

**Date:** July  $8 \sim 12,2018$ 

**■** Venue: Chwibong Hall in Chungnam National University

Organizer: IWRRI, CNU

**UNESCO I-WSSM** 

■ Host: Chungnam National University , KOREA

Jilin University, CHINA

**Kyoto University, JAPAN** 

■ Sponsor: Chungnam National University

KAIA, NRF

**UNESCO I-WSSM** 

K-water

YOOSHIN ENGINEERING CORPORATION

















## **Welcome Message**



Water resources are not evenly distributed over the world. Some are experiencing severe water scarcity whereas some are suffering from catastrophes of receiving too much water such as unprecedented floods and typhoons. Aside from the effects induced by over-population, changing climate has caused the management of water resources becoming more complicated and challenging.

Climate change would eventually take its toll on us irrespective of races and countries. Relentless researches have been conducted to figure out the best mitigation measures including UAV applications against flood, drought, water pollution, and shortage of water supply. I always believe in "two is better than one". The water-related problems would be efficiently solved as we gather the efforts not only from a single source, but also from multiple sources of multi nationals. Therefore, we are honored and delighted to inform you that 12<sup>th</sup> international symposium on "Climate Change and UAV Applications on Floods and Droughts in Asia Region" including special event "2<sup>nd</sup> China-Japan-South Korea Water Science Research Forum" will take place from 8<sup>th</sup> to 12<sup>th</sup> of July, 2018 in Korea.

This symposium is organized by International Water Resources Research Institute (IWRRI) and UNESCO International Centre for Water Security and Sustainable Management (i-WSSM), and sponsored by Ministry of Land, Infrastructure and Transport(MOLIT) Korea Agency for Infrastructure Technology Advancement(KAIA), Chungnam National University(CNU), K-water, and Yooshin Engineering Corporation with the aim of continuing and strengthening academic and practical cooperation among academicians and professionals in Asia region. The main topic of the symposium will be water resources problems by climate changes and water disaster monitoring by UAV. Also this symposium is organized to present the progress and findings of joint research between IWRRI and Jilin University of China entitled "Study on Regional Water Resources Response and Sustainable Utilization Under Environmental Changes". I strongly believe that there would be more collaborations in future for the benefits of both parties.

I wish you a successful and fruitful meeting. Your presence would be highly appreciated.

Sincerely,

Kwansue Jung Director, International Water Resources Research Institute Professor, Chungnam National University



### **Congratulatory Remarks**



A warm welcome to the 12th International Symposium on Climate Change and UAV Application in Asia Region to all of you here today. It is my honor to be invited to give u a congratulatory speech for 12th International Symposium on Climate Change and UAV Application in Asia Region.

Environmental monitoring plays an important role in understanding the complicated processes that occur within the natural system. Collecting in-situ data is not only useful for designing purpose of infrastructures, but it also provides us the precious aftermath data of floods and droughts. Researchers and engineers may then develop the corresponding countermeasures for the natural disasters based on the data collected. However, collecting data at the natural disaster affected areas is never an easy job as the affected areas are always inaccessible by the mean of land transportation.

Thanks to the advent of Unmanned Aerial Vehicle (UAV), the issue of collecting data at the natural disaster affected areas has been addressed and nowadays even an amateur could master the operation of UAV just after a simple hands-on training. UAV can be dubbed as the latest technique in earth resources monitoring especially in natural disasters monitoring such as floods and droughts. Korea has been facing multiple water-related issues as it is endowed with high amount of downpour during the typhoon events. In contrast, water is scarce for a long period during the drought season. Making the water resources managements in Korea is becoming more challenging and complicating.

The water experts in Korea have initiated the natural disasters monitoring through the application of UAV since several years ago. This international symposium is organized to share with you the experiences of case study in Korea for hydrological monitoring using the application of UAV. Apart from that, you will also be briefed about the case studies of UAV application for scientific monitoring purpose in foreign countries by the invited international delegates. I was informed that there would be a technical workshop on application of UAV at the end of this symposium. I wish the participants should not miss the opportunity to attend this technical workshop as you would be exposed to the pragmatic procedures relating to UAV instead of the theories presented on papers.

