Curriculum Vita

GEORGE J. MORIDIS

ADDRESS ***Office:*** *Lawrence Berkeley National Laboratory, University of California*
Earth Sciences Division, Department of Hydrology and Reservoir Dynamics, MS 90-1116
1 Cyclotron Rd, Berkeley, CA 94720 - Phone: (510) 486 4746 (O); (510) 333 0590 (C)

Home: *5701 Skyline Blvd., Oakland, CA 94611 - Phone: (510) 658 3400*

EDUCATION

Graduate

Jan. 1983 - 1987
Ph.D. in Reservoir Engineering
Texas A&M University, College Station, Texas 77843

1980 - Dec. 1982
M.Sc. in Agricultural Engineering
Texas A&M University, College Station, Texas 77843

1979-1980
M.E. in Chemical Engineering
National Metsovion Technical University, Athens 10233, GREECE

Undergraduate

1975-1979
B.Sc. (Honors) in Chemical Engineering
National Metsovion Technical University, Athens 10233, GREECE

EXPERIENCE

Nov. 1991 to present

Head, Hydrocarbon Resource Program (May 2013 to present)
Deputy Program Lead for Energy Resources (Sept. 2009 to May 2013)
Research Area Leader, Transport and Thermodynamics (2003 to Sept. 2009)
Group Leader, Contaminant Hydrology (1997 to 2003)
Group Leader, Subsurface Containment Technologies (1993 to 1997)
Staff Scientist

Lawrence Berkeley National Laboratory, University of California
Earth Sciences Division, Hydrology and Reservoir Dynamics Department

Visiting Professor*, Petroleum Engineering Dept., Texas A&M University, College Station, Texas, USA (2006 to present)*
Adjunct Professor*, Chemical Engineering Dept., Colorado School of Mines, Golden, Colorado, USA (2003 to present)*
Visiting Professor, *Guangzhou Center for Gas Hydrate Research, Guangzhou Institute for Energy Conversion, Chinese Academy of Sciences, China (2009 to present)*
Adjunct Professor, *Petroleum and Natural Gas Engineering Dept., Middle East Technical University, Ankara, Turkey (2005 to present)*

- PI of projects (a) analyzing the environmental impact on groundwater of hydraulic fracturing for gas production from shales (funded by the US EPA), and (b) evaluating the production potential of hydrate deposits in the Ulleung Basin in the Korean East Sea (funded by KIGAM of Korea).

