



## Melih Calamak

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# *Flood Control by Blasting Levees: Historical Applications and an Experimental Work to Understand Effectiveness*

**MONDAY, APRIL 17th, 16:00 - 18:30**

University of Naples Federico II,  
Department of Civil, Architectural and Environmental Engineering  
**Via Claudio 21, Edificio 8, Piano Terra - Aula CROCE**

### **Abstract**

Dr. Calamak will present his former lab's efforts to investigate the ability of engineered levee breaches to reduce flood impacts. There are many ways to manage floods, including building dams and reservoirs, constructing levees and floodwalls, and relocating small towns away from flood-prone areas. Floodways, diversion channels, and off-stream storage are also used to divert a part of the flow to relieve the pressure on levees and to protect downstream residential and commercial areas. His presentation will include some historical examples of intentional breaching of levees using explosives to prevent cities from flooding. He will mention levee breaching mechanisms and the flow through a breach. He will then present experimental research that investigated the reduction of flood depth in a channel due to an engineered levee breach. The research tested different combinations of inflow hydrographs, breach openings, and floodplain storage areas to see the effects, and conducted multivariate regression analyses to understand the relationship between the flood depth reduction and the parameters. The findings provide insights into engineered levee breaching.



**Dr. Melih Calamak** is an Associate Professor of Civil Engineering at the Middle East Technical University of Turkey, and a former Research Professor in the Department of Civil and Environmental Engineering at the University of South Carolina, USA. His main experience and research interests include the safety of earthen dams and levees, probabilistic seepage, and piping analysis. He has more than 30 publications and he teaches fluid mechanics, water resources engineering, and open-channel hydraulics classes.