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## **Influence of the SST increase and sea ice extent decrease on extreme summer temperatures and precipitation in Central Europe**

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The summer 2018 was extremely dry and hot in Germany and many parts of Europe. We investigate to which extend SST increases in the North Atlantic Ocean and sea ice extent decreases in the polar sea influence such extremes. We simulate in total the four years 1998, 2003, 2014 and 2015 as years with cool, extremely warm, warm and average SST by multiple integrations of the Model for Prediction Across Scales (MPAS). For each year we perform 30 global MPAS runs in approximately 60 km resolution with SST and sea ice extent from ERA-Interim data as boundary condition. The runs are initialized on different days in December and run until the following September 1st.

The contribution investigates the results obtained from the total of 120 simulations. It discusses the resulting probability density functions (PDF) and changes in the summer precipitation and temperature in connection to changes in the summer North Atlantic Oscillation (sNAO). The results indicate that the SST and sea ice extent influence the range and mean values of the precipitation and temperature distribution functions. Extreme values, however, occur with both cool and warm SST.