

# Simulating urban growth scenarios in the context of future disaster risk: findings from Monastir, Tunisia

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Driven by the interaction of urbanization and climate change, urban disaster risk is set to rise. Getting a detailed understanding of whether, where and how cities are growing into hazard-prone areas is therefore a prerequisite for assessing and reducing future risk as well as guiding planning from local to global scales. Here, we present the findings of (1) a review of the literature on urban growth and exposure modelling in the context of disaster risk, as well as (2) an application of the SLEUTH Urban Growth Model to simulate the effect of different development scenarios (incl. law enforcement and economic growth) on the future urban development of Monastir, a coastal city in Tunisia. Twelve Landsat images for the period 1975 to 2017 were used to delineate changes in urban land cover for Monastir following the European Urban Atlas Guide, which served as the main input for the model. The urban DNA of Monastir was captured through a set of coefficients for diffusion, breed, spread, slope, and road gravity, revealing that particularly edge growth is prominent in Monastir. The ‘business as usual’ scenario revealed that ~ 25% of the arable land will be lost in favour of urban expansion by 2050 and that the city might grow up to 28.5 %. Combining our model outputs with future hazard scenarios will support the assessment of future exposure as a key component of future disaster risk – a rapidly evolving but still largely underdeveloped field.

- The abstract is proposed for the first day topics: “Resilient Urban Development versus the Right to the City? Actors, Risks and Conflicts”