

## **BIO-SKETCH**

**IL WON SEO (I.W. SEO), Ph.D.**

Professor of Civil & Environmental Engineering

Seoul National University

1 Gwanak-ro, Gwanak-gu

Seoul 151-744, South Korea

Tel: +82 (2) 880 7345

FAX: +82 (2)873 2684

email: [seoilwon@snu.ac.kr](mailto:seoilwon@snu.ac.kr)



Il Won Seo (I.W. Seo) graduated from Seoul National University, Seoul, Korea in 1981 with a first-class honor degree in Civil Engineering. He obtained Master degree at Seoul National University in 1983. This was followed by a PhD degree, awarded from the University of Illinois at Urbana-Champaign, USA in 1990, on aspects of pollutant mixing processes in pool-riffle streams during low flow. After having a post-doctoral research experience at Illinois State Water Survey for 1 and 1/2 years, he came back to his home country to start his academic appointment as an assistant professor at Seoul National University in 1992. In 2002, he was promoted to a full professor and served as the department head of Civil Engineering at Seoul National University from 2002-03.

He has been an active member of American Society of Civil Engineers (ASCE) and International Association for Hydraulic Research (IAHR) since 1986. He served as an Associate Editor of Journal of International Water Resources Association from 1996-98. He was a founder and a chief-editor of Journal of Hydro-environment Research, IAHR-APD from 2007 to 2011. He served as a chief editor of Journal of Civil Engineering, Korea Society of Civil Engineers from 2004 to 2005 and from 2011 to 2012. He served as a member of IAHR Committee on Marine Outfall Systems (2008-2009) and President, Korea Chapter of IAHR-APD (2011-present). He also served as an editor of XXXI IAHR Congress in 2005. He served as an invited speaker, a session chairman, and a scientific committee member of international conferences and

congresses including IAHR, IAHR-APD, and other specialty conferences, such as ISEH, HIC, Riverflow, Eco-hydraulics conferences.

Awards given by international societies include Outstanding Ph.D. Dissertation Award given by Universities Council on Water Resources of USA and Best Student Paper Award given by American Water Resources Association in 1990, Best Paper Award given by International Association for Hydraulic Research-APD in 2012, and Distinguished Member Award given by International Association for Hydraulic Research-APD in 2014. He published 63 articles in peer-reviewed international journals (SCI & SCIE), 113 papers in peer-reviewed domestic journals, and more than 360 papers in the proceedings of international and domestic conferences. His papers have been frequently cited by the professionals around the world. He also gave a number of invited lectures at many renowned universities and research institutes.

His research interests are centered around the transport and mixing of contaminants within civil engineering hydraulics and more recently, their effects on the receiving water environment. Research projects have been concerned with modeling of physical processes in river systems, quantifying dispersion effects due to topographic variations, and mixing mechanics of jets and plumes in coastal waters. He has strong research links in Korea and abroad. From 2011 to 2017, he served as a director of Advanced Research Center for River Operation and Management funded by Ministry of Science of Korea. In recent years, Ministry of Science and Technology, Ministry of Environments, and Engineering Companies have funded his research.

## **CURRICULUM VITAE**

### **IL WON SEO (I.W. SEO), Ph.D.**

Department of Civil & Environmental Engineering  
Seoul National University  
1 Gwanak-ro, Gwanak-gu,  
Seoul 151-744, South Korea  
Tel: +82-2-880-7345 Fax: +82-2-873-2684  
E-Mail: seoilwon@snu.ac.kr

### **PERSONAL DATA**

Date of Birth: August 25, 1957  
Place of Birth: Seoul, Korea

### **EDUCATIONAL RECORD**

Ph.D. Degree: Civil Engineering (Hydrosystems), May 1990  
University of Illinois at Urbana-Champaign, U.S.A.  
M.Sc. Degree: Civil Engineering (Hydraulics), Feb. 1983  
Seoul National University, Seoul, Korea  
B.Sc. Degree: Civil Engineering, Feb. 1981 (Top of Graduating Class)  
Seoul National University, Seoul, Korea

### **ACADEMIC POSITIONS HELD**

Professor: April 2002 - present  
Seoul National University, Seoul, Korea  
Associate Professor: April 1996 – Mar. 2002  
Seoul National University, Seoul, Korea  
Assistant Professor: Feb. 1992 - Mar. 1996  
Seoul National University, Seoul, Korea  
Lecturer: Sept. 1991 - Feb. 1992  
Inha University, Incheon, Korea  
Postdoctoral Research Associate: May 1990 - May 1991  
Illinois State Water Survey, Champaign, Illinois

### **OTHER PROFESSIONAL POSITIONS HELD**

Civil Engineer: Mar. 1983 - Jul. 1984  
ICC Construction Co. Ltd., Seoul, Korea

## **AREAS OF RESEARCH INTERESTS**

Modeling Hydrodynamics and Water Quality in Rivers  
Diffusion and Dispersion in Rivers  
Mixing of Turbulent Buoyant Jets and Plumes  
Design of Wastewater Discharge Systems

## **TEACHING SUBJECTS**

Elementary Fluid Mechanics and Lab.  
Hydraulics and Lab.  
River Engineering and Design  
Advanced Fluid Dynamics  
Advanced Environmental Fluid Mechanics I, II

## **HONORS AND AWARDS**

Best Paper Award, National Conference of Korea Water Resources Association, 2020  
Distinguished Faculty Award, College of Engineering of SNU, 2018  
Special Achievement Award, Korea Water Resources Association, 2015  
Distinguished Member Award, International Association for Hydraulic Research-APD, 2014  
Special Achievement Award, Seoul National University College of Engineering, 2012  
Best Paper Award, International Association for Hydraulic Research-APD, 2012  
Special Achievement Award, Ministry of Education, Science and Technology, 2011  
Best Lecture of the Year Award, Seoul National University College of Engineering, 2010  
Outstanding Academic Achievement Award, Korea Society of Civil Engineers, 2010  
Excellent Research Award, Seoul National University College of Engineering, 2009  
Excellent Research Award, Korea Ministry of Science & Technology, 2007  
Special Achievement Award, Korea Water Resources Association, 2005  
Best Paper Award, Korea Science & Engineering Association, 2005  
Outstanding Academic Achievement Award, Korea Water Resources Association, 2003  
Best Paper Award, Korea Society of Civil Engineers, 2001  
Best Paper Award, Korea Water Resources Association, 1999  
Special Achievement Award, Korea Water Resources Association, 1997  
Best Student Paper Award, American Water Resources Association, 1990  
Outstanding Ph.D. Dissertation Award, Universities Council on Water Resources, USA, 1990  
International Water Resources Association Scholarship, 1988

## **INTERNATIONAL JOURNAL EDITORSHIP**

Advisory Committee, Journal of Hydro-environment Research, IAHR-APD (2012-Present)  
Editor in chief, Journal of Hydro-environment Research, IAHR-APD (2007-2011)  
Editor in chief, Journal of Civil Engineering, Korea Society of Civil Engineers (2004-5; 2011)  
Co-Editor, Proceedings of XXXI International Association for Hydraulic Research Congress (2005)  
Associate Editor, Journal of International Water Resources Association (1996-98)

## **SELECTED PUBLICATIONS**

### **A. Refereed International Journal**

63. Park, I., **Seo, I. W.**, Shin, J., and Song, C. G., “Experimental and Numerical Investigations of Spatially-varying Dispersion Tensors based on Vertical Velocity Profile and Depth-averaged Flow Field,” *Advances in Water Resources* (2020), doi: <https://doi.org/10.1016/j.advwatres.2020.103606>.

62. Kim, J. S., **Seo, I. W.**, Baek, D., and Kang, P. K., “Recirculating Flow-Induced Anomalous Transport in Meandering Open-Channel Flows,” *Advances in Water Resources* (2020), doi: <https://doi.org/10.1016/j.advwatres.2020.103603>.

61. Shin, J., and **Seo, I. W.**, and Baek, D., “Longitudinal and Transverse Dispersion Coefficients of 2D Contaminant Transport Model for Mixing Analysis in Open Channels,” *Journal of Hydrology*, DOI: 10.1016/j.jhydrol.2019.124302, 2020. 4.

60. Shin, J., Seo, J. Y., and **Seo, I. W.**, “Longitudinal Dispersion Coefficient for Mixing in Open Channel Flows with Submerged Vegetation,” *Journal of Ecological Engineering*, 145 (2020), DOI: 10.1016/j.ecoleng.2020.105721, 2020. 2.

59. Choi, S. Y., **Seo, I. W.**, and Kim, Y.-O., “Parameter Uncertainty Estimation of Transient Storage Model using Bayesian Inference with Formal Likelihood based on Breakthrough Curve Segmentation,” *Environmental Modelling and Software*, 123 (2020), DOI: 10.1016/j.envsoft.2019.104558, 2020. 1.

58. Han, E. H., Kim, Y. Do., Baek, K. O., and **Seo, I. W.**, “Relation Between Transverse Dispersion and Diffusion at Meandering Channel in Two-dimensional Mixing Based on Tracer Tests,” *Environmental Earth Science*, DOI: 10.1007/s12665-019-8710-5, 2019. 11, 78:712.

