

## Changhyun JUN

Status at NTU: Research Fellow

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### Education:

- Ph.D., Department of Civil, Environmental and Architectural Engineering, College of Engineering, Korea University, Korea, October 2014
- B.S., Department of Civil, Environmental and Architectural Engineering, College of Engineering, Korea University, Korea, February 2010

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### Working & Research Experiences

- (1) From September 2015 to February 2016, Visiting Researcher, Department of Civil and Environmental Engineering, Politecnico di Milano, Italy
- (2) From April 2015 to August 2015, Consultant, Hong Kong University of Science and Technology R and D Corporation Limited, The Hong Kong University of Science and Technology, Hong Kong
  - ❖ Participated in the project titled as “RDC Project related Prof. Yeou-Koung TUNG Surplus Account”.
- (3) From September 2014 to August 2015, Post-doctoral Fellow, Department of Civil and Environmental Engineering, School of Engineering, The Hong Kong University of Science and Technology, Hong Kong
- (4) From September 2014 to January 2015, Teaching Support Staff, Department of Civil and Environmental Engineering, School of Engineering, The Hong Kong University of Science and Technology, Hong Kong
- (5) From January 2010 to August 2014, Research/Teaching Assistant, Department of Civil, Environmental and Architectural Engineering, College of Engineering, Korea University, Korea
  - ❖ Participated in the project titled as “Planning Research for Urban Underground Drainage Tunnel Design, Construction and Operation Technology Development” by Ministry of Land, Infrastructure and Transport in Korea.

- ❖ Participated in the project titled as “Development of LID (Low Impact Development) based Planning, Design and Effect Analysis Techniques for Water Circulation in New Town” by Taeyoung Engineering & Construction in Korea.
- ❖ Participated in the project titled as “Development of Element Technologies in terms of the Use of Radar Rain Rate” by National Research Foundation of Korea.
- ❖ Participated in the project titled as “Research Project for Improvement of Water Supply Evaluation Method with Standardization of Drought Frequency and Development of Water Shortage Index” by K-water in Korea.
- ❖ Participated in the project titled as “Construction of Advanced Flood Management based on the Remote Sensing and Foundation Techniques of Drought Response” by National Disaster Management Institute of Korea.
- ❖ Participated in the project titled as “3-dimensional Error Structure of Radar Rain Rate and Bias Correction” by National Research Foundation of Korea.
- ❖ Participated in the project titled as “Quantification of Directional Elements in Hydrological Cycle” by National Research Foundation of Korea.

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### **Research Interests**

- Water Sensitive Urban Design
- Urban Water Management
- Hydrologic Impacts of Climate Change
- Hydrological Processes and Mechanisms
- Hydrological Modeling
- Probabilistic Analysis of Water Resources Engineering Problems
- Frequency Analysis of Hydrological Extremes
- Drought and Floods Management
- Risk and Reliability Analysis
- Reservoir Management

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### **Honors & Awards**

- 2015, Best Dissertation Award, 49th Regular General Meeting, Korea Water Resources Association, Korea.
- 2012, Best Paper Award, Chuncheon Global Water Forum, Korea.
- 2012, Best Paper Award, Korea Water Resources Association Conference, Korea.
- 2010, Award Certificate, Outstanding Student, Korean Society of Civil Engineers, Korea.

- 2009, Excellence Award, Undergraduate-level Design Competition, Korean Society of Civil Engineering Conference, Korea.
- 2008, Excellence Award, Undergraduate-level Design Competition, Korean Society of Civil Engineering Conference, Korea.

