

# **Storylines of extreme rainfall events: How has climate change affected severe weather events and the associated rainfall?**

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Climate change is perturbing Earth's radiative budget and thereby affecting every day of weather. The question is therefore not whether an extreme event has been influenced by climate change, but how and to what extent.

Event storyline simulations are an important approach to study these questions. The clearest detectable influence is usually in the thermodynamic aspects of an event. Event storylines keep the large-scale circulation of an event fixed, vary thermodynamic conditions and study the regional to local effects on the event characteristics, including feedbacks and mesoscale circulations. In addition to study the overall effect of climate change, event storylines also allow to separately modify driving process and thereby to study physical mechanisms contributing to the severity of the event and thus to put the contribution of climate change into perspective.

Here we apply this approach to recent events such as storms Boris in 2024 and Daniel in 2021 and demonstrate that the influence of climate change ranges, depending on the event, from an amplifier to a complete game changer.