姓 名	吕海深	性 别	男	
名 族	汉	出生日期	1968.9	
政治面貌	九三学社	教 龄		
学 历	博士	学 位	博士	
现任职务		技术职称	教授	
通信地址	江苏省南京市河海大学水文水资源学院			
邮 编	210098	电 话	025-83786891	
Email	lvhaishen@hhu.edu.cn, haishen2001@yahoo.com.cn			

个人简历

吕海深，男，1968.9出生，甘肃会宁人。 博士，教授，博士生导师。主要研究方向:分布式水文模型，土壤水动力学，数据同化，生态水文学，气候变化对水文水资源的影响等。发表文章八十多篇，SCI检索四十多篇，EI检索二十多篇。

教育工作经历

a) 2002.7 在兰州大学获数学博士学位；

b) 2002.7-2004.7 在中国科学院数学与系统科学研究院应用数学研究所从事博士后研究； 2004.7- 河海大学工作；

c) 2005.11-2007.11 河海大学水文水资源与水利工程科学国家重点实验室从事博士后研究； 2007.9-2008.8 受美国农业部项目 (Modeling the Fate and Transport of Agricultural Contaminants in Soils and Groundwater Specific, Accession Number: 409849) 的资助访问美国农业部盐分实验室，与著名的土壤物理学家 M. T. van Genuchten, T. H. Skaggs 进行为期一年的合作研究。

d) 2008.9-2009.9 受美国自然科学基金项目 (Scaling environmental processes in heterogeneous arid soils) 的资助，在内华达大学地理系及美国沙漠研究所从事博士后研究工作。

e) 2009.9 受聘于河海大学水文水资源与水利工程科学国家重点实验室固定研究人员。

f) 2010.9-2011.9 受Edward Sudicky院士的邀请访问加拿大滑铁卢大学地理与环境科学系，与加拿大科学院院士，工程院院士 Edward Sudicky 开展合作研究。

主持或参与的基金项目:

• 国家自然科学基金(2004-2006)：微分方程边值问题的理论(10301033)，主持。

• 江苏省 "333" 工程资助项目(2010-2012)：土壤水分数据同化的研究. 主持

• 第三十三批中国博士后科学基金(2003.6-2004.6)：微分方程边值问题的理论，主持。

• 第四十批中国博士后科学基金(2006.9-2007.9)：分数阶微分方程模拟非饱和土壤水及溶质运移的研究，主持。

• 江苏省博士后科学基金(2006.4-2007.4)：干旱半干旱地区不同地表覆盖下土壤水分模拟, 主持。

• 河海大学中央高校专项基金(2009-2010)：分数阶微分方程模拟非饱和土壤水及溶质运移的研究，主持。

• 河海大学理重重点基金(2009-2010)：分数阶微分方程的性质研究。主持

• 回国人员科研创新启动项目(2010-2011)：分数阶微分方程模拟非饱和土壤水及溶质运移的研究，主持。

• 教育部"长江学者和创新团队发展计划"资助项目"大气-陆面-水文过程耦合机理研究"（批准号：IRT0717)(2007-2010)。

• 国家重点基础研究发展计划(973计划)项目"北方干旱化与人类适应"第二课题"半干旱区地表生态和水文过程及其相互作用的研究"(2007-2010)。

• 国家重点基础研究发展计划(973计划)项目"气候变化对黄淮海地区水循环的影响机理和水资源安全评估"第二课题"气候变化对区域水循环的影响机理研究"，(2010CB951101，2010-2013)， 负责陆面模式与水文模型耦合部分。

- 河海大学国家重点实验室专项基金(2009-2011)：气候变化对区域水循环的影响机理研究。
- 国家自然科学基金重大项目— 变化环境下工程水文计算的理论与方法（2012-2016）

