Jinsong Chen

Lawrence Berkeley National Laboratory
MS 74R-316C, 1 Cyclotron Road, Berkeley, CA 94720
Phone: (510) 486-6842, Fax: (510) 486-5686, E-mail: jchen@lbl.gov

http://www.researcherid.com/rid/A-1374-2009

http://esd.lbl.gov/profiles/jinsong-chen

EDUCATION

Ph.D. (Environmental Engineering) University of California, Berkeley, CA, 2001

M.A. (Statistics) University of California, Berkeley, CA, 2001

M.S. (Environmental Fluid Mechanics) Georgia Institute of Technology, Atlanta, GA, 1997

M.Eng. (Hydrology and Water Resources) Tsinghua University, Beijing, China, 1990

B.Eng. (Water Resources Engineering) Tsinghua University, Beijing, China, 1988

B.S. (Applied Mathematics) Tsinghua University, Beijing, China, 1988

PROFESSIONAL EXPERIENCE

2009-, Staff Scientist, Lawrence Berkeley National Laboratory, Berkeley, CA

2004-2009, Research Scientist, Lawrence Berkeley National Laboratory, Berkeley, CA

2005-2006, Research Statistician, University of California, Berkeley, CA

2003-2005, Research Engineer, University of California, Berkeley, CA

2003, Postdoctoral Fellow, Lawrence Berkeley National Laboratory, Berkeley, CA

2002, Postdoctoral Fellow, University of California, Berkeley, CA

1990-1995, Research Scientist and Lecturer, Tsinghua University, Beijing, China

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (AGU)

Society of Exploration Geophysicists (SEG)

American Statistical Association (ASA)

PUBLICATIONS

Papers in Refereed Journals

Glinsky, M. E., C. Andrea, J. Chen, D. Sassen, and R. Howard (2015), Rock physics and geophysics for unconventional resources, multicomponent seismic, quantitative interpretation, *Geophysical Prospecting*, *63*,1224-1245, DOI: 10.1111/1365-2478.12211.

Chen, J., and M. E. Glinsky (2014), Stochastic inversion of seismic PP and PS data for reservoir parameter estimation, *Geophysics*, *72(6)*, R233-R246, DOI: 10.1190/GEO2013-0456.1.

Wainwright, H., J. Chen, D. Sassen, and S. S. Hubbard (2014), Bayesian hierarchical approach for estimation of reactive facies over plume scales using geophysical datasets, *Water Resources Research, 50(6),* 4564-4584, DOI: 10.1002/2013WR013842.

Chen, J., S. S. Hubbard, and K.H. Williams (2013), Data-driven approach to identify field-scale biogeochemical transitions using geochemical and geophysical data and hidden Markov models: development and application at a uranium contaminated aquifer, *Water Resources Research*, *49(10)*, 6412-6424, DOI: 10.1002/wrcr.20524.

Sassen, D. S., S. Hubbard, S. A. Bea, J. Chen, N. Spycher, and M. E. Denham (2012), Reactive facies: An approach for parameterizing field-scale reactive transport models using geophysical methods, *Water Resources Research*, *48*, W10526, DOI: 10.1029/2011WR011047.

Chen, J., G. M. Hoversten, K. Key, N. Gregg, and W. Cumming (2012), Stochastic inversion of magnetotelluric data using a sharp boundary parameterization and application to a geothermal site, *Geophysics*, *77(4)*, E265-E279, DOI: 10.1190/GEO2011-0430.1.

Chen, J., S. S. Hubbard, K. H. Williams, A. Flores-Orozco, and A. Kemna (2012), Estimating the spatiotemporal distribution of geochemical parameters associated with biostimulation using spectral induced polarization data and hierarchical Bayesian models, *Water Resources Research*, *48*, W05555, DOI: 10.1029/2011WR010992.

Chen, J., and G. M. Hoversten (2012), Joint inversion of marine seismic AVA and CSEM data using statistical rock-physics models and Markov random fields, *Geophysics*, *77(1)*, R65-R80, DOI: 10.1190/GEO2011-0219.1.

