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Future intensification of hourly rainfall in a convection permitting climate model

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The first climate change experiments with a convection-permitting model have been carried out for a region of the UK. This (1.5km) model gives a much more realistic representation of the characteristics of hourly rainfall compared to a coarser resolution (12km) regional climate model (RCM), giving us greater confidence in its ability to reliably project future changes. Both models show very similar changes in hourly rainfall in winter, but quite different changes in summer. The 1.5km-RCM shows evidence of an intensification of short-duration rain in summer not seen in the 12km-RCM. This leads to significantly more events exceeding high thresholds indicative of likely flash flooding. Results here suggest representation of the local storm dynamics is essential for predicting future change in convective extremes.