Supplement of Nat. Hazards Earth Syst. Sci., 26, 21–40, 2026
https://doi.org/10.5194/nhess-26-21-2026-supplement

Natural Hazards and Earth System Sciences
Open Access
EGU

Supplement of

Evaluation of microphysics and boundary layer schemes for simulating extreme rainfall events over Saudi Arabia using WRF-ARW

Rajesh Kumar Sahu et al.

Correspondence to: Hylke E. Beck (hylke.beck@kaust.edu.sa)

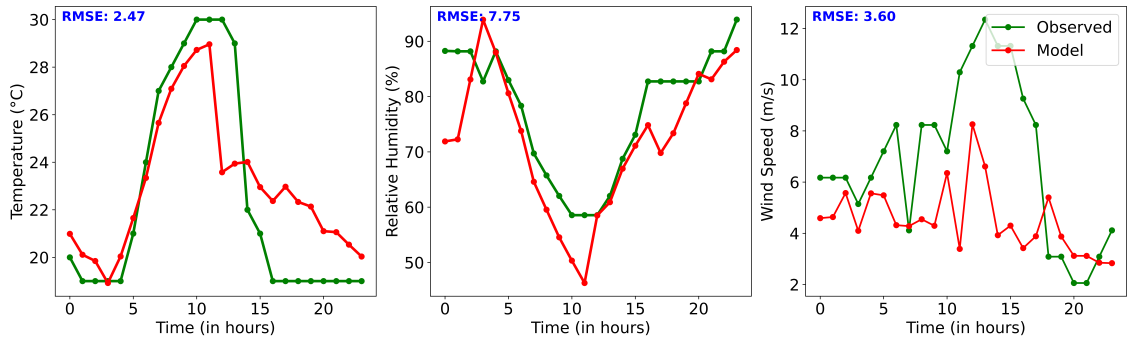

Figure S1. Surface meteorological parameters over Hafr Al Batin on 27th October 2019: temperature (°C), relative humidity (%), and wind speed (m/s), comparing WRF model simulations with IOWA station observations.