获得奖励

a) 2002年，获甘肃省科技进步二等奖。
b) 2002年，获甘肃省教育厅科技进步一等奖。
c) 2004年，江苏省高校"青蓝工程"中青年骨干教师。
d) 2006年，获河海大学严恺科技进步二等奖。
e) 2006年，江苏省"333"工程第三层次培养。
f) 2007年，获山东省科技进步二等奖。
g) 2010年，陆面水文过程耦合机理与模拟研究，教育部科技进步二等奖。
h) 2009年， 评为河海大学首批优秀创新人才。
i) 2011年，江苏省"333"工程第三层次培养。

学术交流

a) 2006年9月28-30，参加国际水文科学协会PUB研究计划．"洪水预报和水资源评估新方法"学术研讨会，清华大学，北京． 提交会议论文1篇。
b) 2007年7月5-14，受IAHS资助去意大利参加第24届IUGG大会，提交会议论文2篇。
c) 2008年10月5-9，参加 GSA and ASA-CSSA-SSSA Joint Annual Meeting. Houston, Texas, USA. 提交会议论文1篇。
d) 2008年11月7-9， 国际水文科学协会PUB研究计划会议，四川大学，四川。提交会议论文1篇，委托合作者报告。
e) 2008年12月15-19， 参加 AGU 2008 Fall Meeting. San Francisco, California, U.S.A.
f) 2009．9．6-12 在印度Hyderabad召开的第八届国际水文科学会议及第37届国际水文地质学家会议联合大会接收并被受邀做会议报告。且论文已被会议红皮书出版
g) EGU General Assembly 2010, held 2-7 May, Vienna, Austria. 张贴论文: H-infinty filter assimilation procedure to estimate root zone soil water content.
h) 2010.9.12-16. 在韩国Seoul参加第八届国际生态水力学会议,论文被该会议接收发表在指定的期刊上,并受邀做会议报告.
i) 2010.11.19-21. 在中国南京参加第5届关于综合水资源管理的国际研讨会和第三届国际水文学方法研讨会.论文被该会议接收发表在指定的期刊上,受邀做会议报告。
j) 2011年2月24日受邀在中国-加拿大水文学学术交流年会上做报告。

学术任职及学术活动

a) 2006-现在，担任国际数学杂志 IAENG International J. of Applied Mathematics 编委。
b) IAHS 会员。
c) 为Hydro. Proc., Adv. Water Resor. 等期刊多次审稿。

近五年发表的一些主要文章

1. 吕海深，余钟波, Robert Horton, 朱永华，张建云，贾仰文，and Chuanguo Yang, The Effect of a Gravel‑Sand Mulch on Soil Water and Temperature in the Semiarid Loess Region of Northwest China, Journal of Hydrologic Engineering doi:10.1061/(ASCE)HE.1943-5584.0000449. (SCI)
2. XiaoLi Li(学生)，吕海深（通讯作者），Tianqing An, 贾仰文 & Di Liu, Real-time flood forecast using a Support Vector Machine, IAHS Publication 350, 2011,584-589. (EI)
3. Long Xiang, 余钟波, L.Chen, Jarai M., 吕海深, On Evaluating Coupled Water, Vapor and Heat Flows and Their Influence on the Moisture Dynamics in the Arid Region[J],． 2011. Journal of hydrologic engineering 1943-5584.0000474, 2011. (SCI)
4. 朱永华，任立良，夏军，吕海深，余钟波，方秀琴. 缺水流域生态环境承载力的研究进展. 干旱区研究. 2011, 28(6): 990-997.
5. 朱永华 ,任立良, Todd H. Skaggs, 吕海深，余钟波. Irrigation Determination for Populus euphratica seedling Using HYDRUS-1D model and potted experiments in arid region, China, 2011, IAHS Publ. 350. (EI)
6. 朱永华,任立良, Sam Drake, 吕海深，余钟波 and王振龙. The effect of water table depth on the growth of soybean of Yudou 16 by lysimeter experiment. Journal of Hydrologic Engineering, 2011, 录用. (SCI)
7. 欧阳芬(学生),吕海深，黎敏. 统计降尺度法对淮河上游未来区域降水的预估[J]. 水电能源科学，（录用）.
8. 黎敏(学生)，吕海深，欧阳芬.Delta方法在淮河流域未来气候变化中的应用[J].人民长江，（录用）.
9. Haishen Lü; Yu, Z.; Zhu, Y.; Drake, S.; Hao, Z. & Sudicky, E. A.Dual state-parameter estimation of root zone soil moisture by optimal parameter estimation and extended Kalman filter data assimilation, Adv. Water Resour., 2011, 34, 395-406 (SCI, IF:2.7)
10. Haishen Lü, Xiaoli Li, Zhongbo Yu, Robert Horton, yonghua Zhu, Zhenchun Hao,Long Xiang, Using a H_∞ filter assimilation procedure to estimate root zone soil water content, *Hydrol. Process.* 24, 3648–3660 (2010)

