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Rainfall estimation from Cellular Networks data based on local climatology.

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The current study proposes a new method to process Commercial Microwave Links (CML) data for rainfall estimation.

Since the concept was introduced in the mid-2000, several papers have discussed and illustrated how rain-induced fluctuations could be used to quantify rainfall.

Most previous work on the subject is based on applying a power-law relationship between the attenuation over the link and rain rate, with the coefficients (a,b) of the relationship being either provided by the ITU, or derived from drop size distribution information for the region of interest.

Our method is based on matching the Intensity-duration-frequency (IDF) curves derived from CMLs to IDFs derived from rain gauges, comparing statistical characteristics of rainfall.

The calibration of CMLs based on local climatology is conceptually appealing as it does not require direct fitting of estimated rainfall intensity to ground observations and line-integrated rainfall better fit IDF concept

It is therefore also suitable for regions with sparse rain gauge networks, regions where CML rainfall information has the greatest potential to predict rainfall

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