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## Publications

### Journal papers

- Yoo, C., **Jun, C.**, Lee, J., 2016: Storage Effect of Dam Reservoirs: Evaluation of Three Nonlinear Reservoir Models. *Water Science & Technology: Water Supply* (in press).
- Park, M., Yoo, C., **Jun, C.**, 2016: Consideration of Document Records in the Annals of the Choson Dynasty for the Frequency Analysis of Rainfall in Seoul, Korea. *Meteorological Applications* (in press).
- Yoo, C., Ku, J.M., **Jun, C.**, Zhu, J.H., 2016: Simulation of Infiltration Facilities using the SEEP/W Model and Quantification of Flood Runoff Reduction Effect by the Decrease in CN. *Water Science & Technology*, Vol. 74, Issue. 1, pp. 118-129.
- Yoo, C., Park, C., **Jun, C. (corresponding author)**, 2016: Evaluation of the Concept of Critical Rainfall Duration by Bivariate Frequency Analysis of Annual Maximum Independent Rainfall Event Series in Seoul, Korea. *Journal of Hydrologic Engineering, ASCE*, Vol. 21, Issue. 1, DOI: 10.1061/(ASCE)HE.1943-5584.0001259, 0515016.
- Yoo, C., **Jun, C.**, Park, C., 2015: Effect of Rainfall Temporal Distribution on the Conversion Factor to Convert the Fixed-Interval into True-Interval Rainfall. *Journal of Hydrologic Engineering, ASCE*, Vol. 20, Issue. 10, DOI: 10.1061/(ASCE)HE.1943-5584.0001178, 04015018.
- Yoo, C., Park, M., Kim, H., Choi, J., Sin, J., **Jun, C.**, 2015: Classification and Evaluation of the Documentary-Recorded Storm Events in the Annals of the Choson Dynasty (1392-1910), Korea. *Journal of Hydrology*, Vol. 520, pp. 387-396.
- Park, M., Yoo, C., Kim, H., **Jun, C.**, 2014: Bivariate Frequency Analysis of Annual Maximum Rainfall Event Series in Seoul, Korea. *Journal of Hydrologic Engineering, ASCE*, Vol. 19, Issue. 6, pp. 1080-1088.
- Yoo, C., Lee, J., Park, C., **Jun, C. (corresponding author)**, 2014: A Method for Estimating Concentration Time and Storage Coefficient of Clark Model using Rainfall-Runoff Measurements. *Journal of Hydrologic Engineering, ASCE*, Vol. 19, Issue. 3, pp. 626-634.

- Sin, J., **Jun, C.**, Zhu, J.H., Yoo, C., 2014: Evaluation of Flood Runoff Reduction Effect of LID (Low Impact Development) based on the Decrease in CN: Case Studies from Gimcheon Pyeonghwa District, Korea, Computing and Control for the Water Industry (CCWI). *Procedia Engineering*, Vol. 70, pp. 1531-1538.
- **Jun, C.**, Yoo, C., Zhu, J.H., Lee, G-M., 2014: Bivariate Frequency Analysis of Dam Storage Capacity before and after the Rainy Season and Evaluation on Water Supply Capacity. *Journal of Korea Water Resources Association*, Vol. 47, No. 12, pp. 1199-1212.
- Yoo, C., Sin, J., **Jun, C. (corresponding author)**, 2013: Parameter Decision of Muskingum Channel Routing Method based on the Linear System Assumption. *Journal of Korea Water Resources Association*, Vol. 46, No. 5, pp. 449-463. (*in Korean*)
- **Jun, C.**, Yoo, C., 2013: Analysis on the Characteristics about Representative Temporal-distribution of Rainfall in the Annual Maximum Independent Rainfall Events at Seoul using Beta Distribution. *Journal of Korea Water Resources Association*, Vol. 46, No. 4, pp. 361-372.
- Yoo, C., Yoon, J., Kim, J., Park, C., **Jun, C.**, 2012: A Quality Evaluation Criterion for Radar Rain Rate Data, Weather Radar and Hydrology (WRaH). *IAHS-AISH Publication*, Vol. 351, pp. 382-387.
- Park, C., Yoo, C., **Jun, C. (corresponding author)**, 2012: Bivariate Rainfall Frequency Analysis and Rainfall-runoff Analysis for Independent Rainfall Events. *Journal of Korea Water Resources Association*, Vol. 45, No. 7, pp. 713-727.
- **Jun, C.**, Yoo, C., 2012: Application of the Beta Distribution for the Temporal Quantification of Storm Events. *Journal of Korea Water Resources Association*, Vol. 45, No. 6, pp. 531-544.
- Yoo, C., **Jun, C.**, 2011: Improvement of Weiss Model on the Conversion Factor of Fixed- to True-interval Rainfall. *Journal of the Korean Society of Civil Engineers*, Vol. 31, No.4B, pp. 315-322.
- Yoo, C., **Jun, C. (corresponding author)**, 2011: Evaluation of Reservoir Storage Effect using Non-linear Reservoir Model. *Journal of Korea Water Resources Association*, Vol. 44, No. 5, pp. 407-416.

