Supplement of Weather Clim. Dynam., 6, 171–195, 2025
https://doi.org/10.5194/wcd-6-171-2025-supplement

Supplement of

A process-based evaluation of biases in extratropical stratosphere–troposphere coupling in subseasonal forecast systems

Chaim I. Garfinkel et al.

Correspondence to: Chaim I. Garfinkel (chaim.garfinkel@mail.huji.ac.il)

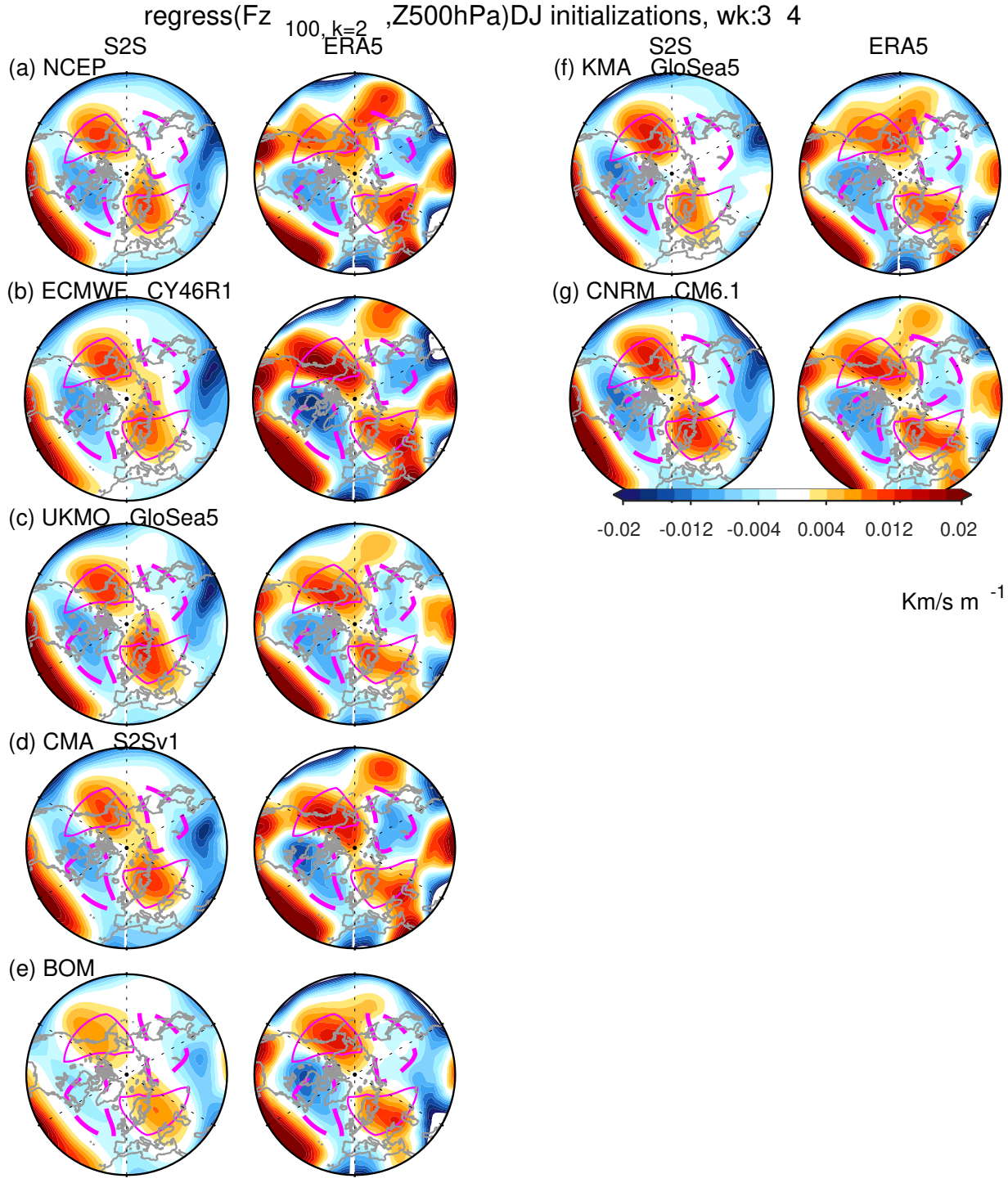

Figure S1. As in Figure 7 in the main text but for wave-2

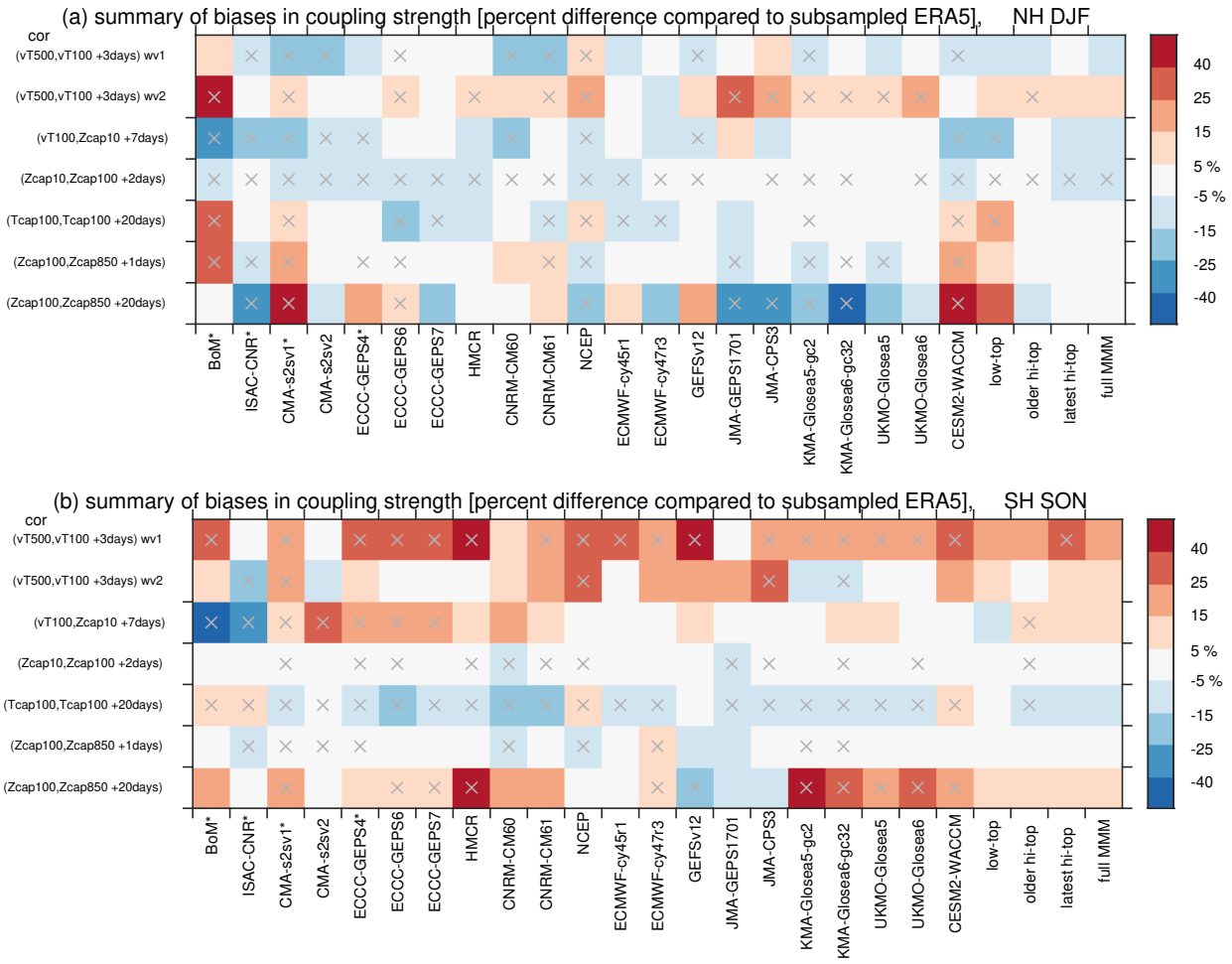

Figure S2. As in Figure 4 in the main text but for correlation coefficients.

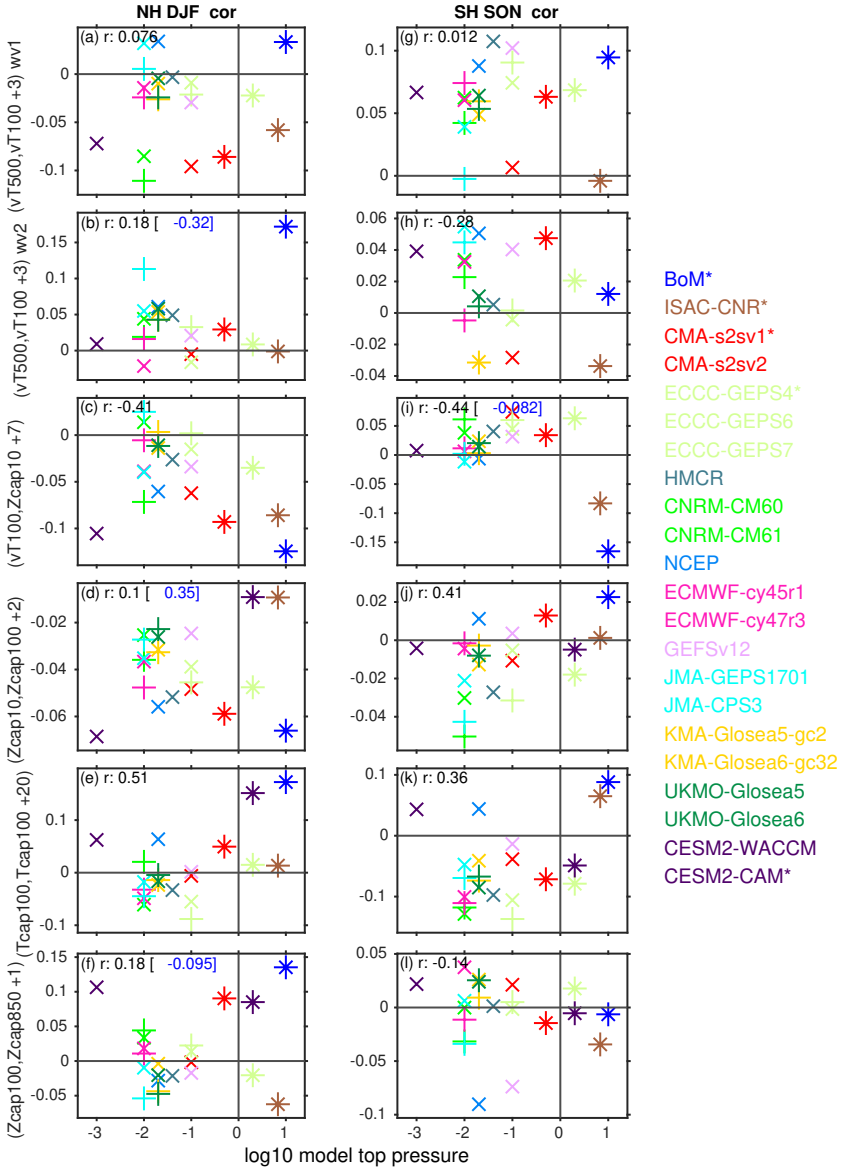

Figure S3. As in Figure 5 in the main text but with the coupling strength on the y-axis defined using correlation.

