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## **Severe convective storms and wind damage assessment over northwestern Poland**

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Severe convective storms (SCS) cause widespread damages over Europe each year and can be responsible for billions of euros in losses. In addition, the expected increase in their frequency and intensity over the century represents a primary concern for insurers.

Parametric insurance, which compensates customers when an index reaches a predefined threshold, is a fast and transparent insurance solution, that requires a careful analysis of the risk and a correlation of the index with potential damages. For instance, to protect customers against wind related damages from SCS, an index based on wind speed could be used. Unfortunately, the modeling of precise surface wind fields associated with SCS remains a challenge and sources of observation are often patchy or not reliable. The goal is then to define a parameter that can be used to estimate the potential wind damage from SCS.

Relying on a 10-year climatology of lightning activity over Poland, our approach consists first in determining large scale environmental variables in the ERA5 reanalysis favorable to the occurrence of SCS. Then, a combination of variable is tested in correlation with wind related damages. Preliminary results suggest that lightning density is a good proxy to the intensity of convective cells, and to a lesser extent to wind related damages.