57. Legleiter, C. J., McDonald, R. R., Nelson, J. M., Kinzel, P. J., Perroy, R. L., Baek, D., and **Seo, I. W.**, “Remote Sensing of Tracer Dye Concentrations to Support Dispersion Studies in River Channels,” *Journal of Ecohydraulics*, DOI: 10.1080/24705357.2019.1662339, 2019. 11, Vol. 4, No. 2, 131-146.

56. Jung, S. H., **Seo, I. W.**, Kim, Y. D., and Park, I., “Feasibility of Velocity-Based Method for Transverse Mixing Coefficients in River Mixing Analysis,” *Journal of Hydraulic Engineering*, American Society of Civil Engineers, DOI: 10.1061/(ASCE)HY.1943-7900.0001638, 145(11), 2019. 11.

55. Kim, J. S., **Seo, I. W.**, and Baek, D., “Seasonally Varying Effects of Environmental Factors on Phytoplankton Abundance in the Regulated Rivers,” *Scientific Reports*, <https://doi.org/10.1038/s41598-019-45621-1>, 2019. 6 (IF: 4.122)

54. Kim, J. S., Baek, D., **Seo, I. W.**, and Shin, J., “Retrieving shallow stream bathymetry from UAV-assisted RGB imagery using a geospatial regression method,” *Geomorphology*, DOI: 10.1016/j.geomorph.2019.05.016, 2019. 5, Vol. 341, 102-114.

53. Baek, D., **Seo, I. W.**, Kim, J. S., and Nelson, J. M., "UAV-Based Measurements of Spatio-Temporal Concentration Distributions of Fluorescent Tracers in Open Channel Flows," *Advances in Water Resources*, 10.1016/j.advwaters.2019.03.007, 2019. 3, Vol. 127, 76-88.
52. Choi, S. Y., and **Seo, I. W.**, "Daily Prediction of Fecal Coliform using Logistic Regression and Tree-based Classification Models in the North Han River, South Korea," *Journal of Hydro-environment Research*, DOI: 10.1016/j.jher.2018.09.002, 2018. 10, Vol. 21, 96-108.
51. Kim, J. S., **Seo, I. W.**, and Baek, D., "Modeling Spatial Variability of Harmful Algal Bloom in Regulated Rivers Using a Depth-averaged 2D Numerical Model," *Journal of Hydro-environment Research*, DOI: 10.1016/j.jher.2018.04.008, 2018. 6, Vol. 20, 63-76.
50. Kim, J. S., **Seo, I. W.**, Lyu, S., and Kwak, S., "Modeling Water Temperature Effect on Diatom (*Stephanodiscus hantzschii*) Prediction in Eutropic Rivers using a 2D Contaminant Transport Model," *Journal of Hydro-environment Research*, DOI: 10.1016/j.jher.2018.01.003, 2018. 3, Vol. 19, 41-55.
49. Park, I., and **Seo, I. W.**, "Modeling non-Fickian Pollutant Mixing in Open Channel Flows Using Two-dimensional Particle Dispersion Model," *Advances in Water Resources*, 111 (2018) 105-120, 2018, DOI: 10.1016/j.advwaters.2017.10.035.
48. Ryu, Y., Kim, Y.-O., Seo, S. B., and **Seo, I. W.**, "Application of Real Options to Flood Mitigation Alternatives Considering Climate Change Uncertainty," *Mitigation and Adaptation Strategies for Global Change*, DOI 10.1007/s11027-017-9760-1, August, 2017.
47. Baek, K. O., and **Seo, I. W.**, "Estimation of the Transverse Dispersion Coefficient for Two-dimensional Models of Mixing in Natural Streams," *Journal of Hydro-environment Research*, DOI: 10.1016/j.jher.2017.01.003, 15 (2017) 67-74, 2017.
46. Kim, S. E., **Seo, I. W.**, and Choi, S. Y., "Assessment of Water Quality Variation of a Monitoring Network Using Exploratory Factor Analysis and Empirical Orthogonal Function," *Environmental Modelling and Software*, DOI: 10.1016/j.envsoft.2017.03.035, 94 (2017) 21-35, 2017.
45. Park, I., **Seo, I. W.**, Kim, Y. D., and Han, E. J., "Turbulent Mixing of Floating Pollutants at the Surface of the River," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, DOI: 10.1061/(ASCE)HY.1943-7900.0001319, Vol. 143, No.8, August, 2017.
44. **Seo, I. W.**, Choi, H. J., Kim, Y. D., and Han, E. J., "Analysis of Two-dimensional Mixing in Natural Streams Based on Transient Tracer Tests," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 142, No.8, August, 2016.
43. Han, E. J., Park, I., Kim, Y. D., and **Seo, I. W.**, "A Study of Surface Mixing in a Meandering Channel Using GPS Floaters," *Environmental Earth Sciences*, Springer, Vol. 75, No. 10, Article 901, May, 2016.

42. Baek, K. O., and **Seo, I. W.**, "On the Methods for Determining the Transverse Dispersion Coefficients in River Mixing," *Advances in Water Resources*, Elsevier, Vol. 90, April, 2016, pp. 1-9.
41. **Seo, I. W.**, Kim, Y. D., Park, Y. S. and Song, C. G., "Spillway Discharge by Modification of Weir Shapes and Overflow Surroundings," *Environmental Earth Science*, Springer, Vol. 75, Article 496, 2016. 3 (Online Publish).
40. Park, I., **Seo, I. W.**, Kim, Y. D., and Song, C. G., "Flow and Dispersion Analysis of Shallow Water Problems with Froude Number Variation," *Environmental Earth Sciences*, Vol. 75, No.2, Article 120, January, 2016.
39. **Seo, I. W.**, Kim, Y. D., and Song, C. G., "Analysis of Flow Characteristics around Islands due to Semi-Diurnal Currents in the Han River, Korea," *Journal of Civil Engineering*, Korean Society of Civil Engineers, Vol. 19, No. 6, September, 2015, pp. 1905-1915.
38. Kim, S. E., and **Seo, I. W.**, "Artificial Neural Network Ensemble Modeling with Conjunctive Data Clustering for Water Quality Prediction in Rivers," *Journal of Hydro-environment Research*, Vol. 9, No. 3, September, 2015, pp. 325-339.
37. Kim, S. E., and **Seo, I. W.**, "Artificial Neural Network Ensemble Modeling with Exploratory Factor Analysis for Streamflow Forecasting," *J. of Hydroinformatics*, Vol. 17, No. 4, July, 2015, pp. 614-639.
36. **Seo, I. W.**, and Song, C. G., "Dispersion of Negatively Buoyant Effluent Jetted from ORV," *Journal of Civil Engineering*, Korean Society of Civil Engineers, Vol. 19, No. 4, May, 2015, pp. 1164-1173.
35. **Seo, I. W.**, Kim, Y. D., and Song, C. G., "Validation of Depth-Averaged Flow Model Using Flat-Bottomed Benchmark Problems," *The Scientific World Journal*, Vol. 2014, Article ID 197539, May, 2014.
34. Lyu, S., **Seo, I. W.**, and Kim, Y. D., "Experimental Investigation on Behavior of Multiple Vertical Buoyant Jets Discharged into a Stagnant Ambient," *Journal of Civil Engineering*, Korean Society of Civil Engineers, Vol. 17, No. 7, November, 2013, pp. 1820-1829. (IF=0.600)
33. Baek, K. O., and **Seo, I. W.**, "Empirical Equation for Transverse Dispersion Coefficient Based on Theoretical Background in River Bends," *Environmental Fluid Mechanics*, Vol. 13, No. 5, October, 2013, pp. 465-477.
32. Lee, M. E., and **Seo, I. W.**, "Spatially Variable Dispersion Coefficients in Meandering Channels," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, February, 2013, Vol. 139, No. 2, pp. 141-153.

31. Song, C. G., **Seo, I. W.**, and Kim, Y. D., "Analysis of Secondary Current Effect in the Modeling of Shallow Flow in Open Channels," *Advances in Water Resources*, Elsevier, Vol. 41, June, 2012, pp. 29-48.
30. **Seo, I. W.**, and Song, C. G., "Numerical Simulation of Laminar Flow past a Circular Cylinder with Slip Conditions," *International Journal for Numerical Methods in Fluids*, Vol. 68, No. 12, April, 2012, pp. 1538-1560.
29. Baek, K. O., and **Seo, I. W.**, "Transverse Dispersion Caused by Secondary Flow in Curved Channels," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 137, No. 10, October, 2011, pp. 1126-1134.
28. Baek, K. O., and **Seo, I. W.**, "Routing Procedures for Observed Dispersion Coefficients in Two-dimensional River Mixing," *Advances in Water Resources*, Elsevier, Vol. 33, December, 2010, pp. 1551-1559.
27. **Seo, I. W.**, and Song, C. G., "Specification of Wall Boundary Conditions and Transverse Velocity Profile Conditions in Finite Element Modeling," *Journal of Hydrodynamics*, Elsevier, Vol. 22, No. 5, October, 2010, pp. 633-638.
26. **Seo, I. W.**, and Jung, Y. J., "Velocity Distribution of Secondary Currents in Curved Channels," *Journal of Hydrodynamics*, Elsevier, Vol. 22, No. 5, October, 2010, pp. 617-622.
25. Lee, M. E., and **Seo, I. W.**, "2D Finite Element Pollutant Transport Model for Accidental Mass Release in Rivers," *Journal of Civil Engineering*, Korean Society of Civil Engineers, Springer, Vol. 14, No. 1, January, 2010, pp. 77-86.
24. Baek, K. O., and **Seo, I. W.**, "Prediction of Transverse Dispersion Coefficient Using Vertical Profile of Secondary Flow in Meandering Channels," *Journal of Civil Engineering*, Korean Society of Civil Engineers, Springer, Vol. 12, No. 6, 2008, pp. 417-426.
23. **Seo, I. W.**, Lee, M. E., and Baek, K. O., "2D Modeling of Heterogeneous Dispersion in Meandering Channels," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 134, No. 2, 2008, pp. 196-204.
22. Jeon, T. M., Baek, K. O., and **Seo, I. W.**, "Development of an Empirical Equation for the Transverse Dispersion Coefficient in Natural Streams," *Environmental Fluid Mechanics*, Springer, Vol. 7, 2007, pp. 317-329.
21. Lee, M. E., and **Seo, I. W.**, "Analysis of Pollutant Transport in the Han River with Tidal Current Using a 2D Finite Element Model," *Journal of Hydro-environment Research*, International Association for Hydraulic Research, Vol. 1, No. 1, 2007, pp. 30-42.
20. Cheong, T. S., Younis, B. A., and **Seo, I. W.**, "Estimation of the Key Parameters in Model for Solute Transport in Rivers and Streams," *Water Resources Management*, Springer, Vol. 21, 2007, pp. 1165-1186.