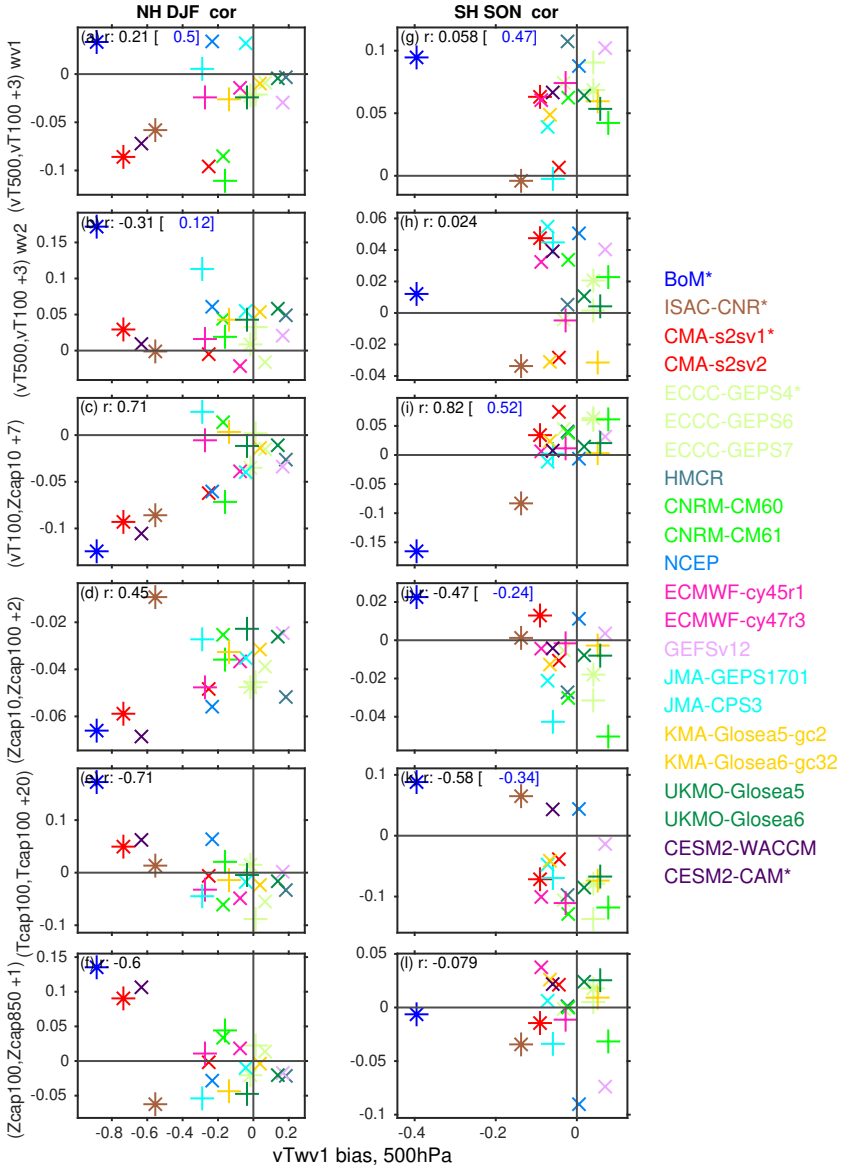

Figure S4. As in Figure 6 in the main text but with the coupling strength on the y-axis defined using correlation.

