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## The impact of drop size distribution variability and rainfall attenuation on autonomous vehicle sensors

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The safety of autonomous vehicles will depend critically on the performance of sensors (such as 77GHz radar), which will degrade in the presence of propagation losses during severe weather events. Variations in the drop size distribution lead to significant uncertainty in attenuation estimates. As part of the UK government's commitment to the safe introduction of autonomous vehicles, and in collaboration with the National Physical Laboratory, we have set up a series of observing platforms at Met Office Cardington to measure a multitude of weather-related variables such as temperature, pressure, illumination, precipitation particles, fog, etc. In this contribution, I will cover our work on characterising the rain drop size distribution, using a network of 5 disdrometers located 125m apart, and returning a drop size distribution every minute. From the spectra, we derived an estimate of the attenuation, including an estimate of the uncertainty.