(SCI: IF: 2.02).

11. Haishen Lü, Zhongbo Yu, Robert Horton, Yonghua Zhu, Zhenlong Wang, and Zhenchun Hao, Multi-scale assimilation of soil moisture data for root zone moisture prediction, Hydro. Process. 2011, DOI: 10.1002/hyp.8034. (SCI: IF: 2.02).

12. Zhongbo Yu, Haishen Lü (Corresponding author), Yonghua Zhu, Sam Drake and Chuan Liang. 2010. Long-term effects of revegetation on soil hydrological processes in vegetation-stabilized desert ecosystems, Hydro. Process. 23, 87-95(2010). (SCI: IF: 2.02)

13. Yonghua Zhu, Sam Drake, Haishen Lü and Jun Xia. Analysis of Temporal and Spatial Differences in Eco-environmental Carrying Capacity Related to Water in the Haihe River Basins, China , Water Resour Manage (2010) 24:1089-1105, (SCI, IF: 2.3)

14. Haishen Lü, Zhongbo Yu, Robert Horton, Yonghua Zhu, The effect of gravel-sand mulch on the water and temperature in the semiarid loess region of northwest China, ASCE's Journal of Hydrologic Engineering. (录用, SCI).

15. D. Liu, Haishen Lü, Z. Yu, Y. Luo and X. L. Li, 2010. Soil Moisture Prediction Using Support Vector Machines. ISE2010, Redbook. (录用EI)

16. D. Liu, Z. Yu and Haishen Lü, 2010. Data assimilation using support vector machines and ensemble kalman filter for multi- layer soil moisture prediction. Water Science and Engineering.(录用,EI)

17. X, Li, Haishen Lü,Tianqing An, Di Liu and Yang Luo, Real-Time Flood Forecast Using Support Vector Machine, IAHS-Pub, Read book. (录用,EI)

18. Xiaolei Fu, Haishen Lu, The temperature prediction in SiB2 model using EnKF assimilation method, IAHS-Pub, Read book

19. Jiajia Sun,Yonghua Zhu, Haishen Lü,Jun Wang, Haozhe Gong,Huihui. The Research of Water Consumption and Water Deficit of Main Crops in Inner Mongolia, China ,2010, IAHS Publ. 33x, .

20. Hou Ting,Yonghua Zhu, Haishen Lü,Liliang Ren   Modeling capillary rise of crop land under different groundwater level. 2010, IAHS Publ. 33x, .