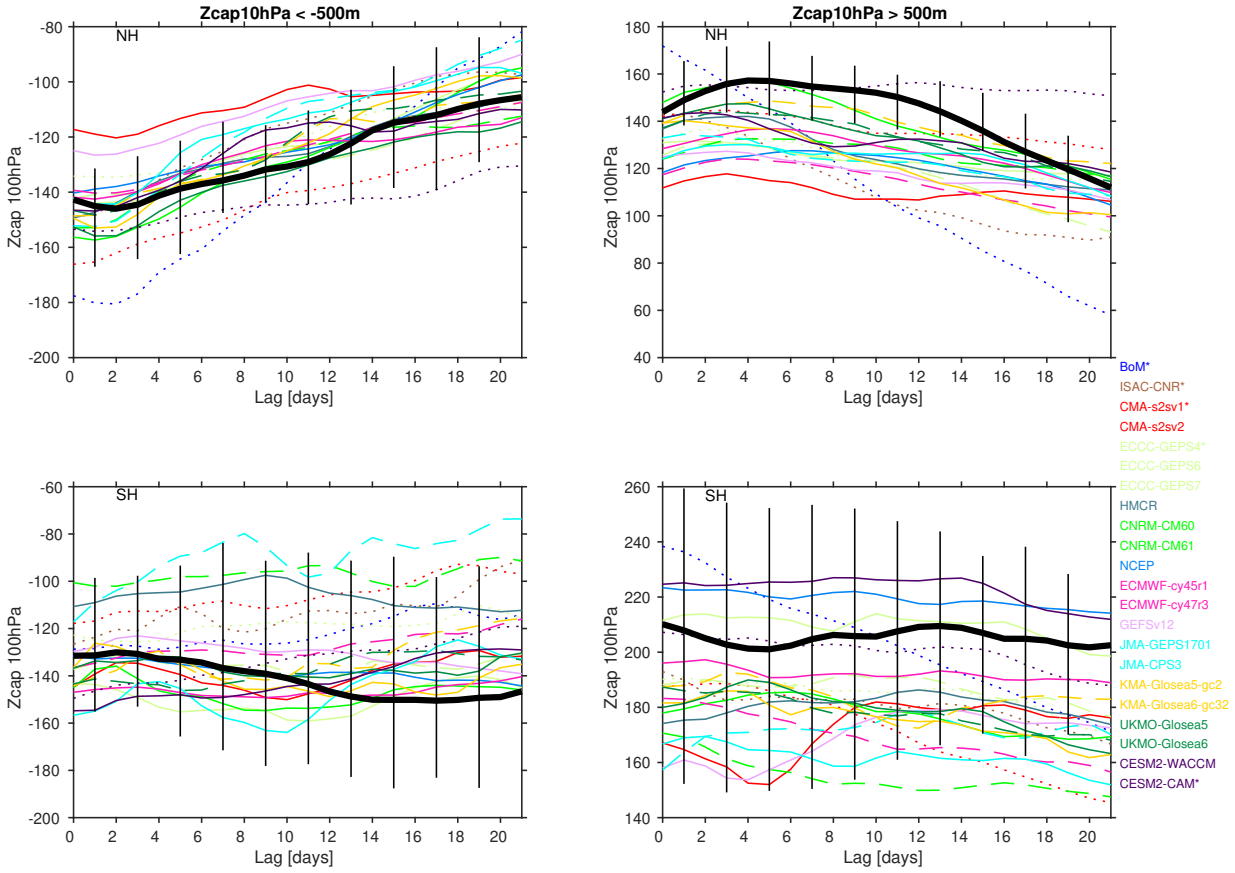

Figure S5. As in Figure 12 in the main text, but for a composite based approach of the downward propagation of extreme events within the stratosphere. For each model, we composite initializations in which Zcap at 10hPa in day 10 exceeds 500m or is more negative than -500m. We then analyze the evolution of Zcap at 100hPa from days 10 through 32.

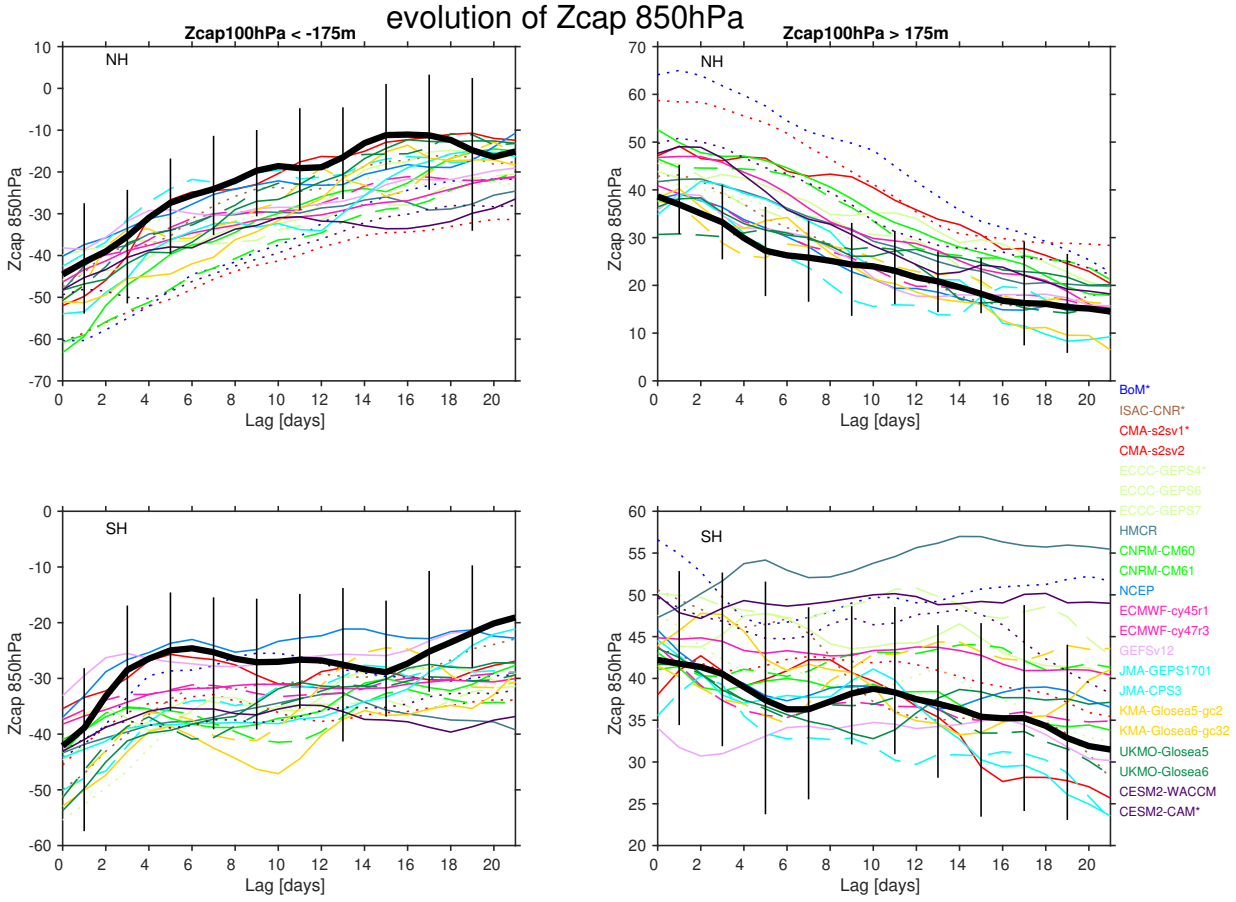

Figure S6. As in 13 in the main text, but for a composite based approach of the downward propagation of extreme events from the lower stratosphere to the troposphere. For each model, we composite initializations in which Zcap at 100hPa in day 10 exceeds 175m or is more negative than -175m. We then analyze the evolution of Zcap at 850hPa from days 10 through 32.

