Supplementary materials to the article: Using high-resolution regional climate models to estimate return levels of daily extreme precipitation over Bavaria

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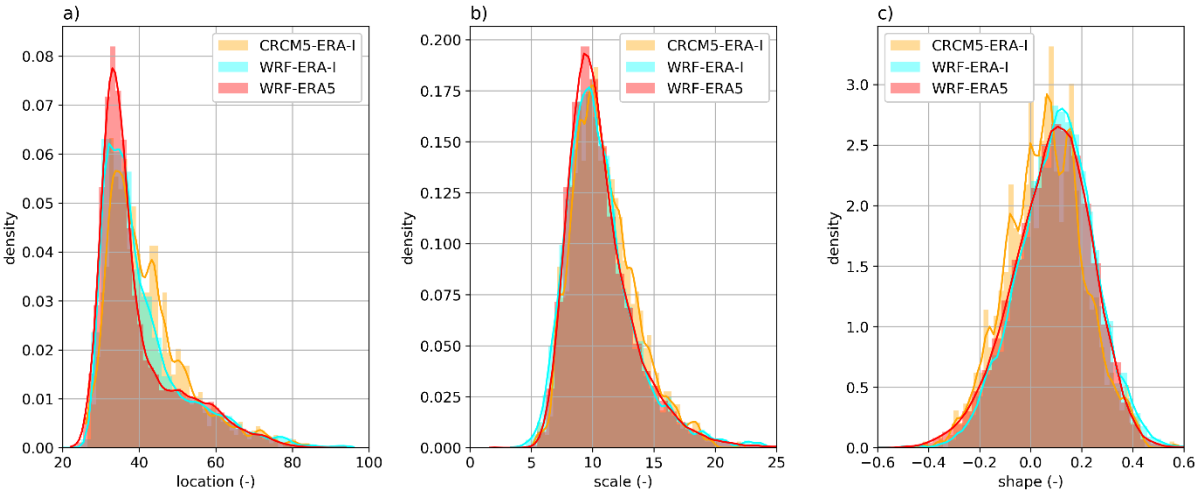

Figure S1: Histograms of location (a), scale (b), and shape (c) parameters of the fitted GEV models for the CRCM5-ERA-Interim, WRF-ERA-Interim, and WRF-ERA-5. Gaussian kernel density estimates are plotted to enhance readability.

