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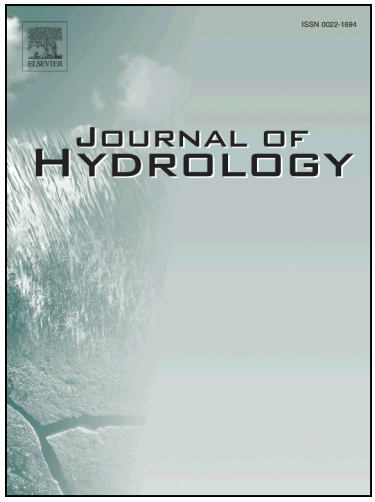

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Spatial variability of extreme rainfall at radar subpixel scale

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ABSTRACT

Extreme rainfall is quantified in engineering practice using Intensity–Duration–Frequency curves (IDF) that are traditionally derived from rain-gauges and more recently also from remote sensing instruments, such as weather radars. These instruments measure rainfall at different spatial scales: rain-gauge samples rainfall at the point scale while weather radar averages precipitation on a relatively large area, generally around 1 km^2. As such, a radar derived IDF curve is representative of the mean areal rainfall over a given radar pixel and neglects the within-pixel rainfall variability. In this study, we quantify subpixel variability of extreme rainfall by using a novel space-time rainfall generator (STREAP model) that downscales in space the rainfall within a

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