Brown, V., G. M. Hoversten, K. Key, and J. Chen (2012), Resolution of reservoir scale electrical anisotropy from marine CSEM data, *Geophysics*, *77(2)*, E147-E158, DOI: 10.1190/GEO2011-0159.1.

Li, M., D. Yang, J. Chen, and S. S. Hubbard (2012), Calibration of a distributed flood forecasting model with input uncertainty using a Bayesian framework, *Water Resources Research*, *48*, W08510, DOI: 10.1029/2010WR010062.

Chen, J., S. S. Hubbard, D. Gaines, V. Korneev, G. Baker, and D. Watson (2010), Stochastic estimation of aquifer geometry using seismic refraction data with borehole depth constraints, *Water Resources Research*, *46*, W11539, DOI: 10.1029/2009WR008715.

Chen, J., S. S. Hubbard, K. H. Williams, S. Pride, L. Li, C. Steefel, and L. Slater (2009), A state-space Bayesian framework for estimating biogeochemical transformations using time-lapse geophysical data, *Water Resources Research, 45*, W08420, DOI: 10.1029/2008WR007698.

McHale, C., L. Zhang, Q. Lin, G. Li, A. Hubbard, M. Forrest, R. Vermeulen, J. Chen, M. Shen, S. Rapport, S. Yin, M. Smith, and N. Rothman (2009), Changes in the peripheral blood transcriptome associated with occupational benzene exposure identified by cross-comparison on two microarray platforms, *Genomics, 93(4)*, 343-349, DOI: 10.1016/j.ygeno.2008.12.006.

Chen, J., and T. Dickens (2009), Effects of uncertainty in rock-physics models on reservoir parameter estimation using seismic amplitude variation with angle and controlled-source electromagnetics data, *Geophysical Prospecting, 57(1)*, 61-74, DOI: 10.1111/j.1365-2478.2008.00721.x.

Chen, J., A. Kemna, and S. S. Hubbard (2008), A comparison between Gauss-Newton and Markov chain Monte Carlo based methods for inverting spectral induced polarization data for Cole-Cole parameters, *Geophysics, 73(6)*, F247-F259, DOI: 10.1190/1.2976115.

Faybishenko, B., T. Hazen, P. Long, E. Brodie, M. Conrad, S. S. Hubbard, J. Christensen, D. Joyner, S. Borglin, R. Chakraborty, K. Williams, J. Peterson, J. Chen, S. Brown, T. Tokunaga, J. Wan, M. Firestone, D. Newcommer, C. Resch, K. Cantrell, A. Willett, and S. Koenigsberg (2008), In site long

term reductive bioimmobilization of Cr(VI) in groundwater using hydrogen release compound, *Environmental Sciences and Technology, 42(22)*, 8478-8485, DOI: 10.1021/es801383r.

Hubbard, S. S, K. H. Williams, M. Conrad, B. Faybishenko, J. Peterson, J. Chen, P. Long, and T. Hazen (2008), Geophysical monitoring of hydrological and biogeochemical transformations associated with contaminant remediation, *Environmental Sciences and Technology, 42(10),* 3757-3765, DOI: 10.1021/es071702s.

Chen, J., M. van der Laan, M. Smith, and A. Hubbard (2007), A comparison of methods to control Type-I errors in microarray studies, *Statistical Application in Genetics and Molecular Biology (SAGMB), 6(1)*, Article 28.

Chen, J., G. M. Hoversten, D. Vasco, Y. Rubin, and Z. Hou (2007), A Bayesian model for gas saturation estimation using marine seismic AVA and CSEM data, *Geophysics, 72(2)*, WA85-WA95, DOI: 10.1190/1.2435082.

Hou, Z., Y. Rubin, G. M. Hoversten, D. Vasco, and J. Chen (2006), Reservoir parameter identification using minimum relative entropy based Bayesian inversion of seismic AVA and marine CSEM data, *Geophysics*, *71(6)*, O77-O88, DOI: 10.1190/1.2448770.