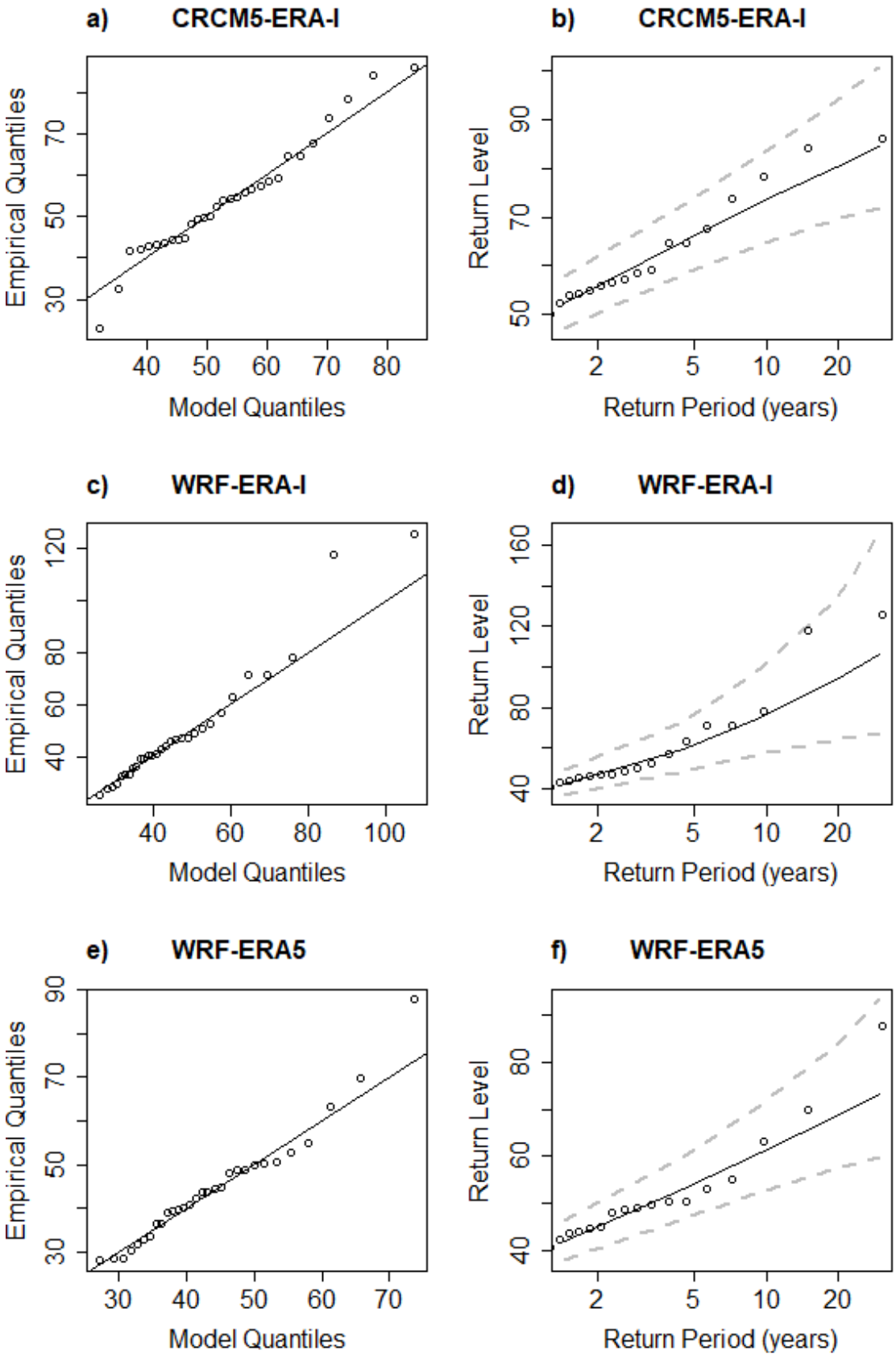

Figure S2: Empirical and fitted GEV model quantiles for the three climate model setups (a, c, e). The empirical return levels (dots) and the return levels corresponding to the fitted GEV model (solid line) are compared (b, d, f). The 95 % confidence interval is provided (dashed gray line).

