

# **The role of memory in compounding meteorological and hydrological systems for peak flows in the Rhine river basin.**

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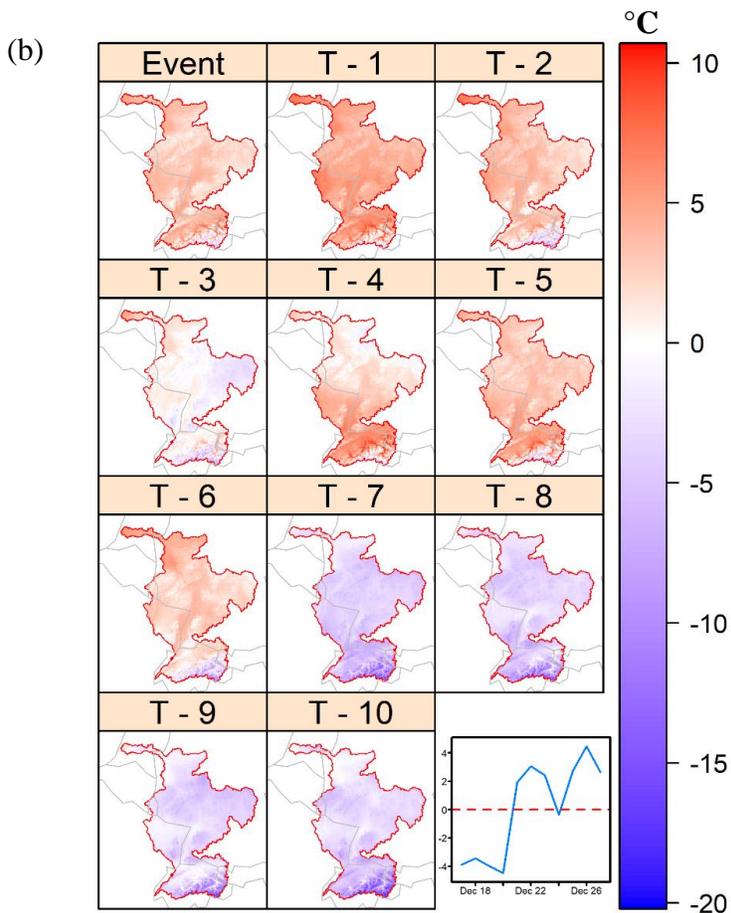
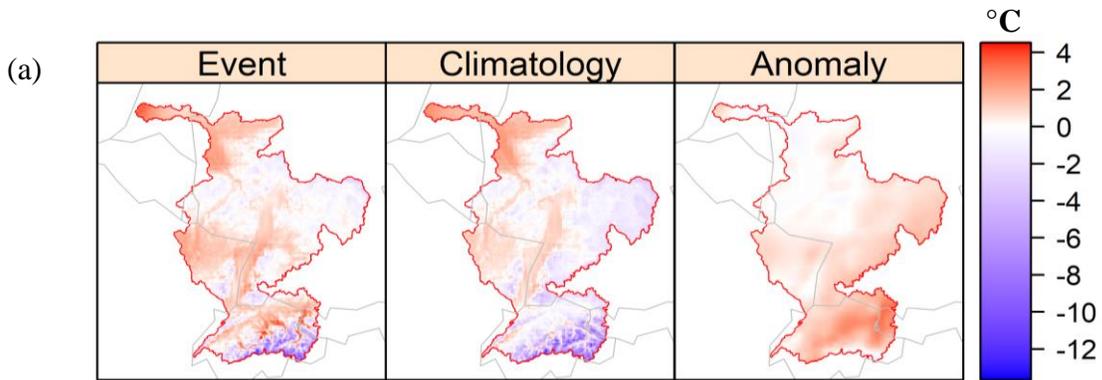
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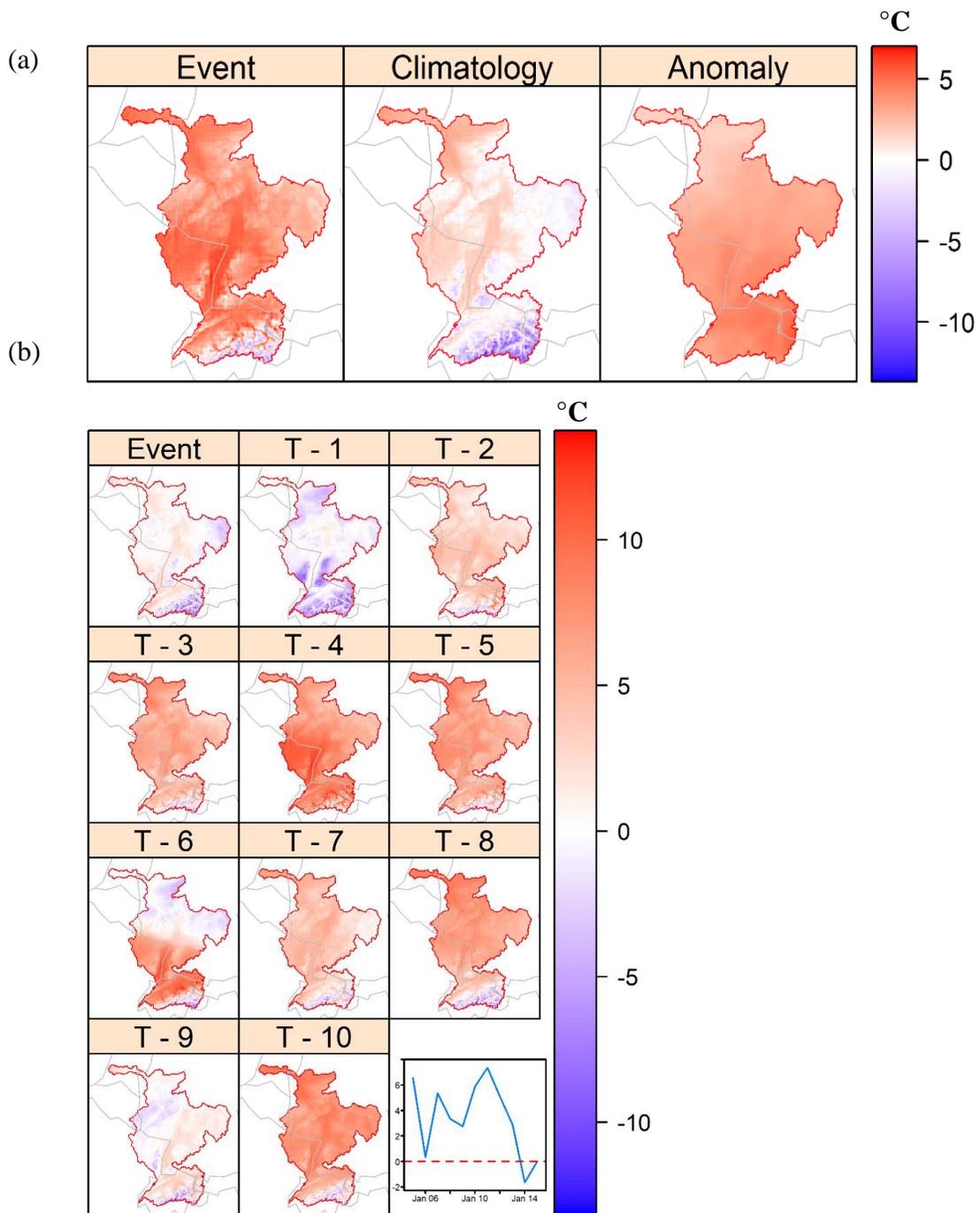
Figures S1 to S4