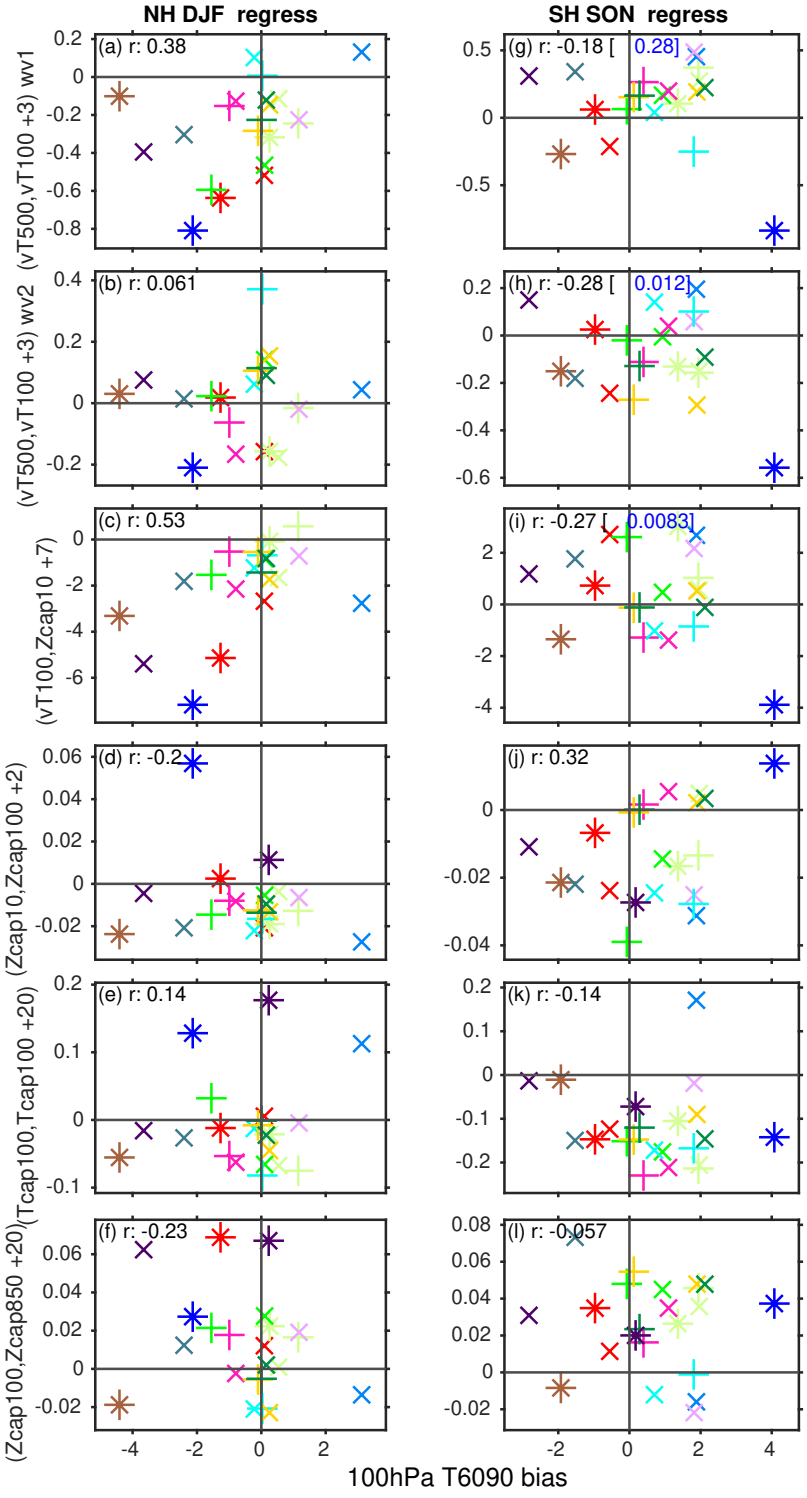

Figure S7. As in Figure 5 in the main text, but for 100hPa temperature biases from 60° to the pole on the x-axis.