19. Baek, K. O., **Seo, I. W.**, and Jung, S. J., "Evaluation of Dispersion Coefficients in Meandering Channels from Transient Tracer Tests," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 132, No. 10, 2006, pp. 1021-1032.
18. **Seo, I. W.**, Baek, K. O., and Jeon, T. M., "Analysis of Transverse Mixing in Natural Streams Under Slug Tests," *Journal of Hydraulic Research*, International Association for Hydraulic Research, Vol. 44, No. 3, 2006, pp. 350-362.
17. **Seo, I. W.**, and Kwon, S. J., "Experimental Investigation of Three-dimensional Non-buoyant Rectangular Jets," *Journal of Engineering Mechanics*, American Society of Civil Engineers, Vol. 131, No. 7, 2005, pp. 733-746.
16. Kwon, S. J., and **Seo, I. W.**, "Reynolds Number Effects on the Behavior of Non-buoyant Round Jet," *Experiments in Fluids*, Springer-Verlag, 38(6), 2005, pp. 801-812.
15. **Seo, I. W.**, and Baek, K. O., "Estimation of the Longitudinal Dispersion Coefficient Using the Velocity Profile in Natural Streams," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 130, No. 3, 2004, pp. 227-236.
14. Cheong, T. S., and **Seo, I. W.**, "Parameter Estimation of the Transient Storage Model by a Routing Method for River Mixing Processes," *Water Resources Research*, American Geophysical Union, Vol. 39, No. 4, 2003, pp. HWC 1-1-1-11.
13. Gadalarab, M. S., and **Seo, I. W.**, "An Analytical Solution for the Near Field Model of Axisymmetrical Turbulent Jet with Weak to Moderate Swirling," *Coastal Engineering Journal*, World Scientific Pub. Co. and Japan Society of Civil Engineers, Vol. 44, No. 4, 2002, pp. 343-358.
12. Kim, Y. D., **Seo, I. W.**, Kang, S. W., and Oh, B. C., "Jet Integral-Particle Tracking Hybrid Model for Single Buoyant Jets," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 128, No. 8, 2002, pp. 753-760.
11. Kim, Y. D., **Seo, I. W.**, Kang, S. W., and Oh, B. C., "Modeling the Mixing of Wastewater Effluent Discharged from Ocean Outfalls Using a Hybrid Model," *Coastal Engineering Journal*, World Scientific Pub. Co. and Japan Society of Civil Engineers, Vol. 43, No. 4, 2001, pp. 259-288.
10. Han, I. Y., **Seo, I. W.**, and Chung, I. M., and Lee, J. E., "Abrupt Drawdown Observed in a Sandstone-Shale Interbedded Layers Surrounding Underground LPG Cavern," *Journal of Hydrologic Engineering*, American Society of Civil Engineers, Vol. 6, No. 5, 2001, pp. 423-428.
9. **Seo, I. W.** and Cheong, T. S., "Moment-Based Calculation of the Parameters for the Storage Zone Model for River Dispersion," *Journal of Hydraulic Engineering*, American Society of Civil Engineers, Vol. 127, No. 6, 2001, pp. 453-465.

8. Kim, D. G. and **Seo, I. W.**, "Numerical Modeling of the Tee Thermal Diffuser in Coastal Regions," Coastal Engineering Journal, World Scientific Pub. Co. and Japan Society of Civil Engineers, Vol. 43, No. 1, 2001, pp. 59-78.
7. **Seo, I. W.**, Kim, H. S., Yu, D. Y., and Kim, D. S., "Performance of Tee Diffusers in Shallow Water with Crossflow," Journal of Hydraulic Engineering, American Society of Civil Engineers, Vol. 127, No. 1, January, 2001, pp. 53-61.
6. Lee, J. H., and **Seo, I. W.**, "Numerical Simulation of an Advected Thermal Using a Gaussian-Vortex Model," Journal of Engineering Mechanics, American Society of Civil Engineers, Vol. 126, No. 10, 2000, pp. 1098-1106.
5. **Seo, I. W.**, Yu, D. Y., and Kim, H. S., "Dilution Characteristics of Thermal Diffuser in Coastal Regions with Strong Currents," Coastal Engineering Journal, World Scientific Pub. Co. and Japan Society of Civil Engineers, Vol. 42, No. 3, 2000, pp. 295-319.
4. Kim, D. G., and **Seo, I. W.**, "Modeling the Mixing of Heated Water Discharged from a Submerged Multiport Diffuser," Journal of Hydraulic Research, International Association for Hydraulic Research, Vol. 38, No. 4, 2000, pp. 259-269.
3. **Seo, I. W.** and Cheong, T. S., "Predicting Longitudinal Dispersion Coefficient in Natural Streams," Journal of Hydraulic Engineering, American Society of Civil Engineers, Vol. 124, No. 1, 1998, pp. 25-32.
2. **Seo, I. W.** and Maxwell, W. H. C., "Modeling Low-Flow Mixing through Pools and Riffles," Journal of Hydraulic Engineering, American Society of Civil Engineers, Vol. 118, No. 10, 1992, pp. 1406-1423.
1. **Seo, I. W.**, "Laboratory and Numerical Investigation of Longitudinal Dispersion in Open Channels," Water Resources Bulletin, American Water Resources Association, Vol. 26, No. 5, 1990, pp. 811-822.

## **B. International Conference Proceeding Papers**

159. Seo, I. W., and Bang, J., H., "Parameter Evaluation of the Transient Storage Model in front of a Short-Crested Weir by PIV", 19th IWA International Conference on Diffuse Pollution & Eutrophication, Jeju, Korea, October 27-31, 2019.
158. Seo, I. W., Kwon, S. Y., and Noh, H., "Identification of Pollutant Source Characteristics using River Network Model with Transient Storage", 19th IWA International Conference on Diffuse Pollution & Eutrophication, Jeju, Korea, October 27-31, 2019.
157. Seo, I. W., Shin, J., and Bang, J., "Dispersion Coefficients of Contaminant Transport Model for River Mixing at Meandering Channels", 38th IAHR World Congress, Panama City, Panama, August 31-September 6, 2019.

156. Seo, I. W., Kwon, S. Y., and Noh, H., “Data-driven Models to Characterize Pollution Source using River Network System with Transient Storage Zone”, 38th IAHR World Congress, Panama City, Panama, August 31-September 6, 2019.
155. Seo, I. W., and Baek, D., “Drone-Based Tracer Tests for Observing the Spatio-Temporal Distributions of Pollutant Spilled into River”, 8th Civil Engineering Conference in the Asian Region (CECAR8), Tokyo, Japan, April 16-19, 2019.
154. Seo, I. W., and Jung, S. H., “Feasibility of Velocity-based Method for Transverse Mixing Coefficients of 2D Mixing Analysis in Natural Rivers”, 8th Civil Engineering Conference in the Asian Region (CECAR8), Tokyo, Japan, April 16-19, 2019.
153. Seo, J. Y., and Seo, I. W., “Study of Flow and Mixing Characteristics in Open Channel Flow with Rigid Vegetation”, 8th Civil Engineering Conference in the Asian Region (CECAR8), Tokyo, Japan, April 16-19, 2019.
152. Nelson, J., McDonald, Legleiter, C., Kinzel, P., Terrell-Ramos, T., Higashi, Y., Seo, I. W., Baek, D., Lee, D. H., and Ryu, Y., “New Methods for Predicting and Measuring Dispersion In Rivers,” The 9<sup>th</sup> International Conference on Fluvial Hydraulics (River Flow 2018), Lyon, France, September 5-8, 2018.
151. Seo, I. W., and Shin, J., “Two-dimensional Modeling of Flow and Contaminant Transport in Meandering Channels,” 13th International Hydroinformatics Conference, Palermo, Italy, July 1-6, 2018.
150. Seo, I. W., and Yun, S. H., “Prediction of Water Quality Variation Affected by Tributary Inputs in Large Rivers Using ANN Model,” 13th International Hydroinformatics Conference, Palermo, Italy, July 1-6, 2018.
149. Park, I. Seo, I. W., and Seong, H. “Calculations of Two-dimensional Dispersion Coefficients using 2D Spatial Routing Procedure”, 8<sup>th</sup> International Symposium on Environmental Hydraulics (ISEH 2018), University of Notre Dame, Indiana, USA, June 4–7, 2018.
148. Seo, I. W., and Baek, D., “Analysis of Two-dimensional Dispersion in Meandering Channels Using Concentration Field Acquired from Aerial Images,” 8th International Symposium on Environmental Hydraulics, t(ISEH 2018), University of Notre Dame, Indiana, USA, June 4–7, 2018.
147. Seo, I. W., and Kim, J. S., “2D Numerical Modeling of Harmful Algal Bloom in a Eutrophic and Regulated River,” 8th International Symposium on Environmental Hydraulics (ISEH 2018), University of Notre Dame, Indiana, USA, June 4–7, 2018.
146. Seo, I. W., and Choi, S. Y., “Uncertainty Estimation of Transient Storage Zone Model Using Bayesian Monte Carlo Based Approach,” 8th International Symposium on Environmental Hydraulics, (ISEH 2018), University of Notre Dame, Indiana, USA, June 4–7, 2018.

