Curriculum Vitae

Name: Jianying Jiao
Gender: Male
Email   jjiao1@uwyo.edu

Research areas

Computational Fluid Dynamics, Boundary-Layer Meteorology, Environmental Fluid Mechanics, Turbulence, Urban Canopy Model, Urban Heat Island, Convective Heat Transfer Coefficient

Large-eddy simulation, Subgrid-Scale Model, RANS, Finite Volume Method Scheme, Level-Set Method, Immersed Boundary Method, Volume of Fluid method

Inverse Method, Confined and Unconfined Aquifer, Saturated and Unsaturated Flow, Reservoir simulation

Education

Ph. D., (2011)   School of Mechanical Engineering, Xi'an Jiaotong University, China

M. S., (2007)   College of Science, Xi'an University of Technology, China

B. S., (2004)   College of Mathematics and Information Science, Henan Normal University, China

Postdoctoral Training

Aug. 2014 – Sept. 2014   Visitor, Computational Earth Sciences (EES-16), Los Alamos National Laboratory, USA

Nov. 2012 - present   Postdoctoral, Geological Modeling & Simulation Department of Geology & Geophysics University of Wyoming, USA

Oct. 2011- Sept. 2012   Global COE Researcher, Wind Engineering Research Center, Tokyo Polytechnic University, Japan

Computer Skills: OpenFOAM, Fluent, Matlab, Tecplot, Origin
                          Good at computer programming, mastering C, C++

Patent: Ye Zhang, <u>Jianying Jiao,</u> Jurai Irsa, (2013) Aquifer inversion   method allowing simultaneous

estimations of   hydraulic parameters, fluid
sources/sinks, and boundary conditions

Publications

Papers Published in Journals:

[1] **Jianying Jiao**, Ye Zhang (2014), Joint inversion of fluid flow and transport flow with unknown boundary conditions, Water Resources Research, in preparation

[2] **Jianying Jiao**, Ye Zhang (2014), Efficient Parameter Structure Identification with a Direct Inverse Method based on Local Approximate Solutions (LAS), Geophysical Research Letters, in submission.

[3] **Jianying Jiao**, Ye Zhang, Jianting Zhu (2014), Inversion of steady state vertical infiltration with unknown boundary conditions, Vadose Zone Journal, in review.

[4] **Jianying Jiao**, Ye Zhang (2014), A General Inverse Theory based on Local Approximate Solution for Inverting Discrete and Continuous Parameters in Subsurface Flow Modeling, Environmental Modelling and Software , in preparation

[5] **Jianying Jiao**, Ye Zhang (2014) Functional Parameterization for Hydraulic Conductivity Inversion with Uncertainty Quantification, Hydrogeology Journal, accepted.

[6] **Jianying Jiao**, Ye Zhang (2014), A Method based on Local Approximate Solution (LAS) for Inverting Transient Flow in Heterogeneous, *Journal of Hydrology*, Vol. 514, p. 145-149.

[7] **Jianying Jiao**, Ye Zhang (2014), Two-Dimensional Physical-Based Inversion of Confined and Unconfined Aquifers under Unknown Boundary Condition, Advances in Water Resources 65: 43-57.

[8] **Jianying Jiao**, Ye Zhang (2014), Tensor Hydraulic Conductivity Estimation for Confined Aquifer with Unknown Boundary Conditions, Groundwater, accepted.

[9] Ye Zhang, Juraj Irsa, **Jianying Jiao** (2014). Three-dimensional aquifer inversion under unknown boundary conditions. *Journal of Hydrology* 509: 416-429

[10] Z L Gu[1], **J Y Jiao**[1], J W Su. The nature of a universal subgrid eddy viscosity model in a turbulent channel flow. EPL, 94 (2011) 34003 doi: 10.1209/0295-5075/94/34003.

[11] Gu Z L[1], **Jiao JY**[1], Su J W. Large-eddy simulation of wind field and plume dispersion within different obstacle arrays using dynamic mixing length subgrid-scale model. Boundary-Layer Meteorol, 2010 DOI: 10.1007/s10546-010-9587-8.

[12] Gu Z L[1], **Jiao JY**[1], Su J W. Large eddy simulation using a dynamic mixing length. 2012 International Journal for Numerical Methods in Fluids, Volume 69, Issue 9, pages 1457–1472.

[13] Gu ZhaoLin，Su Junwei，**Jiao Jianying**，Xu Xiaoyun，Simulation of micro-behaviors including nucleation,growth and aggregation in particle system, science in china series B: chemistry, 2009,52(2):241-248.

