

## Modelling event frequency and intensity of rainfall extremes: applying vector generalized additive model to estimate its atmospheric drivers

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The center of value creation in Berlin's economy lies with the service and trade sectors besides the building and engineering industries. There are more than 170,000 companies in Berlin, mostly small and medium enterprises. Climate change related to extreme precipitation affects the economy by damage buildings and facilities. Extreme events of precipitation responses to seasonality and long-term patterns in climatic drivers cannot be tested with conventional statistical methods due to the existence of complex relationship.

The aim of this study is to test the changes in the frequency and magnitude of extreme daily precipitation data of Berlin's meteorological stations by using Vector Generalized Additive Models (VGAM). applying VGAM permits a wider class of statistical models to be derived from the data and covers the family of applicable distributions further than the exponential.