., Xu, Z., Shi, S., Fu, Q., Zeng, H., Liu, W., and Fall, A., 2018, Diagenesis and its impact on a microbially derived carbonate reservoir from the Middle Triassic Leikoupo Formation, Sichuan Basin, China: *AAPG Bulletin*, v. 102, no. 12, p. 2599-2628, <http://doi.org/10.1306/05111817021>.

Sturrock, C. P., Catlos, E. J., Miller, N. R., Akgun, A., Fall, A., Gabitov, R. I., Yilmaz, I. O., Larson, T., and Black, K. N., 2017, Fluids along the North Anatolian Fault, Niksar basin, north central Turkey: Insight from stable isotopic and geochemical analysis of calcite veins: *Journal of Structural Geology*, v. 101, p. 58-79, <http://doi.org/10.1016/j.jsg.2017.06.004>.

Fall, A., Ukar, E., and Laubach, S. E., 2016, Origin and timing of Dauphiné twins in quartz cement in fractured sandstones from diagenetic environments: Insight from fluid inclusions: *Tectonophysics*, v. 687, p. 195-209, <http://doi.org/10.1016/j.tecto.2016.08.014>.

Laubach, S. E., Fall, A., Copley, L. K., Marrett, R., and Wilkins, S. J., 2016, Fracture porosity creation and persistence in a basement-involved Laramide fold, Upper Cretaceous Frontier Formation, Green River Basin, U.S.A.: *Geological Magazine*, v. 153, no. 5/6, p. 887-910, <http://doi.org/10.1017/S0016756816000157>.

Fall, A., Eichhubl, P., Bodnar, R. J., Laubach, S. E., and Davis, J. S., 2015, Natural hydraulic fracturing of tight-gas sandstone reservoirs, Piceance Basin, Colorado: *Geological Society of America Bulletin*, v. 127, no. 1-2, p. 61-75, <http://doi.org/10.1130/B31021.1>.

Hooker, J.N., Larson, T., Eakin, A., Laubach, S. E., Eichhubl, P., Fall, A., and Marrett, R., 2015, Fracturing and fluid flow in a sub-décollement sandstone; or, a leak in the basement: *Journal of the Geological Society*, v. 172, p. 428-442, <http://doi.org/10.1144/jgs2014-128>, <http://jgs.lyellcollection.org/content/172/4/428.full.pdf+html>.

Gale, J. F. W., Laubach, S. E., Olson, J. E., Eichhubl, P., and Fall, A., 2014, Natural fractures in shale: a review and new observations: *AAPG Bulletin*, v. 98, no. 11, p. 2165-2216, <http://doi.org/10.1306/08121413151>.

Bodnar, R. J., Azbej, T., Becker, S. P., Cannatelli, C., Fall, Andras, and Severs, M. J., 2013, Whole Earth geohydrologic cycle, from the clouds to the core: The distribution of water in the dynamic Earth system: *The Geological Society of America Special Paper 500*, p. 431-461, doi:10.1130/2013.2500(13).

Fall, A., Eichhubl, P., Cumella, S. P., Bodnar, R. J., Laubach, S. E., and Becker, S. P., 2012, Testing the basin-centered gas accumulation model using fluid inclusion observations: *Southern*

Piceance Basin, Colorado: AAPG Bulletin, v. 96, no. 12, p. 2297-2318.

Fall, Andras, Tattitch, B., and Bodnar, R. J., 2011, Combined microthermometric and Raman spectroscopic technique to determine the salinity of H<sub>2</sub>O-CO<sub>2</sub>-NaCl fluid inclusions based on clathrate melting: *Geochimica et Cosmochimica Acta*, v. 75, p. 951-964.

Fall, Andras, Rimstidt, J. D., and Bodnar, R. J., 2009, The effect of fluid inclusion size on determination of homogenization temperature and density of liquid-rich aqueous inclusions: *American Mineralogist*, v. 94, p. 1569-1579.

Becker, S. P., Fall, Andras, and Bodnar, R. J., 2008, Synthetic fluid inclusions. XVII. PVTX properties of high salinity H<sub>2</sub>O-NaCl solutions (>30 wt% NaCl): application to fluid inclusions that homogenize by halite disappearance from porphyry copper and other hydrothermal ore deposits: *Economic Geology*, v. 103, p. 539-554.

Fall, Andras, Bodnar, R. J., Szabó, Cs., and Pál-Molnár, E., 2007, Fluid evolution in the nepheline syenites of the Ditrau Alkaline Massif, Transylvania, Romania: *Lithos*, v. 95, p. 331-345.