145. Seo, I. W., and Shin, J., “Experimental Investigation of Two-dimensional Dispersion in Large Meandering Channels,” 8th International Symposium on Environmental Hydraulics, (ISEH 2018), University of Notre Dame, Indiana, USA, June 4–7, 2018.
144. Seo, I. W., and Baek, D., “The Estimation of Spatial and Temporal Distribution of Accidentally Spilled Pollutant into River,” The 37th IAHR World Congress, Kuala Lumpur, Malaysia, August 13-18, 2017.
143. Seo, I. W., and Choi, S. Y., “Prediction of Fecal Contamination Level in Nakdong River Using Data-Driven Model,” The 37th IAHR World Congress, Kuala Lumpur, Malaysia, August 13-18, 2017.
142. Seo, I. W., and Kim, J. S., “2D Numerical Approach for Evaluation of Weir Operation Strategies on Harmful Algal Bloom Control,” The 37th IAHR World Congress, Kuala Lumpur, Malaysia, August 13-18, 2017.
141. Seo, I. W., and Baek, D., “Dye Tracing method Using Aerial Imagery by the Drone,” Hydraulic Measurements and Experimental Methods 2017 Conference, ASCE EWRI, University of New Hampshire, NH, USA, July 9-12, 2017.
140. Seo, I. W., and Choi, S. Y., “Development of Data-based Prediction Model for Fecal Coliform in North Han River,” The 19th Hokkaido University-Seoul National University Joint Symposium, Hokkaido, Japan, November 24–25, 2016.
139. Seo, I. W., and Yun S-H., “Forecasting Water Quality Parameters by ANN Model in River,” The 19th Hokkaido University-Seoul National University Joint Symposium, Hokkaido, Japan, November 24–25, 2016.
138. Seo, I. W., and Park, I., “Numerical Modeling of Storage Zone Effects on Contaminant Mixing in Natural Rivers,” The 19th Hokkaido University-Seoul National University Joint Symposium, Hokkaido, Japan, November 24–25, 2016.
137. Seo, I. W., and Jung, S. H., “Analysis of Transverse Mixing Using Natural Tracers Continuously Introduced from Tributaries,” 12th International Conference on Hydroscience & Engineering, Tainan, Taiwan, November 6–10, 2016.
136. Seo, I. W., and Park, I., “2-D Non-Fickian Dispersion Model for the Initial Period of River Mixing,” 12th International Conference on Hydroscience & Engineering, Tainan, Taiwan, November 6–10, 2016.
135. Seo, I. W., and Baek D., “Prediction of Fecal Pollutant Concentration Accidentally Spilled into River Using 1D Routing Procedure,” Proceedings of the 20<sup>th</sup> IAHR-APD Congress, (IAHR-APD 2016), Colombo, Sri Lanka, August 28–31, 2016.
134. Seo, I. W., Choi, S. Y., Park, S. Y., and Suh, K. O., “Prediction of Fecal Coliform Using Tree Based Models in North Han River,” Proceedings of the 20<sup>th</sup> IAHR-APD Congress, (IAHR-

APD 2016), Colombo, Sri Lanka, August 28–31, 2016.

133. Seo, I. W., and Kim, J. S., “2D Numerical Study of Diatom Bloom Based on Water Temperature Effect on Its Growth,” Proceedings of the 20<sup>th</sup> IAHR-APD Congress, (IAHR-APD 2016), Colombo, Sri Lanka, August 28–31, 2016.

132. Seo, I. W., Yun S-H., and Choi, S. Y., “Forecasting Water Quality Parameters by ANN Model Using Pre-processing Technique at the Downstream of Cheongpyeong Dam,” The 12<sup>th</sup> International Conference on Hydroinformatics (HIC 2016), Incheon, Korea, August 21–26, 2016.

131. Seo, I. W., Kim, J. S., and Jung, S. H., “Numerical Simulation of Two-Dimensional Pollutant Mixing in Rivers Using RAMS,” The 12<sup>th</sup> International Conference on Hydroinformatics (HIC 2016), Incheon, Korea, August 21–26, 2016.

130. Kim, S. E., Shin, J. H., Seo, I. W., and Lyu, S., “Development of Stage-Discharge Rating Curve Using Hydraulic Performance Graph Model,” The 12<sup>th</sup> International Conference on Hydroinformatics (HIC 2016), Incheon, Korea, August 21–26, 2016.

129. Kim, S. E., Seo, I. W., and Choi, S. Y., “Assessment of Water Quality Monitoring Network of Nakdong River Using Exploratory Factor Analysis,” The 12<sup>th</sup> International Conference on Hydroinformatics (HIC 2016), Incheon, Korea, August 21–26, 2016.

128. Rhee, D. S., and Seo, I. W., “Evaluation of the Grassy Vegetation Roughness with Varied Flow Conditions in Open Channel Flows,” The 8th International Conference on Fluvial Hydraulics (River Flow 2016), St. Louis, USA, July 12–15, 2016, pp. 776-777.

127. Seo, I. W., and Shin, J. H., “Overview of the Transverse Velocity Profiles and Application to Meandering Channels,” The 8th International Conference on Fluvial Hydraulics (River Flow 2016), St. Louis, USA, July 12–15, 2016, pp. 85-87.

126. Seo, I. W., and Park, I., “Modeling of Particle Dispersion in the Meandering Channels,” 8th International Conference on Fluvial Hydraulics (River Flow 2016), St. Louis, USA, July 12–15, 2016, pp. 32-33.

125. Seo, I. W., and Park, I., “Analysis of Two-Dimensional Pollutant Mixing in Shallow Flows Using Non-Fickian Dispersion Model,” Proceedings of the 4th International Symposium on Advanced Technology for River Management, Seoul, Korea, April 21-23, 2016.

124. Seo, I. W. “Water Quality Modeling in Rivers,” Proceedings of 2016 HU-SNU Joint Seminar on Environmental Hydraulics, Hokkaido, Japan, Feb. 21-25, 2016.

123. Han, E. J., Kim, Y. D., Seo, I. W., and Park, I. “Analysis of Water Surface Diffusion by Buoyant Particle Tracking Scheme in Experimental Curved Channel,” Proceedings of the 36th IAHR World Congress, Hague, Netherlands, Jun. 28-Jul. 3, 2015.

122. Seo, I. W., Jung, S. H., Park, I., and Kim, Y. D. "Experimental Study of Two-Dimensional Mixing of Natural Tracers in Rivers," Proceedings of the 36th IAHR World Congress, Hague, Netherlands, Jun. 28-Jul. 3, 2015.
121. Seo, I. W., Choi, H. J., Shin, J. H., and Han, E. J. "Dispersion Coefficients of The Two-Dimensional Contaminant Transport Model for River Mixing Study," Proceedings of the 36th IAHR World Congress, Hague, Netherlands, Jun. 28-Jul. 3, 2015.
120. Seo, I. W. and Park, I. "Non-Fickian Modelling of Pollutant Mixing During Initial Period in Open Channels," Proceedings of the 36th IAHR World Congress, Hague, Netherlands, Jun. 28-Jul. 3, 2015.
119. Seo, I. W. and Choi, S. Y., "Development of Coliform Estimation Model Based on Statistical Method," Proceedings of Smart Water Grid International Conference 2014, Incheon, Korea, Nov. 25-27, 2014.
118. Kim, S. E., and Seo, I. W., "ANN Modeling for Prediction of Daily Water Quality Parameters in Nakdong River, Korea," Proceedings of Smart Water Grid International Conference 2014, Incheon, Korea, Nov. 25-27, 2014.
117. Kim, D. S., You, H. J., Seo, Y. W., and Seo, I. W., "Real-time Estimation of the Stage Height for Ungaged River Sites using HPG and Standardized Web Service," Proceedings of Smart Water Grid International Conference 2014, Incheon, Korea, Nov. 25-27, 2014.
116. Kim, S. E., Seo, I. W., and Shin, J. H., "Hybrid ANN-HPG Model Predicting Stramflow and Water Surface Elevation," Proceedings of the 19th IAHR-APD Congress, Hanoi, Vietnam, Sept. 21-24, 2014.
115. Seo, I. W. and Kim, J. S., "Two-Dimensional Model of Algal Bloom in the Nakdong River," Proceedings of the 19th IAHR-APD Congress, Hanoi, Vietnam, Sept. 21-24, 2014.
114. Kim, S. E., Seo, I. W., Choi, S. Y and Kim, J. S., "Prediction of Water Quality Using Artificial Neural Network Ensemble Model," Proceedings of the 3rd International Symposium on Advanced Technology for River Management, Seoul, Korea, Sept. 14-16, 2014.
113. Seo, I. W., Shin, J. H., and Choi, H. J., "Modeling the Two-Dimensional Dispersion of Contaminants in Natural Rivers," Proceedings of the 3rd International Symposium on Advanced Technology for River Management, Seoul, Korea, Sept. 14-16, 2014.
112. Park, I. H., Seo, I. W., and Jung, S. H., "Analysis of Transverse Mixing of Continuously Injected Pollutants in Nakdong River, Korea," Proceedings of the 3rd International Symposium on Advanced Technology for River Management, Seoul, Korea, Sept. 14-16, 2014.
111. Song, C. G., Seo, I. W., Shin, J. H., and Park, I. H. "Development and Application of a Shallow Water Flow Model HDM-2D," Proceedings of the 11th International Conference on Hydroinformatics, New York City, Aug. 17-21, 2014.