- PI of a DOE-funded project evaluating the production potential of oil shales, covering the spectrum from fundamental studies (involving molecular fluid dynamics and nano-scale observations of fluid flow in ultra-low-permeability media) to laboratory-scale investigations to reservoir-scale numerical studies involving a variety of production methods.
- PI of a RPSEA-funded project (led by the Gas Technology Institute) developing decline curves to describe the evolution of production from shale gas reservoirs and to allow the estimation of the corresponding critical reservoir and fracture properties and characteristics.
- Overall project leader and LBNL PI of the largest projects awarded by RPSEA on Unconventional Gas Resources in (a) 2008 ($1.8M over 2 years), "**A Self-Teaching Expert System for the Analysis, Design and Prediction of Gas Production from Unconventional Gas Resources**"; a collaboration of LBNL (lead institution), Texas A&M University (Dr. Tom Blasingame, Petroleum Engineering Dept.) and the University of Houston (Dr. Michael Nikolaou, Chemical Engineering Dept.), and (b) 2009 ($2.9M over 3 years),), "**Coupled Flow-Geophysical-Geomechanical-Geochemical (F3G) Analysis of Tight Gas Production**"; a collaboration of LBNL (lead institution), Texas A&M University (Dr. Tom Blasingame, Petroleum Engineering Dept.) and Stanford University (Dr. Mark Zoback, Geophysics Dept.)
- Hydrate program coordinator and Principal Investigator (PI) of three hydrate projects funded by the National Energy Technology Laboratory of DOE (FY2000 to present), involving numerical simulations and laboratory experiments. In charge of numerical design and analysis of the first field test of gas production from a hydrate deposit, conducted by an international scientific consortium at the Mallik site, Northwest Territories, Canada in early 2002. Responsible for the design and analysis of a planned field test of gas production from permafrost hydrate deposits at the Mount Elbert site, to be conducted by BP Exploration (Alaska). In charge of laboratory studies for (a) the development of techniques for the production of large hydrate samples (pure and in porous media), (b) the non-destructive study of dissociation of artificial and natural hydrate-bearing cores using CT technology, (c) the study of relative permeability and kinetic hydrate dissociation (processes that are critical to gas production from hydrates), (d) the determination of key parameters describing hydrate behavior in porous media through history-matching of laboratory and field experiments.
- Main developer of the TOUGH+ family of codes, the next generation of LBNL simulators for the simulation of fluid flow and transport in complex geologic media (a LDRD-funded project). The TOUGH+ family of codes is written in FORTRAN 95/2003, and their architecture is based on the principles of object-oriented programming.
- Developer of the TOUGH+RealGasBrine code for the simulation of non-isothermal water, gas and salt flow and transport through porous and fractured media, which includes special capabilities for the description of production from ultra-low-permeability reservoirs (such as shales). This code is applicable to any problem involving the flow of water and real gas mixtures (of up to 11 gaseous components) through geologic media, including the analysis of geothermal systems, of gas storage, of CO2 sequestration, etc.
- Developer of the TOUGH+HYDRATE code (scalar and parallel versions) for the simulation of hydrate dissociation and overall behavior in porous media. This code incorporates the most recent advances in hydrate science, and is used for the design and analysis of field tests and laboratory experiments of hydrate dissociation. A scientific panel convened by the National Academy of Sciences to review the DOE hydrates program (the funding agency supporting the code development) and report to Congress indicated that TOUGH+HYDRATE is "… *a small project with a major technological impact*" that *"… incorporates the best independently measured physical property data into a fundamental reservoir model*". Since its release in April 2005, TOUGH+HYDRATE is being used by 25 organizations (in 15 countries) conducting hydrate research.
- PI of project evaluating the production potential of newly-discovered hydrate deposits in the Gulf of Mexico (funded by Statoil of Norway).
- PI of a DOE-sponsored project on the interrelationship between global climate and hydrate dissociation in oceanic accumulations (collaboration with Climate Group of the Los Alamos national Laboratory).
- PI of a project sponsored by ConocoPhillips, which investigates the behavior of composite CH_4-CO_2 hydrates through numerical simulations and laboratory experiments.

- PI of a NASA-funded project that aims to describe the thermal and fluid flow effects of a radioactive-fueled heat source buried in the Martian permafrost.
- In charge of the radionuclide transport studies (solutes and colloids) for the Yucca Mountain High-Level Radioactive Waste Repository. Main author of Yucca Mountain Modeling Report U060 (*Radionuclide Transport Under Ambient Conditions*), which provides support for the Repository Licensing Application process.
- Developer of the EOS9nT model (a member of the TOUGH2 family of codes) for the simulation of transport of radioactive solutes and colloids in the subsurface (used for all the Yucca Mountain studies).
- Developer of a new generation of conjugate gradient solvers, included in the most recent versions of the TOUGH2 family of codes.
- PI of the project *"Containment of Contaminants Through Physical Barriers from Viscous Liquids Emplaced Under Controlled Viscosity Conditions",* funded by the Subsurface Contamination Focus Area, Office of Technology Development of DOE. The project completed a successful pilot-scale field test in January 1995, and a medium-scale field demonstration (scheduled for FY 1997 at the Brookhaven national Laboratory) is currently being designed.
- PI of two other containment projects: (a) Testing Barrier Liquids (funded by DuPont) and (b) Repair of Landfill Closure Caps Using Barrier Liquids (funded by the Savannah River Site)
- PI of a LDRD project on a new generation of ferrofluids (fluids with special magnetic properties) for subsurface remediation and monitoring.
- In charge of numerical simulation of fate and transport of contaminants in support of the groundwater remediation effort at LBNL.