## **Introduction**

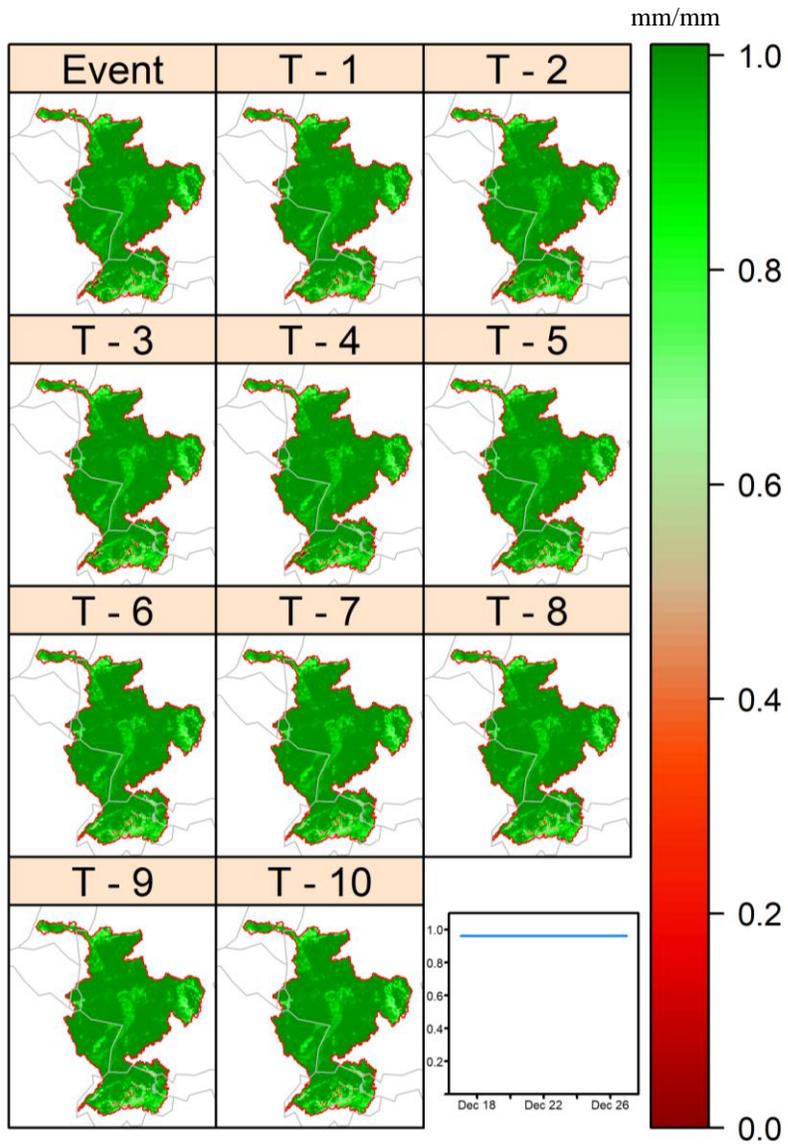
This supporting information provides the information regarding the 10-day composites of temperature and soil moisture as discussed in the main manuscript.