Chen, J., S. S. Hubbard, J. Peterson, K. H. Williams, M. Fienen, P. Jardine, and D. Watson (2006), Development of a joint hydrogeophysical inversion approach and application to a contaminated fractured aquifer, *Water Resources Research*, *42(6),* W06425, DOI: 10.1029/2005WR004694.

Rubin, Y., G. M. Hoversten, Z. Hou, and J. Chen (2006), Risk reduction in gas reservoir exploration using joint seismic-EM inversion, *Gas TIPS*.

Kowalsky, M., J. Chen, and S. S. Hubbard (2006), Joint inversion of geophysical and hydrological data for improved subsurface characterization, *The leading Edge, 25*, 730.

Hoversten, G. M., F. Cassassuce, E. Gasperikova, G. Newman, J. Chen, Y. Rubin, Z. Hou, and D. Vasco (2006), Direct reservoir parameter estimation using joint inversion of marine seismic AVA and CSEM data, *Geophysics*, *71(3)*, C1-C13, DOI: 10.1190/1.2194510.

Scheibe, T., Y. Fang, C. Murray, E. Roden, J. Chen, Y. Chien, S. Brooks, and S. S. Hubbard (2006), Transport and biogeochemical reaction of metals in a physically and chemically heterogeneous aquifer, *Geosphere, 2(4),* 220-235, DOI: 10.1130/GES00029.1.

Chen, J., S. S. Hubbard, Y. Rubin, C. Murray, E. Roden, and E. Majer (2004), Geochemical characterization using geophysical data and Markov chain Monte Carlo methods: A case study at the South Oyster Bacterial Transport Site in Virginia, *Water Resources Research, 40(12)*, W12412, DOI: 10.1029/2003WR002883.

Chen, J., and Y. Rubin (2003), An effective Bayesian model for lithofacies estimation using geophysical data, *Water Resources Research, 39(5)*, 1118, DOI: 10.1029/2002WR001666.

Chen, J., S. S. Hubbard, and Y. Rubin (2001), Estimating the hydraulic conductivity at the South Oyster Site from geophysical tomographic data using Bayesian techniques based on a normal linear regression model, *Water Resources Research*, *37(6),* 1603-1613, DOI: 10.1029/2000WR900392.

Hubbard, S. S., J. Chen, J. Peterson, E. Majer, K. H. Williams, D. Swift, B. Mailloux, and Y. Rubin (2001), Hydrogeological characterization of the South Oyster Bacterial Transport Site using geophysical data, *Water Resources Research*, *37(10)*, 2431-2456, DOI: 10.1029/2001WR900279.

DeFlaun, M., …, J. Chen, and Others (2001), Breakthroughs in bacterial transport, *EOS Transactions*, Article, *82(38)*.

Ezzedine, S., Y. Rubin, and J. Chen (1999), Bayesian method for hydrogeological site characterization using borehole and geophysical survey data: Theory and application to the Lawrence Livemore

National Laboratory Superfund Site, *Water Resources Research*, *35(9)*, 2671-2683, DOI: 10.1029/1999WR900131.

Chen, J., and X. Lin (1994), Self-optimization of water resources systems simulation, *Journal of Tsinghua University (Science & Technology)*, *34(2)*.

Chen, J., and X. Lin (1993), Self-optimization problems in large-scale water resources systems, *Hydro-energy Technique and Economy*, *49(2)*.

Papers in Conference Proceedings and Books

Chen, J., G. M. Hoversten, and G. Nordquist (2014), Stochastic inversion of 2D magnetotelluric data using pixel-based parameterization, *SEG Technical Program Expanded Abstracts 2014*, 727-732.

Chen, J., G. M. Hoversten, and A. Sekar (2013), A sequential Bayesian approach for inverting elastic seismic data in the frequency-ray parameter domain, *SEG Technical Program Expanded Abstracts 2013*: 3267-3272.

Chen, J., and M. E. Glinsky (2013), Stochastic inversion of seismic PP and PS data for reservoir parameter estimation, *SEG Technical Program Expanded Abstracts 2013*: 1669-1673.