April 1989 to October 1991

Research Engineer

Groundwater Research Program, WERC #205
Agr. Engineering Dept. & Civil Engineering Dept. (joint appointment)
Texas A&M University
Water Resources & Environmental Engineering, WERC #205
Civil Engineering Dept., Texas A&M University (April 1989 - Aug. 1990)

In charge of the project *"Synthesis of Pneumatic and Hydraulic Controls for Hazardous Site Remediation,"* which involved air barriers to control the migration of contaminants in the subsurface. Designed and developed the largest-in-the-world dual gamma-dual energy X-ray attenuation experimental facility (with a scanning area of 6'x7') to investigate basic phenomena of multi-phase flow through porous media, focusing on contamination containment and the evaluation of decontamination methods.

Developed (a) a family of new numerical methods, the Laplace Transform Finite Difference (LTFD) , Finite Element (LTBE), and Boundary Element (LTBE) methods for flow and solute transport simulations, (b) 3-D, full two- and three-phase flow numerical models, used to describe the processes involved in groundwater contamination & decontamination, (c) a computer image analysis system for automatic aquifer parameter identification, and (d) a new matrix solver for multi-phase problems, the MEPC-D4 , which reduces the computer time requirements by 50% to 82.5% and storage by 50%. Licenses and copyrights for items (a) through (d) have been awarded or are pending.

Feb. 1987 to April 1989

Associate Engineer/Senior Scientist

International Rice Research Institute (United Nations - FAO)
Dept. of Water Management, P.O. Box 933, 1099 Manila, PHILIPPINES

In charge of research programs in South and South-East Asia (Philippines, India, Pakistan, Malaysia, Thailand, Vietnam) and supervising a staff of 32. Responsible for (a) the development of hydraulic barriers to alleviate salt water intrusion into the main aquifer

supplying Ho-Chi-Minh City (Saigon), and (b) the design of the groundwater development plan for the Terrai area of Nepal. Other responsibilities included (1) experiments on, and (2) development and testing of numerical simulation models for (a) water and vapor flow in rice soils, (b) large-scale (regional) groundwater flow and contaminant transport, (c) irrigation & drainage, (d) groundwater contamination by agricultural chemicals, and (e) drainage of acid sulphate soils.

1980-1987 **Research/Teaching Assistant**
Texas Water Resources Institute & Dept. of Agricultural Engineering
Texas A&M University, College Station, Texas 77843

Taught hydraulics, hydraulic engineering, flow through porous media, and thermodynamics for 5 years. Developed multi-dimensional fully implicit numerical models for (a) Single-phase flow, (b) Multi-phase flow , (c) Simultaneous mass and heat flow , and (d) Miscible contaminant transport in porous media.

1979-1980 **Chemical Engineer**
Greek National Atomic Energy Commission
Nuclear Research Center "Democritus", Aghia Paraskevi 17643, GREECE

Conducted research on the reaction kinetics of gamma-irradiated human hormonal solutions (a NATO-sponsored project).

Summer 1979 **Chemical Engineer Trainee**
Radfontein Mining Corporation, Newcastle, SOUTH AFRICA

Member of an operation research team analyzing possibilities for secondary platinum extraction from mine slag.

Summer 1978 **Chemical Engineer Trainee**
Egyptian Salt and Soda Corporation, Muharambay, Alexandria, EGYPT

Helped with the design, installation, operation and maintenance of an ion exchange and an electrolysis system.

RESEARCH GRANTS & AWARDS

Career total: **$19,803,000** (April 1989 – July 30, 2014)

FY 2008 Awards:
TOTAL = $3,647,000 ($1,010,000 from DOE, $1,837,000 from RPSEA)
FY 2009 Awards:
TOTAL = $4,375,000 ($175,000+480,000+360,000 from DOE; $35,000+405,000 from ConocoPhillips; $15,000 from CUG – China; $2,900,000 from RPSEA)
FY 2010 Awards (October 1, 2009 – July 31, 2010):
TOTAL = $965,000 (165,000+$445,000+305,000 from DOE; $50,000 from KIGAM, Korea)
FY 2011 Awards (October 1, 2010 – Sept. 30, 2011):
TOTAL = $1,167,000 ($80K from Taisei Corporation, Japan + $627K from Statoil, Norway + $450K from US EPA + $10K from the U.S. DOE)
FY 2012 Awards (October 1, 2011 – Sept. 30, 2012):
TOTAL = $505,000 ($375K from the U.S. DOE (hydrate studies) + $100K from KIGAM, South Korea + $30K from the University of Bergen)
FY 2013 Awards (October 1, 2012 – Sept. 30, 2013):
TOTAL = $870,000 ($450K from US EPA + $200K from RPSEA + $100K from U.S. DOE + $120K from KIGAM, South Korea)
FY 2014 Awards (October 1, 2013 – July 31, 2014):
TOTAL = $1,461,000 ($497K from Chevron + $75K from US EPA + $340K from U.S. DOE (hydrates) + $120K from KIGAM + $429K from U.S. DOE (shales)