### Non Peer Reviewed Journal Articles

Fall, A., Eichhubl, P., and Laubach, S. E., 2013, Timing and processes of fracture formation in tight-gas sandstone reservoirs using fluid inclusions: Proceedings of the Unconventional Resources Technology Conference (URTeC), Denver, Colorado, USA, no. SPE-168833-MS, 6 p., <http://doi.org/10.1190/URTEC2013-173>.

Pommer, L., Gale, J. F. W., Eichhubl, P., Fall, A., and Laubach, S. E., 2013, Using structural diagenesis to infer the timing of natural fractures in the Marcellus Shale: Proceedings of the Unconventional Resources Technology Conference (URTeC), Denver, Colorado, USA, no. SPE-168770-MS, 6 p., <http://doi.org/10.1190/URTEC2013-167>.

Hooker, J. N., Laubach, S. E., Kaylor, A., Eichhubl, P., and Fall, A., 2011, Size, spacing, and opening history of natural fractures: preliminary results from the El Alamar Formation, northeastern Mexico: *Gulf Coast Association of Geological Societies Transactions*, v. 61, p. 233-243.

### Conference Proceedings

Ukar, E., Lopez, R. G., Fall, A., Manceda, R., Gale, J. F. W., and Laubach, S. E., 2017, Vertical fractures and a new type of kinematic indicator in bed-parallel veins (beef) at Arroyo Mulichinco, Neuquen Basin, XX Congreso Geologico Argentino, 3 p.

### Contract Reports

Gale, J. F. W., Baumgardner, R., Bhandari, A., Darvari, R., Dommissé, R., Eichhubl, P., Elliott, S. J., Fall, A., Flemings, P., Hamlin, H. S., Landry, C. J., Mohanty, K., Nicot, J.-P., Polito, P., Prodanovic, M., Ramiro-Ramirez, S., Reed, R. M., Rowe, H., Ruppel, S. C., and Sivil, J. E., 2019, Multi-faceted study of water cut in the Permian Wolfcamp in the Delaware Basin, West Texas: final report prepared for Shell, under contract no. UT OSP# 201503146-001, 292 p.

Fall, A., Laubach, S. E., Elliott, S. J., and Ukar, E., 2015, Fractures in Devonian sandstone reservoirs, Subandean fold and thrust belt, Northern Bolivia: Final Report prepared for TOTAL, France, 59 p.

Fall, A., and Eichhubl, P., 2014, SHELL-FRAC collaboration: Fracture cement petrography and fluid inclusion assessment, Niobrara Formation: final report prepared for Royal Dutch Shell, 22 p.

Fall, A., and Eichhubl, P., 2014, SHELL-FRAC collaboration: Fracture cement petrography and fluid inclusion assessment, Vaca Muerta Formation, Argentina: final report prepared for Royal Dutch Shell, 10 p.

Eichhubl, P., Black, K., and Fall, A., 2012, Anadarko-FRAC collaboration: Fracture cement

petrography and fluid inclusion analysis, Niobrara Formation: final report prepared for Anadarko Petroleum, 49 p.

Fall, A., and Eichhubl, P., 2011, ExxonMobil--BEG Collaborative on Unconventional Reservoirs, Task 3: fracture petrography and fluid inclusion analyses: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for ExxonMobil, 7 p.

Eichhubl, Peter, Fall, Andras, Davis, J. S., and Laubach, S. E., 2010, ExxonMobil--BEG Collaborative on Unconventional Reservoirs, Task 3: Fracture petrography and fluid inclusion analyses: The University of Texas at Austin, Bureau of Economic Geology, Project Year 2, Report 23 prepared for ExxonMobil, 30 p.

Laubach, S. E., Eichhubl, Peter, Fall, Andras, Hooker, J. N., and Davis, J. S., 2009, ExxonMobil--BEG Collaborative on Unconventional Reservoirs, Task 3: Understanding the importance of natural fractures, stress sensitivity, and hydraulic/natural fracture interaction, Project Year 1: The University of Texas at Austin, Bureau of Economic Geology, Project Year 1, Report 13 prepared for ExxonMobil, 25 p.

### Published Abstracts

Gale, J., Fall, A., Ali, W., Laubach, S., Eichhubl, P., and Bodnar, R., 2019, Opening-mode fracturing and cementation timing in the Barnett Shale, Delaware Basin, West Texas (abs.): 2019 AAPG Annual Convention and Exhibition, San Antonio, Tex., May 19-22, 1 p.

Baques, V., Ukar, E., Zhang, L., Yuan, W., Laubach, S. E., Forstner, S., Fall, A., and Sun, C., 2017, Decameter-scale bit drops at 7 km depth in the Yijianfang Formation, Halahatang Oilfield, Tarim Basin, China: fault-related deep-seated dissolution (abs.): Geological Society of America Abstracts with Programs, v. 49, no. 6, <http://doi.org/doi: 10.1130/abs/2017AM-305841>.