With these words, I wish you all fruitful deliberation. I wish the international symposium all success. For the international delegates, I wish you all an enjoyable stay in Korea

I wish you a successful and fruitful meeting. Thank you

JinSook Lee Dean, college of engineering Professor, Chungnam National University



### **Congratulatory Remarks**



Greetings!

On behalf of UNESCO International Centre for Water Security and Sustainable Management(i-WSSM), it is a great honor to extend a warm welcome to all participants at this international symposium on "Climate Change and UAV Application on Floods and Droughts in Asia Region".

Water-related problems are worsening with climate change on a global scale. In specifics, with many countries in Asia rapidly urbanizing with environmental degradation and the vast majority of the region facing threats in terms of water security and water utilization.

According to the OECD Environmental Outlook, over 40% of global population, especially in Africa and Asia region will live under severe water stress by 2050.

In addition, the flood risks are projected to be significantly serious as never before, affecting economic assets worth some 45 trillion dollars. Now, the water challenge became a cross-border issue. Thus, it requires international cooperation with its diversity and complexity, and no nation can over come growing water security challenges on its own.

The international symposium "Climate Change and UAV Application on Floods and Droughts in Asia Region" will be an timely and interactive space where delegates and experts discuss water security challenge in Asia region to develop shared solutions on the international scale.

Also, I hope this symposium will make an invaluable contribution to continue practical cooperation among water experts in Asia. Along with all of you, the UNESCO I-WSSM will play its vital role in water security issues via integrated problem-solving research, education, and international cooperation.

I wish you a fruitful symposium. Thank you.

Yours very truly,,

Yang-su Kim Director, UNESCO International Centre for Water Security and Sustainable Management(i-WSSM)





### **Congratulatory Remarks**



Good morning distinguished guests, international experts, ladies and gentleman. I am Dong Gyu Kim, the General Director of K-water. I would like to express my sincere appreciation to Professor Kwansue Jung, and the members of Chungnam University for allowing me to speak at this meaningful symposium.

Also, I would like to add a word of gratitude to all the scholars from around the world who have come here to discuss how policies, technologies and international cooperation can lead to the mitigation of drought damages in Asia.

Drought is one of the most prevailing global problems. Due to climate change, the severity and intensity of drought damages are increasing and affect the global community.

Extreme weather events such as flood and drought, which bear some relations to climate change, are making it more and more difficult to ensure the sustainable development and management of reliable water resources. Population growth and rapid urbanization inevitably accompany an increase in water consumption and wastewater. The reality is that water shortage has led to serious water conflicts among countries.

How we manage water in the coming years will determine the development of countries and the future of all humankind. As Korea's premier government-owned water service corporation, K-water is realizing its mission of supplying safe water for national development and securing water welfare for all citizens. We have successfully carried out our responsibility to manage national water resources through the construction and management of dams, hydropower plants, water supply and wastewater facilities for the past half century.

I'd like to say that the 12th International Symposium is very meaningful because this event will allow participants to cooperate and find tangible solutions. It is my hope that experts and academia will work together to mitigate drought damages through the sharing of experiences, technologies and knowledges.

The more we pay attention to water problems, the better our future will be. I would like to ask for your active cooperation to solve problems in Asia, and once again, thank you to the members of Chungnam University for inviting me here today.

I wish all health and happiness. Thank you.

Dong Gyu Kim General Director of Overseas Business Division K-water



## **International Symposium Timetable**

**Date: July 8 ~ 12, 2018** 

Venue: Chwibong Hall in CNU

#### **Sunday, July 8, 2018**

17:00 – 18:00 Registration for 2<sup>nd</sup> China-Japan-South Korea Water Science

Research Forum

## Monday, July 9, 2018

09:00 - 09:10	Welcome Remark
09:10 - 12:00	2 <sup>nd</sup> China-Japan-South Korea Water Science Research Forum
12:30 - 13:30	Lunch
13:30 - 17:00	2 <sup>nd</sup> China-Japan-South Korea Water Science Research Forum
17:00 - 18:00	Institute Committee Meeting
18:00 - 20:00	Welcome Dinner

