CURRICULUM VITAE

Yan Zhu

Contact Information

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Education

- **9/2009-12/2013**. Master-Doctor combined program graduate student (Ph. D. stage), State Key Laboratory of Water Resources and Hydropower Engineering Sciences, Wuhan University. Advisor: Jinzhong Yang
- **9/2011-8/2013**. Joint Training Ph.D. student, Earth Sciences and Environment Department, University of Waterloo, Advisor: Edward Sudicky
- **9/2007-6/2009**. Master-Doctor combined program graduate student (Master stage), State Key Laboratory of Water Resources and Hydropower Engineering Sciences, Wuhan University. Advisor: Jinzhong Yang
- **9/2003-6/2007**. B.A in Engineering, Wuhan University

Research Interests

- Groundwater flow and solute transport modeling.
- Regional-scale unsaturated-saturated water flow and solute transport modeling.
- Nitrogen transformation and transport modeling in the field site.

Research Experiences

- **9/2011-present: Regional Nitrogen Transformation and Transport Model in the Subsurface system**

(1) Develop the nitrogen transformation models in the unsaturated zone and the saturated zone respectively and couple them to the saturated-unsaturated water flow and solute transport model.

(2) Apply the model to predict the nitrogen movements in the field sites with treated sewage water irrigation.

- **7/2009-8/2011: Regional Water Flow and Solute Transport in the Subsurface System**

(1) Adopt the 1-D vertical Richard's equation to calculate the water flow in the unsaturated zone, and combine it with the 3-D groundwater model.

(2) Establish the coupling water flow and solute transport model in the saturated-unsaturated zone. The saturated solute transport model is developed by using the mass balance method to discretize the 3-D ADE equation, and then it is coupled with the 1-D unsaturated solute transport model.

(3) Test the validity of the model and apply the model to the simulation of the simulation of water flow and salt movement in an irrigation district in North China.

- **10/2008-6/2009: 3-D Groundwater Modelling**

Establish a 3-D Groundwater Model.

- **7/2007-9/2008, 2-D Numerical Model of Nitrogen Dynamics in the Field sites**

Establish an ammonium N volatilization sub-model, and couple it with the nitrogen model Nitrogen_2D.

Skills

- Skillful at water flow and contaminant transport modeling in the subsurface system.
- Proficient in coding the subsurface hydrological model, solute transport model and nitrogen transformation and transport models by FORTRAN.
- Familiar with the application of the water flow and solute transport models FEFLOW, MODFLOW, HYDRUS 1D, SWMS2D (HYDRUS2D), HydroGeoSphere, and the graphic design softwares AutoCAD, Tecplot, Surfer, CorelDraw.

Funding History

2008-2011: Ph.D. candidates self-research program of Wuhan University in 2008.

Awards & Honors

- 2013. Excellent Graduate Student Scholarship (The First Class), Wuhan University.
- 2012. Excellent Graduate Student Scholarship (The Third Class), Wuhan University.
- 2010. University-level Scholarship, Wuhan University.
- 2010. Kwang-Hua Scholarship, Kwang-Hua Education Foundation.
- 2010. Awards of Academic Freshmen, Ministry of Education of the People's Republic of China.

List of Publications

Papers in Refereed Journals (English)

(1) **Zhu**, **Y.,** Shi, L.S., Yang, J.Z, Wu, J.W., Mao, D.Q., 2013. Coupling methodology and application of a fully integrated model for contaminant transport in the subsurface system. Journal of Hydrology. 501: 56–72. http://dx.doi.org/10.1016/j.jhydrol.2013.07.038

(2) **Zhu, Y.**, Shi, L.S., Lin, L., Yang, J.Z, Ye, M., 2012. A Fully Coupled Numerical Modeling for Regional Unsaturated-Saturated Water Flow. Journal of Hydrology. http://dx.doi.org/10.1016 /j.jhydrol.2012.09.048.

(3) **Zhu, Y.**, Zha, Y.Y., Tong, J.X., Yang, J.Z., 2011. Method of coupling 1-D unsaturated flow with 3-D saturated flow on large scale. Water Science and Engineering. 4(4):357-373.