Chen, J., G. M. Hoversten, K. Key, and G. Nordquist (2010), Stochastic inversion of 2D magnetotelluric data using sharp boundary parameterization, *SEG Technical Program Expanded Abstracts 2010:* 609-613.

Chen, J., and G. M. Hoversten (2009), Joint inversion of marine seismic AVA and CSEM data using statistical rock-physics models and Markov random fields, *SEG Technical Program Expanded Abstracts 2009:* 714-718.

Chen, J., and T. Dickens (2007), Effects of uncertainty in rock-physics models on reservoir parameter estimation using marine seismic AVA and CSEM data, *SEG Technical Program Expanded Abstracts 2007:* 457-461.

Linde, N**.,** J. Chen, M. Kowalsky, and S. S. Hubbard (2006), Hydrogeophysical parameter estimation approaches for field scale characterization, In Applied Hydrogeophysics, edited by H. Vereecken et al., Chapter 2, 9-44, Springer.

Chen, J., and G. M. Hoversten (2005), Estimating reservoir parameters from seismic and electromagnetic data using stochastic rock physics models and Markov chain Monte Carlo methods, *SEG Technical Program Expanded Abstracts 2005:* 542-545.

Hoversten, G. M., J. Chen, E. Gasperikova, and G. Newman (2005), Integration of marine CSEM and seismic AVA data for reservoir parameter estimation, *SEG Technical Program Expanded Abstracts 2005:* 579-582.

Hou, Z., Y. Rubin, G. M. Hoversten, J. Chen, and D. Vasco (2005), MRE-based Bayesian inversion of seismic and EM data for identification of reservoir parameters, *SEG Technical Program Expanded Abstracts 2005:* 1437-1440.

Chen, J., G. M. Hoversten, D. Vasco, Y. Rubin, and Z. Hou (2004), Joint stochastic inversion of seismic AVO and EM data for gas saturation estimation using a sampling-based stochastic model, *SEG Technical Program Expanded Abstracts 2004:* 236-239.

Chen, J., S. S. Hubbard, and J. Peterson (2004), A comparison between hydrogeological characterization approaches applied to granular porous and fractured media, The Proceedings of International Symposium on the Dynamics of Fluids in Fractured Rock, Berkeley, California, February 10-12.

Chen, J., and G. M. Hoversten (2003), Joint stochastic inversion of geophysical data for reservoir parameter estimation, *SEG Technical Program Expanded Abstracts 2014 2003:* 726-729.

Chen, J., and Y. Rubin (2002), Characterizing lithofacies from borehole and crosswell geophysical data using Bayesian methods coupled with fuzzy neural networks, The Proceedings of International Groundwater Symposium, Berkeley, California, 25-28 March.

Chen, J., and X. Lin (1992), Sensitivity analysis of weight vectors in multiple criteria decisions, 7th SESC (System Engineering Society of China) Annual Conference Papers.

Chen, J., and X. Lin (1990), Multi-objective decision theories and methods in large-scale hydraulic engineering, Collection of System Engineering Papers on Hydraulic Engineering.

Selected Abstracts

Chen, J., S. S. Hubbard, and K. H. Williams (2014), Estimating groundwater dynamics at a Colorado floodplain site using historical data and climate information, *Abstract B31B-0022 presented at 2014 Fall Meeting, AGU*, San Francisco, California, 15-19 December.

Chen, J., and M. Hoversten (2012), Joint inversion of seismic and electromagnetic data using statistical rock-physics models and Markov random fields, 2012 JSM, *American Statistical Association*, San Diego, California, 28 July – 2 August.

Yang, D., M. Li, J. Chen, and S.S. Hubbard (2012), Calibration of a distributed flood forecasting model with input uncertainty using a Bayesian framework, *Abstract H44A-04 presented at 2012 Fall Meeting, AGU*, San Francisco, California, 3-7 December.