\* 09:00 – 18:00 Registration for International Symposium

#### Tuesday, July 10, 2018

09:00-09:20	Opening Ceremony
09:20 - 12:20	International Symposium
12:20 -13:30	Lunch
13:30 - 17:20	International Symposium
17:20 - 17:40	MOU Ceremony
18:00 - 20:00	Welcome Reception

## Wednesday, July 11, 2018

09:00 - 11:30	Technical Workshop of UAV
11:30 - 14:00	Lunch
14:00 - 18:00	Technical Workshop of UAV
18:00 - 20:00	Farewell Dinner



## 2nd China-Japan-South Korea Water Science Research Forum Program

Monday, July 9, 2018		
2nd China-Japan-South Korea Water Science Research Forum		
Chair	Person: Kwansue Jung – Professor, Chungnam National University, KOREA	
09:00 - 09:10	Welcome Remark Dr. Kwansue Jung – Professor, Chungnam National University, KOREA	
09:10 - 09:30	<b>Dr. Hongyan Li</b> – Professor, Jilin University, CHINA What large sample size is sufficient for hydrologic frequency analysis? A rational argument for a 30-year hydrologic sample size in water resources management.	
09:30 - 09:50	<b>Dr. Sunmin Kim</b> – Professor, Kyoto University, JAPAN Real-time River-stage Prediction with Artificial Neural Network based on Only Upstream Observation Data.	
09:50 - 10:10	<b>Dr. Joocheol Kim</b> – Researcher, IWRRI, KOREA  Analysis of Variation for Drainage Structure with Various Flow Direction Methods on the Basis of DEM.	
10:10 - 10:30	<b>Mr. Rongbin Ji</b> – Researcher, Dalian University of Technology , CHINA A Distributed Geomorphological Instantaneous Unit Hydrograph (GIUH) of Small Watershed in Chinese Mountainous Area.	
10:30 - 10:50	Coffee Break	
	Chair Person: Dr. Hongyan Li – Professor, Jilin University, CHINA	
10:50 - 11:10	<b>Dr. Yakun Liu</b> – Professor, Dalian University of Technology, CHINA Roughened Bed Stilling Basin and its Hydraulic Jump Characteristics.	
11:10 – 11:30	<b>Mr. Kahhoong Kok</b> – Researcher , IWRRI, Chungnam National University, KOREA Review and Derivation of Areal Reduction Factor (ARF) for Storm Design Application in Malaysia.	
11:30 – 11:50	Ms. Lijun Xue – Researcher, Jilin University, CHINA The Relationship Between Soil Moisture and Climate Change Over the South Korea and A Scheme for Daily Volumetric Soil Moisture (DVSM) Prediction.	
11:50 – 12:10	<b>Dr. Anchul Jeong</b> – Researcher, IWRRI, Chungnam National University, KOREA Estimation of River Dredging Site Considering Flood Risk Variation due to Riverbed Change.	
12:10 – 12:30	Mr. Jiaqi Sun – Researcher, Jilin University, CHINA Baseflow Segmentation of the Main Stream of the Second Songhua River.	
12:30 – 13:30	Lunch	



