

【Section 1】

NTU principle investigator	
Name (last name, first name)	HU, Ming-Che
Position	Professor
Faculty/Department	Department of Bioenvironmental Systems Engineering

KU principle investigator	
Name (last name, first name)	NAKAMURA, Kimihito
Position	Professor
Faculty/Department	Division of Environmental Science and Technology, Graduate School of Agriculture

Type(s) of funding applied	
<input type="checkbox"/> Funding Type 1 (General Funding) only <input type="checkbox"/> Funding Type 2 (ECR Funding) only <input checked="" type="checkbox"/> Both Funding Type 1 (General Funding) and Type 2 (ECR Funding)	

【Section 2】

Project title

Stochastic hydrology and environmental data analysis for disaster risk management

Period of project

From dd/mm/yy to dd/mm/yy	From 01/04/2023 to 30/04/2024
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Summary of the project (approx. 100 words)

Under climate change, extreme hydrological events seriously impact the water supply of the agricultural water resource system. This project provides systematic analysis methods and tools to evaluate the agricultural water resource supply and demand. The purpose of the study is to evaluate how agricultural water resource management affects water supply stability and drought resistance. This project conducts stochastic hydrology and environmental data analysis for sustainable water resources management. This research simulates uncertain water supply and demand based on historical hydrological data. Prof. Kimihito NAKAMURA gave a keynote speech at the annual meeting of Taiwan Agricultural Engineer Society, on Nov 10th, 2023. Prof. Kimihito NAKAMURA and Associate Prof. Takehide HAMA from Kyoto University visited the National Taiwan University. They exchanged their research experiences and discussed future collaboration with Prof. Ming-Che HU and other Taiwanese researchers.

Photographs with captions

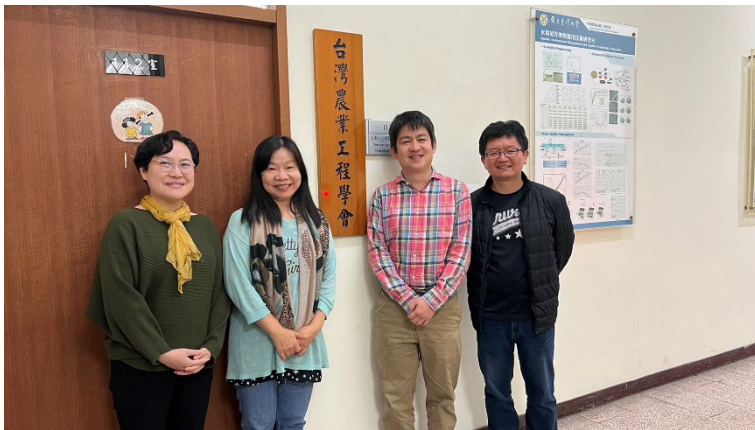
*Please submit digital files (such as JPEG or GIF files) of the photographs used in your report as attachments. The size of each image should be at least 4MB, so that it can be used for printed materials. Please ensure that none of the photographs submitted will cause any issues relating to portrait rights.



Prof. Kimihito NAKAMURA gave a keynote speech at the annual meeting of Taiwan Agricultural Engineer Society, on Nov 10th, 2023.



Prof. Kimihito NAKAMURA (right), Prof. Ming-Che HU (left), and Prof. Chen (center) discussed research after the keynote speech.



Prof. Ming-Che HU (right) and Associate Prof. Takehide HAMA (second from the right) exchanged research experiences and discussed future collaboration.

URL at which project outcomes can be viewed (Optional)

*E.g. workshop notifications/programs/reports, evidence of academic papers published or otherwise made available, etc.