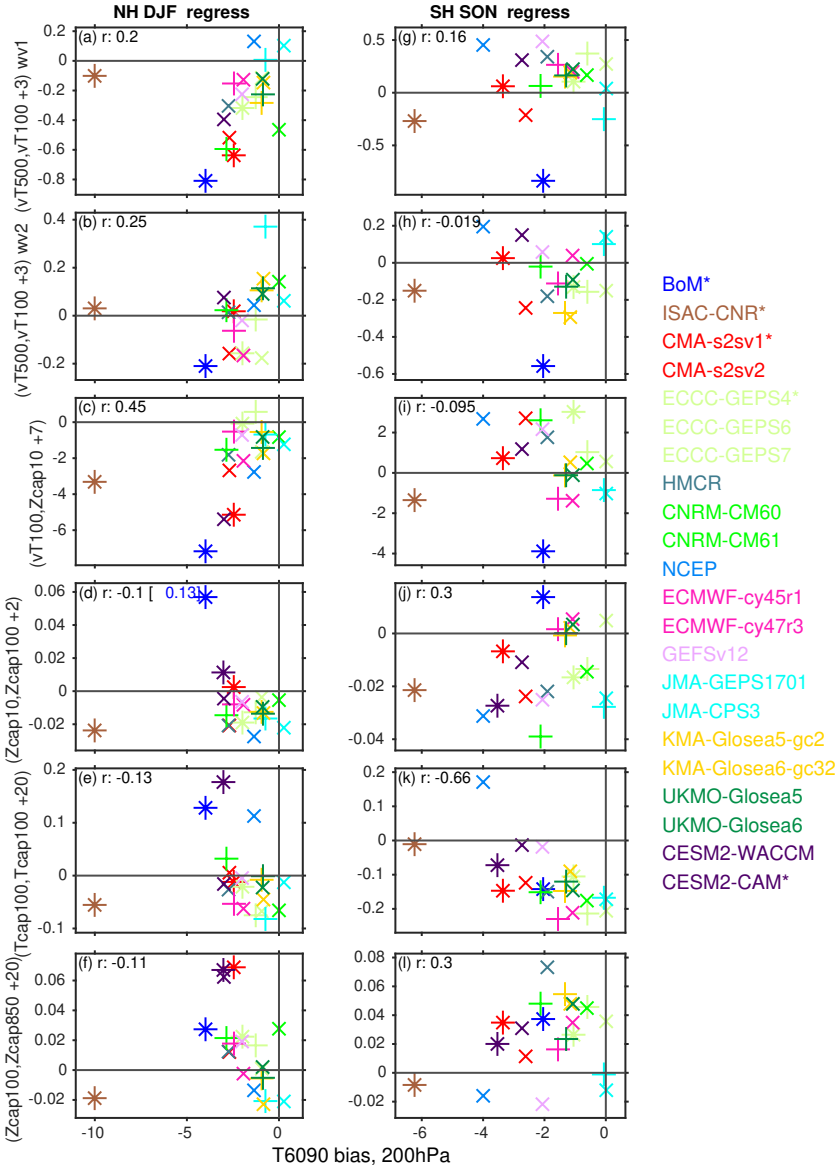

Figure S8. As in 5 in the main text, but for 200hPa temperature biases from 60° to the pole on the x-axis.

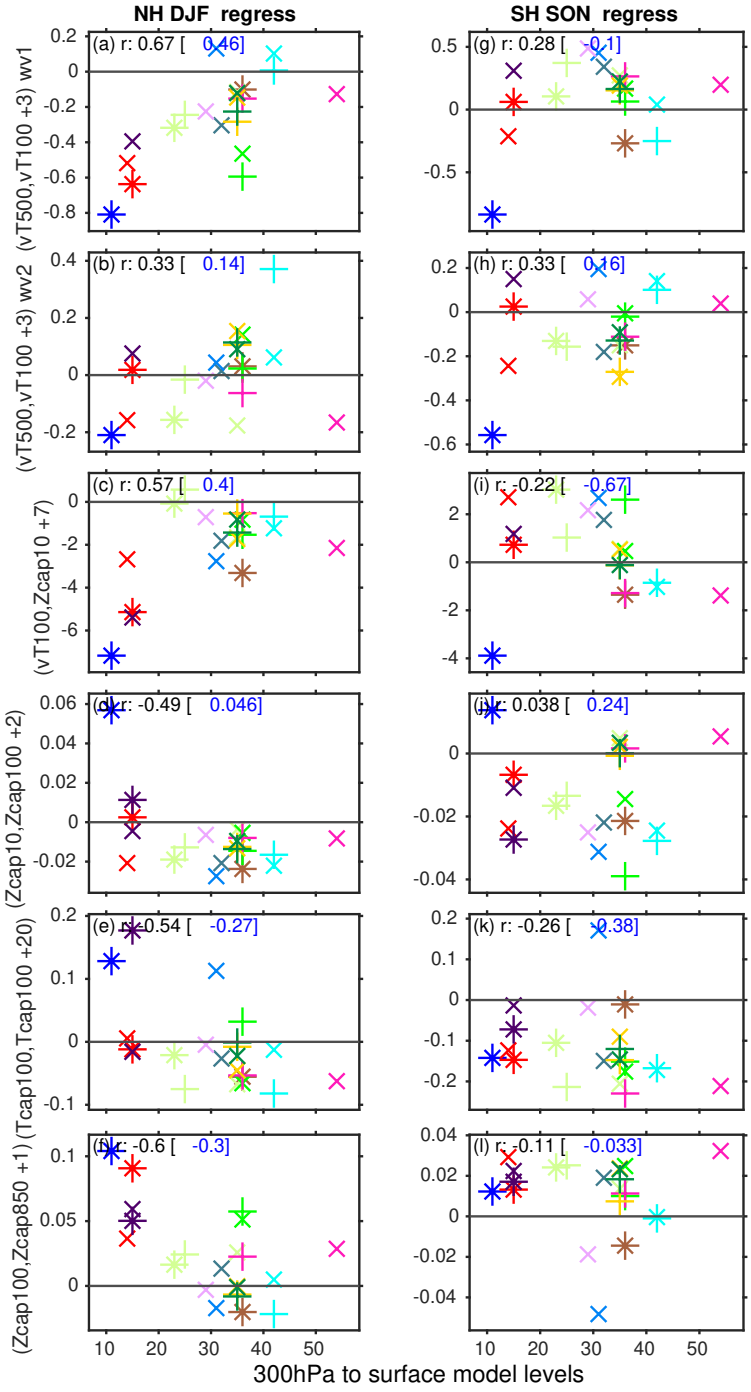

Figure S9. As in figure 5 in the main text but for number of model levels below 300hpa.

