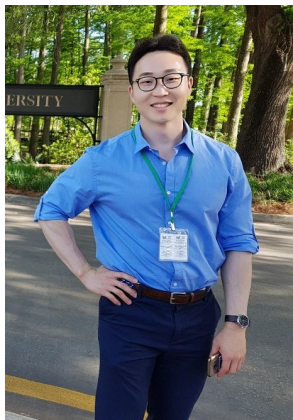


### **Factors (natural and anthropogenic) controlling organic carbon storage in riverine and coastal wetlands**

**13th November 2025 (Thu)  
5:00 – 6:00 pm (UTC+8)  
Rm 221, Chen Kou Bun  
Building, CUHK**

Global warming is the world's greatest environmental concern. International efforts designed to hold temperature increase below 2°C above pre-industrial levels focus on reducing atmospheric levels of greenhouse gases, primarily carbon dioxide and methane. The efforts to reduce fossil fuel combustion and enhance carbon sequestration are therefore critical. Although the sequestration approach encompasses a broad range of techniques, carbon capture by vegetation and long-term storage in biomass and soil are the most practical and scalable methods. This study investigates carbon sequestration in South Korea's riverine wetlands, using high-resolution drone imagery and geological data. We found that carbon stocks along the Yeongsan River averaged 3.31 Mg ha<sup>-1</sup> and extended the analysis to the country's four major rivers (Han, Geum, Yeongsan, and Nakdong), resulting in a potential annual carbon storage of ~23.42 metric tons of carbon annually, representing about 3.9% of South Korea's annual carbon budget. Geomorphological characteristics across elevations strongly influence organic carbon accumulation. Seasonal variations in stream morphology show that extreme weather events, such as floods and tropical cyclones, are key drivers of sediment transport and carbon storage dynamics.



#### **Junghyung (Johnny) Ryu**

Invited by Prof. Liu Kam-biu

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Prof. Junghyung (Johnny) Ryu earned his B.Sc. in Geography (2011) from Kongju National University (KNU), South Korea, and obtained his M.A. (2014) from the University of Louisiana at Monroe and Ph.D. (2020) in Oceanography from Louisiana State University (LSU). He is an assistant professor in the Department of Oceanography, College of Earth and Environmental System Sciences, Pukyong National University (PKNU), South Korea, and the Director of the International Coastal Science Center (ICSC), supported by the National Research Foundation of Korea. His research focuses on coastal dynamics, blue carbon storage, and coastal restoration projects under Nature-based Solutions (NbS). He is also one of the few coastal palynologists in South Korea.