URL:

【Section 3】

Visiting ECR*	
Name (last name, first name)	YU, Cheng-Wei
Position	Assistant Professor
Faculty/Department	Department of Bioenvironmental Systems Engineering
Period of Stay (From dd/mm/yy to dd/mm/yy)	15/02/2024 to 27/02/2024

Visiting ECR*	
Name (last name, first name)	WANG, Yu-Li
Position	Assistant Professor
Faculty/Department	Department of Bioenvironmental Systems Engineering
Period of Stay (From dd/mm/yy to dd/mm/yy)	15/02/2024 to 27/02/2024

Host researcher*	
Name (last name, first name)	NAKAMURA, Kimihito
Position	Professor
Faculty/Department	Division of Environmental Science and Technology, Graduate School of Agriculture

*Please complete if the host researcher is different from the KU principal investigator.

Achievements and outcomes of ECR stay (approx. 100–250 words)
<p>During the stay, we introduced each other's research and discussed its contents. The following research topics of KU laboratory were discussed related hydrological and environmental problems:</p> <ol style="list-style-type: none"> 1. Paddy dams to mitigate floods as one of the concrete ways to enhance the multifunction of rice paddies. 2. Irrigation control by monitoring pH of river water containing arsenic. 3. Effectiveness of treated sewage sludge fertilizer as phosphorus fertilizer. 4. Organizational water management to control methane emission from rice paddies. 5. Dispersion characteristics of solute in unsaturated soil columns. 6. Soil carbon and water management in paddy field as climate change mitigation. 7. Development of agricultural water management support platform. 8. Irrigation information support system in orange fields using spatial monitoring of leaf surface temperature. <p>Some of topics were discussed with presentation by graduate students and Q&A sessions. For the study #8 above, field observation plots were visited. Furthermore, the following topics of NTU researchers were also discussed.</p> <ol style="list-style-type: none"> 1. Streamflow simulations by river network modeling.

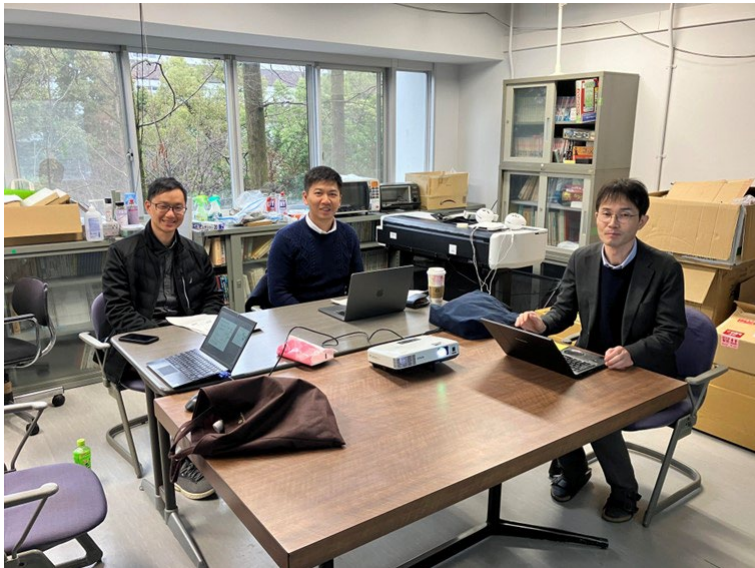
2. Estimation of heterogeneous characteristics in groundwater flow and aquifer.
3. Characterizing subsurface using rocket-triggered lightning.

In particular, it was found that there is potential for collaboration in the construction and operation of river flow and flooding models, groundwater flow models, and chemical transport models in soil.

In East and Southeast Asian regions, water management in agriculture, especially in rice paddy fields, is a major issue for mitigation and adaptation to climate change, and collaboration in this field would be a useful way to disseminate information from the Asian monsoon region.

Photographs with captions

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Prof. Kimihito NAKAMURA (right), Assistant Professor Cheng-Wei YU (center), and Assistant Professor Yu-Li WANG (left) discussed at Kyoto University.

URL at which project outcomes can be viewed (Optional)

*E.g. workshop notifications/programs/reports, evidence of academic papers published or otherwise made available, etc.

URL:

***If there are multiple ECRs, please copy and paste this section and complete them for each ECR.**