GRADUATE STUDENTS (Chair/Co-chair of Student's Committee)

PhD's:	*Arvind Gupta:*	Chemical Engineering, Colorado School of Mines, 2007
	Tarun Grover:	Petroleum Engineering, Texas A&M University, 2008
	Daegil Yang:	Petroleum Engineering, Texas A&M University, August 2013
	Matt Freeman:	Petroleum Engineering, Texas A&M University, December 2013
	Kyung-Jae Lee:	Petroleum Engineering, Texas A&M University, August 2014
	Hyun Yoon	Petroleum Engineering, Texas A&M University, May 2015 (expected)
	Termpan Pitakbunkate	Petroleum Engineering, Texas A&M University, May 2015 (expected)
	Goker Ertunc	Petroleum and Natural Gas Engineering, Middle East Technical University (Turkey), May 2015 (expected)

MSc's:	*Doruk Alp*:	Petroleum Engineering, Middle East Technical University, 2007
	Anastasios Boulis:	Petroleum Engineering, Texas A&M University, 2008
	Matt Freeman:	Petroleum Engineering, Texas A&M University, May 2010
	Olufemi Olorode:	Petroleum Engineering, Texas A&M University, Dec 2012
	Tioluwanimi Odunowo:	Petroleum Engineering, Texas A&M University, May 2012
	Sonia Jam:	Petroleum Engineering, Texas A&M University, May 2012
	Manuel Cossio:	Petroleum Engineering, Texas A&M University, May 2012
	Ryan S. Broussard:	Petroleum Engineering, Texas A&M University, May 2013
	Ioannis Karahalios:	Petroleum Engineering, Techn. Institute of Kavala, Dec. 2013
	Athanasios Christodoulidis:	Petroleum Engineering, Techn. Institute of Kavala, Dec. 2013
	Kaushik Hazra:	Petroleum Engineering, Texas A&M University, May 2014
	Vincent Doczy:	Petroleum Engineering, Texas A&M University, May 2014

HONORS, RECOGNITIONS & AWARDS

2014: *2014 SPE Hydraulic Fracturing Workshop – Building on the Past to Create the Future,* Singapore, April 27-20, 2014*:* **Session Chair** and **Discussion Leader (*Numerical Simulation of Hydraulic Fracturing*)**

2013: *Appointment to the* **U.S. Secretary of Energy's Methane Hydrate Advisory Committee**

2013: *2013 SPE Unconventional Resources Conference,* Houston, Texas, April 10-12, 2013*:* **Keynote Speaker (*Emerging Challenges/Opportunities of UR Systems*)**

2013: *2013 International Conference on Developing Unconventional Oil and Gas Resources: Exploration and Production,* Chennai, India, March 1-3, 2013*:* **Keynote Speaker**

2012: *34th International Geology Conference,* Brisbane, Australia, August 5-10, 2012*:* **Keynote Speaker (2 subjects)**

2012: *Lawrence Berkeley National Laboratory,* Berkeley, California, May 2012*:* **LBNL Director's Award for Exceptional Achievement**

2011: *Institute for Advanced Sustainability,* Potzdam, Germany, November 2011: **Invited Speaker,** conference on "Energy from clathrate hydrates"

2011: *U.S. Department of Energy*, Washington, DC, October 2011: **2011 Secretarial Honor Award** (highest non-monetary honor)