Fall, A., Ukar, E., Lopez, R. G., Gale, J. F. W., Manceda, R., and Laubach, S. E., 2017, Bed-parallel beef veins and cross-cutting vertical fractures in the Vaca Muerta Formation, Argentina: a fracture opening and cementation history (abs.): ECROFI 2017.

Fall, A., Ukar, E., Lopez, R. G., Gale, J. F. W., Manceda, R., and Laubach, S. E., 2017, Combined effects of overpressure and bed-parallel contraction on the formation of bed-parallel and vertical fractures in the Vaca Muerta Formation, Argentina (abs.): Geological Society of America Abstracts with Programs, v. 49, no. 6, <http://doi.org/doi: 10.1130/abs/2017AM-301560>.

Fall, A., Ukar, E., Lopez, R. G., Gale, J. F. W., Manceda, R., and Laubach, S. E., 2017, Timing of opening and cementation of bedding-parallel and vertical fractures, Vaca Muerta Formation, Argentina (abs.): AAPG Annual Meeting, no. 2606490.

Ukar, E., Lopez, R. G., Fall, A., Manceda, R., Gale, J. F. W., and Laubach, S. E., 2017, New type of kinematic indicator in bedding-parallel veins and vertical fracture abundance and timing in Vaca Muerta Formation, Argentina (abs.): AAPG Annual Meeting, no. 2608925.

Ukar, E., Lopez, R. G., Fall, A., Manceda, R., Gale, J. F. W., and Laubach, S. E., 2017, Vertical fractures and a new type of kinematic indicator in bed-parallel veins (beef) at Arroyo Mulichinco, Neuquen Basin (ext. abs.): XX Congreso Geologico Argentino Extended Abstracts, p. 163-165.

Fall, A., Ukar, E., Marrett, R., and Laubach, S. E., 2015, Dauphiné twin planes in quartz trap fluid inclusions and indicate paleostress in deeply buried sandstones (ext. abs.): 23rd European Current Research on Fluid Inclusions, Leeds, United Kingdom, Abstract volume, p. 61-61.

Alzayer, Y. A., Fall, A., Laubach, S. E., and Eichhubl, P., 2014, Fracture growth processes in sandstone inferred from textural and fluid inclusion investigations of crack-seal fracture cements (abs.): American Association of Petroleum Geologists Annual Convention and Exhibition, Houston, Texas.

Bodnar, R. J., Fall, A., Esposito, R., Moore, L., and Gazel, E., 2014, Protocol for collecting, interpreting, and reporting fluid and melt inclusion data (ext. abs.): 12th Pan-American Current Research on Fluid Inclusions, Denver and Pingree Park, Colorado, Abstract volume, 2 p.

Bodnar, R. J., Fall, A., Esposito, R., Moore, L., and Gazel, E., 2014, Protocol for collecting, interpreting, and reporting fluid and melt inclusion data (ext. abs.): 5th Asian Current Research on Fluid Inclusions, Xi'an, China, Abstract volume, 2 p.

Eichhubl, P., Alzayer, Y, Laubach, S. E., and Fall, A., 2014, Growth kinematics of opening-mode fractures (abs.): AGU Fall Meeting abstract H51Q-02.

Fall, A., Eichhubl, P., and Laubach, S. E., 2014, Propagation and timing of natural fractures in deep reservoirs (abs.): GSA Annual Meeting.

Ukar, E., Laubach, S. E., Fall, A., and Eichhubl, P., 2014, Synkinematic quartz cementation in partially open fractures in sandstones (abs.): European Geophysical Union General Assembly, Vienna, Austria, April 27-May 2.

Ukar, E., Ozkul, C., Eichhubl, Peter, Fall, Andras, 2014, Structural-diagenetic evolution of fractures in folds: Nikanassin and Cardium Formations, Alberta Foothills, Canada (abs.): AAPG Annual Convention and Exhibition, Houston, Texas, April 7-9.

Ukar, E., Eichhubl, P., and Fall, A., 2013, Structural-diagenetic evolution of fractures in folds: A TGS example from the Alberta Foothills, Canada (abs.): Goldschmidt Conference, Italy, Mineralogical Magazine, v. 77, p. 2375.

Eichhubl, Peter, Fall, Andras, Prodanovic, M., Weisenberger, T., Ukar, E., Laubach, S. E., and Gale, Julia F. W., 2012, Chemical-mechanical interactions during fracture growth in tight-gas and oil reservoirs: implications for flow during reservoir charge and production (abs.), in Fall Meeting, AGU, San Francisco, California, December 3-7, Abstract 1502338.

