

Interactive comment on “The tropical Atlantic surface wind divergence belt and its effect on clouds” by Y. Tubul et al.

Anonymous Referee #2

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The authors describe a region of significant surface wind divergence between the warm and cool SST region in the equatorial Atlantic that has implications to distinct cloud properties during the boreal summer months, which should be considered as a separate entity for understanding the cloud processes and associated transitions. The findings from the observations are interesting and very well linked to the recent hypotheses proposed by various other researchers. As low level cloud representations in climate models are still intricate, the findings from this study will certainly shed light for improvements. However, there are a few grammar revisions, but minor, that can be taken care of before publication.

Abstract: Refer "southern Hadley cell" as the "southern branch of the Hadley cell in the Atlantic" - this way is referred in many places and it will be good if mentioned with

C695

better clarity for the readers.

"Our findings" rephrase as "The findings will help to understand the link...."

Introduction:

Line 66: Remove: "and dictates the location" Line 69: Remove : "apparently mostly" and rephrase it as "seen" Line 72: Remove: "suggest" - Rephrase it as "propose" Line 73: Again mention it as "southern branch of the Atlantic Hadley cell" or you can abbreviate it. Line 79: Remove "reviewed", just add "e.g.,"

Line 125: it should be "during the early boreal summer months" Line 131: Replace "have shown this coupling" by "corroborate this coupling from satellite observations" Line 150: Replace "cloudless" by "cloud-free". Lines 151-153: How about the turbulence mechanisms associated with the low-level cloud sustenance? you may need to add this ingredient too. Line 194: This is not vorticity equation per say. Remove the mention of it. Line 223: Strong convergence "not only" dominates.....

Please remove the color specifications from the text, it is very clear in the figures. Line 254: It should be "This is when high values of SWD appeared...." Line 258: It should be "meridional extent" and not "meridional cover" Line 262: Rephrase as "Clear correlations are evident between" Line 297: Rephrase as "Zooming in over the SWD region" Line 349: Rephrase as "The equatorial Atlantic SWD belt which spans over the central Atlantic between.."

Finishing line: Consider a better sentence at the end how this study may help to improve the low-level cloud representation and about the implications of this study in the improvement.

Interactive comment on Earth Syst. Dynam. Discuss., 6, 1557, 2015.

C696