2010: *Society of Petroleum Engineers*: **Distinguished Member (Fellow Grade)**

2010: *Fiery Ice 2010: 7th International Workshop on Methane Hydrate Research & Development*, Te Papa, Wellington, New Zealand, May 10 - 12: **Keynote Speaker**

2009-2010: *Society of Petroleum Engineers*: **Distinguished Lecturer**

2009: *Goldschmidt Conference*, June 21-26, Davos, Switzerland: **Keynote Speaker**

2009: Western Regional Meeting, March-24-26, San Joe, California*, Society of Petroleum Engineers*: **Keynote Speaker**

2007: Editorial Board of *Water Resources Research*: **Outstanding Reviewer Award**

2006: International Oil and Gas Conference and Exhibition, 5-7 December, Beijing, *Society of Petroleum Engineers*: **Invited Speaker**

2006: *Lawrence Berkeley National Laboratory*: **Outstanding Performance Award** for contributions to the establishment and development of a hydrate research program at LBNL.

2006: *Lawrence Berkeley National Laboratory*: **Excellence in Technology Transfer** award, for the development of the TOUGH+ family of codes.

2005: Editorial Board of *Water Resources Research*: **Outstanding Reviewer Award**

1996: *Popular Science* magazine: **Best of What's New** award (which honors the 100 most promising new technologies), for the development of the subsurface barrier technology.

1995: *Lawrence Berkeley National Laboratory*: **Outstanding Performance Award** for contributions to the establishment and development of a subsurface barrier research program.

OTHER PROFESSIONAL ACTIVITIES

Kavala Institute of Technology, Greece: Member of the Board of Regents

Long-term appointments to Program Committees of Conferences of Professional Organizations:

Offshore Technology Conference (OTC): Member of advisory board to the SME member of the OTC Program Committee

Arctic Technology Conference (ATC): Program Committee Member, representing SME to the ATC

Organizing/Program Committees (member), Conferences of the *Society of Petroleum Engineers (SPE)* and/or *the Society for Mining, Metallurgy & Exploration (SME)*:

- **2015 SPE 9th International Petroleum Technology Conference (IPTC)**, Doha, Qatar, 6-9 December
- **2014 SPE 8th International Petroleum Technology Conference (IPTC)**, Kuala Lumpur, Malaysia, 10-12 December
- **2014 International Conference on Coupled Thermo-Hydro-Mechanical-Chemical (THMC) Processes in Geosystems** (GeoProc 2014), Houston, June 2014
- **2014 SPE 7th International Petroleum Technology Conference (IPTC)**, Doha, Qatar, 20-22 January
- **2013 SPE Latin American and Caribbean Petroleum Engineering Conference (LACPEC)**, Maracaibo, Venezuela, 3-5 December
- **2013 SPE 6th International Petroleum Technology Conference (IPTC)**, Beijing, China, 26-28 March
- **2012 SPE Canadian Unconventional Resources Conference (CURC)**, Calgary, Canada, 30 October - 1 November
- **2012 SPE Latin American and Caribbean Petroleum Engineering Conference (LACPEC)**, Mexico City, Mexico, 16-18 April (Chair of 2 sessions)
- **2011 SPE Canadian Unconventional Resources Conference (CURC)**, Calgary, Canada, 15-17 November (Session chair)
- **2011 SPE 5th International Petroleum Technology Conference (IPTC)**, Bangkok, Thailand, 15-17 November (Chair of 4 sessions)
- **2011 SPE Advanced Technology Workshop (IPTC)**, "*Overcoming Difficulties in Conventional & Unconventional Gas Development*", Sapporo, Hokkaido, Japan, 10-13 July
- **2011 Arctic Technology Conference (ATC)**, Houston, Texas, 7-9 February (Session organizer)
- **2010 SPE Latin American and Caribbean Petroleum Engineering Conference (LACPEC)**, Lima, Peru, 30 November – 3 December (session chair of 2 sessions)
- **2010 Canadian Unconventional Resources and International Petroleum Conference (CURIPC)**, Calgary, Alberta, Canada, 19-21 October
- **2010 SPE Unconventional Gas Conference,** Pittsburgh, Pennsylvania, 23-25 February
- **2010 SPE Western Regional Meeting,** Anaheim, California, 27-29 May
- **2010 Ninth International Oil & Gas Conference and Exhibition in China (IOGCE),** Beijing, China, 8-10 June (Session Chair, Unconventional Resources)
- **2009 International Conference on CO_2 Capture, Storage, and Utilization,** San Diego, California, 2–4 November
- **2009 SPE Latin American and Caribbean Petroleum Engineering Conference (LACPEC),** Cartagena, Colombia, 31 May – 3 June
- **2008 SPE Tight Gas Development and Planning Workshop,** Hangzhou, China, 15-18 June