Hubbard, S. S., H. Wainwright, S. A. Bea, N. Spycher, L. Li, D. Sassen, and J. Chen (2012), Geophysical characterization and reactive transport modeling to quantify plume behavior (invited), *Abstract H33N-01 presented at 2012 Fall Meeting*, AGU, San Francisco, California, 3-7 December.

Dafflon, B., S. S. Hubbard, C. Ulrich, J. E. Peterson, Y. Wu, J. Chen, and S. D. Wullschleger (2012), Imaging active layer and permafrost variability in the Arctic using electromagnetic induction data, *Abstract C22B-04 presented at 2012 Fall Meeting*, AGU, San Francisco, California, 3-7 December.

Chen, J., S. S. Hubbard, C. M. Mok, R. M. Suribhatla, and D. Kaback (2012), HydroImage: New software for easy integration of hydrogeophysical and biogeochemical data for subsurface characterization, *Abstract presented at the Eighth International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, California, 21-24 May.

Chen, J., H. Wu, L. Li, K. H. Williams, M. B. Kowalsky, C. Steefel, and S. S. Hubbard (2012), Field-scale estimation and simulation of biogeochemical heterogeneity, *Abstract presented at the DOE Subsurface Biogeochemical Research (SBR) Annual Meeting*, Washington, DC, 30 Apr - 2 May.

Chen, J., S. C. Pullman, S. S. Hubbard, and J. E. Peterson (2011), An open-source software for stochastic inversion of spectral induced polarization data for Cole-Cole parameters, *Abstract presented at the Second International Workshop on Induced Polarization in Near-surface Geophysics*, Denver, Colorado, 31 Oct - 2 Nov.

Chen, J., S. S. Hubbard, and K. H. Williams (2011), Identifying field-scale bioremediation status from geochemical and geophysical data using dynamic linear models with switching: development and application at a uranium contaminated aquifer, *Abstract B23D-05 presented at 2011 Fall Meeting, AGU*, San Francisco, California, 5-9 Dec.

Gong, R., J. Chen, G. M. Hoversten, and J. Luo (2011), Model reduction via principal component analysis and Markov chain Monte Carlo (MCMC) methods, *Abstract H43D-1247 presented at 2011 Fall Meeting, AGU*, San Francisco, California, 5-9 Dec.

Wainwright, H. M., D. S. Sassen, J. Chen, and S. S. Hubbard (2011), Multiscale hydrogeophysical data assimilation for plume-scale subsurface characterization, *Abstract H52C-06 presented at 2011 Fall Meeting, AGU*, San Francisco, California, 5-9 Dec.

Suribhatla, R. M., C. M. Mok, D. Kaback, J. Chen, and S. S. Hubbard (2011), HydroImage: New software for hydrogeophysical and biogeophysical data integration, *Abstract H43D-1249 presented at 2011 Fall Meeting, AGU*, San Francisco, California, 5-9 Dec.

Chen, J., S. S. Hubbard, K. H. Williams, C. Tuglus, A. Flores-Orozco, and A. Kemna (2010), A hierarchical Bayesian model for estimating remediation-induced biogeochemical transformations using spectral induced polarization data: development and application to the contaminated DOE Rifle (CO) site, *Abstract H11E-0847 presented at 2010 Fall Meeting, AGU*, San Francisco, California, 13-17 Dec.

Chen, J., and G. M. Hoversten (2010), Joint stochastic inversion of seismic amplitude versus angles and controlled sources electromagnetic data for gas saturation estimation, *Abstract NS43A-03 (Invited) presented at 2010 Fall Meeting, AGU*, San Francisco, California, 13-17 Dec.

Chen, J., S. Pullman, S. S. Hubbard, and J. Peterson (2009), A web interface for software of stochastic inversion of spectral induced polarization data, *Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract NS31B-1168*.

Tuglus, C., J. Chen, and S. S. Hubbard (2009), Hierarchical Bayesian model for estimating the spatiotemporal distribution of geochemical processes associated with in-situ remediation using geophysical datasets, *Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H53B-0918*.