(4) Lin, L., Yang, J.Z, Zhang, B., **Zhu, Y.**, 2010. A simplified numerical model of 3D groundwater and solute transport at large scale area. Journal of Hydrodynamics. 22(3):319-328.

(5) **Zhu, Y.,** Yang, J.Z, Wang, L.Y., 2009. Experimental, numerical and sensitive analysis of nitrogen dynamics in soils irrigated with treated sewage. Science in China Series E: Technological Sciences. 52(11): 3279-3286.

Papers under Review or in Preparation (English)

(1) **Zhu**, **Y.,** Shi, L.S., Ye, M.,Yang, J.Z., 2013. Fully integrated nitrogen transformation and transport modeling in the subsurface system with treated sewage water irrigation. (submitted to Journal of Hydrology)

Papers in Refereed Journals (In Chinese with English Abstract)

(1) Zha, Y.Y., **Zhu, Y.**, Yang, J.Z., 2013. A Regional Coupled Groundwater Model for Unsaturated-saturated Flow Based on Modified Integrated Richards Equation. Journal of Sichuan University (Engineering Science Edition). 45(1):107~115.

(2) **Zhu, Y.**, Shi, L.S., Yang, J.Z., 2012**.** A Hybrid 3-D Numerical Model for Solute Transport in Declining Aquifer System. Journal of Sichuan University (Engineering Science Edition). 44(2), 43-51.

(3) **Zhu, Y.**，Yang, J.Z., 2010. Study of ammonia volatilization and numerical simulation of nitrogen transport and transformation in soils. Journal of Hydraulic Engineering. 41(3):286-293.

(4) **Zhu, Yan**, Yang, J.Z, Tong, J.X., 2010. A Simplified 3D Numerical Model for Groundwater Flow in Declining Aquifer-Aquitard System. Journal of Sichuan University (Engineering Science Edition). 42(6), 43-50.

(5) **Zhu, Y.**, Yang, J.Z. 2009. Application of Fuzzy Matter-element Model to Reservoir Eutrophication Evaluation. Journal of Irrigation and Drainage. 28(1), 37-41.

Papers in Proceedings

(1) **Zhu**, **Y.,** Yang, J.Z, Tong, J.X., Zhou, F.C., 2009. A quasi-3D Numerical Model for Groundwater Flow in Irregular Aquifer-Aquitard System. Proceeding of the 7th International Conference on Calibration and Reliability in Groundwater Modeling. Modelcare 2009, Wuhan, China. (In English).

(2) Yang, J.Z, **Zhu, Y.,** Wang, L.Y., 2009. Numerical Simulation and Sensitivity Analysis of Soil Nitrogen Transport and Transformation. Proceeding of the International Conference on Challenge of Water Resource and Environment in China, Hongkong, China (In Chinese).

Presentation in conference

(1) **Zhu, Yan**, 2009. Quasi-3D Numerical Model of Water Flow in the Unsaturated-saturated Zone. Groundwater Forum. Xi'an, Shanxi Province, China.

(2) **Zhu, Yan**, 2011. Regional scale unsaturated-saturated water flow and solute transport modeling. Seminar of water flow and contaminant transport in the subsurface system. Hangzhou, Zhejiang Province, China.

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(1) Yang, Jinzhong, **Zhu, Yan**, Zha, Yuan-yuan, 2011. Quasi-3D water flow and solute transport model in the unsaturated-saturated system [WSMS_Q3D]. Certified Software Copyright No. 0335192.

(2) Yang, Jinzhong, Zha, Yuan-yuan, **Zhu, Yan**, 2011.Regional saturated-unsaturated water flow model [USWM-Q3D]. Certified Software Copyright No. 0335190.

(3) Yang, Jinzhong, **Zhu, Yan**, 2010. Two-dimensional Nitrogen and Phosphorus transformation and transport model [NPTTM_2D] V1.1. Certified Software Copyright No. 0189694.