21. Jiajia Sun,Yonghua Zhu, Haishen Lü,Jun Wang, Haozhe Gong,Huihui Wang, Spatial distribution of water consumption and deficit of main crops in InnerMongolia Autonomous Region, China   2010 The 8th International Symposium on ECOHYDRAULICS IAHS Pub. . (EI)

22. Haozhe Gong,Yonghua Zhu, Haishen Lü,Jiajia Sun,HuihuiWang,Xiuqin Fang, Hong Wang. The Calculation of Ecological Water Requirement of Natural Vegetation in the Semi-Arid Areas of Laoha River Basin   2010 the 8th International Symposium on ECOHYDRAULICS, . (EI)

23. HuihuiWang,Yonghua Zhu, Haishen Lü,Haozhe Gong,Jiajia Sun,Xiuqin Fang, Hong Wang The Influence of Climate Change and Human Activities on Groundwater in the Laohahe River Basin, 2010 The 8th International Symposium on ECOHYDRAULICS. (EI)

24. 朱永华，任立良，吕海深. 天然荒漠植物干旱期根区土壤贮水量的确定. 水文，2007, 27(1)：14-16.

25. Haishen Lü, R. Agrawal, D. O'Regan, 2009. An Approximation Approach to Eigenvalue Intervals for Singular Boundary Value Problems with Sign Changing and Superlinear Nonline, Boundary value problem. Volume 2009, Article ID 103867, 1-34. doi:10.1155/2009/103867 (SCI检索号：261IO).

26. Xiaojun Li and Haishen Lü. 2009. Uniform Attractor for the Partly Dissipative Nonautonomous Lattice Systems, Advances in Difference Equations, Volume 2009 (2009), Article ID 916316, 21 pages, doi:10.1155/2009/916316. (SCI检索).

27. Haishen Lü and Yonghua Zhu, 2009. Nomerical analysis of one-dimensional unsaturated flow in layered soils. J. Sichuan University (Engineering Science Edition), 41, 143-147. (EI检索)

28. Haishen Lü., Zhu, Y., Skaggs, T. H., Yu, Z., 2009. Comparison of measured and simulated water storage in dry-land terraces of the loess plateau, china. Agr. Water Manage. 96, 299-306.(SCI检索号：391NO)

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Simulation of Populus euphratica root uptake of groundwater in an arid woodland of the Ejina Basin, China. Hydrological Processes, 23, 2460-2469. (SCI检索号: 485EG)

30. Yonghua Zhu, Sam Drake, Haishen Lü, and Jun Xia, 2009. Analysis of Temporal and Spatial Differences in Eco-environmental Carrying Capacity Related to Water in the Haihe River Basins, China. Water Resour. Manage. DOI 10.1007/s11269-009-9487-1 (SCI检索)

31. Haishen Lü, Yonghua Zhu, Zhongbo Yu & Long Xiang. 2009. The effect of gravel-sand mulch on soil moisture in the semi-arid loess region. IAHS Publ. 328, 208-215. (EI检索)

32. Yonghua Zhu, Liliang Ren, QichengZhang, Haishen Lü, Zhongbo Yu, Yanqing Wu & Huali Feng, 2009. The contribution of groundwater to soil moisture in Populus euphratica root zone layer. IAHS Publ. 328, 181-188. (EI检索)

33. Y Zhu, L.Ren, Haishen Lü, 2007. Water consumption of Populus euphratica woodlands in an arid region of China, IAHS PUB., 313, 294-300. (EI检索)

34. Haishen Lü, Y. Zhu, 2007. Application of BP neural network to predict rainfall interception loss in an arid region in China. IAHS Pub 311, 541-545. (EI检索)

35. Y Zhu, L.Ren, Haishen Lü, 2007. Determination of natural desert plant root-zone soil water storage in an arid region,China. IAHS Pub 311, 541-545. (EI检索)

36. Haishen Lü, Zhu, Y., Yu., Z., 2008. Estimating unsaturated soil hydraulic parameters using a generalized Richards equation. IAHS-Pub. 322, 22-27. (EI检索)

37. Zhu, Y., Ren, L., Haishen Lü Skaggs, T. H., 2008. Determination of root-zone water storage in a desert woodland using a two-layer moisture balance model. IAHS-Pub 322, 246-251. (EI检索)