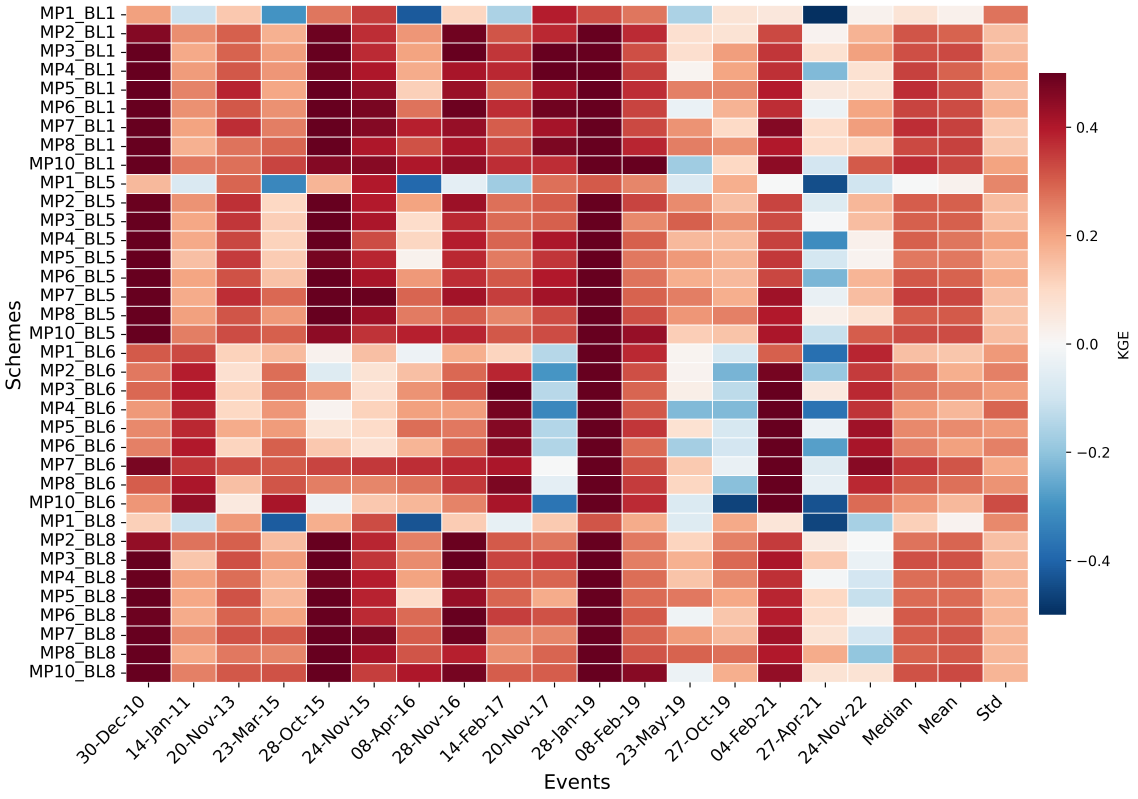

Figure S2. Spatial KGE scores for precipitation of 36 schemes combined for 17 EREs.

