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Climate threats, water supply vulnerability and the risk of a water crisis in the Monterrey Metropolitan Area (Northeastern Mexico) (Article) (Open Access)

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Abstract

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This paper evaluates the risk of a water crisis - a substantial, sudden reduction in water supply - in the Monterrey Metropolitan Area (MMA), posed by climate threats and the vulnerability of its water supply system. Our analysis of long-term precipitation, water supply and water availability data reveals that the MMA is highly vulnerable to recurring periods of exceptionally low precipitation and scarce surface water availability. We identify two episodes in the recent past (1998 and 2013) when the MMA water supply system almost collapsed as reservoirs neared depletion in the face of abnormally dry weather. Furthermore our climate projections point to warmer and drier future conditions for the region and consequently, heightened climate threats. We conclude that the risk of a water crisis in the MMA is substantial and probably will increase due to climate change. This establishes a clear and pressing need for a comprehensive package of adaptation measures to mitigate the consequences of a water crisis should one occur as well as to reduce the likelihood of such an event.

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Climate threats | Monterrey Metropolitan Area | Risk | Water crisis | Water supply vulnerability

Indexed keywords

Engineering controlled terms: Balloons | Climate change | Risks | Surface waters | Water supply | Water supply systems

Engineering uncontrolled terms	Climate projection, Climate threats, Dry weathers, Me-xico, Monterrey metropolitan areas, Water availability, Water crisis
Engineering main heading:	Reservoirs (water)
GEOBASE Subject Index:	climate effect, climate prediction, metropolitan area, precipitation assessment, risk factor, vulnerability, water availability, water supply
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