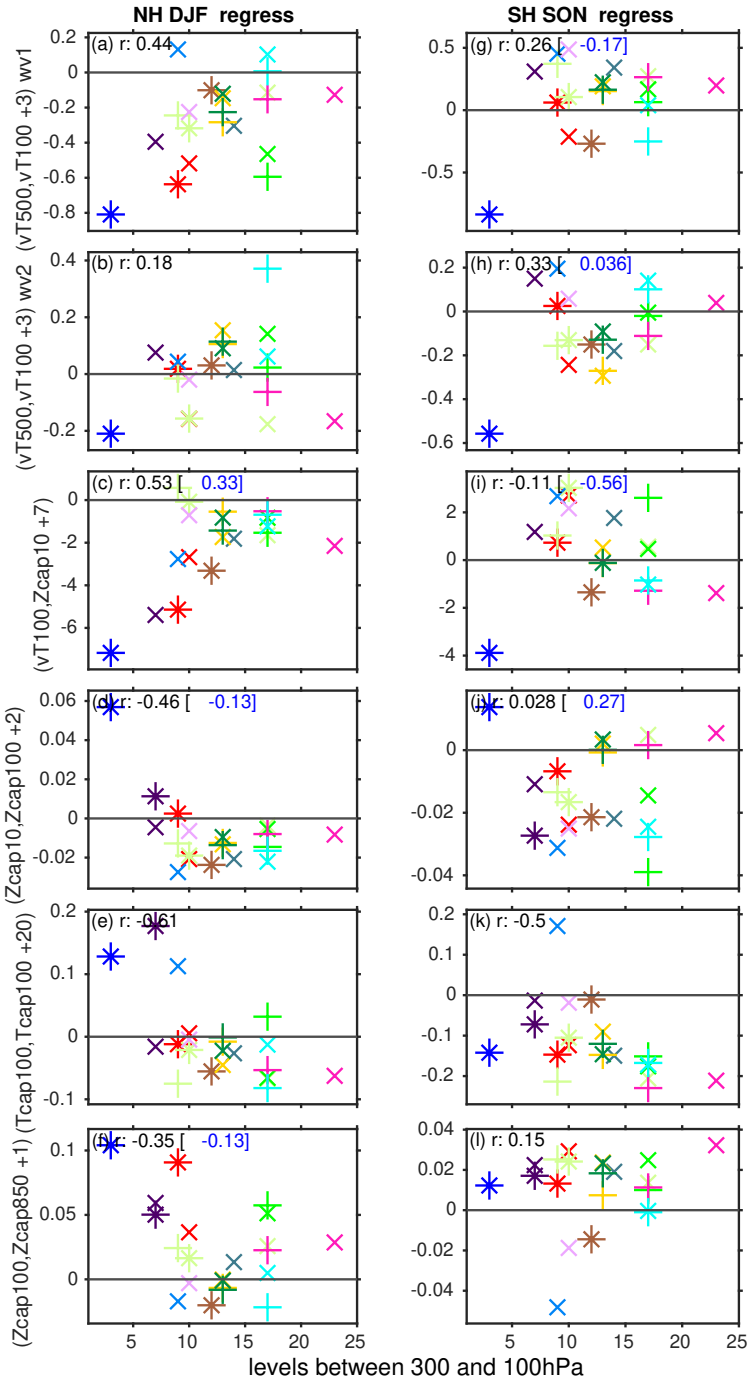

Figure S10. As in figure 5 in the main text but for number of model levels between 100 and 300hpa.

