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The sinking mega-delta. Natural and anthropogenic subsidence in the Mekong delta

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The third largest delta in the world, the Vietnamese Mekong delta, is experiencing annual subsidence rates up to several centimeters per year, outpacing rates of absolute sea level rise. As a large part of the delta plain is elevated less than one meter above present sea level, these high sinking rates strongly increase vulnerability to flooding, salinization, coastal erosion and, ultimately, threaten the livelihood of 18 million delta inhabitants with permanent inundation.
Delta subsidence is the result of combined effects of different driving factors, both natural and anthropogenic. This talk will provide an overview of the main contributing subsidence drivers in the Mekong Delta, reserving a lead role for the groundwater extraction, but also natural compaction of Holocene deltaic sediments following delta evolution and the impact of land-use practices. Combining numerical modeling of future subsidence under different groundwater extraction pathways with eustatic sea-level rise and a new elevation model of the delta, allows to take a peek into the possible future of the Mekong delta. These analyses reveal the alarming situation in the Mekong delta. Resolute mitigation policies are urgently needed in order to sustain elevated above sea level and preserve the delta for future generations.