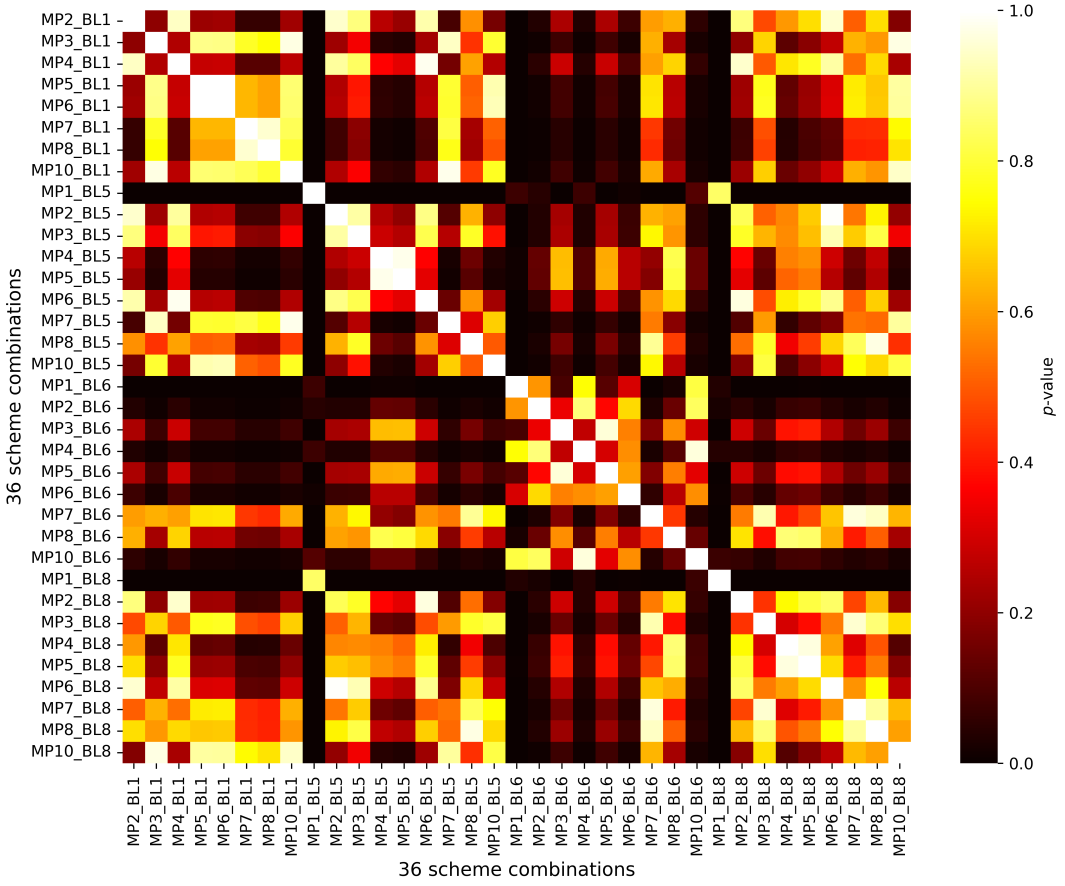

Figure S3. Pairwise p-values from independent t-tests comparing the ΔKGE distributions of 36 scheme combinations for rainfall spatially. ΔKGE values were calculated by subtracting the mean KGE across events from the KGE values. A p-value threshold of 0.1 was used to identify statistically significant differences between scheme combinations

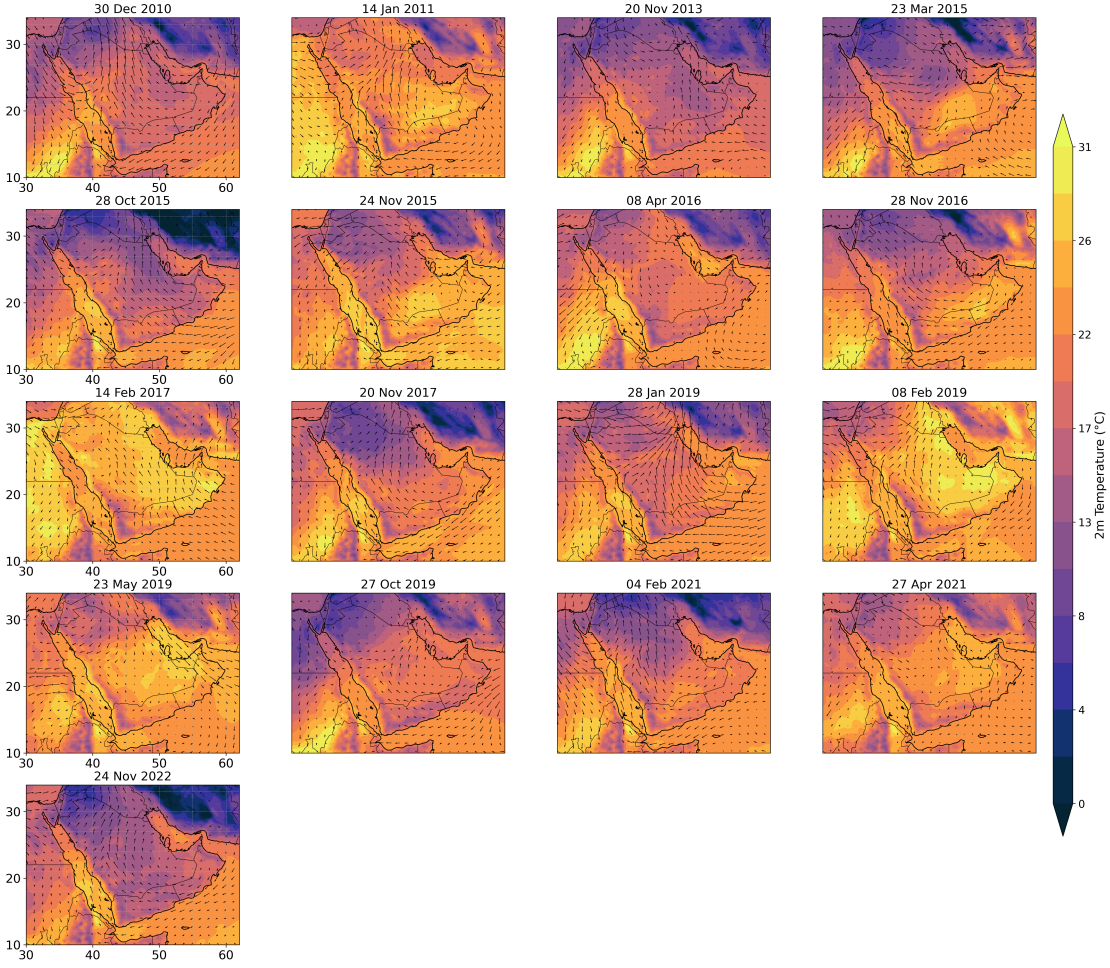

Figure S4. 850 hPa wind and near surface temperature from ERA5 reanalysis for 17 EREs.