Organizer and Conference Chair:

- **2012 TOUGH Symposium**, September 2012, Berkeley, California
- **2009 TOUGH Symposium**, 14–16 September, Berkeley, California

Organizer and Session Chair:

- **2014 Offshore Technology Conference**, 5–8 May, Houston, Texas (4 sessions)
- **2010 Offshore Technology Conference**, 3–6 May, Houston, Texas (4 sessions)
- **2008 Offshore Technology Conference**, 4–8 May, Houston, Texas (4 sessions)

AFFILIATIONS

Professional

American Geophysical Union
American Society of Agricultural Engineers
American Institute of Chemical Engineers
American Society of Civil Engineers,
American Society of Petroleum Engineers
Association of Ground Water Scientists and Engineers, NWWA

Society for Industrial and Applied Mathematics
Society for Mining, Metallurgy and Exploration (OTC Board Member, ATC Board Member)

EDITORSHIPS

- Transport in Porous Media (***Member of the Editorial Board***; ***Associate Editor; Guest Editor of the 2009 and 2012 TOUGH Symposium Special Issues***)
- Journal of Natural Gas Science and Engineering (***Associate Editor***)
- SPE Journal (***Associate Editor***)
- Computers & Geosciences (***Member of the Editorial Board***; ***Guest Editor of the 2012 TOUGH Symposium Special Issue***)
- Nuclear Technology (***Guest Editor of the 2009 and 2012 TOUGH Symposium Special Issues***)

REVIEWING

Transport in Porous Media
Journals of the Society of Petroleum Engineering
Computers & Geosciences
Nuclear Technology
Water Resources Research
Journal of Contaminant Hydrology (Elsevier)
Journal of Hydrology (Elsevier)
Journal of Geophysical Review
Journal of Marine and Petroleum Geology
Journal of Geological Research
Journals of the American Society of Civil Engineers
Journal of Petroleum Science and Engineering
Journal of Petroleum Exploration and Production Technology
Journal of Natural Gas Science and Engineering
Journal of Canadian Petroleum Technology
Journal of Physical Chemistry
Proceedings of the National Academy of Sciences
American Mineralogist
ChemSusChem
Industrial and Engineering Chemistry Research
Chemical Engineering & Technology
Chemical Engineering Science
Energies
Energy and Fuels (American Chemical Society)
Energy Conversion and Management
International Journal of Numerical Methods for Heat and Fluid Flow
Energy
Environmental Earth Sciences
Applied Energy
Advances in Water Resources

PUBLICATION LIST

2014 JOURNAL PAPERS

J-077 Kneafsey, T. and G.J. Moridis, *X-Ray Computed Tomography Examination Of NGHP Cores And Comparison Of Hydrate Dissociation In NGHP-01 And Mount Elbert Cores: Experimental Observations And Numerical Modeling*, **Journal of Marine and Petroleum Geology,** In Press (Paper JMPG-D-13-00462R1)**.**

J-076 Kim, J. and G.J. Moridis**,** *Gas Flow Tightly Coupled to Elastoplastic Geomechanics for Tight and Shale Gas Reservoirs: Material Failure and Enhanced Permeability***, SPE Journal**, In Press (http://dx.doi.org/10.2118/155640-PA).