Li, M., D. Young, J. Chen, and S. S. Hubbard (2009), A sampling-based Bayesian model for calibration of a distributed forecasting model with input uncertainty, *Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H41F-0950*.

Hubbard, S. S., Y. Wu, J. Chen, J. B. Ajo-Franklin, L. Li, C. Tuglus, and K. H. Williams (2009), Assessing feedbacks between remediation-induced biogeochemical transformations and flow characteristics using multi-scale geophysical approaches, *Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H53J-02*.

Chen, J., S. S. Hubbard, V. Korneev, D. Gaines, G. Baker, and D. Watson (2008), Stochastic inversion of seismic refraction data with borehole depth constraints for watershed-scale characterization of aquifer geometry, *Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H44C-06*.

Chen, J., G. M. Hoversten, T. Daley, and C. Torris-Verdin (2008), Inverse modeling of full-waveform, single-well geophysical data using a Bayesian model and Markov chain Monte Carlo methods, *2008 Joint Statistical Meetings*, Denver, Colorado, 2-7 Aug.

Chen, J., S. S. Hubbard, V. Korneev, and D. Watson (2008), Development of a sampling-based Bayesian model for watershed-scale characterization, *Computational Methods in Water Resources*, San Francisco, California, 6-10 Jul.

Englert, A, S. Hubbard, K. Williams, J. Chen, J. Peterson, A. Kemna, F. Spane, D. Newcomer, and P. Long (2007), Hydrogeophysical field characterization at the DOE Old Rifle Site, CO, *Eos Trans. AGU., 88(23), Jt. Assem. Suppl., Abstract H31F-05*.

Faybishenko, B., P. Long, T. Hazen, S. S. Hubbard, K. H. Williams, J. Peterson, J. Chen, E. Volkova, D. Newcomer, C. Resch, K. Cantrell, M. Conrad, E. Brodie, D. Joyner, S. Borglin, R. Chakraborty (2007), A conceptual model of coupled biogeochemical and hydrogeological processes affected by

Cr(VI) bioremediation in groundwater at Hanford 100H Site, *Eos Trans. AGU., 88(23), Jt. Assem. Suppl., Abstract H32B-03*.

Chen, J., S. S. Hubbard, G. M. Hoversten, and A. Hubbard (2007), A Bayesian model for inversion of geophysical seismic and electromagnetic data, *2007 Joint Statistical Meetings*, Salt Lake City, Utah, 26 Jul – 2 Aug.

Chen, J., S. S. Hubbard, K. H. Williams, A. Kemna, L. Slater, and S. Pride (2006), A stochastic framework for geochemical parameter estimation using geophysical methods: development and application, *Eos Trans. AGU., 87(52), Fall Meet. Suppl., Abstract H44B-04*.

Hubbard, S. S., K. H. Williams, T. Scheibe, J. Peterson, J. Chen, S. Mukhopadhyay, E. Sonnenthal, and C. Steefel (2006), Improved understanding of natural system processes through coupling of geophysical characterization and numerical modeling approaches, *Eos Trans. AGU*, 87(52), *Fall Meet. Suppl., Abstract H41G-01*.

Mok, C., J. Chen, S. S. Hubbard, D. Kaback, and C. Lebish (2006), HydroImage: A user-friendly hydrogeophysical characterization software package, *Eos Trans. AGU*, 87(52), *Fall Meet. Suppl., Abstract NS41B-1143*.

Hubbard, S. S., K. H. Williams, A. Kemna, J. Chen, and J. Peterson (2006), Use of geophysical methods to investigate, guide, and access contaminant remediation approaches, *GSA Abstracts*, 38(7), Philadelphia, PA, 22-25 Oct.

Hubbard, S. S., J. Chen, Y. Fang, K. H. Williams, S. Mukhopadhyay, E. Sonnenthal, K. McFarlane, N. Linde and T. Scheibe (2006), Improved parameterization of hydrological models and reduction of geophysical monitoring data ambiguity through joint use of geophysical and numerical modeling methods, *Computational Methods in Water Resources*, Copenhagen, 19-23 Jun.