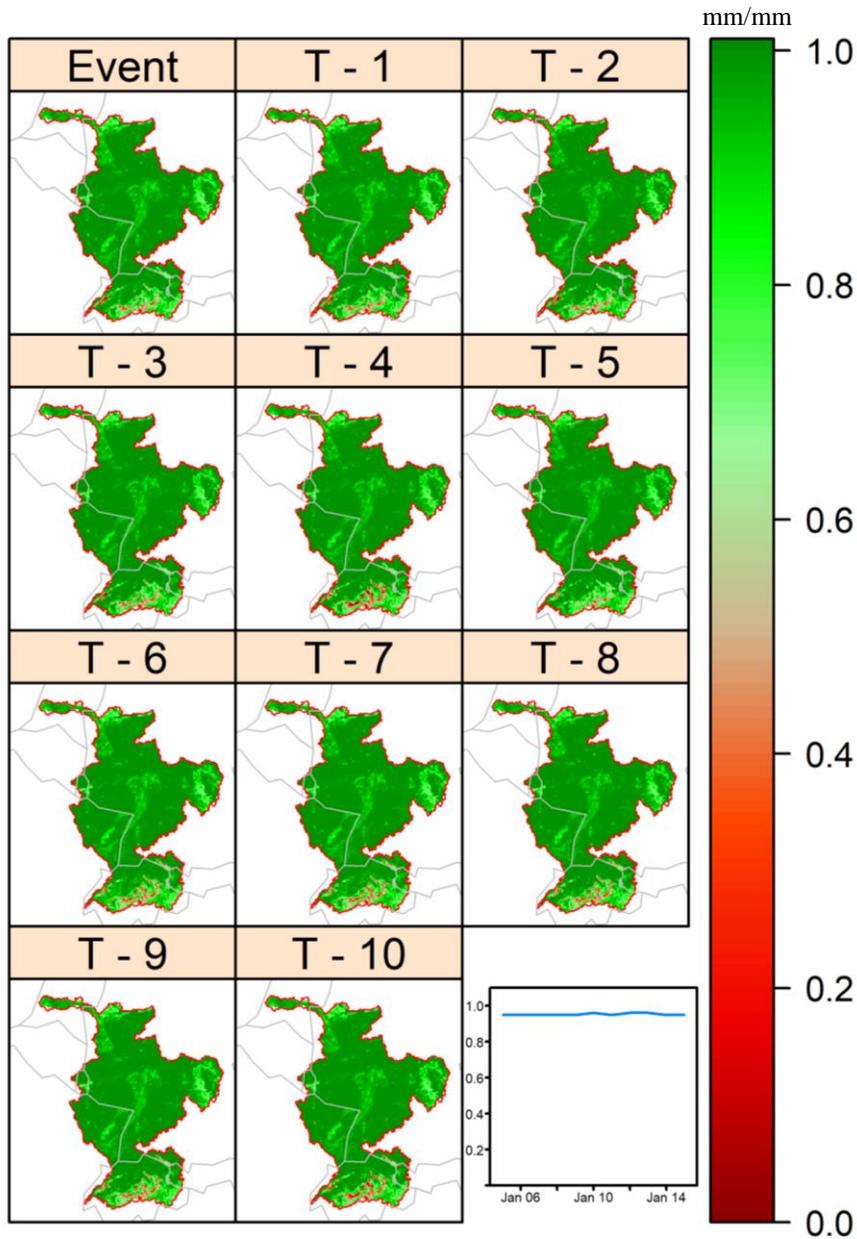
**Figure S1.** (a) Average temperature over the past 10 days prior to event, climatological mean and its anomaly event for the original run. (b) Temperature distribution of 10 days prior to the extreme discharge. The lower right panel shows the timeseries of the basin average value (solid blue line). The horizontal dashed red line denotes the 0° C.



**Figure S2.** (a) Average temperature over the past 10 days prior to event, climatological mean and its anomaly event for shuffled block one day run. (b) Temperature distribution of 10 days prior to the extreme discharge. The lower right panel shows the timeseries of the basin average value (solid blue line). The horizontal dashed red line denotes the 0° C.



**Figure S3.** Soil moisture distribution of 10 days prior to the extreme discharge event for the original run. The lower right panel shows the timeseries of the basin average value (solid blue line).



**Figure S4.** Soil moisture distribution of 10 days prior to the extreme discharge event for the shuffled one-day block run. The lower right panel shows the timeseries of the basin average value (solid blue line).