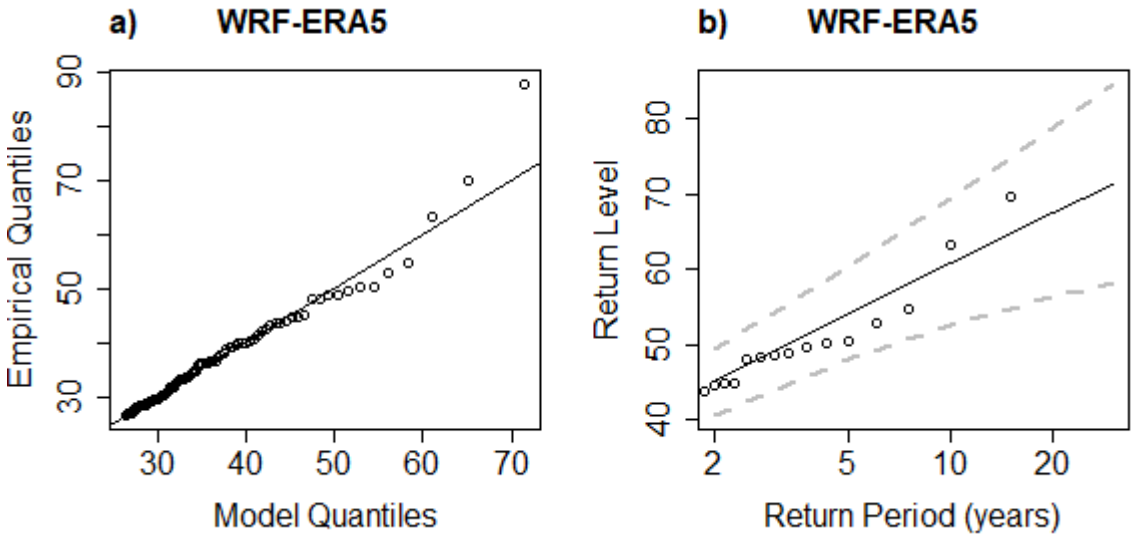

Figure S3: (a) Empirical and fitted GP model quantiles for the WRF-ERA-5. (b) The empirical return levels (dots) and the return levels corresponding to the fitted GP model (solid line) are shown. The 95 % confidence interval is provided (dashed gray line).

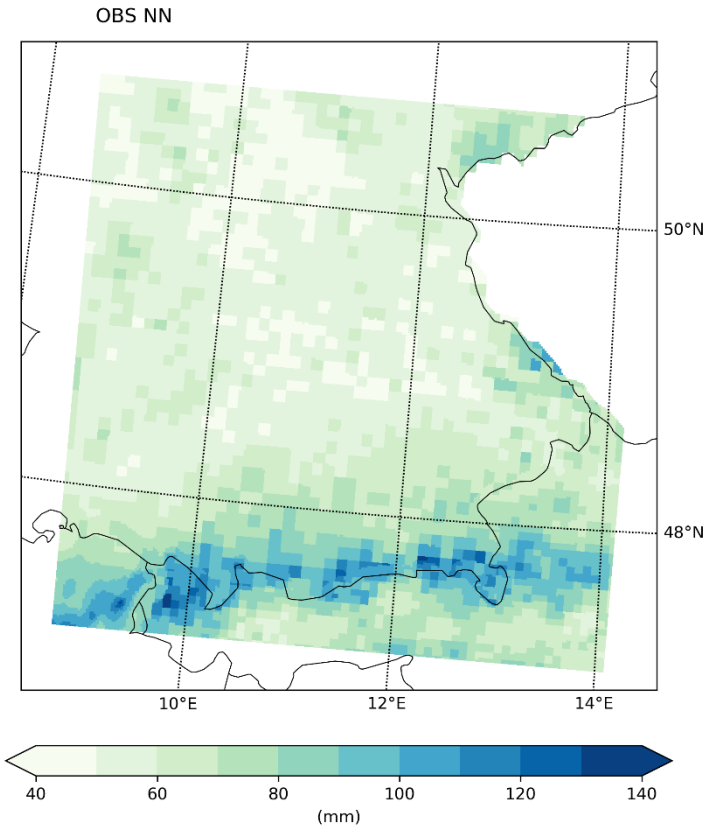

Figure S4: Observational 10-year return levels based on the German, Austrian, and Swiss data at original resolution.