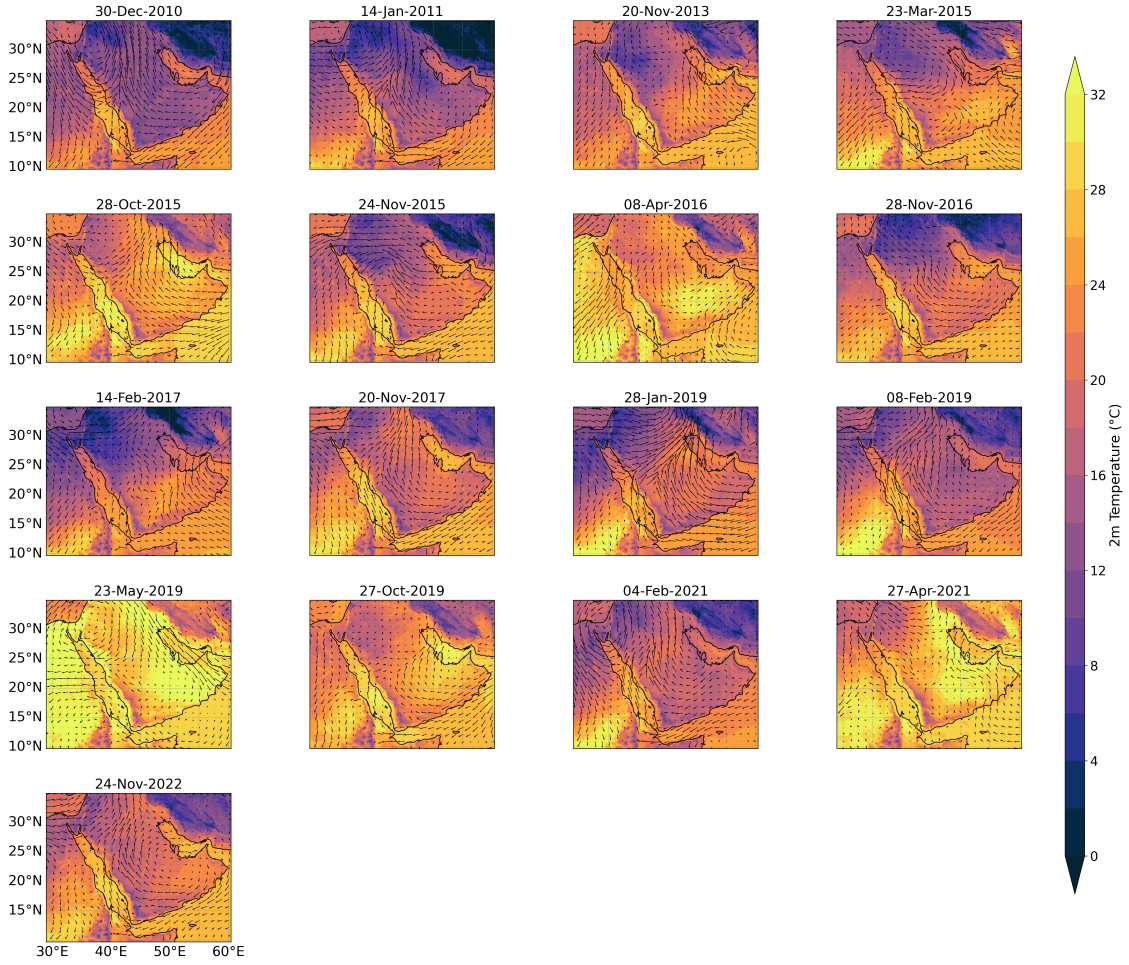

Figure S5. 850 hPa wind and near surface temperature from WRF model output for Thomson-YSU scheme combintaion for 17 EREs.