#### Conference papers

- Lu, W., Qin, X., **Jun, C.**, 2016: Urban Flood Damage Assessment for Water Sensitivity Urban Design. *2nd Annual International Conference on Urban Planning and Property Development (UPPD 2016)*, Singapore.
- **Jun, C.**, Zhu, J.H., Cho, E., Lee, W.J., Yoo, C., 2016: Development of the Evaluation Method for Dam Water Supply Capacity using Water Shortage Index: A Case Study of Nakdong River Basin, Korea. *Asia Oceania Geosciences Society (AOGS) 13th Annual Meeting (AOGS 2016)*, China.
- **Jun, C.**, Yoo, C., Lee, M., Lee, W.J., 2016: A Polygonal Line Model of Dam Inflow-Storage-Design Supply and Performance Evaluation of Dam Water Supply Capacity. *2016 Korean Society of Hazard Mitigation Conference*, Korea.
- **Jun, C.**, Cho, E., Yoo, C., Tung, Y-K., 2015: Quantification of Storage Effect for Parallel/Serial Watersheds using Linear Reservoir Model. *Asia Oceania Geosciences Society (AOGS) 12th Annual Meeting (AOGS 2015) together with 7th Conference of Asia Pacific Association of Hydrology and Water Resources (APHW 2015)*, Singapore.
- **Jun, C.**, Yoo, C., Lee, J., Tung, Y-K., 2015: Derivation of a Time-area Curve for an Elliptical Shaped Basin. *2015 Korean Society of Hazard Mitigation Conference*, Korea.
- **Jun, C.**, Zhu, J.H., Lee, J., Cho, E., Yoo, C., 2014: Comparison of Storage Effect in South and North Han River Basin in Korea with Concept of Storage Coefficient. *Asia Oceania Geosciences Society (AOGS) 11th Annual Meeting (AOGS 2014)*, Japan.
- Zhu, J.H., **Jun, C.**, Yoo, C., Choi, H., 2014: A Study on the Regionalization and Determination of Capacity Values for Installation Location of the Infiltration and Storage Facilities. *2014 Korea Water Resources Association Conference*, Korea.
- **Jun, C.**, Zhu, J.H., Yoo, C., 2014: Development of Empirical Index for Water Yield Assessment of Dam: A Case Study on Nakdong River Basin. *2014 Korean Society of Hazard Mitigation Conference*, Korea.
- Yoo, C., Sin, J., Zhu, J.H., **Jun, C.**, 2013: Evaluation of Flood Runoff Reduction Effect of LID (Low Impact Development) Based on the Decrease in CN: Case Studies from Gimcheon Pyeonghwa District, Korea. *12th International Conference on Computing and Control for the Water Industry (CCWI 2013)*, Italy.
- Sin, J., **Jun, C.**, Yoo, C., 2013: Evaluation of Water Supply Capacity of Dams using Bivariate Frequency Analysis. *6th Conference of Asia Pacific Association of Hydrology and Water Resources (APHW 2013)*, Korea.