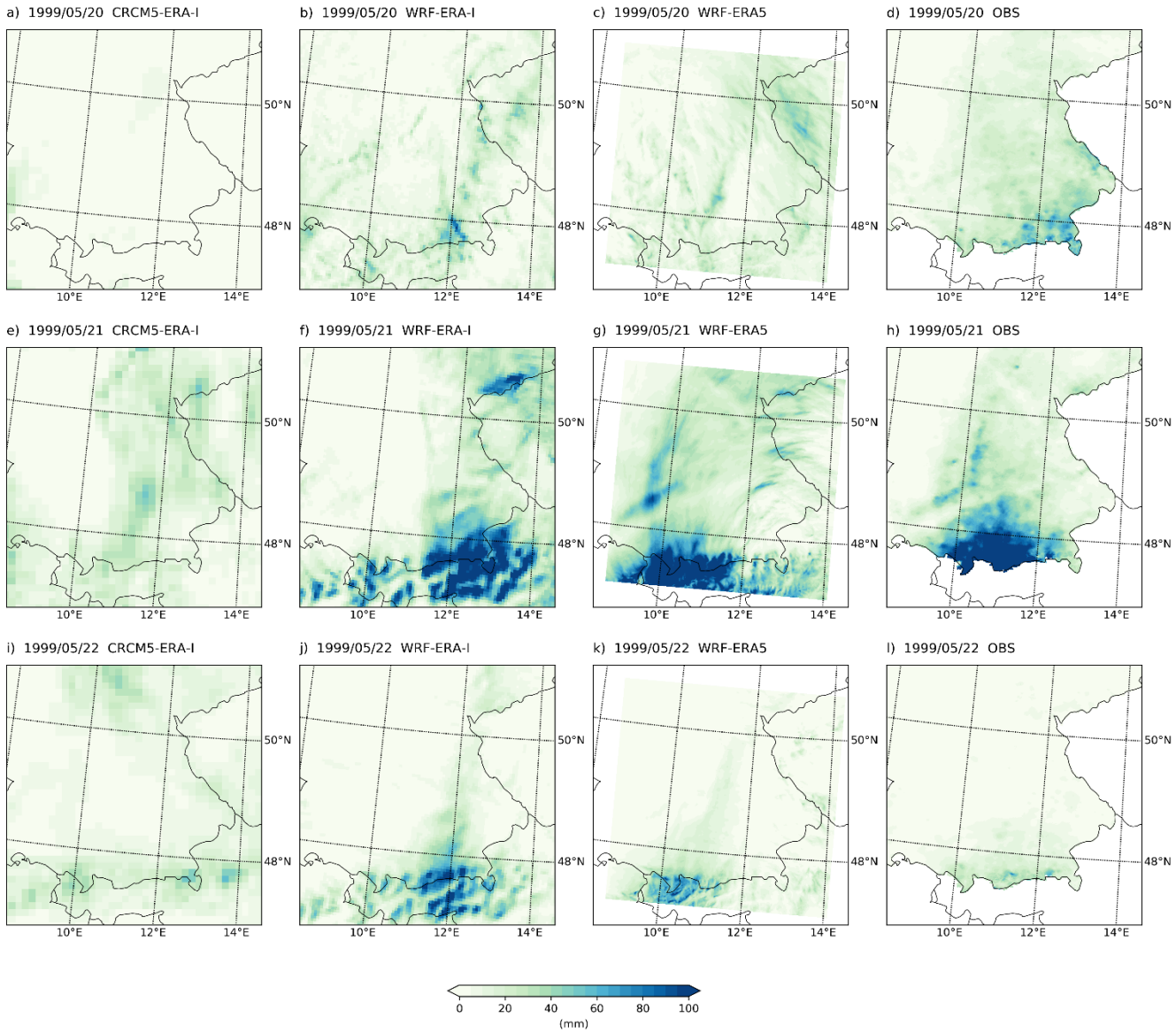

Figure S5: Daily rainfall sums for 20 – 22 May 1999 from CRCM5-ERA-Interim (a, e, i), WRF-ERA-Interim (b, f, j), WRF-ERA5 (c, g, k) and the observational product REGNIE (d, h, l). Each dataset is shown in its native spatial resolution.

