

- Qinbo, et al. Identification of hydrodynamic parameters based on one-dimensional variable density and solute transport numerical model[J]. Water Resources Protection, 2008,24(3):8-11. (in Chinese))
- [17] Voss, C.I., Provost A.M. SUTRA, a model for saturated - unsaturated, variable-density ground-water flow with solute or energy transport [R]. Reston, Virginia: U.S. Geological Survey Water-Resources Investigations Report, 02-4231, 2002.
- [18] Reilly T. E., Goodman A. S. Quantitative analysis of saltwater-freshwater relationships in groundwater systems—a historical perspective[J]. Journal of Hydrology, 1985,80:125-160.
- [19] 王全九. 土壤溶质迁移理论研究进展 [J]. 灌溉排水学报, 2005,24(3):77-80.(WANG Quanjui. Review of the advances in soil solute transport theory [J]. Journal of Irrigation and Drainage, 2005,24(3): 77-80. (in Chinese))
- [20] 吴吉春,薛禹群,黄海,等. 山西柳林泉局部区域溶质运移二维数值模拟 [J]. 水利学报, 2001,8:38-43. (WU Jichun, XUE Yuqun, HUANG Hai, et al. Two dimensional numerical simulation of solute transport in liulin spring local area[J]. Journal of Hydraulic Engineering, 2001,8:38-43. (in Chinese))
- [21] Bear J.A., Cheng H.D., Sorek S., et al. Seawater Intrusion in Coastal Aquifers-Concepts, Methods and Practices[M]. Dordrecht, Netherlands: Kluwer Academic Publishers, 1999.
- [22] Šimůnek J., Van Genuchten M. T., Šejna M. The HYDRUS-1D software package for simulating the one-dimensional movement of water, heat, and multiple solutes in variably-saturated media[R]. California: University of California-Riverside Research Reports, 2005.
- [23] Lourakis M. Levenberg-Marquardt nonlinear least squares algorithms in C/C ++[EB/OL]. <http://www.ics.forth.gr/~lourakis/levmar/>, May 9, 2008.
- [24] Shukla M. K., Ellsworth T. R., Hudson R. J., et al. Effect of water flux on solute velocity and dispersion [J]. Soil Science Society of America Journal, 2003,67(2): 449-457.
- [25] 成建梅. 考虑可信度的弥散度尺度效应分析[J]. 水利学报, 2002,2(2):90-94. (CHENG Jianmei. Analysis on field scale effect of dispersivity in consideration of relative reliability level of data[J]. Journal of Hydraulic Engineering, 2002,2(2):90-94. (in Chinese))

## Estimation of Horizontal and Vertical Dispersivity Based on Soil Column Solute Transport Experiment

CHENG Qinbo<sup>1,2</sup>, CHEN Xi<sup>1,2</sup>, ZHANG Zhicai<sup>1,2</sup>, ZHANG Runrun<sup>1,2</sup>, GAO Man<sup>1,2</sup>, QIU Ning<sup>1,2</sup>, HUANG Richao<sup>1,2</sup>

(1. State Key Laboratory of Hydrology Water Resources and Hydraulic Engineering, Hohai University, Nanjing 210098, China;

2. College of Hydrology and Water Resources, Hohai University, Nanjing 210098, China)

**Abstract:** The variable-density solute transport model based on the Advection-Dispersion Equation is widely used to study the seawater intrusion. And the hydraulic dispersion coefficient significantly affects the model simulation performance. This paper added side pumping tests into traditional soil column solute transport experiment, and utilized numerical inversion method to estimate the horizontal and vertical dispersivity. The estimated result was verified by applying other solute transport test. Compared with traditional method, this method can estimate the dispersivity in different directions on the premise that we do not increase the experimental complexity, which improves the efficiency and saves the cost of experiment. The approach provided by this study can be widely used to estimate the anisotropy of hydraulic parameters, such as conductivity and dispersion coefficient.

**Key words:** variable-density; seawater intrusion; dispersivity; anisotropy; numerical inversion

## 《水文》第八届编委会工作会议在北京召开

2018年11月23日,水利部信息中心在北京组织召开了《水文》第八届编委会工作会议,总结近年来杂志工作,分析水文面临的新形势,研讨《水文》定位和发展目标,进一步提高杂志办刊质量。《水文》编委会主任委员、水利部副部长叶建春出席会议并讲话。会议由《水文》主编、水利部信息中心主任蔡阳主持。

叶建春充分肯定了《水文》办刊60多年来所取得的成绩,对《水文》今后发展提出新的要求。他指出,《水文》多年来一直保持在“全国中文核心期刊”、“中国科技核心期刊”。按照“水利工程补短板、水利行业强监管”水利改革发展总思路要求,《水文》要抓准杂志定位,找准发展目标,围绕当前水利工作与科技发展的热点难点,立足水文水资源领域科技进步需求和专业业务发展,在解决重大水问题、推进学科新发展上起到引领和核心作用,进一步提高杂志影响力,要整合其他科技力量和资源,借助学术交流与研讨等活动,刊登引领学科发展和分享技术的高质量文章,展示水文水资源领域最新科研成果,提高杂志学术水平。会上,叶建春向编委会委员颁发了聘书。

水利部水文司副司长杨燕山代表《水文》副主任委员、水文司司长蔡建元出席会议并宣读了《水文》第八届编委会委员名单。

蔡阳在总结中感谢编委会为杂志发展献计献策,对今后在工作中如何落实委员们的意见、进一步发挥编委会的指导作用、加强编辑部能力建设方面提出了明确要求,希望杂志在原有特色基础上越办越好。

《水文》第八届编委会委员和《水文》编辑部全体成员40余人出席了本次会议,《水文》编辑部作了工作报告。