[14] Gu ZhaoLin，Su Junwei，**Jiao Jianying**，Xu Xiaoyun，Simulation of micro-behaviors including nucleation,growth and aggregation in particle system,

science in china series B: chemistry, 2008,38(9):844～850. (in Chinese)

[15] Wei Hongji, Qin Xinqiang, **Jiao Jianying**, Zhang aijun. A Two-Grid Mixed Finite-Element Method for Nonlinear Reaction Diffusion Equations. JOURNAL OF XI'AN UNIVERSITY OF TECHNOLOGY 2007, 23(2). (in Chinese)

[16] Zhang Aijun, Qin Xinqiang, **Jiao Jianying**, Wei Hongji. Finite-Element Two-Grid Algorithm of 1D Nonlinear Chord Balance Equation. JOURNAL OF XI'AN UNIVERSITY OF TECHNOLOGY 2007, 23(3). (in Chinese)

Papers Published in Conference Proceedings:

[17] **Jianying Jiao**, Ye Zhang, (2013) Aquifer Inversion with Simultaneous Estimation of Parameters, Source/Sink, and Boundary Condition. 33rd Annuual American Geophysical Union

[18] **Jianying Jiao** Large-eddy simulation of flow around obstacle arrays using drag force method of gas-solid two-phase flow. conference BBAA7, 2012

[19] Gu ZL, **Jiao JY**, Zhang YW (2009) A new subgrid scheme based on dynamic mixing length for turbulent flows, International Symposium on Multi-Phase Flow in Atmospheric Boundary Layer: Wind Erosion, Dust Storms, Sand Saltation, Snow Drift, Lanzhou, China, pp 16-19.

[20] J.W. SU, Z.L. GU, **J.Y. Jiao**, X.Y. XU Local fixed pivot quadratue method of moment for bubble population balance equation including coalescence and breakage 6th International Symposium on Multiphase Flow, Heat Mass Transfer and Energy Conversion Xi'an, China, 11-15 July 2009 Paper No MF-31.

[21] **Jiao Jianying**, Gu Zhaolin, Su Junwei, Weiwei. A dynamic mixing length model based on scale similar hypothesis. The Chinese scociety of theoretical and applied mechanics 2009 (in Chinese).

[22] **Jiao Jianying**, Gu Zhaolin, Su Junwei, Weiwei. Numerical simulation of Urban environment based on a dynamic mixing length model. The Chinese scociety of theoretical and applied mechanics 2009 (in Chinese).

[23] Su Junwei, Gu Zhaolin, **Jiao Jianying**. Simulation of growth process of aerosol using particle travel method, The sixth Chinese society of particuology, 2008,P641-644.(in Chinese)

[24] Junwei Su, Zhaolin Gu, **Jianying Jiao**, X Yun Xu. Simulation of particle flow with large particles using two layer mesh method, The seventh Chinese society of particuology, 2008.(in Chinese)

[25] Junwei Su, Zhaolin Gu, **Jianying Jiao**, X Yun Xu. Inlet boundary condition treatment in discrete element simulation for particle flow, The seventh Chinese society of particuology, 2008.(in Chinese)

[26] Gu Zhaolin, Lu luyi, Wei wei, **Jiao Jianying**. Research of a multi-scale mechanism of the strong dust weather. The Chinese scociety of theoretical and applied mechanics 2009 (in Chinese).

Conference Talks

2013, Two-Dimensional Physical-Based Inversion of Confined and Unconfined Aquifers under Unknown Boundary Condition. AGU, San Francisco, California.

2013, Aquifer Inversion with Simultaneous Estimation of Parameters, Source/Sink, and Boundary Condition. The annual AGU Hydrology Days, Fort Collins, Colorado.

2012, Large-eddy simulation of flow around obstacle arrays using drag force method of gas-solid two-phase flow**.** BBAA7, Shanghai, China**.**

2009, A dynamic mixing length model based on scale similar hypothesis. The Chinese scociety of theoretical and applied mechanics, Zhengzhou, China.

2009, Numerical simulation of Urban environment based on a dynamic mixing length model. The Chinese scociety of theoretical and applied mechanics, Zhengzhou, China.

Conference Poster

2013, Tensor Hydraulic Conductivity Estimation for Confined Aquifer with Unknown Boundary Conditions. AGU, San Francisco, California.