Supplementary Material: Contrasting lightning projection using the lightning potential index adapted in a convection-permitting regional climate model

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This document encompasses two figures. These figures are not necessary to understand the analyses described in this study but provide additional information to the reader.

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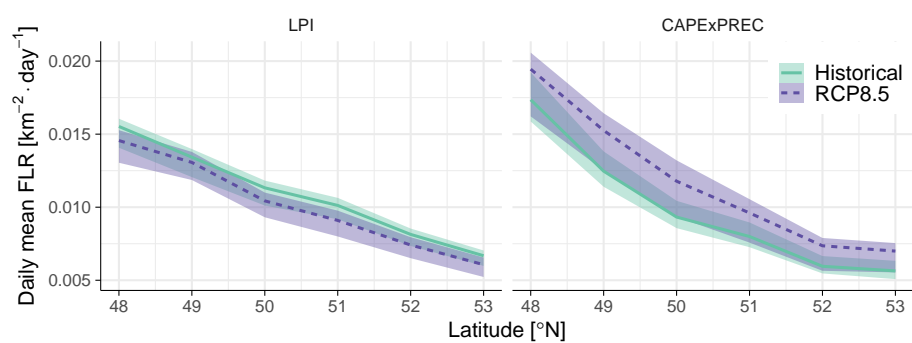Goethe University Frankfurt, Frankfurt, Germany

Fig. S1: Latitudinal average of daily flash rate for the EC-Earth historical driven simulation (solid green line) and the EC-Earth RCP8.5 driven simulation (purple dashed line). The output of the LPI parameterization is shown in the left column, while that of the CAPE×PREC is shown in the right column. Stars indicate a significant difference between the two simulations at the 5% level.
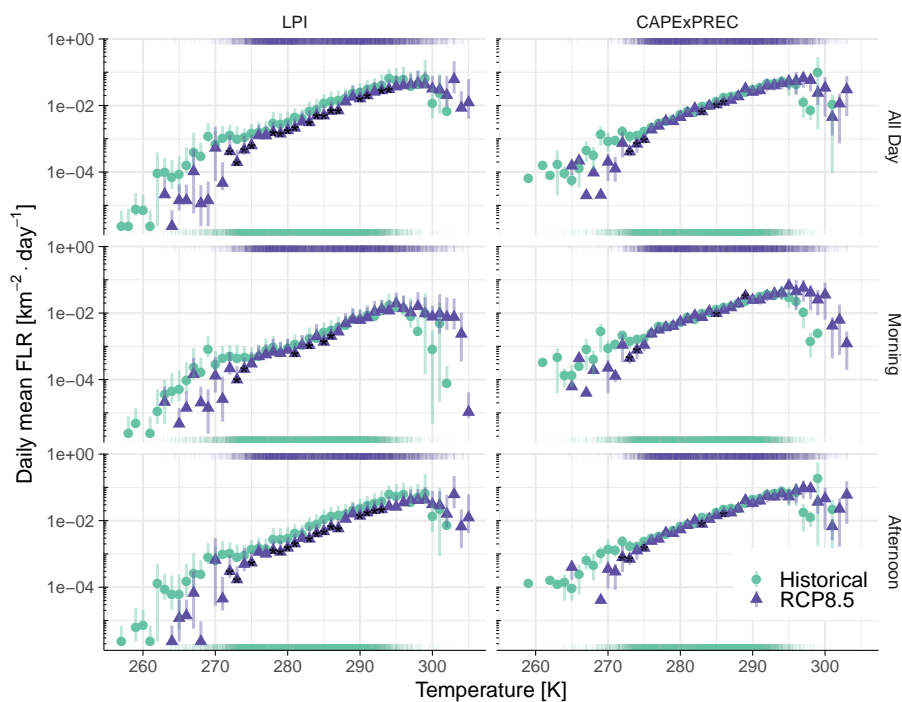
Fig. S2: The dependency of the mean daily flash rate on daily mean temperature for the EC-Earth historical driven simulation (green) and the EC-Earth RCP8.5 driven simulation (purple). The rugs at the bottom and the top of the plots show the occurrence of a given temperature for the corresponding simulations. Flash rates are binned to temperature values (i.e., one point per 1 K). These values are plotted for both the LPI (left column) and the CAPE×PREC (right column) parameterizations and for all the day values on the top, Morning values (from 0:00 UTC to 11:00 UTC) on the second row, and Afternoon values (from 12:00 UTC to 23:00 UTC) on the bottom. Stars indicate a significant difference between the two simulations at the 5% level. This significance is only indicated for points for which the sample size exceeds 100 days.