110. Seo, I. W. and Choi, S. Y., "Development of River Recreation Index Model (RRIM) Reflecting Fuzziness in Water Quality," Proceedings of the 11th International Conference on Hydroinformatics, New York City, Aug. 17-21, 2014.
109. Seo, I. W. and Park, I. H., "A Particle Dispersion Model for Analysis of Two-Dimensional Mixing in Open Channels," Proceedings of the 11th International Conference on Hydroinformatics, New York City, USA, Aug. 17-21, 2014.
108. Seo, I. W. and Kim, D. S., "A Tool for Automatic Estimation of the Stage Height for Ungaged River Sites Review Decisions," Proceedings of the 11th International Conference on Hydroinformatics, New York City, USA, Aug. 17-21, 2014.
107. Song, C. G., and Seo, I. W., "Dispersion Simulation of the Cooled Water Discharged from LNG Terminal," Proceedings of ICCE-2014, Seoul, Korea, Jun. 16-20, 2014.
106. Seo, I. W., Choi, S. Y., "Development of Recreation Index Model and ITS Applications to Nakdong River, Korea," Proceedings of the 7th International Symposium on Environmental Hydraulics, Singapore, Jan. 7-9, 2014, pp. 41-42.
105. Seo, I. W., Park, I. H., and Jung Y., "Modeling of Two-Dimensional Dispersion during Initial period in Open Channels," Proceedings of the 7th International Symposium on Environmental Hydraulics, Singapore, Jan. 7-9, 2014, pp. 67-68.
104. Seo, I. W., Park, I. H., Kim, Y. D., and Mun, H. S., "Analysis of Mixing of Floating Pollutants Based on the 2D Tracer Test with GPS Floaters," Proceedings of the 7th International Symposium on Environmental Hydraulics, Singapore, Jan. 7-9, 2014, p. 50.
103. Lyu, S., Seo, I. W., and Ahn, J. M., "An Integrated Monitoring Program for the Management of a Large River," Proceedings of the 2nd International Symposium on Advanced Technology for River Management, Seoul National University, Nov. 7-9, 2013, pp. 58-63.
102. Seo, I. W., Choi, S. Y., "Development of River Recreation Index Model (RRIM) Using Fuzzy Synthetic Evaluation Approach," Proceedings of the 2nd International Symposium on Advanced Technology for River Management, Seoul National University, Nov. 7-9, 2013, pp. 74-79 (Invited Lecture).
101. Seo, I. W., Shin, J., and Seo, Y., "Hydraulic Performance Graph Application to the Nakdong River," Proceedings of the 2nd International Symposium on Advanced Technology for River Management, Seoul National University, Nov. 7-9, 2013, pp. 233-238.
100. Seo, I. W., and Park, I. H., "Simulation of Floating Pollutant Mixing in the Nakdong River," Proceedings of the 2nd International Symposium on Advanced Technology for River Management, Seoul National University, Nov. 7-9, 2013, pp. 227-232.
99. Kim, S. E. and Seo, I. W., "Water Quality Prediction Using ANN Model and Exploratory Factor Analysis," Proceedings of the 2nd International Symposium on Advanced Technology for River Management, Seoul National University, Nov. 7-9, 2013, pp. 215-220.

98. Shin, J., Seo, I. W., and Seo, Y., "Application of Hydraulic Performance Graph of Natural Rivers in Korea," Proceedings of 2013 American Water Resources Association, Red Lion Hotel, Portland, USA, Nov. 4-7, 2013.
97. Kim, S. E., Seo, I. W., "Artificial Neural Network Ensemble Modeling Using Exploratory Factor Analysis for Streamflow Prediction," Proceedings of 2013 American Water Resources Association, Red Lion Hotel, Portland, USA, Nov. 4-7, 2013.
96. Seo, I. W., Kim, S. D., and Jung, S. H., "Movement of Effective Microorganism Injected Through a Falling Confluent Stream," Proceedings of the 12th Conference of International Society of Paddy and Water Environment Engineering, Ramada Plaza Hotel, Cheongju, Korea, October 30-Nov. 1, 2013.
95. Seo, I. W., Park, I. H, Kim, Y. D., and Mun, H. S., "Lagrangian Particle Tracking Technique for Analysis of 2D Mixing in Natural Streams," Proceedings of the 35th IAHR World Congress, Chengdu, China, Sept. 8-13, 2013.
94. Seo, I. W., Park, I. H., and Jung, Y. J., "Non-Fickian Modeling of Two-dimensional Dispersion Coefficient in Open Channels," Proceedings of the 1st Orlob International Symposium on Theoretical Hydrology, UC Davis, California, Aug. 5-6, 2013 (Invited Lecture).
93. Seo, I. W., "Comparison of Numerical Models for Two-dimensional Dispersion in Open Channels," Proceedings of Launching Symposium of Graduate School of Water Resources, Sungkyunkwan University, Korea, Jul. 22-23, 2013.
92. Seo, I. W., and Jung, Y. J., "Behavior of Longitudinal and Transverse Dispersion Coefficient in Three-Dimensional Open Channels," Proceedings of the 10th International Conference on Hydroscience & Engineering, Orlando, Florida, Nov. 4-8, 2012.
91. Seo, I. W., Park, I. H, Mun, H. S., and Ryu, I. G., "Numerical Analysis of Flow Characteristics in Confluent Channels," Proceedings of the 10th International Conference on Hydroscience & Engineering, Orlando, Florida, Nov. 4-8, 2012.
90. Seo, I. W., Shin, J. H., and Kim, T. W., "The Vertical Profile of Transverse Velocity of Secondary Flow in Meandering Channels," Proceedings of the 10th International Conference on Hydroscience & Engineering, Orlando, Florida, Nov. 4-8, 2012.
89. Seo, I. W., Shin, J. H., "A Study on Secondary Flow in Curved Channels," Proceedings of the 18th IAHR-APD Congress, Jeju Island, Korea, Aug. 19-23, 2012.
88. Seo, I. W., Jung, Y. J., "Simulation of Mixing Procedure Using Time-Split Dispersion Model," Proceedings of the 18th IAHR-APD Congress, Jeju Island, Korea, Aug. 19-23, 2012.
87. Seo, I. W., Park, S. W., Shin, J. H., Kim, T. W., "Numerical and Experimental Analysis of Hydraulic Characteristics According to Operation of a Movable Weir," Proceedings of the 18th IAHR-APD Congress, Jeju Island, Korea, Aug. 19-23, 2012.