J-075 Korneev, V., L. Danilovskaya, S. Nakagawa, and G.J. Moridis, *Krauklis Wave in a Trilayer,* **Geophysics, 79**(4), In Press (doi: 10.1190/GEO2013-0216.1)**.**

J-074 Freeman, C.M., K.L. Boyle, M. Reagan, J. Johnson, C. Rycroft and G.J. Moridis, *Meshvoro: A Three-Dimensional Voronoi Mesh Building Tool for the TOUGH Family of Codes,* **Computers & Geosciences, 70**, 26-34, In Press (doi: 10.1016/j.cageo.2014.05.002)**.**

J-073 Reagan, M.T., G.J. Moridis, J.N. Johnson, L. Pan, C.M. Freeman, K.L. Boyle, N.D. Keen and J. Husebo, *Field-Scale Simulation of Production from Oceanic Gas Hydrate Deposits,* **Transport In Porous Media,** In Press (doi: 10.1007/s11242-014-0330-7)**.**

J-072 Moridis, G.J., and C.M. Freeman, *The RealGas and RealGasH2O Options of the TOUGH+ Code for the Simulation Of Coupled Fluid And Heat Flow in Tight/Shale Gas Systems*, **Computers & Geosciences, 65**, 56-71, 2014 (doi: 10.1016/j.cageo.2013.09.010)**.**

2014 REPORTS, CONFERENCE PAPERS & ARTICLES

R-193 Birkedal, K.A., C.M. Freeman, G.J. Moridis, and A. Graue, *Numerical Reproduction of Empirical Methane Hydrate Dissociation and Reformation in Sandstone,* In Review, **Energy & Fuels**.

R-192 Moridis, G.J., and T.A. Blasingame, *Evaluation of Strategies for Enhancing Production of Low-Viscosity Liquids From Tight/Shale Reservoirs,* Paper SPE 169479, 2014 SPE Latin America and Caribbean Petroleum Engineering Conference, 21-23 May, Maracaibo, Venezuela (http://dx.doi.org/10.2118/169479-MS).

R-191 Moridis, G.J., J. Kim, M. Reagan and S.J. Kim, *System Response During Short- and Long-Term Gas Production from a Gas Hydrate Deposit at the Site of a Planned Field Test in the Ulleung Basin*, Paper OTC 25384, 2014 OTC, May 5-8, Houston, TX (In Review, for publication in the **SPE Journal**).

R-190 Moridis, G.J., M.T. Reagan, H. Anderson-Kuzma, Y. Zhao, K. Boyle, and J. Rector, *Evaluation of the Hydrate Deposit at the PBU L-106 Site, North Slope, Alaska, for a Long-Term Test of Gas Production*, In Review, **SPE Journal**.

R-189 Moridis, G.J., M.T. Reagan, R. Boswell, T. Collett and K. Zhang, *Preliminary Evaluation of the Production Potential of Recently Discovered Hydrate Deposits in the Gulf of Mexico*, In Review, **Journal of Marine and Petroleum Geology**.

R-188 Kim, J., and G.J. Moridis, *Investigation of Possible Wellbore Cement Failures During Hydraulic Fracturing Operations,* In Review, **SPE Journal**.

R-187 Kim, J., and G.J. Moridis*, Fracture Propagation, Fluid Flow, and Geomechanics of Water-Based Hydraulic Fracturing in Shale Gas Systems and Electromagnetic Geophysical Monitoring of Fluid Migration,* In Review, **SPE Journal**.

R-186 Lee, K.J., G.J. Moridis, and C. Ehlig-Economides, *In-Situ Upgrading of Oil Shale by Steam Flowing in Vertical Hydraulic Fractures*, Paper SPE 169017, SPE Unconventional Resources Conference – USA, The Woodlands, Texas, USA, 1-3 April 2014.

