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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characteristics of Monsoon inversions over Arabian Sea observed by satellite sounder and reanalysis data sets" *by* Sanjeev Dwivedi et al.

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General comments

This is a well-written and thorough study of the characteristics of monsoon inversions over the Arabian Sea. The authors make use of a range of remote-sensing measurements validated against available in situ observations and some reanalysis products. I have only a few minor corrections/clarifications before this paper is suitable for publication.

Reply: First of all we wish to thank the reviewer for going through the manuscript

and appreciating the actual content of the work. We have taken care all the comments/suggestions made by the three reviwers.

Specific comments

1) Page 35288 lines 14-15: "...somewhat varying strengths..." - and heights, at least of the inversion base, though the top height is quite consistent.

Reply:We are modifying this sentence as suggested by referee as –A clear MI in the satellite profile and ERA-Interim can be noticed though with somewhat varying strengths and base of inversion height. However, the top height of inversion is consistent.

2) Page 35290 lines 4-11: You should also mention the low level vertical wind shear which is prevalent in this region, particularly near the coast.

Reply: We mentioned low level vertical wind shear as suggested in the revised manuscript.

3) Fig. 3 - is this a percentage of DAYS with a MI present or a percentage of the profiles measured that had a MI? Please specify in the figure caption.

Reply: Yes, in the figure 3, the MIs shown are as percentage of Days. Caption is modified to:. . .. .(d) August and . . .. . .Percentage occurrence of MI days (e) July . . ..

4) Page 35294 lines 8-9: How do you reach the conclusion that IASI "performs better" than AIRS? I can't see how you judge this from the information you have provided. Please clarify.

Reply:We are modifying a few sentences in the manuscript (Page 35294, lines 5 - 9) as follows:A distinct contrast between WAS and EAS with higher PO in the former region can be noticed.When we consider EAS as a place to detect MI, AIRS observed always higher PO than IASI and almost nothing is noticed in ERA Interim. Thus, we may infer

that IASI is performing better than AIRS for detecting MI (as ERA is in better agreement with IASI rather than with AIRS).

5) Page 35293 line 11: "...less value of..." replace with "a lower value of"

Reply: Complied with in the text.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 35277, 2015.