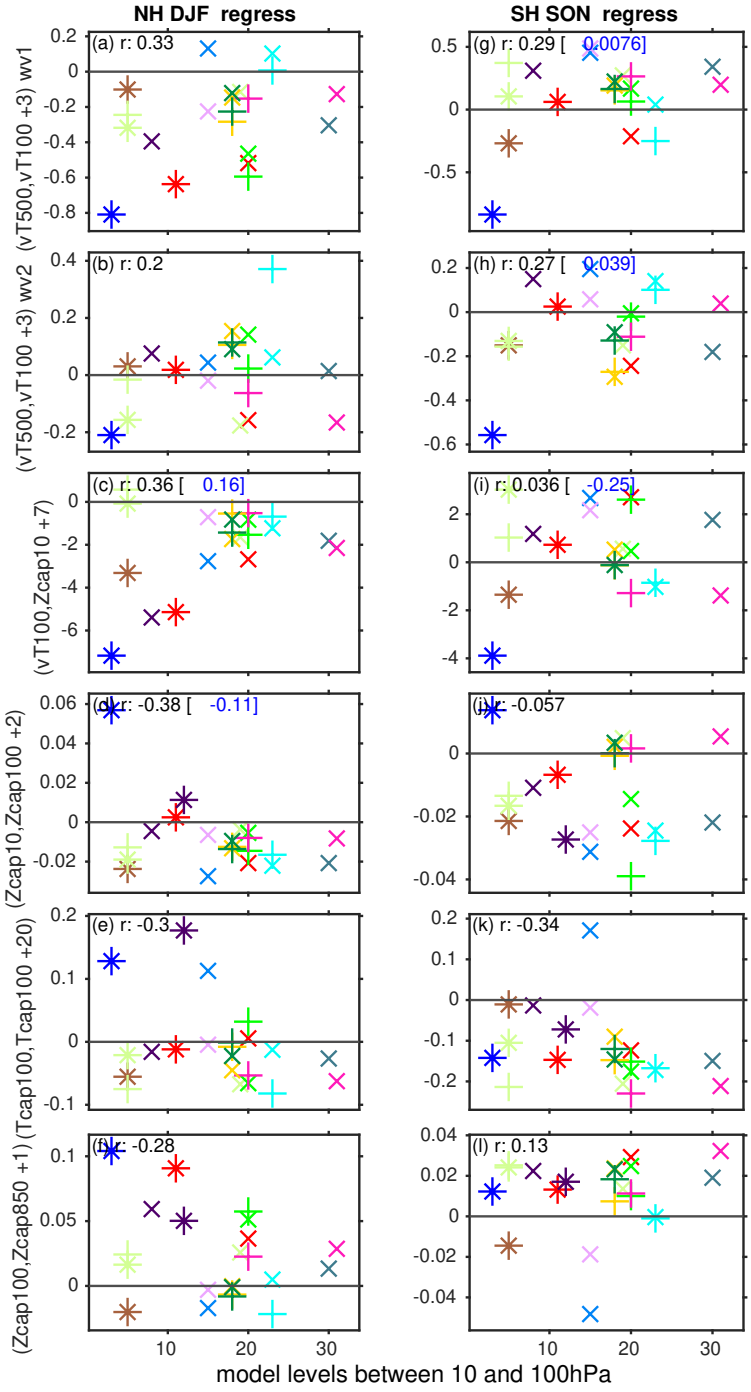

Figure S11. As in figure 5 in the main text but for number of model levels between 10 and 100hpa.

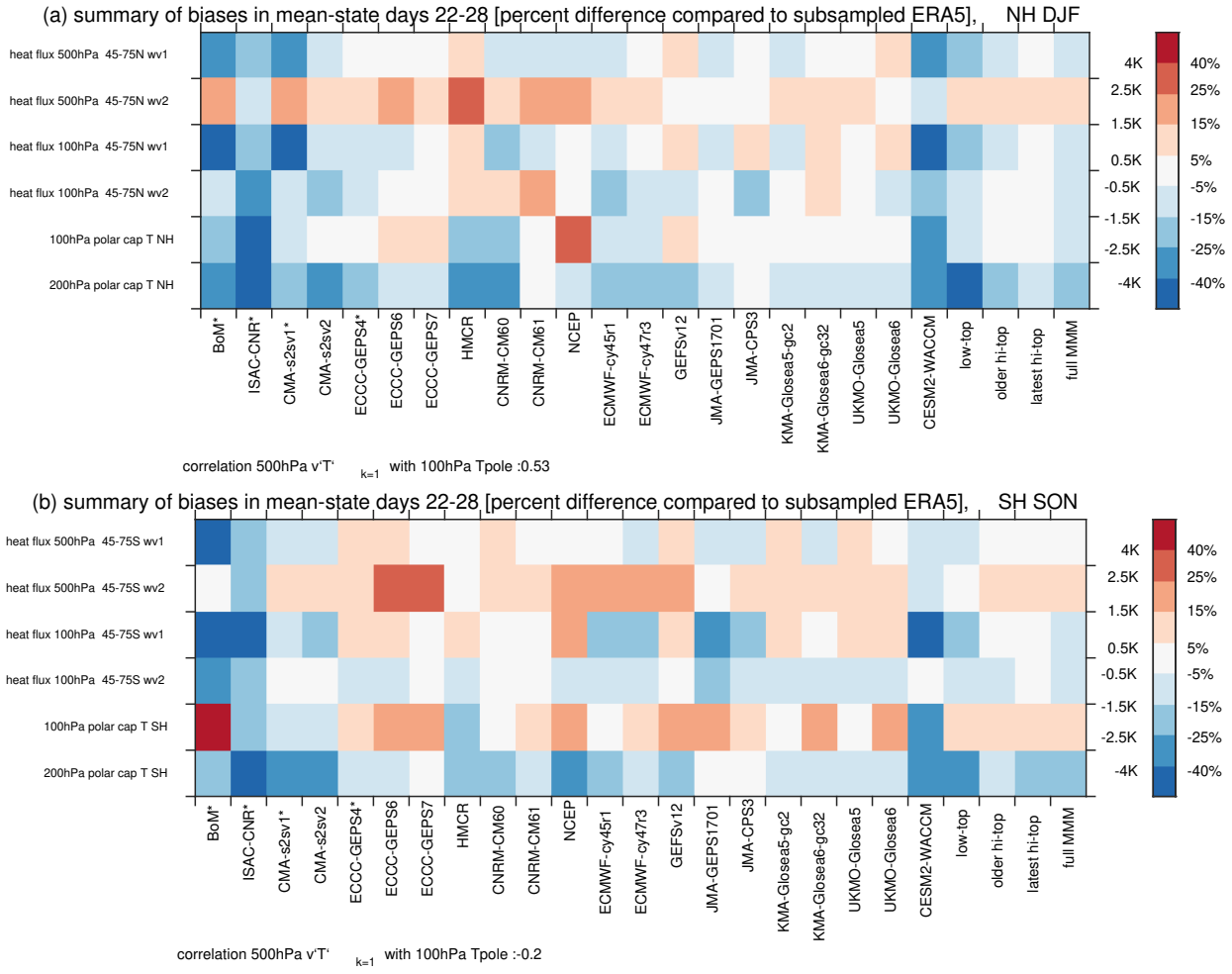

Figure S12. Mean bias of the various diagnostics in days 22-28. For each forecast system we compare to the corresponding period in ERA5, and then show the percent error (bias divided by ERA5 mean state) for heat flux and raw biases for temperature.