Chen, J., G. M. Hoversten, D. Vasco, Z. Hou, and Y. Rubin (2005), Markov chain Monte Carlo based approaches for inverse problems, *Eos Trans. AGU*, 86(52), *Fall Meet. Suppl., Abstract H21G-07*.

Hubbard, S. S., J. Peterson, J. Chen, K. H. Williams, M. Conrad, B. Fabishenko, P. Long, A. Willett, and T. Hazen (2005), Geophysical monitoring of Cr(VI) bioreduction at the Hanford 100H Site, *Eos Trans. AGU*, 86(52), *Fall Meet. Suppl., Abstract H44C-03*.

Hoversten, G. M., E. Gasperikova, J. Chen, and G. Newman (2005), Joint inversion of marine seismic and CSEM data for fluid saturation prediction, *Eos Trans. AGU*, 86(52), *Fall Meet. Suppl., Abstract GP41B-0882*.

Hou, Z., J. Chen, and Y. Rubin (2005), On application of ground-penetrating radar tomography in shallow subsurface hydrological parameter estimation, *Eos Trans. AGU*, 86(52), *Fall Meet. Suppl., Abstract H43J-01*.

Hubbard, S. S., J. Chen, K. H. Williams, J. Peterson, and Y. Rubin (2005), Environmental and agricultural applications of GPR, *International Workshop on Ground-Penetrating Radar*, Delft, Netherlands, 2-4 May.

Chen, J., S. S. Hubbard, M. Fienen, T. Mehlhorn**,** and D. Watson (2003), Estimating hydrogeological using high-resolution geophysical data and Markov chain Monte Carlo methods, *Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract H21F-04*.

Rubin, Y., J. Chen, Z. Hou, M. Kowalsky, and S. S. Hubbard (2003), Bayes, Zadeh, and Shannon, and the development of a structured approach to the hydrogeological data fusion problem, *EGS-AGU-EUG Joint Invited Assembly, Nice, France, Geophysical Research Abstract 5, 02403*.

Chen, J., S. S. Hubbard, Y. Rubin, C. Murray, E. Roden, and E. Majer (2002), Geochemical characterization using geophysical data and Markov chain Monte Carlo methods, *Eos Trans. AGU, 83(47), Fall Meet. Suppl., Abstract H52F-10.*

Rubin, Y., J. Chen, S. S. Hubbard, M. Kowalsky, and A. Woodbury (2002), A structured approach to Bayesian data fusion, *Eos Trans. AGU, 83(47), Fall Meet. Suppl., Abstract H52F-05.*

Hubbard, S. S., K. H. Williams, J. Chen, Y. Rubin, and E. Majer (2001), Characterization and monitoring of the Oyster Bacterial Transport Site using geophysical data, *GSA Abstracts,* Boston, 1-10 Nov.

Hubbard, S. S., J. Chen, B. Mailloux, E. Majer, and Y. Rubin (2000), Heterogeneity and bacterial transport at the Oyster, VA Site, *Eos Trans. AGU, 81(48), Fall Meet. Suppl., Abstract B51C-01.*

Swift, D., M. Green, J. Chen, S. S. Hubbard, E. Majer, and M. Christopher (2000), Deriving hydrofacies from lithofacies at the Oyster Virginia experimental site, *Eos Trans. AGU, 81(48), Fall Meet. Suppl., Abstract B52A-04.*

Christopher, M., E. Roden, K. Overstreet, Y. Chien, J. Chen, and S. S. Hubbard (2000), Spatial heterogeneity of microbial iron reduction potential at the South Oyster Focus Area, Virginia, *Eos Trans. AGU, 81(48), Fall Meet. Suppl., Abstract B51C-11.*

Chen, J., S. S. Hubbard, and Y. Rubin (1999), Estimating hydraulic conductivity at the Oyster (VA) Site from hydrological and geophysical data by using Bayesian methods based on a normal linear model, *Eos Trans. AGU, 80(48), Fall Meet. Suppl., Abstract GP31B-10.*