

Dear Dr. Rivière,

Thank you for pointing out that our replies to the last comments of referee 2 were missing. We apologize for this oversight. We address both points below.

Concerning the request for examples of maps of perturbations, we have added maps of the optimized initial perturbations in the Supplementary Information and referenced them in the revised manuscript.

Regarding the comparison with ERA5 in Figs. 4–5, we agree that the discussion was too brief in the previous version. We have expanded the text to comment more explicitly on the similarities and differences between ERA5 and the optimized experiments (lines 256-265). In particular, we now discuss the fact that EXP50 and EXP75 maintain higher temperatures and geopotential heights than ERA5 after the peak on 29 June. We clarify that this behavior results from the formulation of the loss function, which maximizes the time-integrated temperature over a 5-day target window rather than a single peak day, favouring solutions that sustain the blocking pattern beyond the peak.

We have also implemented your technical suggestions:

- identical color bars are now used in Figs. 4b and 5b, and in Figs. 4d and 5d;
- the geopotential height is now denoted by Z instead of (ϕ) throughout the manuscript.

Thank you again,

Tim Whittaker, Alejandro Di Luca