## 2nd China-Japan-South Korea Water Science Research Forum Program

Monday, July 9, 2018		
2nd China-Japan-South Korea Water Science Research Forum		
Chair Person: Minwoo Son - Professor, Chungnam National University, KOREA		
13:30 – 13:50	<b>Dr. Giha Lee</b> – Professor, Kyungpook National University, KOREA Comparison of physics-based and data-driven models for streamflow simulation of the Mekong river.	
13:50 – 14:10	<b>Ms. Lin Tian</b> – Researcher, Jilin University, CHINA <i>Identification of Key Influence Factors and an Empirical Formula for Spring Snowmelt-Runoff: Taking Baishan Basin as example.</i>	
14:10 – 14:30	<b>Ms. Meiyan Feng</b> – Researcher , IWRRI, Chungnam National University, KOREA A study on variation of future runoff in Geum-River Basin, Korea.	
14:30 – 14:50	<b>Mr. Jianxu Han</b> – Researcher, Dalian University of Technology , CHINA Spatiotemporal Distribution of Pollutant Loads in a Small Watershed with Complex Pollution Sources.	
14:50 – 15:10	Coffee Break	
	Chair Person: Sunmin Kim – Professor, Kyoto University, JAPAN	
15:10 – 15:30	<b>Dr. Fengping Li</b> – Researcher, Jilin University, CHINA  Changes in Extreme Precipitation and Correlations with Streamflow in Nenjiang River Basin, Northeast China.	
15:30 – 15:50	<b>Ms. Hyejin Moon</b> – Researcher, IWRRI, Chungnam National University, KOREA Rainfall and Flood Forecast Using Numerical Weather Prediction Data	
15:50 – 16:10	<b>Dr. Zhang Di</b> – Professor, Dalian University of Technology , CHINA A General CFD Solver to Simulate the Flow in Complex 3D Geometries Using Unstructured Meshes.	
16:10 – 16:30	Ms. Yan Liu – Researcher, Jilin University, CHINA Research on the Improvement and Application of Snowmelt Module in SWAT.	
16:30 – 17:00	Coffee Break	
17:00 – 18:00	IWRRI Committee Meeting	



## **International Symposium Program**

Tuesday, July 10, 2018		
Opening Ceremony		
09:00 - 09:05	Welcome Remark Dr. Kwansue Jung – Professor, Chungnam National University, KOREA	
09:05 - 09:10	Congratulatory Remark I  Dr. Jinsook Lee - Dean ,college of engineering, Chungnam National University, KOREA	
09:10 - 09:15	Congratulatory Remark II Dr. Yangsu Kim – Director, UNESCO I-WSSM, KOREA	
09:15 - 09:20	Congratulatory Remark III  Dr. Donggyu Kim- General Director of Overseas Business Division, K-water, KOREA	
	International Symposium I	
Chair Person: Hidayat Pawitan - Researcher, Institute Pertanian Bogor, INDONESIA		
09:20 - 09:40	<b>Dr. Keoduangchai Keokhamphui</b> – Professor, National University of Laos, LAOS <i>Influence of Climate Change on Water Resources Management in Laos PDR.</i>	
09:40 - 10:00	<b>Dr. Ram Krishna Regmi</b> — Researcher , Environment & Resource Management Consultant, Kathmandu, NEPAL <i>Climate Change and UAV Application on Floods in Nepal.</i>	
10:00 - 10:20	<b>Mr. Dongkyun Kang</b> - Senior Manager, Overseas Business Department, K-water, KOREA Overview of Projects for Improving Insufficiency.	
10:20 - 10:40	Coffee Break	
	International Symposium II	
Chair Perso	on: Abbas Ali Ghezelsofloo – Professor, Islamic Azad University of Mashhad, Iran	
10:40 - 11:00	<b>Dr. Mohd Zaki bin Mat Amin</b> – Director, Water Resources and Climate Change Research Centre, National Hydraulic Research Institute of MALAYSIA, MALAYSIA Leveraging Projected Hydroclimate Data Through Big Data Technology To Reinforce Water Risk Management – Floods & Droughts.	
11:00 – 11:20	<b>Dr. Changlae Jang</b> – Professor, Korea National University of Transportation, KOREA Numerical simulation of the morphdynamic changes by sediment supply at the downstream of youngju dam.	
11:20 – 11:40	<b>Dr. Vladimir I. Kim</b> – Researcher, Institute of Water and Ecology Problems, RUSSIA Use of UAV data (Unmanned Aerial Vehicle, Drone) for Assessing the Dynamics of River Banks.	
11:40 – 12:00	<b>Dr. Seungsoo Lee</b> – Researcher, APCC, KOREA  Hyper-resolution 1D-2D Coupled Urban Inundation Modelling using LiDAR and Hybrid Parallelization.	
12:00 – 12:20	<b>Ms.</b> Longfan Wang – Researcher, Dalian University of Technology, CHINA The Ecological Impacts of Discharging and Impounding Process in Large Reservoirs.	
12:20 - 13:30	Lunch	



