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Reliability of rainfall erosivity indices in comparison with measured by optical disdrometer from natural rainfall events

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The estimation of soil loss is an important issue for human activities. It generally relies on the use of (R)USLE empirical model. In this article we evaluate the reliability of three rainfall erosivity equations included in the RUSLE proposal with measured rainfall erosivity data by an optical disdrometer. Two sources of bias were evaluated: i) the influence of time aggregation data and ii) the influence in the use of theoretical terminal raindrops velocity instead of measured values. The results showed positive bias in the estimated rainfall erosivity values related to the use of theoretical terminal raindrops velocity, while time aggregation produce little subestimation. These results stress the relevance of monitoring raindrops velocity at high time resolution in order to obtain reliable estimation of rainfall kinetic energy.