Eichhubl, Peter, Gale, Julia F. W., Olson, J., Laubach, S. E., Hooker, John N., Fall, Andras, Weisenberger, T., and Ukar, E., 2012, What can outcrop and core based observations tell us about natural fractures in unconventional reservoirs? (abs.): American Association of Petroleum Geologists, Annual Convention, Abstract 1236894, 1 p.

Fall, A., Eichhubl, P., and Laubach, S. E., 2012, Testing the basin-centered gas accumulation model using fluid inclusion observations: Piceance Basin, Colorado (abs.), in GSA Annual Meeting & Exposition, November 7, Charlotte, North Carolina, Paper No. 253-7.

Fall, A., Eichhubl, P., Laubach, S. E., and Bodnar, R. J., 2012, Testing the basin-centered gas accumulation model using fluid inclusion observations: Piceance Basin, Colorado (abs.): Geological Society of America Abstracts with Programs, v. 44, no. 7, p. 594.

Fall, A., Gale, J. F. W., Eichhubl, P., Ali, W. A., Bodnar, R. J., and Laubach, S. E., 2012, Opening-mode fracturing and cementation during hydrocarbon generation in mudrocks: an example from the Barnett Shale, West Texas (abs.), in Goldschmidt Conference, Montréal, Québec, Canada, June 24-29, Abstract 23A1-15.

Fall, A., Weisenberger, T. B., Eichhubl, P., Laubach, S. E., Davis, J. S., and Bodnar, R. J., 2012, Diagenetic controls on carbonate fracture cementation in tight-gas sandstones (abs.), in 11th Pan-American Current Research on Fluid Inclusions, Windsor, Ontario, Canada, p. 31-32.

Fall, Andras, Eichhubl, Peter, Laubach, S. E., and Bodnar, R. J., 2012, Timing and duration of gas charge-driven fracturing in tight-gas sandstone reservoirs based on fluid inclusion observations: Piceance Basin, Colorado (abs.), in Fall Meeting, AGU, San Francisco, California, December 3-7, Abstract 1496247.

Fall, Andras, Gale, Julia F. W., Eichhubl, Peter, Ali, Walaa, Laubach, S. E., and Bodnar, R. J., 2012, Opening-mode fracturing and cementation during hydrocarbon generation in mudrocks: an example from the Barnett Shale, West Texas (abs.), in Goldschmidt Conference, Montréal, Québec, Canada, June 24-29, Abstract 23A1-15.

Fall, Andras, Weisenberger, T., Eichhubl, Peter, Laubach, S. E., Davis, J. S., and Bodnar, R. J., 2012, Diagenetic controls on carbonate fracture cementation in tight-gas sandstones (abs.), in 11th Pan-American Current Research on Fluid Inclusions, Windsor, Ontario, Canada, p. 31-32.



Gale, Julia F. W., Pommer, L., Ouyang, X., Fall, Andras, Eichhubl, Peter, Olson, J., and Laubach, S. E., 2012, Natural fracture characterization in shale-gas reservoirs: spatial organization and fracture sealing (abs.): American Association of Petroleum Geologists, Annual Convention, Abstract 1236686, 1 p.

Pommer, L. E., Eichhubl, P., Fall, A., and Laubach, S. E., 2012, Using structural diagenesis to infer the timing of natural fractures in the Marcellus Shale (abs.): Geological Society of America Abstracts with Programs, v. 44, no. 7, p. 488.

Pommer, L., Gale, J. F. W., Eichhubl, P., Fall, A., and Laubach, S. E., 2012, Using structural diagenesis to infer the timing of natural fractures in the Marcellus Shale (abs.), in GSA Annual Meeting & Exposition, November 6, Charlotte, North Carolina, Paper No. 205-5.

Ukar, E., Eichhubl, P., Fall, A., Hooker, J. N., and Laubach, S. E., 2012, Structural-diagenetic controls on fracture opening in tight-gas sandstone reservoirs, Alberta Foothills (abs.): Fall Meeting, AGU, San Francisco, California, December 3-7, no. 1476703.

Ukar, E., Eichhubl, Peter, Fall, Andras, and Hooker, John N., 2012, Structural-diagenetic controls on fracture opening in tight-gas sandstone reservoirs, Alberta Foothills (abs.), in Fall Meeting, AGU, San Francisco, California, December 3-7, Abstract 1476703.

Weisenberger, T., Eichhubl, P., Fall, A., and Laubach, S. E., 2012, Fracture degradation by carbonate cement in tight-gas sandstones, Piceance Basin, Colorado (abs.), in Proceedings of the 34th International Geological Congress, August 5-10, Brisbane, Australia, Abstract 2681.

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