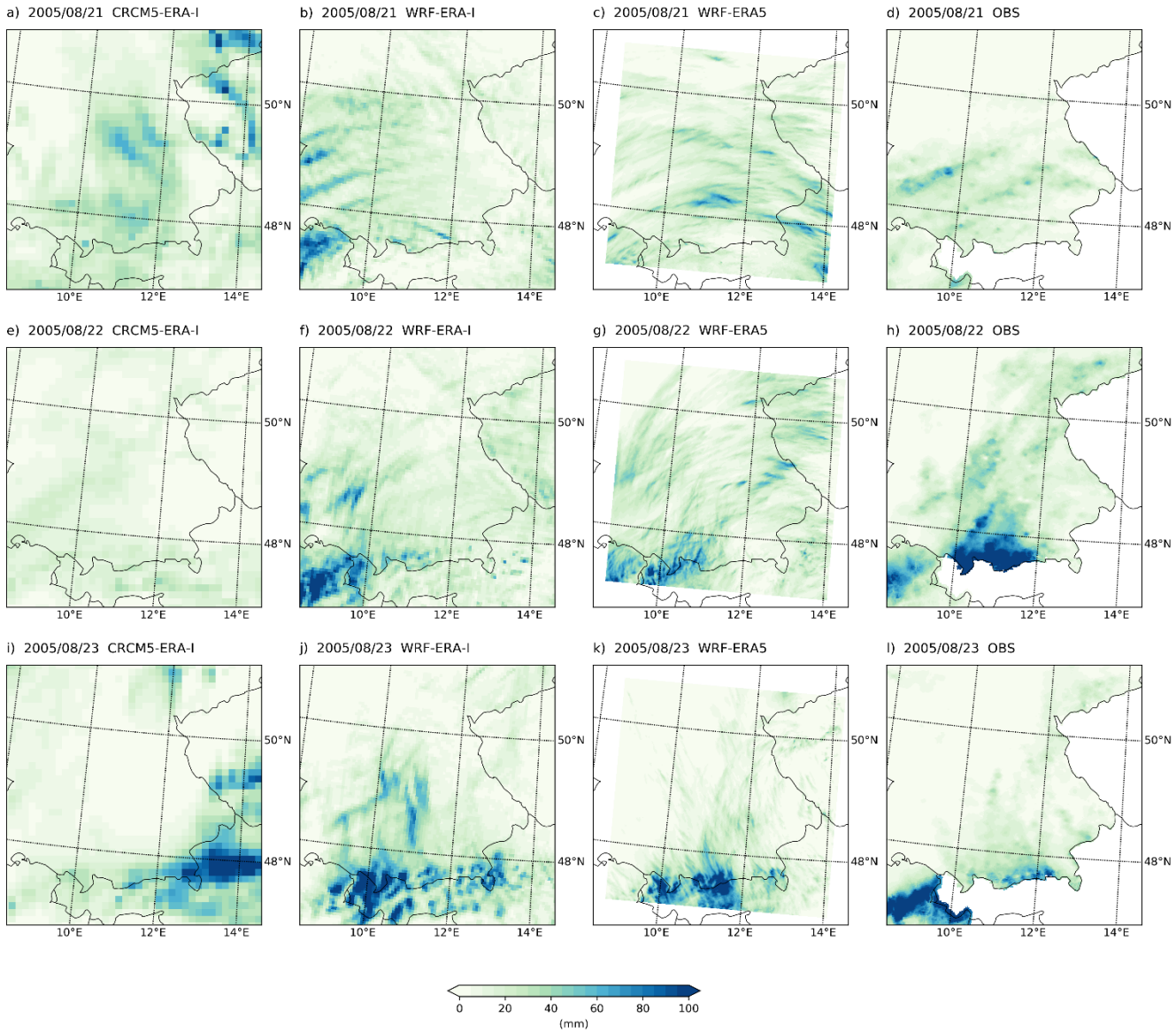

Figure S6: Daily rainfall sums for 21 – 23 August 2005 from CRCM5-ERA-Interim (a, e, i), WRF-ERA-Interim (b, f, j), WRF-ERA5 (c, g, k) and the observational products REGNIE and RhiResD (d, h, l). Each dataset is shown in its native spatial resolution.