- **Jun, C.**, Yoo, C., 2013: A Derivation of the Instantaneous Unit Hydrograph based on the Time-Area Diagram of Ellipse-Shaped Basin. *6th Conference of Asia Pacific Association of Hydrology and Water Resources (APHW 2013)*, Korea.
- Sin, J., **Jun, C.**, Zhu, J.H., Yoo, C., 2013: Basin Characteristics and Empirical Formulas of Concentration Time and Storage Coefficient. *2013 Korean Society of Hazard Mitigation Conference*, Korea.
- **Jun, C.**, Sin, J., Yoo, C., 2013: Comparison between Annual Maximum Independent Rainfall Events Series of Modern Rain Gauge Data and Chukwooki Data with Bivariate Frequency Analysis. *2013 Korean Society of Hazard Mitigation Conference*, Korea.
- Park, C., **Jun, C.**, Park, C., Yoo, C., 2012: Quantification of Directional Elements in Hydrological Cycle and their Impacts on Runoff Responses. *IAHR-APD 2012*, Korea.
- Park, C., Park, C., **Jun, C.**, Yoo, C., 2012: Frequency Analysis of Independent Rainfall Events and Runoff Analysis. *IAHR-APD 2012*, Korea.
- **Jun, C.**, Park, C., Park, C., Yoo, C., 2012: A Study on the Applicability of the Beta Distribution Considering the Characteristics on Temporal Distribution of Rainfall in the Annual Maximum Independent Rainfall Events at Seoul from 1961 to 2010. *IAHR-APD 2012*, Korea.
- **Jun, C.**, Sin, J., Park, K., Yoo, C., 2012: Analysis of Characteristics on the Conversion Factor of Fixed- to True-Interval Rainfall considering Temporal Distribution of Rainfall. *Asia Oceania Geosciences Society (AOGS) - American Geophysical Union (AGU) (WPGM) Joint Assembly (AOGS 2012)*, Singapore.
- Yoon, J., Kim, J., **Jun, C.**, Yoo, C., 2012: The Error Structure of the Radar Reflectivity and the Correction of the Range Dependent Error. *7th European Conference on Radar in Meteorology and Hydrology (ERAD 2012)*, France.
- Sin, J., **Jun, C.**, Yoo, C., Zhu, J.H., 2012: Derivation of the Empirical Formulas for Estimation on the Basin Concentration Time and Storage Coefficient based on Theoretical Backgrounds: Focused on Nam River Basin. *2012 Korean Society of Civil Engineers Conference*, Korea.
- **Jun, C.**, Sin, J., Yoo, C., 2012: Application Review of Muskingum Channel Routing Model based on the Linear System Assumption. *2012 Korean Society of Civil Engineers Conference*, Korea.
- Yoon, J., Yoo, C., Kim, J., **Jun, C.**, 2012: The Error Structure of the Radar Reflectivity and the Correction of the Range Dependent Error. *2012 Korea Water Resources Association Conference*, Korea.

- **Jun, C.**, Park, C., Yoo, C., 2012: Comparative Analysis of the Results for Estimating of Design Flood using the Univariate and Bivariate Frequency Analysis. *2012 Korea Water Resources Association Conference*, Korea.
- **Jun, C.**, Yoo, C., 2012: A Study on the Methodology about Temporal Distribution of Rainfall Considering Real Hyetograph. *2012 Korean Society of Hazard Mitigation Conference*, Korea.
- Yoo, C., Kim, J., Yoon, J., Park, C., Park, C., **Jun, C.**, 2011: Use of the Kalman Filter for the Correction of Mean-Field Bias of Radar Rainfall. *Fifth Korea-Japan-China Joint Conference on Meteorology 2011*, Korea.
- Yoo, C., Yoon, J., Kim, J., Park, C., **Jun, C.**, 2011: A Quality Evaluation Criterion for Radar Rain Data. *Weather Radar and Hydrology 2011 (WRaH 2011)*, United Kingdom.
- **Jun, C.**, Yoo, C., 2011: A Study on Parameter Estimation of Beta Distribution considering the Characteristics on Temporal Distribution of Rainfall in the Independent Rainfall Events. *2011 Korean Society of Civil Engineers Conference*, Korea.
- Park, C., Park, C., **Jun, C.**, Yoo, C., 2011: Change Prediction of Probability Rainfalls by Climate Change. *2011 Korean Society of Environmental Engineers Conference*, Korea.
- Yoo, C., **Jun, C.**, 2011: Theoretical Expansion of Weiss Model on the Conversion Factor of Fixed- to True-Interval Rainfall: II. Consideration on the Time Distribution of Rainfall. *2011 Korea Water Resources Association Conference*, Korea.
- Yoo, C., **Jun, C.**, 2011: Review of Nonlinear Reservoir Models for the Analysis of Reservoir Characteristics. *2011 Korean Society of Hazard Mitigation Conference*, Korea.
- Yoo, C., **Jun, C.**, 2010: Theoretical Review of the Conversion Factor of Fixed- to True-Interval Precipitation: Implementation of Weiss' Theory. *2010 Korean Society of Civil Engineers Conference*, Korea.
- Park, C., Kim, H., **Jun, C.**, Yoo, C., 2010: Decision of the Representative Moving Direction of a Storm Event. *2010 Korean Society of Hazard Mitigation Conference*, Korea.