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Impacts of mean sea-level rise and marine extremes on islands

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For how long low-elevation coastal areas will be habitable under the effects of mean sea-level rise and marine extreme hazards? Mean sea-level rise, despite having a global origin, has severe local coastal impacts, as it raises the baseline level on top of which extreme storm surges and wind-waves reach the coastlines and, consequently, increases coastal exposure. In this presentation we will show coastal modelling exercises, fed with regionalised climate information of mean sea level and marine extremes, and applied in different environments that include sandy beaches and atoll islands. The outputs are aimed at anticipating the potential impacts of the dominant drivers in terms of land loss, coastal flooding and erosion. Our examples will be focusing on islands, for which the effects of increased coastal exposure are relatively larger, where local economy is often linked to coastal activities and retreat and migration are hampered by the limited land availability.