86. Seo, I. W., Choi, H. J., Kim, Y. D., Han, E. J., Mun, H. S., "Analysis of Dispersion Characteristic Using Tracer Test in Natural Streams," Proceedings of the 18th IAHR-APD Congress, Jeju Island, Korea, Aug. 19-23, 2012 (Invited Lecture).
85. Seo, I. W., Park, I. H., "Simulation of 2-D Pollutant Mixing with Spatially Varied Dispersion Effect," Proceedings of the 18th IAHR-APD Congress, Jeju Island, Korea, Aug. 19-23, 2012.
84. Seo, I. W., Park, I. H., and Lee, M. E., "Modeling 2D Mixing in Open Channels Using Dispersion Tensors Based on Vertical Velocity Profiles," Proceedings of the 10th International Conference on Hydroinformatics 2012, Hamburg, Germany, Jul. 14-18, 2012.
83. Song, C. G., Seo, I. W., and Park, I. H., "FE Model for Analysis of Transient Flow in Open Channels." Proceedings of the 10th International Conference on Hydroinformatics 2012, Hamburg, Germany, Jul. 14-18, 2012.
82. Seo, I. W., Song, C. G., Choi, H. J., and Park, I. H., "Numerical Analysis of Dispersion Characteristics of Cooled Water Discharge from LNG Plant." Proceedings of the 6th APAC 2011, Hong Kong, Dec. 14 - Dec. 16, 2011, Hong Kong, China, pp. 2034-2041.
81. Seo, I. W., and Song, C. G., "Laminar Flow Around a Cylinder Subject to Navier-Slip Condition," Proceedings of the 34th IAHR World Congress, Brisbane, Australia, Jun. 26 – Jul. 1 2011, pp. 4267-4275.
80. Seo, I. W., Park, I. H., Park, S. W., and Shin, J. H., "Numerical Simulation of Heterogeneous Mixing in Meandering Channels," Proceedings of the 34th IAHR World Congress, Brisbane, Australia, Jun. 26 - Jul. 1 2011, pp. 3263-3270.
79. Seo, I. W., and Song, C. G., "Specification of Wall Boundary Conditions and Transverse Velocity Profile Conditions in Finite Element Modeling" Proceedings of the 9th International Conference on Hydrodynamics 2010, Shanghai, China, Oct. 11-15, 2010, pp. 633-638.
78. Seo, I. W., and Jung, Y. J., "Velocity Distribution of Secondary Currents in Curved Channels" Proceedings of the 9th International Conference on Hydrodynamics 2010, Shanghai, China, Oct. 11-15, 2010, pp. 617-622.
77. Seo, I. W., Park, S. W., and Kim, S. E., "Analysis of Pollutant Transport in Imjin River, KOREA", Proceedings of the 8th International Symposium on Ecohydraulics 2010, Seoul, Korea, Sept. 12-16, 2010, pp. 815.
76. Seo, I. W., Park, S. W., and Oh, S. Y., "Analysis of Velocity Distribution and Pollutant Transport using 2D Numerical Methods in S-curve Channel", Proceedings of the 8th International Symposium on Ecohydraulics 2010, Seoul, Korea, Sept. 12-16, 2010, pp. 567.
75. Seo, I. W., Park, I. H., and Park, S. W., "Calculation of Dispersion Tensor in the Meandering Channels," Proceedings of the 8th International Symposium on Ecohydraulics 2010, Seoul, Korea, Sept. 12-16, 2010, pp. 2148-2155.

74. Seo, I. W., and Kim, S. E., "Water Quality Modeling for BOD, COD, and TOC in Nakdong River using QUALKO2," Proceedings of the 8th International Symposium on Ecohydraulics 2010, Seoul, Korea, Sept. 12-16, 2010, pp. 2210-2216.
73. Seo, I. W., Choi, H. J., and Song, C. G., "Numerical Simulation of Water Temperature Variation in Han River," Proceedings of the 8th International Symposium on Ecohydraulics 2010, Seoul, Korea, Sept. 12-16, 2010, pp. 876-883.
72. Seo, I. W., Park, S. W., and Oh, S. Y., "Decreasing of the Environmental Pollution with New Type of CSO Chamber," Proceedings of the 8th International Symposium on Ecohydraulics 2010, Seoul, Korea, Sept. 12-16, 2010, pp. 1443-1450.
71. Seo, I. W., and Park, S. W., "Two Dimensional Analysis of Flow Patterns and Dispersion in Meandering Channels," Proceedings of River Flow 2010, Braunschweig, Germany, Sept. 8-10, 2010, pp. 145-151.
70. Seo, I. W., Park, I. H., and Park, S. W., "Analysis of Dispersion Tensor For 2-D Advection-Dispersion Model in Meandering Channels," Proceedings of the 5th CECAR 2010, Sydney, Australia, Aug. 8-12, 2010.
69. Seo, I. W., Choi, H. J., and Song, C. G., "Two-Dimensional Finite Element Model for Analysis of Heat Transport in Rivers," Proceedings of the 6th ISEH 2010, Athens, Greece, Jun. 23-25, 2010, pp. 277-282.
68. Seo, I. W., Song, C. G., Jun, I. O., and Oh S. Y., "Dispersion Simulation of Negative Buoyant Jet Discharged from ORV," Proceedings of 17th Congress IAHR-APD 2010, The University of Auckland, New Zealand, Feb. 21-24, 2010.
67. Seo, I. W., and Kwon, S. J., "Behaviour Buoyant Discharges from Rosette-Type Diffusers in Shallow Water," Proceedings of Croucher Advanced Study Institute, The University of Hong Kong, Hongkong, Dec. 14-19, 2009, pp. 42-43 (Invited Lecture).
66. Seo, I. W., Song, C. G., Jun, I. O., and Oh S. Y., "Modeling Mixing of Cooled Water Discharge by LNG Terminal," Proceedings of 5th International Conference on Asian and Pacific Coasts (APAC 2009), Nanyang Executive Centre, Singapore, Oct. 13-16, 2009.
65. Seo, I. W., and Song, C. G., "Transport of BOD and Salinity at the Tidal Reach of Han River," Proceedings of ICEC 2009, Sendai, Japan, Sept. 14-16, 2009, pp. 427-434.
64. Seo, I. W., and Jun, I. O., "1D Finite Element Model for Suspended Sediment Transport Analysis," Proceedings of World City Water Forum 2009, Songdo Convensia, Incheon, Republic of Korea, Aug. 18-21, 2009, pp. 3107-3122.
63. Seo, I. W., and Park, S. W., "Transverse Mixing of Conservative Substance in Curved Channel," Proceedings of World City Water Forum 2009, Songdo Convensia, Incheon, Republic of Korea, Aug. 18-21, 2009, pp. 2025-2030.

62. Seo, I. W., Park, S. W. and Song, C. G., "Two Dimensional Analysis about Pollutant Injection in Meandering Channel," Proceedings of AOGS 2009, SUNTEC, Singapore, Aug. 11-15, 2009.
61. Seo, I. W., and Song, C. G., "Water Surface Profiles for Gradually Varied Flow by Finite Element Model," Proceedings of AOGS 2009, SUNTEC, Singapore, Aug. 11-15, 2009.
60. Baek, K. O., and Seo, I. W., "Comparative Study of Methodologies for Determining the Transverse Dispersion Coefficient in River Mixing," Proceedings of the 33rd IAHR Congress, Vancouver, Canada, Aug. 9-14, 2009, pp. 2635-2642.
59. Seo, I. W., and Park, S. W., "Numerical and Experimental Investigations of Two-dimensional Dispersion in Meandering Channel," Proceedings of the 33rd IAHR Congress, Vancouver, Canada, Aug. 9-14, 2009, pp. 1308-1315.
58. Seo, I. W., Choi, N. J., and Jun. I. O., "Numerical Simulation of Transport of Nonconservative Pollutants in Paldang Lake, Korea," Proceedings of the 2nd International Symposium on Shallow Flows, The Hong Kong University of Science and Technology, Hong Kong, Dec. 9-12, 2008.
57. Seo, I. W., and Baek, K. O., "Determination of transverse dispersion coefficient for river mixing analysis," Proceedings of the 16th Congress of the Asia and Pacific Division of the IAHR, Nanjing, China, Oct. 20-23, 2008 (Keynote Lecture).
56. Kim, J. D., Kim, Y. D., Lyu, S. W., and Seo, I. W., "Numerical Modeling of Two-Dimensions Pollutnant Transport in Nakdong River," Proceedings of the 16th Congress of the Asia and Pacific Division of the IAHR, Nanjing, China, Oct. 20-23, 2008, pp. 694-698.
55. Baek, K. O., and Seo, I. W., "Equation for Streamwise Variation of Secondary Flow in Sinuous Channels," Proceedings of the 16th Congress of the Asia and Pacific Division of the IAHR, Nanjing, China, Oct. 20-23, 2008, pp. 580-585.
54. Seo, I. W., Park, S. W., and Choi, H. J., "A Study of Pollutant Mixing and Evaluating of Dispersion Coefficients in Laboratory Meandering Channel," Proceedings of the 16th Congress of the Asia and Pacific Division of the IAHR, Nanjing, China, Oct. 20-23, 2008, pp. 485-490.
53. Seo, I. W., Song, C. G., and Lee, M. E., "Modeling Mixing of Decaying Substances in the Estuary of Han River in Korea," Proceedings of International Symposium on Lowland Technology, International Association of Lowland Technology, Busan, Korea, Sept. 24-26, 2008, pp. 63-70 (Keynote Lecture).
52. Baek, K. O., and Seo, I. W., "Coefficient of Transverse Dispersion Induced by Shear Flow," Proceedings of International Conference on Fluvial Hydraulics, International Association of Hydraulic Research, Cesme-izmir, Turkey, Sept. 3-5, 2008.

