Reply to reviewer's comments #1 to revised manuscript

Summary

I thank the authors for considering all of my prior comments and making updates. I think the manuscript reads well. My only remaining comment is a request. In the limitation section (5.1), I think it would be useful to mention that the response of the storm track in your integrations are weaker than those found in the models, and add some comment about the likelihood that a reason for this is the lack of a land-sea contrast and upstream mountain range. This idea links back to the Brayshaw et al work and the fact that the ocean SST gradient is but one of many important factors for the storm track in the North Atlantic. The reason I am so particular about this is because I have long dealt with some scientists who insist on the outsized role of the Gulf Stream. As this manuscript currently stands, they will read it and see no subtly. But if you have these caveats here, then perhaps that response will be somewhat different.

Reply: We agree with your comment, and it is useful to highlight in the limitation section that the strength and orientation of the negative and positive SST anomaly mimics the combined effect of land-sea contrast and Gulf Stream front and not only the latter. Now, this is mentioned only in the data & methods section. Our setup is not considering the influence of an upstream mountain range (i.e., Rocky Mountains) and an interactive ocean. The latter is known to damp the storm track response, which could explain why the EKE response in our simulation is twice as large compared to that seen in CMIP models (Fig. 2). We added the following remark to the limitation section:

It should be noted that the zonal asymmetry created by the rotated SST anomalies unlikely reflects the influence of the Gulf Stream front alone but rather the combined land-sea contrast including the Gulf Stream SST front. The lack of an upstream mountain range and an interactive ocean could be one reason for the different magnitude of EKE change in our idealized model compared to the CMIP models.