Co-editor decision: Publish subject to minor revisions (review by editor)

by Irina Rudeva

Thank you for revising the manuscript and adding additional comments on the processes of cut-off low deepening and intensification.

I agree with the review that it would be good to understand the eddy feedback between the surface and the upper levels and I hope that this can be done in future work.

I have a question on the linear relationship between the STJ strength and shallow COL's intensity (Fig.4d). You mention that that relationship may be due to the strong seasonality in both the STJ and COL's strength (Fig.2c,d). Can you clarify this point by looking at anomalies in jet/COL's strength from climatological values for each month instead of the absolute values? I am looking forward to seeing this result before I accept the manuscript for publication in WCD. Thank you

Dear Editor

Thank you for your question regarding the relationship between subtropical jet strength and shallow COL intensity. We appreciate your suggestion to explore this further.

We have produced a new plot (which was included as Fig. S3 in supplementary material) to show the relationship between anomalies in subtropical jet strength and shallow/deep COL intensity. However, the linear relationship observed in Figure 4d using absolute values is not as evident when considering anomalies (refer to Fig. S3).

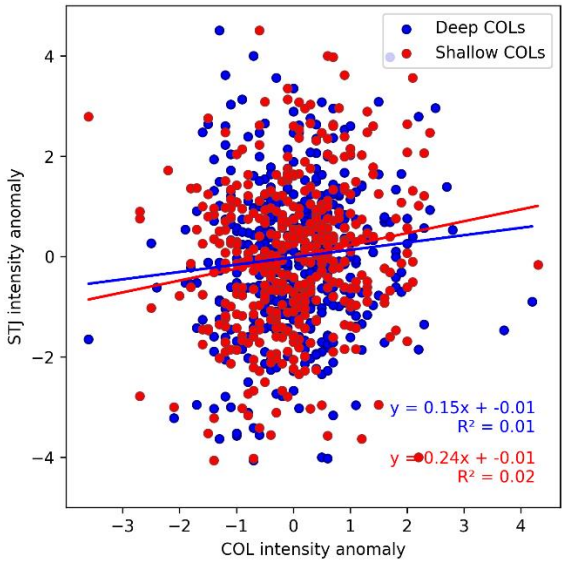

Figure S3: Scatter plot indicating the relationship between monthly anomalies of COL intensity and subtropical jet intensity. Deep and shallow COLs are depicted by blue and red colors, respectively. Unit is in $m.s^{-1}$ for jet intensity and 10^{-5} s^{-1} for COL intensity (scaled by -1).

One possible explanation, as you pointed out, is that the seasonal differences in the subtropical jet strength is more pronounced than the monthly variations from the climatological means, as

seen in Fig. S4. This suggests that the seasonal cycle might be a stronger influence on these variables than the month-to-month anomalies.

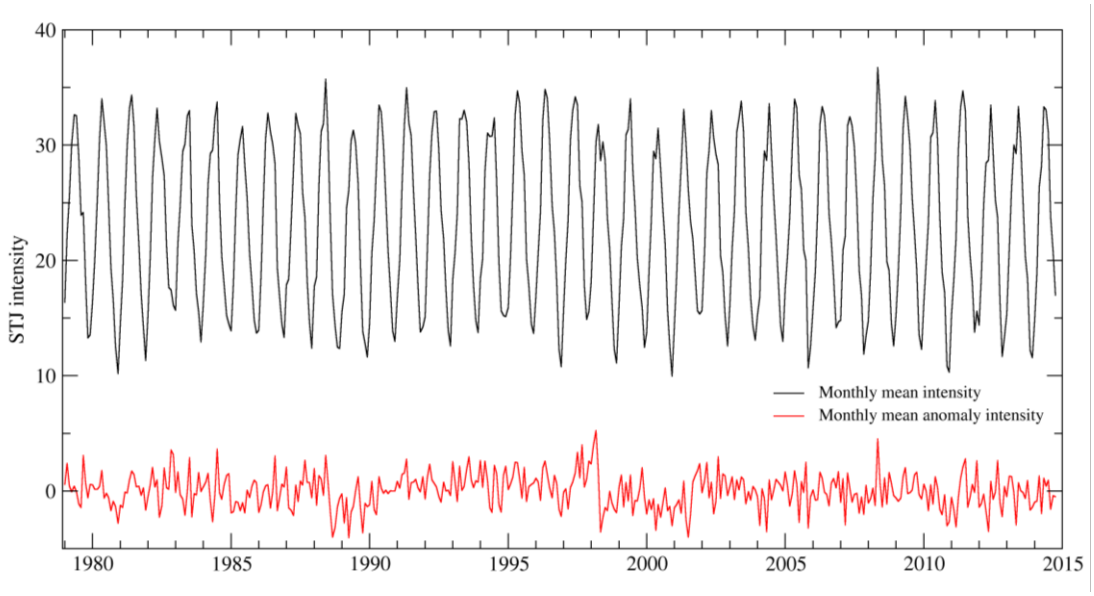

Figure S4: Monthly variations of mean intensity (black lines) and mean anomaly intensity (red line) of subtropical jet for the period from 1979 to 2014. Unit is $m.s^{-1}$.

We believe that using the absolute values provides a clearer representation of the relationship between the subtropical jet strength and COL intensity in our study. We have incorporated these new figures into the supplementary material and briefly discussed them in the manuscript (please see Section 3.4).

We appreciate your consideration and understanding in this matter. If you have any further questions or require additional clarification, please do not hesitate to let us know.

We look forward to your response.

Sincerely

Authors