51. Seo, I. W., and Song, C. G., "Dispersion of Tidal Region of the Han River in Korea," Proceedings of International Conference on Fluvial Hydraulics, International Association of Hydraulic Research, Cesme-izmir, Turkey, Sept. 3-5, 2008.
50. Park, S. H., Seo, I. W., and Ryu, K. J., "Remodeling of Side-Channel Spillway for Discharge Capacity Improvement," Proceedings of ICOLD Symposium, Bulgaria, 2008.
49. Seo, I. W., Choi, H. J. and Song, C. G., "Analysis of Riverine Habitats in Tidal Reach of Han River," Proceedings of the 5th Asia Oceania Geosciences Society (AOGS), Pusan, Korea, Jun. 16-20, 2008.
48. Seo, I. W., Choi, H. J. and Park, S. W., "Analysis of Riverine Habitats of Large River Systems," Proceedings of the 1st SIR BK21 International Conference on Sustainable Infrastructure, Seoul, Korea, Feb. 19, 2008.
47. Seo, I. W., Song, C. G. Park, S. W., and Jun, I. O., "Behavior of Saline Wedge in a Tidal Reach of Han River," Proceedings of the 1st SIR BK21 International Conference on Sustainable Infrastructure, Seoul, Korea, Feb. 19, 2008.
46. Seo, I. W., Song, C. G. and Lee, M. E., "Flow and Mixing Characteristics in Tidal River," Proceedings of the 5th ISEH, Arizona State University, Tempe, Arizona, USA, Dec. 4-7, 2007.
45. Baek, K. O., and Seo, I. W., "Calculation of Dispersion Coefficients by Routing Procedure in Two-Dimensional River Mixing," Proceedings of the 32th International Association of Hydraulic Research Congress, Venice, Italy, Jul. 1-6, 2007.
44. Lee, M. E., and Seo, I. W., "2D Finite Element Modeling of Pollutant Transport in Tidal River," Proceedings of the 32th International Association of Hydraulic Research Congress, Venice, Italy, Jul. 1-6, 2007.
43. Seo, I. W., and Park, S. W., "2-D Tracer Tests on Pollutant Mixing in Meandering Channel," Proceedings of the 4th CECAR, Taipei, Taiwan, Jun. 25-28, 2007.
42. Seo, I. W., Choi, N. J., and Lee, M. E., "Water Quality Forecasting System for Sustainable Development of Water Environments," Proceedings of the 4th CECAR, Taipei, Taiwan, Jun. 25-28, 2007.
41. Song, C. G., and Seo, I. W., "Analysis of Discharge of Dam Spillway According to the Weir Shape," Proceedings of 4th CECAR, Taipei, Taiwan, Jun. 25-28, 2007.
40. Seo, I. W., and Lee, M. E., "Application of 2D Finite Element Model to the Analysis of Pollutant Transport in Han River with Tidal Current," Proceedings of Launching Symposium for Journal of Hydro-environment Research, Hong Kong, China, Jan. 18-19, 2007.
39. Seo, I. W., and Lee, M. E., "Theoretical Investigation of Instantaneous Source in Numerical Simulation of River Mixing," Proceedings of the 7th International Conference on Hydroinformatics, Nice, France, Sept. 4-8, 2006, Vol. 1, pp. 465-472.

38. Jeon, T. M., and Seo, I. W., "Predicting Transverse Dispersion Coefficient in Natural Streams." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 6532-6541.
37. Seo, I. W., Lee, M. E., and Kim, Y. H., "Finite Element Mass Transport Model Using Dispersion Tensors as Coefficients." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 2383-2391.
36. Kwon, S. J., and Seo, I. W., "Experimental Investigation of Circular Pure Jet According to the Variation of Reynolds Number." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 5982-5990.
35. Baek, K. O., and Seo, I. W., "Estimation of Transverse Dispersion Coefficient Based on Secondary Flow in Sinuous Channel." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 2312-2321.
34. Seo, I. W., and Son, E. W., "Analysis of Shear Flow Dispersion Using 2-D Sequential Mixing Model." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 5366-5374.
33. Cheong, T. S., Schladow S. G., Younis, B. A., and Seo, I. W., "Design and Placement of Levee Breaches to Maximize the Suspended Sediment Trapping in Rivers." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 1621-1628.
32. Cheong, T. S., Younis, B. A., and Seo, I. W., "Effect of Sinuosity on Hyporheic Exchange in Natural Streams and River." Proceedings of XXXI IAHR Congress, Seoul, Korea, Sept. 11-16, 2005, pp. 1449-1455.
31. Seo, I. W., Baek, K. O., and Jeon, T. M., "Tracer Tests on Pollutant Mixing in Han River, Korea," Proceedings of the 3rd Korea-Japan Joint Seminar on River Restoration, Nagoya, Japan, Jul. 25-26, 2005.
30. Seo, I. W., Baek, K. O., and Jeon, T. M., "Field Tests on Transverse Mixing in Natural Streams," Environmental Hydraulics and Sustainable Water Management, Proceedings of the 4th International Symposium on Environmental Hydraulics and the 14th Congress of the Asia and Pacific Division of the IAHR, Hong Kong, Dec. 15-18, 2004, Vol. 1, pp. 129-136.
29. Lee, M. E., and Seo, I. W., "2-D Numerical Model for the Analysis of Mixing in the Meandering Stream," Proceedings of the 6th International Conference on Hydroinformatics, Singapore, Jun. 21-24, 2004, Vol. 1, pp. 184-191.
28. Seo, I. W., Baek, K. O., and Jeong, S. J., "Evaluation of Transverse Dispersion Coefficients in Meandering Channel Under Unsteady Concentration Conditions," Advances in Hydro-Science and -Engineering, Proceedings of the 6th International Conference on Hydro-Science and -Engineering, Brisbane, Australia, May 31-Jun. 3, 2004.

27. Kim, Y. H., Seo, I. W., Baek, K. O., and Lee, M. E., "Transverse Mixing in Meandering Channels," Proceedings of the 1st Joint Symposium between SWRRC and CRCCH, The University of Melbourne, Australia, Feb. 14-15, 2004, pp. 121-146.
26. Seo, I. W., Baek, K. O., and Sung, K. H., "Experimental Study of Flow and Mixing Characteristics in S-curved Channel," Proceedings of the 30th International Association of Hydraulic Research Congress, Greece, Theme C, Aug. 24-29, 2003, pp. 709-715.
25. Seo, I. W., and Baek, K. O., "Estimation of Longitudinal Dispersion Coefficient for Streams," Proceedings of International Conference on Fluvial Hydraulics, International Association of Hydraulic Research, Belgium, Sept. 4-6, 2002, pp. 143-150.
24. Seo, I. W., and Kim, Y. D., "Modeling Mixing Characteristics of Merging Buoyant Jets Discharged from Wastewater Diffuser," Proceedings of 2001 International Symposium on Environmental Hydraulics, International Association of Hydraulic Research, Arizona State University, Tempe, Arizona, USA, Dec. 5-8, 2001.
23. Seo, I. W., Lyu, S. W., and Park, Y. S., "Experimental Investigation of the Velocity and Turbulence Structures of Turbulent Jets Using PIV," Proceedings of the 8th International Symposium on Flow Modeling and Turbulence Measurements, International Association of Hydraulic Research, Tokyo, Japan, Dec. 4-6, 2001, pp. 185-192.
22. Seo, I. W., Kim, Y. D., and Kwon, S. J., "Jet Integration-Particle Tracking Hybrid Model for Submerged Single Port Discharges," Proceedings of the 29th International Association of Hydraulic Research Congress, Theme D: Hydraulics of Rivers, Water Works and Machinery, Vol. I, Beijing, China, Sept. 16-21, 2001, pp. 726-731.
21. Seo, I. W., and Baek, K. O., and Park Y. S. "Flow Regimes of Submerged Bucket Weirs," Proceedings of the 12th Congress of the Asia and Pacific Division of the IAHR, Bangkok, Thailand, Nov. 13-15, 2000, pp. 739-747.
20. Kim, Y. D., Seo, I. W., and Ahn, J. K., "Laboratory Experiments on Flow Characteristics in Settling Tanks," Proceedings of the 12th Congress of the Asia and Pacific Division of the IAHR, Bangkok, Thailand, Nov. 13-15, 2000, pp. 699-706.
19. Seo, I. W., and Baek, K. O., "Predicting Velocity Profiles and Longitudinal Dispersion Coefficient in Natural Streams," Proceedings of the 12th Congress of the Asia and Pacific Division of the IAHR, Bangkok, Thailand, Nov. 13-15, 2000, pp. 363-373.
18. Seo, I. W., Yu, D. Y., and Kim, H. S., "Near Field Mixing of Submerged Multiport Diffusers in Shallow Water with Strong Current," Proceedings of the 4th International Conference on Hydrosience and Engineering, Seoul, Korea, Sept. 26-29, 2000.
17. Seo, I. W., Kim, D. S., and Kim, H. S., "The Mechanics of Tee Diffuser for Thermal Discharges in Crossflow," Proceedings of the 4th International Conference on Hydrosience and Engineering, Seoul, Korea, Sept. 26-29, 2000.

