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Attribution of extreme weather events in Germany

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Since 2019, the Deutsche Wetterdienst (DWD) has been actively developing a workflow for the operational attribution of extreme weather events. The primary objective is to automate as many steps of the process as possible with minimal human input, to communicate the impact of climate change on a particular event within days to weeks after it has happened.

In parallel with some studies together with the World Weather Attribution group (WWA), like the study by Tradosky et al. (2023) regarding the flash-floods in Western Europe in 2021, the decision was made to develop a national rapid attribution workflow. This leads to the opportunity to semi-operationally attribute more (and in addition weaker) extreme events. So far, in the first phase of the ClimXtreme project (<https://climxtreme.net/>), a prototype workflow for probability-based attribution was established based on the protocol used by the WWA (Philip et al., 2020). Now, in the second phase of the project, a synthesis tool will be added. The optimal approaches for a synthesis tool of different model results and observations are still a topic of active discussion. The synthesis itself is crucial for the end result of every probabilistic attribution study. Especially for rapid analysis, there has to be a fixed and accepted method that can be applied for different events. Various syntheses are therefore compared in order to determine the ones that are best suited for the region under consideration (mostly Germany and Mid-Europe) and for different event classes.

This poster will focus on the recent developments and possible synthesis options for the probabilistic extreme weather event definition.