2013 JOURNAL PAPERS

J-071 Yang, D., G.J. Moridis, and T.A. Blasingame, *A Fully Coupled Multiphase Flow and Geomechanics Solver for Highly Heterogeneous Porous Media*, **Journal of Computational and Applied Mathematics,** In Press (http://dx.doi.org/10.1016/j.cam.2013.12.029)**.**

J-070 Olorode, O.M., Freeman, C.M., G.J. Moridis, and T.A. Blasingame, *High-Resolution Numerical Modeling of Complex and Irregular Fracture Patterns in Shale Gas and Tight Gas Reservoirs*, **SPE Reservoir Evaluation & Engineering,** 16(4), 443-455 (http://dx.doi.org/10.2118/152482-PA)**.**

J-069 Freeman, C.M., G.J. Moridis, D. Ilk, and T.A. Blasingame, *A Numerical Study of Performance for Tight Gas and Shale Gas Reservoir Systems*, **Journal of Petroleum Science and Engineering, 108**, 22-39, 2013 (http://dx.doi.org/10.1016/j.petrol.2013.05.007)**.**

J-068 Kim, J., and G.J. Moridis, *Development of the T+M coupled flow-geomechanical simulator to describe fracture propagation and coupled flow-thermal-geomechanical processes in tight/shale gas systems,* **Computers & Geosciences, 60**, 184-198 (http://dx.doi.org/10.1016/j.cageo.2013.04.023)**.**

J-067 Rutqvist, J., A. Rinaldi, F. Cappa and G.J. Moridis, *Modeling of fault reactivation and induced seismicity during hydraulic fracturing of shale-gas reservoirs,* **Journal of Petroleum Science and Engineering, 107**, 31-44 (http://dx.doi.org/10.1016/j.petrol.2013.04.023)**.**

J-066 Moridis, G.J., M.T. Reagan, H. Anderson-Kuzma, T.A. Blasingame, Y.W. Huang, R. Santos, K. Boyle, C.M. Freeman, D. Ilk, M. Cossio, S. Bhattacharya, and M. Nikolaou, *SeTES: A Self-Teaching Expert System for the Analysis, Design, and Prediction of Gas Production From Unconventional Gas Resources*, **Computers & Geosciences**, **58**, 100-115 (http://dx.doi.org/10.1016/j.cageo.2013.04.001)**.**

J-065 Moridis, G.J., J. Kim, M.T. Reagan, and S.-J. Kim, *Feasibility of gas production from a gas hydrate accumulation at the UBGH2-6 site of the Ulleung basin in the Korean East Sea*, **Journal of Petroleum Science and Engineering, 108**, 180-210 (http://dx.doi.org/10.1016/j.petrol.2013.03.002)**.**

J-064 Cossio, M., G.J. Moridis, and T. Blasingame, A Semi-Analytic Solution for Flow in Finite-Conductivity Vertical Fractures Using Fractal Theory, **SPE Journal**, **18**(1), 83-96, 2013 **(**SPE-153715-PA; doi: 10.2118/153715-PA**).**

2013 REPORTS, CONFERENCE PAPERS & ARTICLES

R-185 Rutqvist, J., A. Rinaldi, F. Cappa and G.J. Moridis, *Modeling of fault reactivation and induced seismicity during hydraulic fracturing of shale-gas reservoirs,* submitted to the **Journal of Petroleum Science and Engineering** (Report LBNL-XXXX).

R-184 Kim, J., and G.J. Moridis, *Development of the T+M coupled flow-geomechanical simulator to describe fracture propagation and coupled flow-thermal-geomechanical processes in tight/shale gas systems,* submitted to **Computers & Geosciences** (Report LBNL-XXXX).

R-183 Freeman, C.M., G.J. Moridis, and T.A. Blasingame, *A numerical study of performance for tight gas and shale gas reservoir systems,* submitted to the **Journal of Petroleum Science and Engineering** (Report LBNL-XXXX).

R-182 Moridis, G.J., M.T. Reagan, H. Anderson-Kuzma, T.A. Blasingame, Y.W. Huang, R. Santos, K. Boyle, C.M. Freeman, D. Ilk, M. Cossio, S. Bhattacharya, and M. Nikolaou, *SeTES: A self-teaching expert system for the analysis, design, and prediction of gas production from unconventional gas resources,* submitted to **Computers & Geosciences** (Report LBNL-XXXX).

R-181 Moridis, G.J., J. Kim, M.T. Reagan, and S.-J. Kim, *Feasibility of gas production from a gas hydrate accumulation at the UBGH2-6 site of the Ulleung basin in the Korean East Sea*, submitted to the **Journal of Petroleum Science and Engineering** (Report LBNL-XXXX)**.**

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