## **International Symposium Program**

Tuesday, July 10, 2018			
	International Symposium III		
Chair Person: Minwoo Son - Professor, Chungnam National University, KOREA			
13:30 – 13:50	<b>Dr. Abbas Ali Ghezelsofloo</b> – Professor , Islamic Azad University of Mashhad, IRAN Evaluation of Green and Blue Water Prospect using Some Climate Models in Kashafroud Basin.		
13:50 – 14:10	<b>Dr. Aleksei N. Makhinov</b> – Researcher, Institute of Water and Ecology Problems, RUSSIA <i>UAV(Unmanned Air Vehicle, Drone) Application in the study of channel processes on mountain rivers in the East of Russia.</i>		
14:10 – 14:30	<b>Ms. Azwin Zailti Abdul Razad</b> — Researcher, Universiti Tenaga Nasional, MALAYSIA Sediment Yield Modeling to Predict Reservoir Sedimentation.		
14:30 – 14:50	<b>Dr. Mikyoung Choi</b> – Researcher, IWRRI, Chungnam National University, KOREA <i>Climate Change and UAV Application in Korea.</i>		
14:50 – 15:10	<b>Dr. Hongyan Li</b> – Professor, Jilin University, CHINA <i>Hydrological Research in Mid-Temperate Regions-Taking Songhua River Basin as Example.</i>		
15:10 – 15:30	<b>Dr. Nguyen Canh Thai</b> – Professor , Thuyloi University, VIETNAM Climate Change and UAV Application on Floods and Droughts in Vietnam.		
15:30 – 15:40	Coffee Break		
	International Symposium IV		
Chair Person: Mohd Zaki bin Mat Amin – Director, Water Resources and Climate Change Research Centre, National Hydraulic Research Institute of MALAYSIA, MALAYSIA			
15:40 – 16:00	<b>Dr. Htay Htay Than</b> – Director, Ministry of Transport and Communications, MYANMAR <i>Drought and Flood in Myanmar</i> .		
16:00 – 16:20	<b>Dr. Hidayat Pawitan -</b> Researcher, Institute Pertanian Bogor, INDONESIA Climate Change and UAV Applications on Floods and Droughts in Indonesia.		
16:20 – 16:40	<b>Dr. Yakun Liu</b> – Professor, Dalian University of Technology , CHINA Introduction of Hydraulics Research Institute, DUT		
16:40 – 17:00	<b>Dr. Yeonsu Kim</b> – Researcher, K-water, KOREA  Automatic Methods for Estimating Multi-segment Discharge Rating Curves.		
17:00 – 17:20	Mr. Mengke Zhao – Researcher, Dalian University of Technology, CHINA Comparing Topological Partitioning Methods for District Metered Areas in the Water Distribution Network.		
17:20 – 17:40	MOU Ceremony		
17:40 – 17:50	Closing Remark		



## **International Symposium Program**

Lecturer: Seokgu Kim -

Lunch

09:00 - 10:30

10:30 - 11:30

11:30 - 14:00

14:00 - 17:00

Viewing Experience of UAV 3D modelling

Operation Experience of UAV

Wednesday, July 11, 2018
Technical Education of UAV
er: Seokgu Kim – Director, GEOSPATIAL INFORMATION CO.,Ltd , KOREA Hyunsuk Lee – Director, HQ TECH Co., Ltd., KOREA Geunsang Lee – Professor, Jeonju Vision University, KOREA
Introduction of UAV

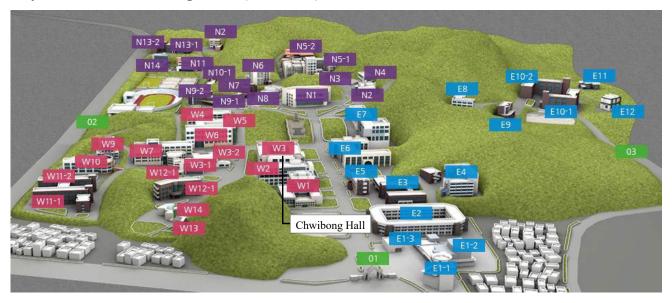
# Climate Change and UAV Application on Floods and Droughts in Asia Region



## **International Symposium Map**

■ Symposium Venue

July 8 ~ 12: Chwibong Hall (157-W3) in CNU



#### Contact:

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