Estimated rainfall comparison between weather radar and lightning data based on an sliding-window
Meteorological Applications of Lightning Data

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The CEMADEN is the Brazilian Centre for natural disaster and it main goal is to develop, test and implement a system to forecast natural disasters in vulnerable areas throughout Brazil in order to mitigate de loss of human life during events of natural disasters. For this reason the use of techniques in high resolution (spatial and temporal) on monitoring is fundamental to reach the CEMADEN’s goal. Therefore, the weather radar and lightning data are a good combination on monitoring and as tool of nowcasting of severe weather. In this work was evaluated the performance of an accurate Rainfall-Lightning Ratio (RLR) on the estimative of rainfall from lightning data based on a temporal sliding-window and a fitting function. From those information is allowed to estimate rainfall from lightning data in areas that lack weather radar coverage. Thereby, were used radar data of different weather radars on South and Southeastern of Brazil and lightning data for the same areas and period of time. It were tested some thunderstorms observed at CEMADEN’s monitored risk areas and that resulted on alerts emitted by CEMADEN. The results showed a satisfactory agreement between RLR estimative of rainfall and radar estimated rainfall.