



## **Flood risk in New Orleans: implications for future management**

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The flood hazard posed by storm surges to the city of New Orleans is increasing for three reasons. First, as a result of the city's location on thick deposits of recent delta sediments along the edge of an oceanic basin, it is sinking at geologically rapid rates. Second, over the last decade, global sea level rise has increased as a result of climate change and is predicted to accelerate in the future. And third, the level of Atlantic basin hurricane activity has also risen, with the biggest increases for the strongest storms (with the largest surges), particularly in and around the Gulf of Mexico.

This dynamic and increasing flood hazard poses special challenges in the aftermath of Hurricane Katrina for those who hold a stake in the future of New Orleans. The risk of flooding from storm surges can be reduced in the short term by the repair and enhancement of flood defences. But whenever the investment in improved flood defences stops, the risk will continue to rise. The city has been flooded by storm surges four times in the past hundred years, and on each occasion, after a phase of defence improvement, new development in the protected floodplains has significantly increased the number of properties that are exposed, and the overall level of risk in the city.

The situation in New Orleans raises wider questions about the viability of megadelta coastal cities that are faced with the impacts of climate change. Using catastrophe modelling technology, we have explored the return period of first flooding in strategic locations throughout the city today, and how these risk levels are expected to change into the future. The results of such an analysis can help determine policy options for protection and redevelopment. At what point does the level of risk, and the insurability

of that risk, reach such levels that the city is no longer viable?