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41. Haishen Lü, D.O'Regan, R. Agarwal, Existence to singular boundary value problems with sign changing nonlinearities using an approximation method approach, Appl. Math., 2007(52), no. 2, 117--135. (SCI检索号: 290ZL)

42. Haishen Lü, D.O'Regan, R. Agarwal. Positive solutions for non-resonant singular boundary-value problems with a linear term, Proc. Edinb. Math. Soc., 2007(50), no. 1, 217--228. (SCI检索号: 142QB)

43. Song, R., Haishen Lü, Positive solutions for singular nonlinear beam equation. Electron. J. Diff. Equ., 2007, No. 03, 9 pp

44. Xie, Yi; Lü, Haishen An existence theorem for singular boundary value problems with sign changing nonlinearities. Appl. Math. Comput. 197 (2008), no. 1, 412—425.(SCI检索号: 277ZT)

45. Lü, Haishen; O'Regan, Donal; Agarwal, Ravi P. An approximation approach to eigenvalue intervals for

singular boundary value problems with sign changing nonlinearities. Math. Inequal. Appl. 11 (2008), no. 1, 81--98. (SCI检索号：261IO)

46. Yonghua Zhu, Sam Drake, Jun Xia, Shaofeng Jia and Haishen Lü, 2005. The study of eco-environmental carrying capacity related to water, IAHS Publ. 293. 118-124. (EI检索号：2005179061465，SCI检索号： BG019)

47. Yonghua Zhu, Liliang Ren & Haishen Lü, 2006. The determination of natural desert plant root-zone soil water storage by surface soil moisture content. IAHS-PUB, 127-133. (EI检索)

48. HaiShen Lü & Yonghua Zhu.2006. A method for estimating soil hydraulic conductivity properties of unsaturated soils by generalized Richard equation. IAHS-PUB, 577-582. (EI检索)

49. Haishen Lü, Positive solution for nonlinear singular boundary value problems，Annals of Differential Equations, 2004(2), 289-296.

50. Haishen Lü, On the existence of multiple periodic solutions for the p-Laplacian，Indian J. Pure Appl. Math. 2004(35), no. 10, 1185--1199. (SCI检索号：898DP)

51. Haishen Lü, D. O'Regan, R.Agarwal Upper and lower solutions for the singular p-Laplacian with sign changing nonlinearities via inequality theory, Glasgow Math J. 2005(47), 439-460. (SCI检索号：051YL)

52. Haishen Lü, D. O'Regan Construction of upper and lower solutions for singular p-laplacian equations. Diff. Equ. Appl., 2004(4), 216-235. (SCI源刊)

53. Haishen Lü, R. Agarwal, D. O'Regan, Existence theorems for the one-dimensional singular p-Laplacian equation with a nonlinear boundary condition, Journal of Computational and Applied Mathematics, 2005(182), 188-210. (SCI检索号：936WJ)

54. Haishen Lü, R. Agarwal, D.O'Regan, Upper and lower solutions for the singular p-Laplacian with sign changing nonlinearities and nonlinear boundary data, J. of Computational and Applied Mathematics, 2005, (181), 442-466. (SCI检索号：936WJ)

55. Haishen Lü, R. Agarwal, D. O'Regan, Positive solutions for singular p-Laplacian equations with sign changing nonlinearities using inequality theory, Applied Mathematics and Computation, 2005(165), 587-597. (SCI检索号：931AP)

56. Haishen Lü, R. Agarwal, D. O'Regan, On the existence of multiple periodic solutions for the vector p-Laplace via critical point theory. Appl. Math. 2005(50), 20-35.(SCI源刊)

57. Haishen Lü, R. Agarwal, D. O'Regan, Nonuniform nonresonance at the first eigenvalue of the one-dimensional singular p-Laplacian. Mem. Differential Equations Math. Phys. 2005(34), 97--114.

