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## Inspection of new thunderstorm intensity index

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Lightning data provide very high spatial and temporal resolution allowing us to decompose thunderstorms into smaller segments. By using those segments we introduce a new Thunderstorm Intensity Index (TSII). Based on the mathematical background of lightning jump, TSII aims to identify the area which is most affected by the storm. Such index captures location in space and time where a thunderstorm experienced a sudden positive change in lightning activity, using the Eulerian standpoint. The advantage is independence to total number of flashes produced by the storm (which can vary significantly), and high temporal monitoring (2 min). An ongoing research (within SWALDRIC project) is performed on period of 11 years of lightning data and in a study area of NE Adriatic region. Validation is done against precipitation, wind, hail, waterspouts and comparison with ERA5 instability indices is made. Results show very good agreement between higher rain intensities and total precipitation in vicinity of TSII. Good agreement with hail occurrence, waterspout presence and wind gusts within 15km radius. Also, TSII turned to be invariant to the size of the system, thus allowing us to recognise small scale intense thunderstorms.