16. Seo, I. W., and Yu, D. Y., "Thermal Discharge from a Staged Diffuser in Still Water," Proceedings of the IAHR Fifth International Symposium on Stratified Flows, Vancouver, Canada, Jul. 10-13, 2000, pp. 241-246.
15. Cheong, T. S., and Seo, I. W., "Calculating Parameters of the Storage Zone Model for Mixing in Rivers," Hydrosystems Modeling, Proceedings of International Conference on Water, Environment, Ecology, Socio-Economics, and Health Engineering, 1999, pp. 1-12.
14. Seo, I. W., and Gadalarab, M. S., "Estimation of Dispersion Coefficient using Different Forms of Lateral Velocity Distribution," Hydraulic Modeling, Proceedings of International Conference on Water, Environment, Ecology, Socio-Economics, and Health Engineering, 1999, pp. 217-226.
13. Seo, I. W., Kim, H. S., and Yu, D. Y., "Dilution Characteristics of Tee Diffuser in Shallow Water," Proceedings of the 28th International Association of Hydraulic Research Congress, Graz, Austria, Aug. 22-27, 1999.
12. Seo, I. W., and Kim, H. S., "Dilution Characteristics of Unidirectional Multiport Diffuser," Proceedings of the 3rd International Conference on Hydrodynamics, Oct. 12-15, 1998, pp. 517-522.
11. Seo, I. W., Kim, D. G., and Shim, M. P., "Velocity Structure of Wall Jet Discharging from Circular Orifices," Proceedings of the 3rd International Conference on Hydroscience and Engineering, Germany, Aug. 31-Sept. 3, 1998.
10. Yu, D. Y., Kim, H. S., and Seo, I. W., "Velocity and Dilution of the Single Jet Discharged into Stagnant Water," Proceedings of the 3rd Korea-Japan Bilateral Symposium on Water Resources and Environmental Research, Aug. 6-8, 1998, pp. 297-302.
9. Seo, I. W., and Cheong, T. S., "Prediction of Longitudinal Dispersion Coefficient in Natural Streams," Stochastic Hydraulics '96, Proceedings of the 7th IAHR International Symposium, 1996, pp. 459-466.
8. Seo, I. W., and Cheong, T. S., "Derivation of New Dispersion Coefficient Equation for Natural Streams," Proceedings of the North American Water and Environment Congress '96, ASCE, Anaheim, California, U.S.A., Jun. 22-28, 1996.
7. Seo, I. W., and Yu, D. Y., "Dispersion and Storage Processes of Pollutants in Natural Streams," Proceedings of the International Joint Seminar on Reduction of Natural and Environmental Disasters in Water Environment, ed. by Sonu, J.H. et al., 1995, pp. 271-281.
6. Seo, I. W., and Yu, D. Y., "Transport of Sorbing Solutes in Pool-and-Riffle Streams," Proceedings of Ninth Congress of the Asian and Pacific Division of the International Association for Hydraulic Research, ed. by Cheong, H.-F. et al., 1994, pp. 443-450.
5. Seo, I. W., and Yu, D. Y., "Contaminant Fate and Transport Model in Pool-and-Riffle Streams," Proceedings of American Society of Civil Engineers National Conference on Hydraulic Engineering, ed. By Cotroneo, G. V. and Rumer, R. R., 1994, pp. 165-169.

4. Seo, I. W., and Yu, D. Y., "Modeling Low Flow Transport of Nonconservative Pollutants in Streams," Proceedings of American Society of Civil Engineers National Conference on Hydraulic Engineering, ed. By Shen, H.W. et al., 1993, pp. 1434-1439.

3. Seo, I. W., and Maxwell, W. H. C., "Pollutant Transport in Open Channels with Storage Zones," Proceedings of International Symposium on Environmental Hydraulics, ed. by Lee, J. H. W. et al., 1991, pp. 479-484.

2. Bhowmik, N. G., Soong, T. W., Seo, I. W., and Bogner, W. C., "Circulation Patterns within the Near-Shore Region of the Southern Basin of Lake Michigan," Proceedings of American Society of Civil Engineers National Conference on Hydraulic Engineering, ed. by Shane, R. M., 1991, pp. 1020-1025.

1. Seo, I. W., and Maxwell, W. H. C., "Modeling of Dispersion in Natural Streams with Pools and Riffles," Proceedings of American Society of Civil Engineers National Conference on Hydraulic Engineering, ed. by Shane, R. M., 1991, pp. 1008-1013.

### **C. Invited Lectures in International Conference and Symposium**

15. "River Alarm System Against Hazardous Spill for Protection of Drinking Water Supply in Korea," Symposium on Croucher Advanced Study Institute, The Hong Kong University of Science & Technology, Hong Kong, 8-11 January, 2019.

14. "River Mixing Processes and Models," The 1st Workshop on Modeling Mixing Mechanisms in 1D Water Network Models, University of Sheffield, UK, 16-17 January, 2018.

13. "Daily Forecasting of Safety Index for River-based Recreational Activities Using Hybrid Prediction Model," Symposium on Hydro-environment Research for Smart Cities, The Hong Kong University of Science & Technology, Hong Kong, 12-14 December, 2017.

12. "River Operation and Management based on ICT Convergence and Integration," 7th World Water Forum, Daegu, Korea, 2015. 4. 12-17.

11. The 7th Gerhard Jirka Summer School on Environmental Fluid Mechanics, The Hong Kong University of Science & Technology, Hong Kong, 13-20 December, 2014.

10. International Forum on Improving the Influence and Internationalization of Civil Engineering Community, Chinese Institute of Civil and Hydraulic Engineering, Taiwan, 7 December, 2014.

9. "Development of River Recreation Index Model (RRIM) Using Fuzzy Synthetic Evaluation Approach," The 2nd International Symposium on Advanced Technology for River Management, Seoul National University, Nov. 7-9, 2013.

8. The 1st Orlob International Symposium on Theoretical Hydrology, UC Davis, California, 2013.  
8.



7. "Analysis of Dispersion Characteristic Using Tracer Test in Natural Streams," The 18th IAHR-APD Congress, Jeju Island, Korea, Aug. 19-23, 2012.
6. "Numerical modeling of open channel flow and solute transport," JHER Editors' Forum, Hong Kong, China, 2011. 12. 6.
5. Croucher Advanced Study Institute, The University of Hong Kong, Invited Lecture, 2009. 12.
4. "Analysis of River Flow and Pollutant Transport using RAMS," The 3rd Mongolia-Korea Joint Seminar on Sustainable Development, Mongolia Univ. of Science and Technology, Mongolia, 2009. 6. 30-7. 4.
3. "Determination of transverse dispersion coefficient for river mixing analysis," The 16th Congress of the Asia and Pacific Division of the IAHR, Nanjing, China, Oct. 20-23, 2008.
2. "Modeling Mixing of Decaying Substances in the Estuary of Han River in Korea," International Symposium on Lowland Technology Busan, Korea, Sept. 24-26, 2008.
1. "The ABC of RAMS," 2008 Zaragoza EXPO Water Tribune, Spain, July 5, 2008.

#### **D. Formally Invited Lectures and Presentations**

24. "Modeling of 2D Soluble Pollutant Mixing in Rivers Using Particle Dispersion Model," DSI, Edmonds, USA, July 22, 2019.
23. "River Alarm System Against Hazardous Spill for Protection of Drinking Water Supply in Korea," US Geological Survey, Golden, USA, July 19, 2019.
22. "Two-Dimensional Prediction of Harmful Algal Bloom in Eutrophic Rivers," City College of New York, USA, November 5, 2018.
21. "Development of Safety Index for River-based Recreational Activities Using Hybrid Prediction Model," City College of New York, USA, October 30, 2018.
20. "Modeling Pollutant Transport in Natural Streams Using the Particle Tracking Model," City College of New York, USA, October 22, 2018.
19. "Field Study of Pollutant Mixing in Rivers," City College of New York, USA, October 15, 2018.
18. "Theory of Contaminant Transport and Its Application in River Systems," Environmental Fluid Mechanics Lecture Series I-V, Hiroshima University, Japan, February 6-10, 2018.
17. "Modeling Non-Fickian Mixing in Natural Streams Using the Particle Tracking Model," Hiroshima University, Japan, February 9, 2017.

16. "Theory and Application of Mixing and Transport in River Systems," Environmental Fluid Mechanics Lecture Series I-V, Hiroshima University, Japan, February 6-9, 2017.
15. "Modeling of Flow and Pollutant Transport in Meandering Rivers," US Geological Survey, Golden, USA, January 17, 2017.
14. "Field Measurements of Pollutant Mixing in Rivers", Tokyo Institute of Technology, Tokyo, Japan, February 22-26, 2015.
13. "Two-dimensional Pollutant Mixing in Natural Streams," Invited Lecture, National Taiwan University, Taiwan, December 8, 2014.
12. "Study of Two-dimensional Mixing of Contaminants in Natural Streams," Invited Lecture, University of Guelph, Canada, August 12, 2014.
11. "2D Finite Element Modeling of Hydrodynamics and Pollutant Transport in Open Channel flows," University of Dundee, Scotland, UK, August 29, 2011.
10. "Analysis of Flow and Water Quality in Han River Using RAMS," University of California at Davis, USA, August 13, 2007.
9. "Development of 2D Finite Element Model for the Analysis of Pollutant Transport in Rivers," U.S. Army Corps of Engineers, Hydrologic Engineering Center, Davis, USA, April 24, 2007.
8. "Field Tracer Tests for 2-D Pollutant Mixing in Natural Rivers of Korea," The 1<sup>st</sup> SNU-NTU Joint Seminar on Environmental Hydraulics, National Taiwan University, Taiwan, August 20-23, 2006.
7. "Tracer Tests for 2-D Mixing Analysis in Natural Streams Using Radioisotope," The 1<sup>st</sup> SNU-HKU Joint Seminar on Environmental Hydraulics, The University of Hong Kong, February 19-22, 2006.
6. "Field Tests on Transverse Mixing in Natural Streams," University of California at Davis, USA, January 28, 2005.
5. "Transverse Mixing of Instantaneous Pollutants in Meandering Channel," University of California at Davis, USA, January 28, 2005.
4. "Numerical and Experimental Investigation of Two-dimensional Dispersion in Meandering Channels," The University of Hong Kong, March 12, 2004.
3. "Transverse Dispersion in Meandering Channels," Hokkaido University, Japan, July 24, 2003.
2. "Mixing Mechanics of Multiport Diffusers for Heat Disposal in Shallow Water with Strong Currents," Nanyang Technological University, Singapore, November 18, 2000.

1. "Dilution Characteristics of Submerged Multiport Diffuser," University of Karlsruhe, Germany, September 3, 1998.