58. Haishen Lü, R. Agarwal, D. O'Regan, Construction of upper and lower solutions for singular discrete initial and boundary value problems via inequality theory, Advance in Difference Equations 2005(2), 205-214. (SCI检索号：090HH)

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value problem with sign changing nonlinearities, J. Diff. Equ. Appl., 2006(12), 717-730.(SCI检索号：081ZH)

60. Haishen Lü, R. Agarwal, D. O'Regan, Positive radial solutions for a quasilinear system, Appl. Anal. 2006 (85), 363-371. (EI检索)

61. Haishen Lü, Z. Bai, Positive radial solutions of a singular elliptic equation with sign changing nonlinearities, Appl. Math. Letters, 2006(19), 555-567. (SCI检索号：041XN)

62. Haishen Lü, Y. Zhu. A method for estimating soil hydraulic properties of unsaturated soil by generalized Richards equation. Proceedings of the international symposium on flood forecasting and water resources assessment for IAHS-PUB, 2006, 564-570. (EI检索)

63. R. Agarwa, Haishen Lü, D. O'Regan, Position Solution for the singular p-Laplace equation, Houston J. of Math.. 2005(31), 236-248. (SCI源刊)

64. R. Agarwal, Haishen Lü, D. O'Regan, Positive solution for Dirichlet problems of singular qualilinear elliptic equations via viriational methods. Mathematika, 2005(52), 1-16. (SCI源刊)

65. B.Zhan, Haishen Lü, Positive solutions for boundary value problem of nonlinear fractional differential equation, J. Math. Anal. Appl. 2005(311), 495-505. (SCI检索号：970XO)

66. Y. Zhu, J. Xia, Haishen Lü, The study of eco-environmental carrying capacity related to water: Haihe River basins example, IAHS-AISH Publication, 2005(293), 118-124. (EI检索)

67. R. Agarwal, Daomin. Cao, Haishen Lü, D.O'Regan, Existence and multiplicity of positive solutions for singular semipositone p-Laplacian equations, Canad. J. Math. 2006(58), 449-475. (SCI检索号：044DJ)

68. Y. Zhu, R. Li, Haishen Lü. The determination of natural desert plant root-zone soil water storage by surface soil moisture content Proceedings of the international symposium on flood forecasting and water resources assessment for IAHS-PUB, 2006, 127-133. (EI检索)

已经投稿, 正在审阅的文章:

1. Haishen Lü et al. The streamflow forecast using the Xinanjiang rainfall runoff model and dual state-parameter estimation method, J. Hydrology. submitted.

2. Xiaoli Li, Haishen Lü et al. Real-time flood forecast using coupling support vector machine and data assimilation method, Hydrol Res. Submitted.

3. Haishen Lu et al, Simulating the response of a macroscale 3D physically-based hydrologic model to different spatial precipitation simulation methods, Water Res. Res. Submitted.

4. Yonghua Zhu, Haishen Lu, et al., Estimating the contribution of groundwater to rootzone soil moisture for soybeans grown on the Huaibei Plain of China. Agr. Water Manage. Submitted.

5. Haishen Lu et al., A modified soil moisture model for two-layer soil. Edohydrology. Submitted.

6. Haishen Lu et al., Spatial and Temporal Scale Effect in Simulating Hydrologic Processes in a Watershed.

Hydro Res. Submitted.

7. Yonghua Zhu and Haishen Lu, et al. Estimating Regional Groundwater Recharge Using a Hydrological Budget Method, Ground Water. Submitted.

8. Feng Ouyang and Haishen Lu. The comparison of 6 downscaling methods in quantifying the impact of climatechange on hydrology at Huai river basin. Hydro Process. Submitted.

9. Min Li, Haishen Lu. Stream flow response of Huai River basin to IPCC climate change scenarios, Hydrol Earth Syst Sc.

10. Ting Hou and Haishen Lu. Coupling Noah Land surface model and Xinanjiang model for estimating runoff at different spatial and temporal scales (Huai River basin). Hydrolog Sci J.