

Seminar

Venice and the Mo.S.E floodgates: a delicate balance between flood-risk mitigation and ecosystem safeguarding

Thursday 19 December 2024 – 5,00 pm Arduino Classroom

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Venice and its lagoon are notoriously vulnerable to climate change-induced sea level rise and the intensification of extreme events. As the frequency of urban flooding increased alarmingly since the second half of the 20th century, a series of mobile barriers were constructed at the three inlets of the lagoon to temporarily seal it off from the Adriatic Sea and prevent flooding from extreme high tides. This ~6 billion € system, known as Mo.S.E. (short for Experimental Electromechanical Module), became operational in the fall of 2020.

While Mo.S.E. has proven effective in safeguarding Venice from flooding, and despite floodgate closures lasting only for relatively short periods, the artificial reduction of peak tide levels during these closures can significantly impact water circulation and sediment transport dynamics within the lagoon, potentially leading to long-term cascading effects on the entire lagoon's ecosystem.

This seminar will discuss the pros and cons of the Mo.S.E. system and highlight the urgency of finding a balance between the opposing need to reduce flood risk to preserve Venice's economy and cultural heritage while simultaneously safeguarding the unique ecosystem that sustains the city and its socioeconomic activities.

While sustainable management strategies for the Mo.S.E. that balance human and ecological needs are feasible, the anticipated rise in mean sea level highlights the urgency of exploring and implementing additional safeguarding measures soon. These efforts could provide valuable insights not only for Venice but also for other coastal cities around the world threatened by the impacts of climate change..